THE DEVELOPMENT OF A HIGH SPEED SOLUTION FOR THE EVALUATION OF TRACK STRUCTURE MONTE CARLO ELECTRON TRANSPORT PROBLEMS USING FIELD PROGRAMMABLE GATE ARRAYS

A Dissertation

by

ALEXANDER SAMUEL PASCIAK

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

December 2007

Major Subject: Nuclear Engineering

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ABSTRACT

The Development of a High Speed Solution for the Evaluation of Track Structure Monte Carlo Electron Transport Problems using Field Programmable Gate Arrays.

(December 2007)

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There are two principal techniques for performing Monte Carlo electron transport computations. The first, and least common, is the full track-structure method. This method individually models all physical electron interactions including elastic scatter, electron impact ionization, radiative losses and excitations. However, because of the near infinite size of electron interaction cross-sections and highly anisotropic scattering behavior, this method requires an enormous amount of computation time. Alternatively, the Condensed History (CH) method for electron transport lumps the average effects of multiple energy loss and scattering events into one single pseudo-event, or step. Because of this approximation, the CH method can be orders of magnitude faster than the track-structure method. While the CH method is reasonably accurate in many situations, it can be inaccurate for simulations involving microscopic site sizes such as those often found in radiation biology. For radiation biology and other microdosimetry applications, a computational device called a Field Programmable Gate Array (FPGA) is capable of executing track-structure Monte Carlo electron transport simulations as fast as, or faster than a standard computer performing transport via the CH method—and, it does so with the additional accuracy and level of detail provided by the track-structure method. In this dissertation, data from FPGA based track-structure electron transport computations are presented for five test cases, ranging in complexity from simple slab-style geometries to radiation biology applications involving electrons incident on endosteal bone surface cells. Even for the most complex test case presented, an FPGA is capable of evaluating track-structure electron transport problems more than 500 times faster than a standard

computer can perform the same track-structure simulation, and with comparable accuracy.

ACKNOWLEDGEMENTS

I would like to thank my graduate advisor, Dr. John Ford, for his invaluable guidance and encouragement throughout the duration of this project. Without his continuous support, this research could never have been completed. I would also like to thank Dr. W. Daniel Reece for his financial support of this project, as well as other Texas A&M Nuclear Engineering faculty for their help including, but not limited to: Dr. L. A. Braby, Dr. John W. Poston, Sr. and Dr. Jim E. Morel.

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CHAPTER I

INTRODUCTION

There are two principle techniques for performing Monte Carlo electron transport computations. The first, and least common, is the full track-structure simulation (or analog) method. This method individually models all physical electron interactions including elastic scatter, electron impact ionization, radiative losses and excitations. Individual Monte Carlo modeling of each interaction is not uncommon for other radiations, such as photons. The difference is that a 1 MeV photon may have 10 to 15 interactions before it is absorbed, where a 1 MeV electron will undergo 10^6 or more interactions while slowing down. Because the computer time required for the simulation of this many interactions per electron history is significant, the second method, i.e., the Condensed History (CH) method for electron transport is almost always used. The CH method lumps the average effects of multiple energy loss and scattering events into one single event, or step. Instead of modeling individual energy loss events from electron impact ionization or excitations, the stopping power is generally applied along the path length of the step. Furthermore, multiple individual scattering events from either elastic scatter, or angular deflections caused by ionizations and excitations are modeled as one single change in direction at the end of the step. Depending on the algorithm used and the step size selected, a single step can include the effects from one hundred or more individual elastic scattering events and even more ionizations and excitations.

Berger (*1*) states that the CH method is only defined to be accurate in an infinite, homogeneous medium. However, if the step size is much less than the distance to the nearest material interface, the CH method will produce accurate results. When an electron approaches a material interface, simulation accuracy can only be maintained if the step size is reduced significantly or the code switches to an analog

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This dissertation follows the style of *Radiation Research*.

simulation for boundary crossing. If the dose near a material interface is required to be accurate, full track-structure simulation is the best solution.

For the determination of energy or charge deposition to the microscopic targets considered in radiation biology, a full track-structure simulation would be preferable to the CH method. The small site sizes of interest in radiation biology do not meet the infinite homogeneous medium requirement of the CH method. Furthermore, the information that can be extracted from a traditional CH code which applies a stopping power over fixed path length to simulate energy loss does not have an acceptable level of detail for the determination of possible radiation damage to cell nuclei and/or DNA.

There are many advantages to using track-structure Monte Carlo electron transport in microdosimetry and radiation biology applications. The problem has always been the enormous computer time required. In several previous works (*2-4*), it has been shown that a computational device called a Field Programmable Gate Array (FPGA) is capable of dramatically reducing the time it takes to perform Monte Carlo photon transport simulations. However, critics of these studies complained that FPGA technology may be too limited to handle simulations involving particles with more complex interaction behavior and/or particles incident on more complex geometries. By applying FPGA technology to the evaluation of full track-structure Monte Carlo electron transport, we will show that it is capable of efficiently performing Monte Carlo transport of particles with nearly infinite cross sections and highly-anisotropic scattering distributions. The speed increase that FPGA technology can provide to track-structure electron transport will make it a useable technique for the evaluation of highly detailed simulations in radiation biology and microdosimetry.

CHAPTER II

FPGA BACKGROUND

A Field Programmable Gate Array (FPGA) is an integrated circuit composed of an array of small, reprogrammable, logic blocks called look-up-tables (LUTs). Each logic block contains a memory element capable of imitating a variety of combinatorial math and logic functions, registers for clocked data storage, and multiplexers to control signal routing inside the logic block and to other logic blocks. By properly combining and programming the many logic blocks in the array, complex algorithms may be evaluated. A large FPGA has more than 100,000 of these reprogrammable logic blocks, several hundred dedicated multiplier blocks, a large amount of onboard data storage elements, and the capability of multi tera-OPS (operations per second) performance. Figure 2.1 shows part of the internal structure of a typical FPGA. FPGAs can be programmed to execute almost any algorithm, but they are not programmed from a standard computer code. Instead, complete hardware designs (generally at the gate level) are used as logic patterns to program the FPGA. When the FPGA is programmed to perform a computation, the LUTs adjust their functions in order to match the specified hardware design. Modern FPGAs can be programmed in a fraction of a second, and can be reprogrammed an unlimited number of times. Hardware designs to program an FPGA can be created with ease by someone with a few months of experience with a hardware definition language, of which there are two main types: Verilog (*5*) and VHDL (*6*).

A custom hardware design for a given computation has the capacity to be much more efficient than a software program performing an equivalent computation. In addition, a hardware design has the capacity to take advantage of the high work rate (work done per clock cycle) possible with an FPGA. Design efficiency and the ability to complete a very large amount of work per clock cycle are two of the reasons that an FPGA is capable of performing computations at a much higher rate than a standard computer. An FPGA is not a standalone unit, and cannot function effectively without

the interface of a host computer. Usually, the simplest way to make use of an FPGA's increased computational performance is to interface it with a regular personal computer. Many FPGAs can be purchased pre-mounted on a computer interface board designed to allow an FPGA to communicate with a standard computer the same way that a network or graphics card might. Programming the FPGA and running simulation designs on the FPGA can be completely controlled from the host PC, allowing researchers to easily harness the speed benefits of FPGA based reconfigurable computing.

Using FPGAs to accelerate algorithms is not a new technique. For years people have been using them to accelerate many simple algorithms from encryption (*7*) to data compression (*8*). However, FPGAs have only recently reached large enough capacities to allow for the execution of algorithms as complex as Monte Carlo radiation transport. More information on FPGAs can be found in (*9-12*).

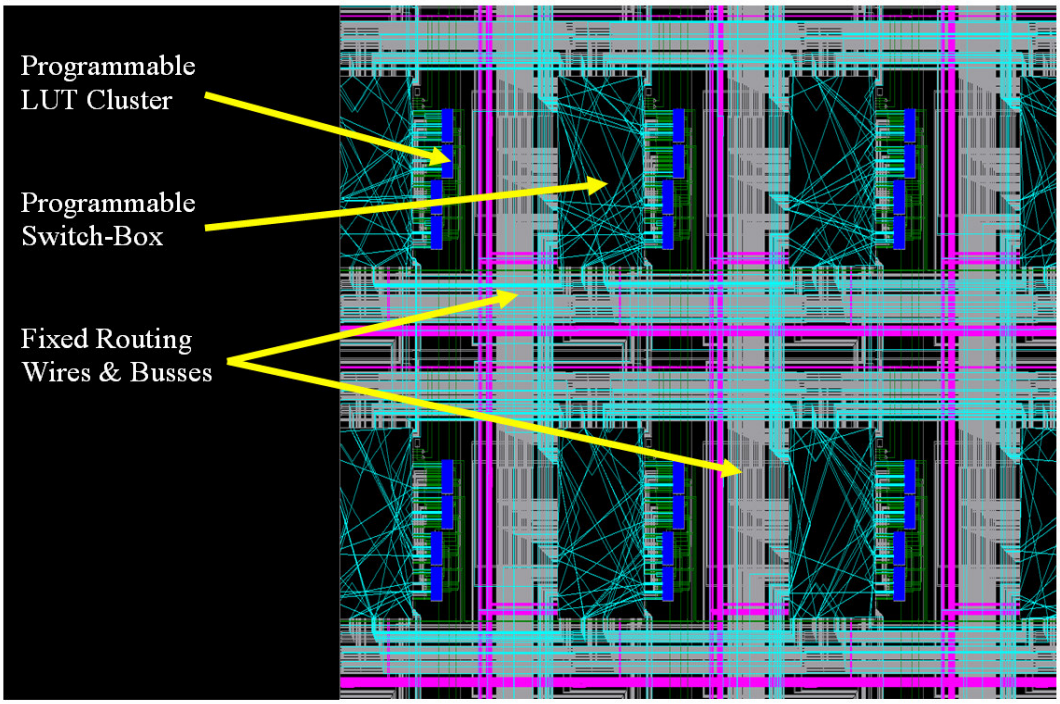

Fig. 2.1. A schematic showing the internals of an FPGA.

CHAPTER III

METHODS FOR SIMULATION OF ELASTIC SCATTER*

Introduction

When an electron transport code utilizes single-event elastic scatter in place of the multiple-scattering angular deflection algorithms used by the CH method, it is no longer subject to the majority of the limitations of the CH method—even if an integrated energy-loss scheme is still used; therefore, it is necessary that both integrated and differential forms of the elastic scattering cross-sections implemented on the FPGA are very accurate. Because the very large cross-sections associated with electron interactions require the simulation of thousands of elastic scattering events per electron history, it is also important that a differential elastic scattering cross-section can be sampled efficiently. For this reason, it is common to use the screened Rutherford cross-section to describe elastic scattering events since its differential form is a directly invertible analytical formula from which the polar scattering angle can be efficiently sampled. The typical analytical form of the differential screened Rutherford cross-section is given in Equation 3.1 below by Nigam (*13*):

$$\frac{\partial \sigma^{el}}{\partial \Omega} = \frac{e^4 Z(Z+1)}{m^2 v^4 \left(1-\cos\vartheta+2\alpha\right)^2} \tag{3.1}$$

where m and v are the electron mass and velocity, e is the electron charge, Z is the atomic number of the target, σ is the cross-section, Ω is the differential solid scattering

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* Reprinted in part with permission from "An Accurate Approximation for the Highly Efficient Sampling of Polar Scattering Angle of Electron Elastic Single-Scattering Events" by A. S. Pasciak and J. R. Ford, 2006. *Scanning*, **28**, 333-341, Copyright 2006 by John Wiley and Sons.

angle and ϑ is the polar scattering angle. The screening parameter α can be computed using a variety of atomic potentials, but is shown in Equation 3.2 from calculations using a Thomas-Fermi potential (*14*).

$$\alpha = \frac{1}{4}\left(4.67E^{-1/2}Z^{1/3}\right)^2 \tag{3.2}$$

In Equation 3.2, *E* is the incident electron energy in eV. Finally, Equation 3.3 shows the integrated form of Equation 3.1, representing the total elastic scattering cross-section.

$$\sigma^{el} = \frac{\pi e^4 Z(Z+1)}{\alpha(\alpha+1)m^2v^4} \tag{3.3}$$

As mentioned earlier, the differential screened Rutherford scattering cross-section can be directly inverted for efficient sampling of the polar scattering angle ϑ. Equation 3.4 describes the efficient method for sampling the polar scattering angle, where ξ is a uniformly distributed random number between 0 and 1 (*15*).

$$\cos(\vartheta) = 1 - \left[\frac{2\alpha\xi}{1+\alpha-\xi}\right] \tag{3.4}$$

A Monte Carlo code utilizing the screened Rutherford elastic scattering cross-section is capable of generating accurate spatial dose deposition profiles for low Z elements at high incident electron energies. However, as the Z of the target increases and/or the incident

electron energy decreases, the error associated with the screened Rutherford cross-section becomes significant.

Alternatively, the partial wave expansion method (PWEM) can be used to calculate more precisely the differential and total elastic scattering cross-sections based on theoretical atomic potentials. Unfortunately, sampling the polar scattering angle from differential cross-section data obtained from PWEM calculations is typically a somewhat slower and more involved process than sampling the screened Rutherford cross-section, which is done effectively using the very simple relationship in Equation 3.4. A variety of PWEM computations have been performed over the past 30 years to obtain differential cross-section data for select elements using several atomic potential models—with some of the most frequently cited being Reimer and Lodding (*16*), Czyzewski et al. (*17*), and Jablonski et al. (*18*); see Jablonski et al. for a more complete list of published PWEM calculations using selected atomic potential models, as well as a more detailed explanation of the physics and mathematics behind these methods.

For FPGA based implementation, it would be convenient to have an accurate analytical formula (more accurate, but similar in form to the screened Rutherford cross-section) since memory resources are limited and storing differential data from PWEM calculations using onboard FPGA blockram would be difficult.

Early Work

Previously, there have been several attempts at using modifications to the differential Rutherford scattering cross-section in an effort to produce a computationally efficient sampling method that more closely reproduces differential data from PWEM calculations. Browning et al. (*19*) suggested combining the differential screened Rutherford scattering cross-section with a scattering distribution uniform in $\partial\sigma/\partial\Omega$ to reproduce the backscattering effects of high Z materials. Drouin et al. (*20*) used the following phenomenological extension to Equation 3.4:

$$\cos(\vartheta^{\beta}) = 1 - \left[\frac{2\alpha\xi^{*}}{1+\alpha-\xi^{*}} \right] \tag{3.5}$$

where β and α are fitting parameters which vary with energy and material and have been computed by using curve-fitting techniques to minimize the average correlation coefficient between their analytical solution and the PWEM calculations of Czyzewski et al (*17*). Drouin et al. supply fitting parameter values for Equation 5 for Z = 1 to 94 and in the energy range of 100 eV to 30,000 eV.

Both the techniques of Browning et al. and Drouin et al. present solutions for which the polar scattering angle of collision can be efficiently sampled. Also, both solutions are more representative of the shape of the differential elastic scattering cross-section resulting from PWEM calculations than are the screened Rutherford scattering cross-sections.

Moments Matching

Many of the previous attempts at creating invertible analytical functions rely on curve-fitting techniques to determine fitting coefficients for an analytical extension to either Equations 3.1 or 3.4. One problem with using curve-fitting to obtain coefficients to produce an analytical approximation to the exact DCS determined using PWEM calculations is that the moments aren't necessarily preserved. Preservation of DCS moments is extremely important for obtaining accurate spatial dose deposition profiles, especially for electron transport. Because the mean free path for elastic scattering events is so small, it is ensured that even in the case of transport through thin targets, enough elastic scattering events will occur that a small variation in the first moment of the DCS will produce inaccuracies in spatial energy deposition. The first moment, of course, is determined by Equation 3.6 when $N = 1$, and is commonly called the frequency mean.

$$mom_N = \frac{\int_0^{180^o} \vartheta^N \sin(\vartheta)\left[\frac{\partial \sigma_{elastic}}{\partial \Omega}\right]\partial\vartheta}{\int_0^{180^o} \sin(\vartheta)\left[\frac{\partial \sigma_{elastic}}{\partial \Omega}\right]\partial\vartheta} \tag{3.6}$$

where ϑ is the polar angle of collision. Preservation of higher order moments is also important since a single large angle scattering event can have a much more profound impact on spatial dose deposition than many small angle scattering events. The higher order moments weight the DCS, placing additional importance on the relatively rare high angle scattering events which are vital to obtaining accurate dose-deposition profiles during electron transport.

While curve-fitting is effective at reproducing the shape of the DCS, depending on the analytical equation used, it does not guarantee reproduction of the first moment, or higher order moments which are important to obtaining accurate dose deposition profiles. For this reason we have elected to use an analytical relationship to reproduce the exact moments of the DCS determined using PWEM calculations.

Method Description

In order to develop a numerical solution for fitting coefficients such that the moments are preserved, a reasonable analytical form was needed which would be capable of reproducing both forward scattering and backscattering peaks in the DCS for all elements and over all energy ranges. The following relationship was used:

$$\frac{\partial \sigma}{\partial \Omega} = \kappa\left\{\left[\frac{1}{(1+2\delta-\cos(\vartheta))^2}\right]+\left[\frac{A}{(1+2\Delta+((\pm 1)\cos(\vartheta)))^2}\right]\right\} \tag{3.7}$$

where δ, Δ, and *A* are tabulated fitting parameters varying with energy and material. κ scales the magnitude of the cross-section so that it produces the correct total cross-section when integrated, and the ± 1 operator represents a tabulated binary value dependent on energy and material. Equation 3.7 is a modified form of a relationship used by Porter et al. (*21*) to fit experimental data describing elastic scattering events in samples of simple atmospheric gas molecules.

The right hand side of Equation 3.7 allows for the representation of both the large angle scattering peaks and higher order moments of a DCS determined using PWEM calculations. Depending on energy and target material, the most significant large angle scattering peaks can sometimes drop below 90 degrees by a small amount. In this case, the ± 1 operator becomes negative allowing Equation 3.7 to represent a secondary scattering peak which is less than 90 degrees. Without this operator, Equation 3.7 can not correctly reproduce the most significant moments of a DCS determined using PWEM calculations for *all* energies and materials.

A solution for δ, Δ, A and the binary ± 1 operator can found such that Equation 3.7 matches three exact moments of a DCS determined from PWEM calculations. The denominator of Equation 3.6 can be determined exactly when Equation 3.7 is used for the analytical DCS function and the solution is given in Equation 3.8.

$$mom_0 = \left(\frac{1}{2\delta} - \frac{1}{2\delta + 2} + \frac{A}{2\Delta} - \frac{A}{2\Delta + 2} \right) \left(\frac{180}{\pi} \right) \tag{3.8}$$

While the first moment can be analytically determined as a function of δ, Δ, and *A*, higher order moments are not directly integrable using standard mathematical functions. Therefore, numerical methods were used to integrate the numerator of Equation 3.6 in combination with Equation 3.8 to determine any particular moment for a given δ, Δ, and A. Specifically, an adaptive Simpson quadrature algorithm (*22*) was used to perform the numerical integration. The numerical integrator was coupled with a multi-dimensional dogleg trust-region style numerical solver (*23*) to find a solution for the

coefficients in Equation 3.7 so that three given moments of the DCS from PWEM calculations were exactly reproduced.

Choice of the three moments to be exactly reproduced by Equation 3.7 does not have a significant impact on the coefficients computed; however, it is natural to ensure an exact match to the first moment in order to preserve the frequency mean of the distribution exactly. Preservation of the second moment emphasized the relatively rare, yet high impact large angle scattering events. Preservation of the third moment seems to be the obvious final choice; however, we found that matching of the moment where N = 1.5 in Equation 3.6 best allowed for preservation of medium angle scattering events. However, the differences in the δ, Δ, and A values computed for the exact reproduction of moments 1, 2 and 3 versus 1, 1.5 and 2 are quite small. Based on the PWEM calculations of Jablonski et al. (*24*), we have compiled data for δ, Δ, A, and the ± 1 operator such that the moments have been matched exactly for elements Z = 1 to 96 for energies from 300,000 eV down to 50 eV. This data available in Appendix A.

Data Description

The coefficients describing the DCS for each element are in the form of four energy-varying data vectors to describe δ, Δ, A, and the ± 1 operator. The δ parameter is a smooth, exponentially decaying curve in energy for all elements, and it can be fitted with a power series or sum of exponentials if desired. On the other hand, the Δ parameter is somewhat erratic in energy and cannot be easily fit. There is a logical reason for the seemingly erratic and asymptotic behavior that can be seen in Figure 3.1 for the Δ value computed for gold. As the right hand side of Equation 3.7 shifts from representing a secondary scattering peak which is greater than 90 degrees to representing one which is less than 90 degrees, the parameter Δ approaches infinity and becomes indeterminate. However, this is not a problem since a Δ value much larger than about 10 forces the right hand side of Equation 3.7 to behave like a uniform distribution in $\partial\sigma/\partial\Omega$, becoming independent of Δ. Figure 3.1 illustrates the correspondence

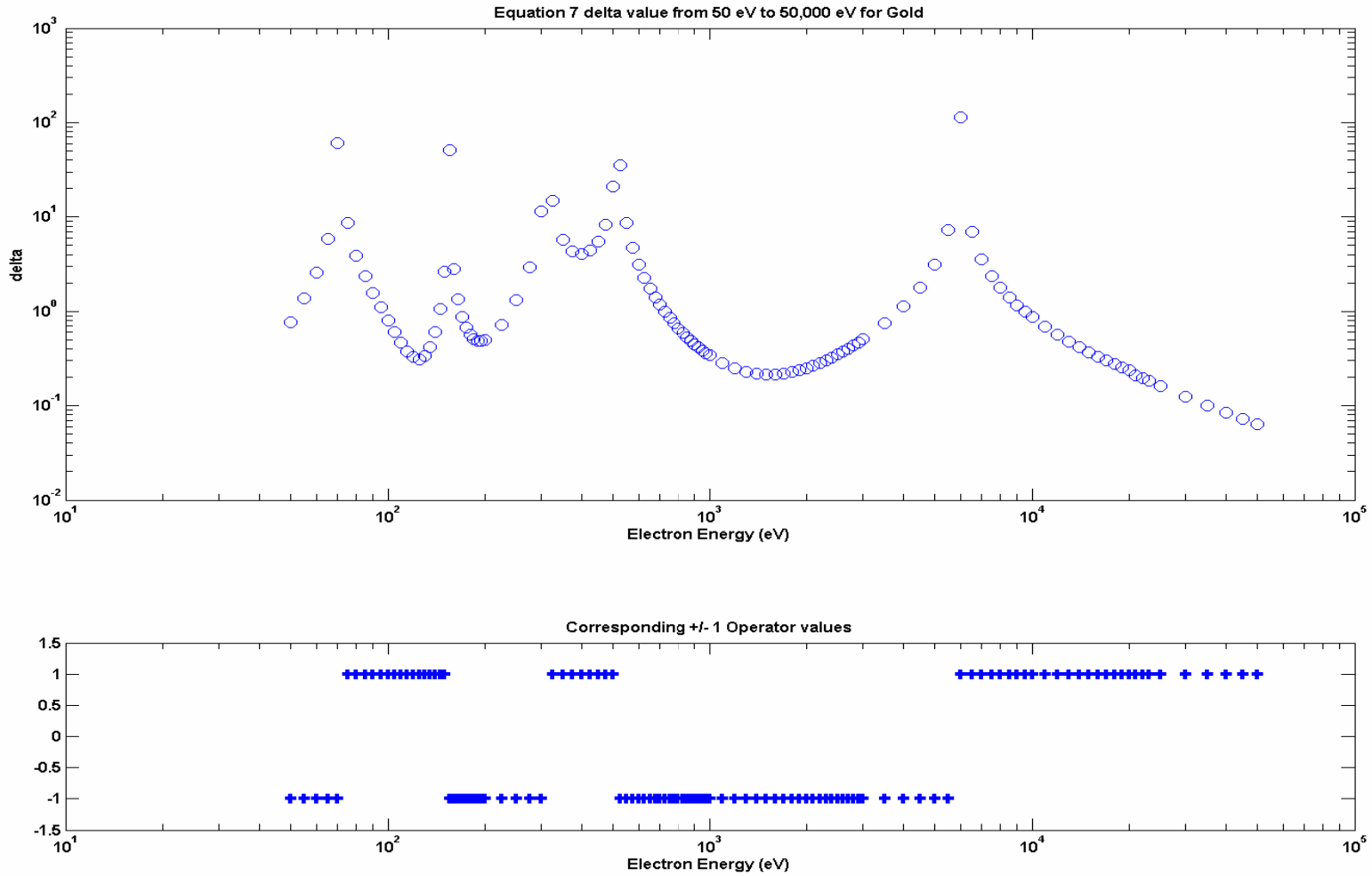


Fig. 3.1. A comparison of Equation 3.7 $\rhd$ value and its corresponding $\frac{1+}{-1}$ operator for gold from 50 eV to 50,000 eV.

between the asymptotes in Δ and the change in the value of the ± 1 operator. The A parameter varies with the same asymptotic behavior of Δ, however, the transformation in Equation 3.9 produces a value A^* which is used instead of A in the sampling process and is a smooth function in energy displaying no asymptotic behavior and can be easily fit.

$$A^* = \frac{(A/2\Delta) - (A/(2\Delta+2))}{(1/2\delta) - (1/(2\delta+2)) + (A/2\Delta) - (A/(2\Delta+2))} \tag{3.9}$$

Sampling

As claimed earlier, the polar angle of scattering can be sampled from Equation 3.7 with nearly the same efficiency as sampling from the differential screened Rutherford scattering cross-section using Equation 3.4. In the Monte Carlo simulations we have run using the methods described in this chapter, we have elected to simply store δ, Δ, A^*, and the ± 1 operator as 1-D arrays instead of attempting any curve-fitting. The δ and A^* coefficients can be stored as a single-precision floating point array with linear interpolation between discrete energy points. The Δ coefficient should be stored in a log/log or semi-log single precision manner with logarithmic interpolation between data points. Finally, the ± 1 operator can be stored in a Boolean operator array. Memory consumption by these four data arrays is insignificant and is certainly very small when compared with storing the differential PWEM data as a 2-dimensional array. Sampling uses two independent, uniformly distributed pseudorandom numbers: ξ_1 and ξ_2. The following pseudo-code describes the polar angle sampling process.

$$
\begin{aligned}
&\textit{if } (\xi_1 < A^*) \\
&\quad \cos(\vartheta) = \pm 1 \cdot \left(\left[\frac{2 \cdot \Delta \cdot \xi_2}{1 + \Delta - \xi_2} \right] - 1 \right) \\
&\textit{else} \\
&\quad \cos(\vartheta) = 1 - \left[\frac{2 \cdot \delta \cdot \xi_2}{1 + \delta - \xi_2} \right]
\end{aligned}
$$

Comparison with PWEM Calculations

The methods described in this chapter produce an effective approximation for the exact DCS computed using the PWEM for a wide range of energies and elements. The of moments-matching used not only preserves spatial dose deposition, but also preserves DCS shape without curve-fitting. This is depicted in Figure 3.2 for some materials at energies where the screened Rutherford differential scattering cross-section is wildly inaccurate. Even for the difficult case of gold, it can be seen that at energies as low as 1000 eV and 500 eV, the moments matching method that was used produces a curve which well preserves the shape of the DCS from the PWEM calculations. Even as low as 50 eV, the method produces an average value of the high Z backscattering peaks which become very prominent at this energy. Our methods are also capable of closely matching the shape of lower Z elements, as shown in Figure 3.2 for aluminum at an energy of 200 eV.

For all of the following Monte Carlo simulation results presented in this chapter, simulations were run varying *only* the DCS used to sample the polar angle of an elastic scattering event. The data describing the total elastic scattering cross-section is that of Jablonski et al. (*24*). A continuous energy loss was applied between each elastic scattering event, and was based on stopping power calculations from Berger (*25*). Simulation data presented in this chapter is only meant to show the accuracy of the moments matching method and has not been run on the FPGA.

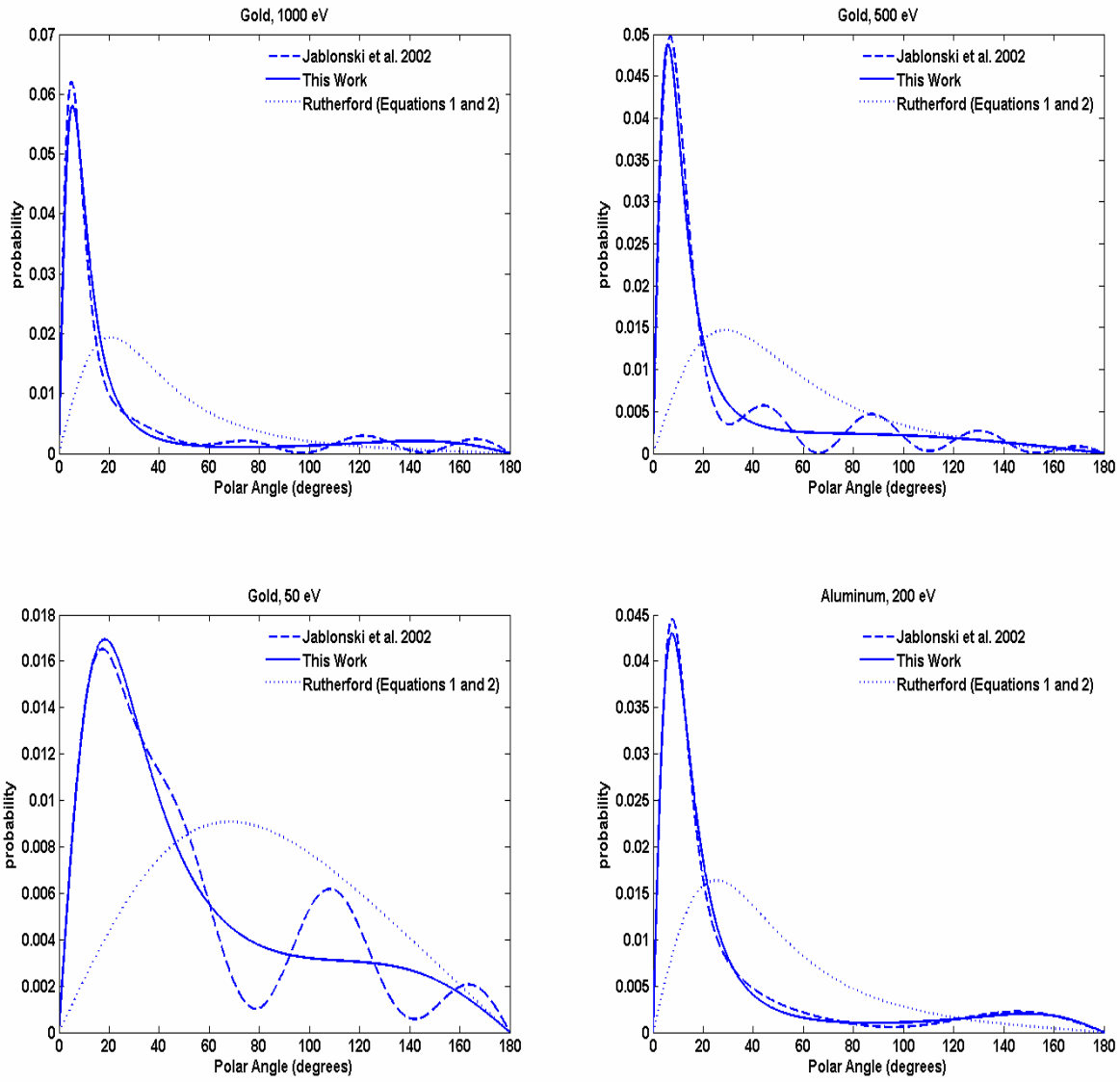


Fig. 3.2. A comparison between DCS ($\partial\sigma/\partial\vartheta$) calculated by Jablonski et al. and our methods for high and low Z elements at varying low energies. The screened Rutherford cross section (equations 3.1 and 3.2) has been included for perspective, although it is obviously very inaccurate at these energies.

Figure 3.3 shows the spatial dose deposition results for low energy Monte Carlo simulations run on two low Z targets. The exact DCS data from Jablonski et al. (*24*) is compared with our methods and the DCS as described by the screened Rutherford cross-section (Equations 3.1 and 3.2). A monodirectional, monoenergetic electron beam is initiated at X=0 in an infinite slab of target material for each simulation case. As can be seen in Figure 3.3, even at these low energies, the moments-matching method agrees very well with a simulation that samples the polar scattering angle directly from the calculations of Jablonski et al. (*24*). We find that the good agreement achieved by our method doesn't seem to be affected in any significant way for the lower energies presented for each target in Figure 3.3. This is particularly notable since the screened Rutherford cross-section is known to develop greater uncertainty with decreasing energy, which can also be seen in Figure 3.3.

Figure 3.4 shows spatial dose deposition results from a Monte Carlo simulation for low energy electrons incident on two high Z targets. Again, it is clear that there is very good agreement between the methods described in this article and sampling directly from the DCS data computed by Jablonski et al. (*24*). By comparing the simulation results for gold at 500 eV and aluminum at 400 eV, it is apparent that for both targets the results match the exact distributions equally well, despite the fact that Z of the targets are extremely different. In fact, the excellent agreement achieved by the moments-matching methods seems to be consistent as the Z of the target material increases and as the incident electron energy decreases to only a few hundred eV.

Figure 3.5 shows data for a large number of independently run Monte Carlo simulations to find the backscattered fraction of a monodirectional electron beam incident on a vacuum/material interface for four different targets. There are 31 simulation energies presented for each target in the range from 100 eV to 50,000 eV. Individual simulations were run sampling the polar scattering angle in three different ways for comparison purposes for all four elements. 392 Monte Carlo simulations were performed to obtain the data in Figure 3.5 with 10,000 histories per simulation. Again, excellent agreement can be seen from the simulations run using our methods to describe

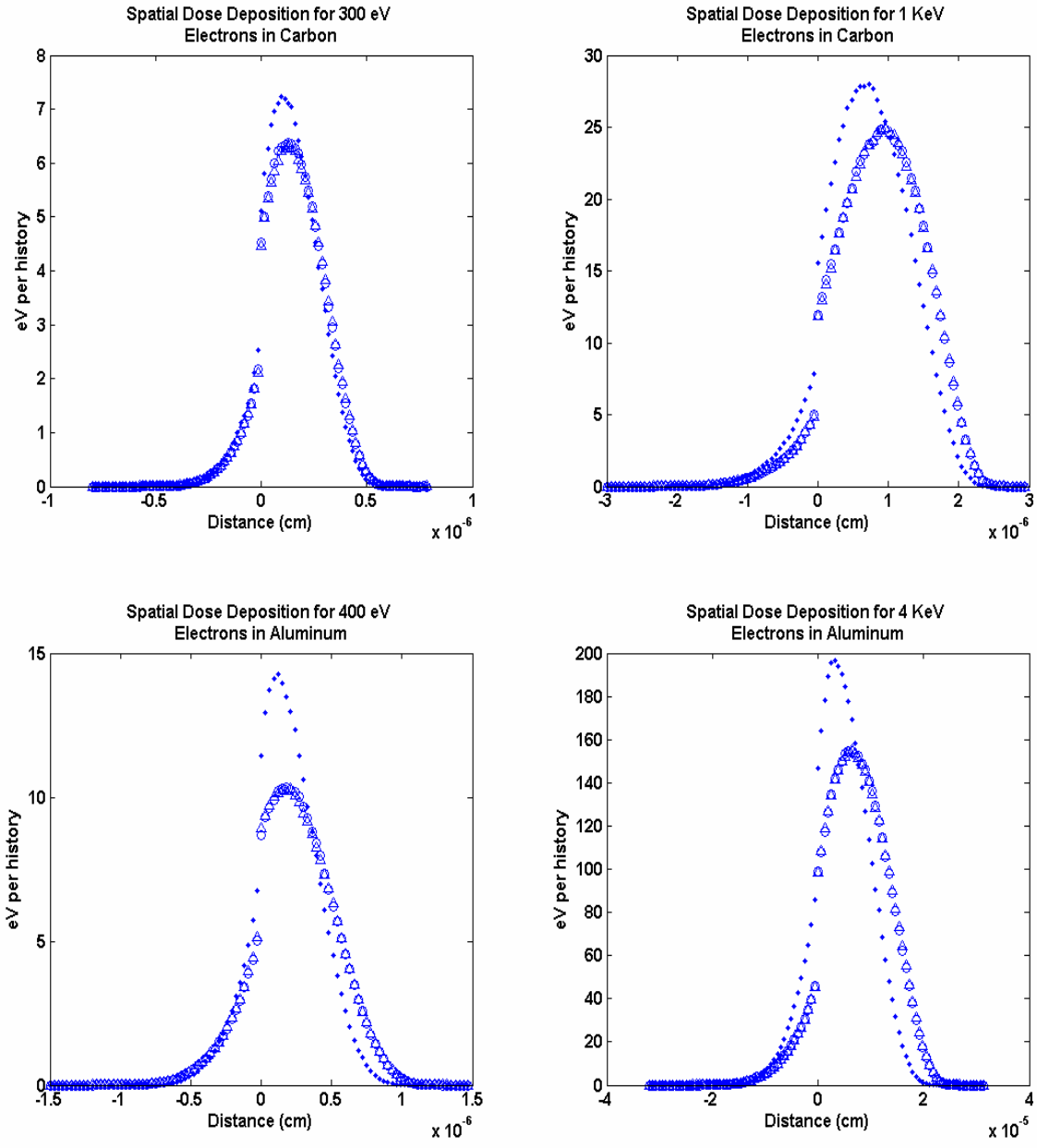
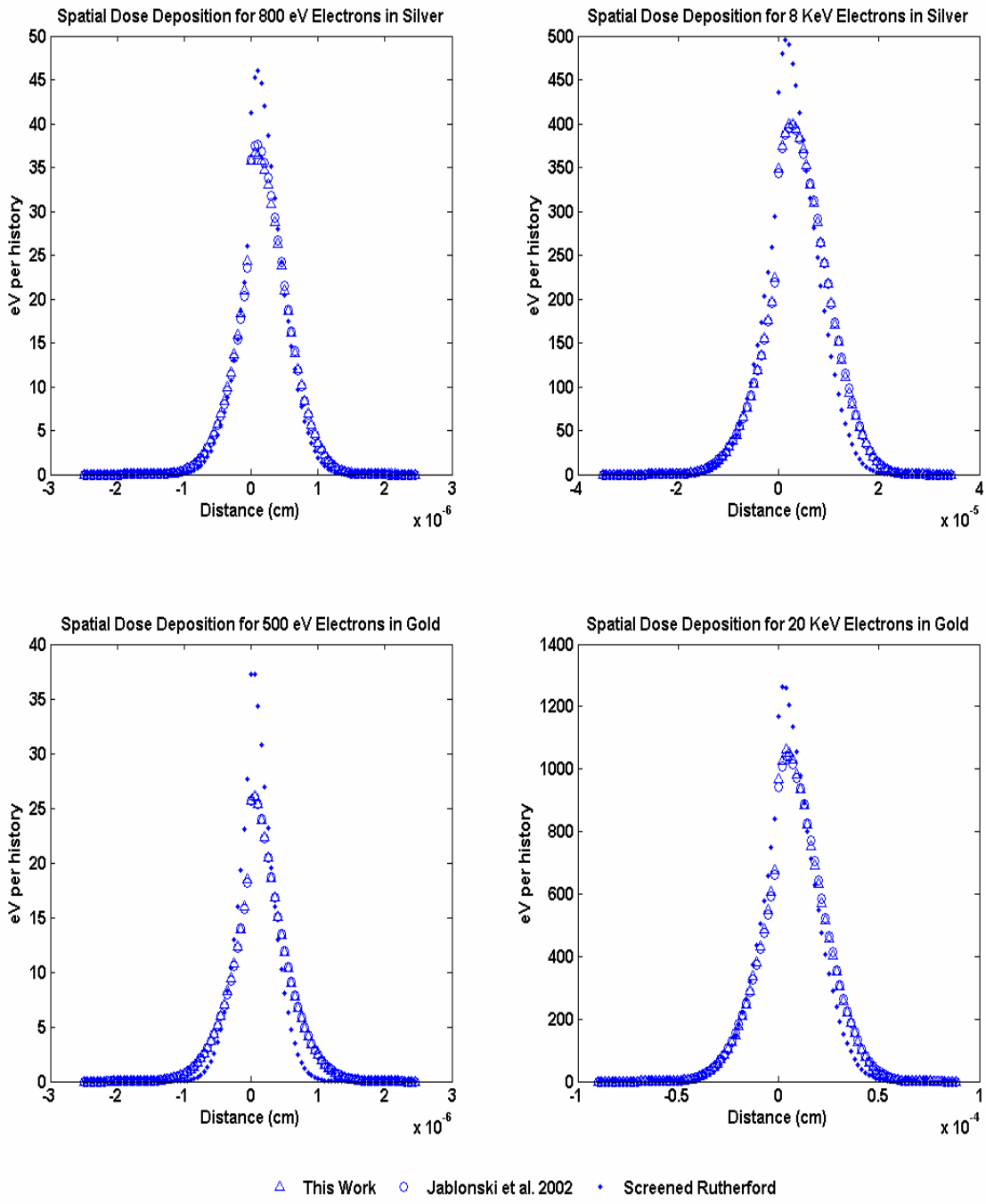


Fig. 3.3. A plot showing spatial dose distributions for independently run 100,000 history Monte Carlo simulations of electrons incident on two targets at low energies. Three different DCS are compared. Only the method for obtaining the polar scattering angle was altered for the simulations in each subplot. All simulations were run with a cutoff energy of 50 eV.



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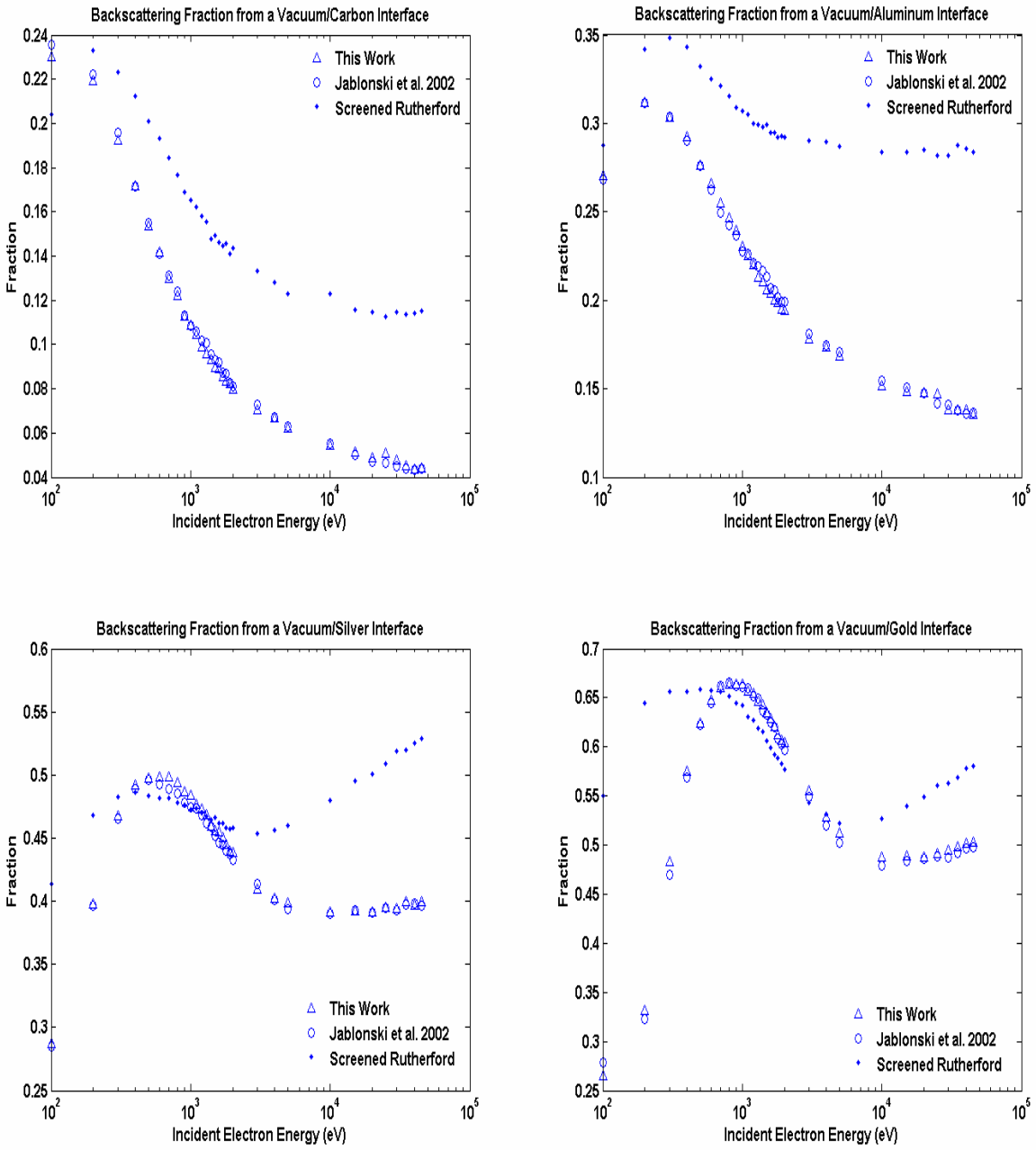

Fig. 3.5. An analysis of the backscattering fraction from electron beams of varying energies incident on a vacuum/material interface. Three different DCS are compared for each material. Only the method for obtaining the polar scattering angle was altered for the simulations in each subplot. It should be noted that due to the large number of simulation datum, each simulation was only run for 10,000 histories, and the relative error for any single data point is 1/sqrt(fraction*10000).

the DCS compared to the simulations which sample directly from the DCS data computed by Jablonski et al. (*24*). For these four elements of varying Z value, our methods maintain the backscattering ratio to a very close degree over a wide energy range.

Because of the sampling efficiency of our method, as well as its demonstrated accuracy, it should be well suited for implementation on an FPGA for track-structure Monte Carlo electron transport simulations. Since the retention of 2-dimensional differential cross section data will not be necessary using this method, a great deal of FPGA resources will be conserved when compared with storing the exact differential data from PWEM calculations.

The methods described in this chapter were originally published by Pasciak and Ford (*26*).

CHAPTER IV

METHODS FOR SIMULATION OF ELECTRON IMPACT IONIZATION

Introduction

For an electron impact ionization event, the energies of both the primary and secondary (delta-ray) electron are of high importance. Dose to biological tissues can be highly influenced by the delta-ray spectra, especially when microscopic targets are of interest. Furthermore, the emission angles of both the primary and secondary electrons depend greatly on the respective energies of each, which necessitates the need for accurate sampling of their energy spectra. There is often difficulty in sampling the delta-ray energy given an ionization event due to the *highly* anisotropic nature of these types of interactions. This difficulty is compounded by the very large integrated cross-sections associated with ionization and the large number of ionization events per history.

Efficient Sampling of the Differential Electron Impact Ionization Cross-Section

The simplest analytical form to describe the differential electron impact ionization cross section is the Rutherford cross section (*27*) shown in Equation 4.1 below.

$$\frac{\partial\sigma(W,T)}{\partial W} = \frac{4\pi a_0^2 Z^2 R^2}{T} \bullet \frac{1}{W^2} \tag{4.1}$$

Where T is the incident electron energy, W is the energy of the secondary electron, a_0 is the Bohr radius and R is the Rydberg energy. The Rutherford cross section assumes collision with a free electron and is nonrelativistic.

The differential Mott cross-section (*28*) for electron impact ionization is given in Equation 4.2 below.

$$\frac{\partial\sigma(W,T)}{\partial W}=\frac{4\pi a_0^2R^2}{T}\bullet\left\{\frac{1}{W^2}-\frac{1}{W(T-W)}+\frac{1}{(T-W)^2}\right\} \tag{4.2}$$

Where T is the incident electron energy, W is the energy of the secondary electron, a_0 is the Bohr radius and R is the Rydberg energy. This classical Mott cross section is different from the Rutherford cross-section in that it accounts for exchange. The modified Mott cross-section shown in Equation 4.3 has been adjusted to account for the binding energy of each molecular or atomic subshell, and is capable of approximating the differential cross-section on a per-subshell basis.

$$\frac{\partial\sigma(W,T)}{\partial W}=\frac{4\pi a_0^2R^2N}{T}\bullet\left\{\frac{1}{(W+B)^2}-\frac{1}{(W+B)(T-W)}+\frac{1}{(T-W)^2}\right\} \tag{4.3}$$

Where B is the binding energy and N is the occupancy number of a particular orbital. Neither Equations 4.2 or 4.3 include the contribution from soft collisions with small momentum transfers known as the dipole interaction. There are more complex analytical expressions (*29-31*) which consider the dipole interaction, but which also require more detailed characteristics of the subshell including the average orbital kinetic energy and the differential dipole oscillator-strengths for ionization. Since this extended information is usually not available for many molecular orbitals (often the binding energy is all that has been measured) we will focus on sampling the modified Mott cross-section to define the secondary electron spectrum in the remainder of this chapter.

The modified Mott cross-section shown in Equation 4.3 is difficult to sample efficiently in a Monte Carlo code. This difficulty is compounded many times in a track structure electron transport code because of the enormous magnitude of the total electron impact ionization cross-sections. In fact, it is difficult to sample Equation 4.3 efficiently using either standard inversion techniques or rejection techniques, partly because Equation 4.3 is not directly invertible. The typical solution would then be to use the

composition method (*32*) to perform a piecewise inversion of the function. The composition method, however, requires that the function can be represented as shown in Equation 4.4 below.

$$f(x) = A_1 f_1(x) + A_2 f_2(x) + ...A_n f_n(x) \tag{4.4}$$

Where A_1 through A_n sum to unity, and each $f(x)$ is a probability density function (PDF) normalized to unity. Unfortunately, this method cannot be applied to Equation 4.3 due to the negative value of the second term inside the curly brackets, since this term alone cannot represent a probability.

Alternatively, any function can be sampled using the rejection technique (*32*). However, a basic implementation of the rejection method would lead to poor acceptance efficiency because of the highly peaked nature of the Mott cross-section as depicted in Figure 4.1. Excellent rejection efficiency can be attained using a combined rejection-composition method.

The method for the highly efficient sampling of the differential Mott cross-section described in this chapter starts with the composition method inversion of the two terms shown in Equation 4.5 below. Typically the Mott cross-section (or any differential electron impact ionization formula) is sampled only in the secondary electron energy range $W = 0$ to $W = (T\text{-}B)/2$. This is done because the secondary electron is indistinguishable from the primary electron and is simply defined as the electron with the least energy after the ionization event. However, the inversion of the two terms in Equation 4.5 is far simpler if it is done in the range $W = 0$ to $W = T\text{-}B$.

$$\frac{1}{(W+B)^2} + \frac{1}{(T-W)^2} \tag{4.5}$$

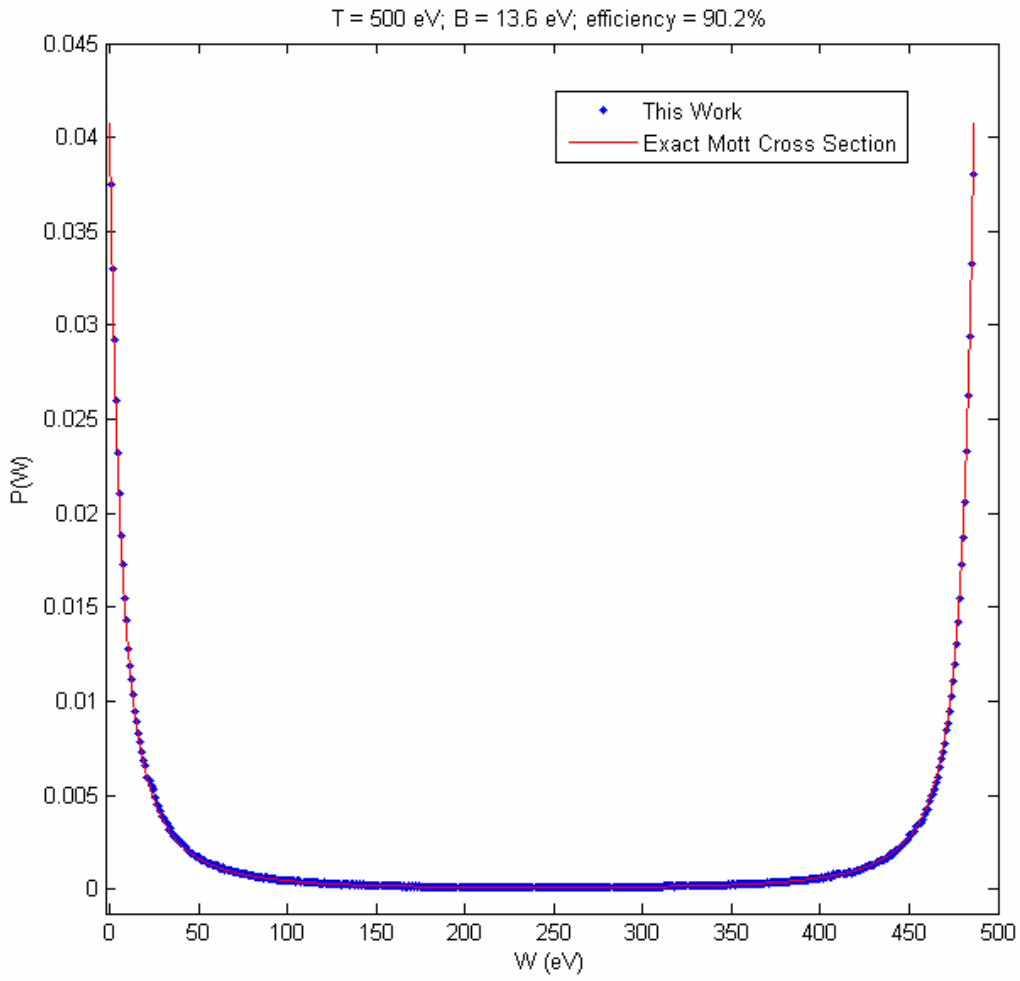

Fig. 4.1. A plot of the differential Mott cross-section with an incident electron energy of 500 eV. Comparison of exact cross section with a 10,000 history run of the inversion method described in this work. For electron impact ionization on the K-shell of hydrogen.

The following pseudo-code describes the sampling of Equation 4.5. Note that because we have elected to invert in the range $W = 0$ to $W = T\text{-}B$, both functions below are identical in form and only differ in the placement of the T and B constants. This is specifically useful for a FPGA based implementation, the ultimate goal of this work.

IF $\xi_1 == 1$

$$W' = -B - \frac{1}{\left[\frac{1}{B} - \frac{1}{T}\right]\xi_2 - \frac{1}{B}}$$

ELSE

$$W' = T - \frac{1}{\left[\frac{1}{B} - \frac{1}{T}\right]\xi_2 + \frac{1}{T}}$$

Where, ξ_1 is 1 random bit, and ξ_2 is a uniformly distributed random number between 0 and 1. This efficient method for computing *W'* allows us to easily apply the negative mixture algorithm of Bignami and de Matteis (*33*). The following pseudo code outlines this process.

START:

SAMPLE W'

IF $\left[\frac{1}{(W'+B)^2} + \frac{1}{(T-W')^2}\right]\xi_3$ <= $\frac{1}{(W'+B)^2} + \frac{1}{(T-W')^2} - \frac{1}{(W'+B)(T-W')}$

RETURN (W')

ELSE

GOTO START

Sampling *W* in the manner described above yields excellent rejection-technique acceptance efficiency. Mathematically, the worse-case scenario is an acceptance efficiency of 50%. The acceptance efficiency reaches 50% as the incident electron energy approaches the binding energy of the subshell. When the incident electron energy is one order of magnitude larger than the binding energy, acceptance efficiencies around 80% can be expected. The acceptance efficiency approaches 100% for moderate energy electrons incident on low Z materials. Figure 4.1 shows Monte Carlo simulation results for this differential Mott cross-section sampling method.

Once *W*, the energy of the secondary electron has been sampled, the energy of the primary electron after the ionization event, *T'*, can be found according to Equation 4.6 below:

$$T' = T - W - B \tag{4.6}$$

The polar angles of collision for the primary and secondary electrons may be determined by conservation of energy and momentum. Equations 4.7 and 4.8 below describe this relationship and are based on the formulae of Berger (*34*) modified to account for binding energy losses.

$$\sin^2 \vartheta_{primary} = \frac{2\frac{W}{T}}{\frac{T'}{M_e} + 2} \tag{4.7}$$

$$\sin^2 \vartheta_{secondary} = \frac{2\frac{T'}{T}}{\frac{W}{M_e} + 2} \tag{4.8}$$

Where M_e is the rest mass energy of an electron. It is important to note that Equations 4.7 and 4.8 are convenient for FPGA implementation because they both share an identical form, differing only in the placement of *T'* and *W*. This is very helpful for reducing FPGA hardware design and implementation difficulty.

The azimuthal angles of emission for the primary and secondary electrons is easily sampled using the following relationship in Equations 4.9 and 4.10.

$$\phi_{primary} = 2\pi\xi \tag{4.9}$$

$$\phi_{\sec ondary} = \left(\phi_{primary} - \pi\right) \bmod 2\pi \tag{4.10}$$

Where ξ is a uniformly distributed random number between zero and one. For FPGA implementation, we treat the range of both azimuthal angles of collision to be in the range [0, 1), instead of [0, 2π). Since mathematical operations in this range are far more eloquent in a binary number system. For instance, the secondary azimuthal scattering angle can be found simply by inverting the most significant bit of the primary azimuthal scattering angle, completely eliminating the more computationally expensive subtraction and modulus operations. Our implementation of the Cashwell and Everett coordinate transformation uses modified sine and cosine functions that respond properly to these scaled scattering angle inputs.

Efficient Sampling of Interaction Subshell for Electron Impact Ionization Events

In order to properly treat an Electron Impact Ionization (EII) event in a track structure Monte Carlo simulation, cross-section data must be stored on a per-subshell basis for each element in a material. Using subshell dependent cross-sections, the subshell of interaction can be determined. Once the subshell is known, that shell's binding energy can be used in the differential EII cross section formula(e) to sample the

resulting energies of both the primary and secondary electron. Unfortunately, considerably more memory must be used to store subshell dependent cross-sections instead of only total ionization cross-sections. For FPGA based implementation, where memory resources are limited, it is convenient to find some sort of memory-saving, yet accurate, approximation for sampling interaction subshells.

A simple solution to this problem becomes apparent when the individual subshell interaction cross-sections are viewed in a particular way. When the cross sections are viewed as shown in Figure 4.2, it might appear that a fine mesh of data points needs to be stored for all subshells in order to effectively sample the subshell of interaction given an EII event has occurred. However, all of the information in Figure 4.2 is not required to make this choice; only the ratio of each cross section to the total EII cross-section is required.

Figure 4.3 shows the respective ratios of each subshell dependent EII cross-section to that of the total EII cross-section for Oxygen. The plots for all other elements look very similar, except that more trend lines appear as Z increases. Instead of storing the energy dependent data shown in Figure 4.2 or 4.3, the data in Figure 4.3 can be approximated as individual unit step functions (*35*) of the form:

$$P_i(T) = \frac{A_i \cdot U(T - B_i)}{\sum_i A_i \cdot U(T - B_i)} \tag{4.11}$$

Where U(x) is the unit step function

where, T is the incident electron energy, B_i is the binding energy of a particular subshell and A_i is the limit of the subshell's contribution to ionization as $T >> B_{max}$ (this value approaches a constant as seen in Figure 4.3). Utilizing the unit step function and the method described by Equation 4.11, fairly accurate cross-section ratios for each subshell can be stored with only two numbers, A_i and B_i. Figure 4.4 shows subshell interaction probabilities for oxygen using the approximation in Equation 4.11.

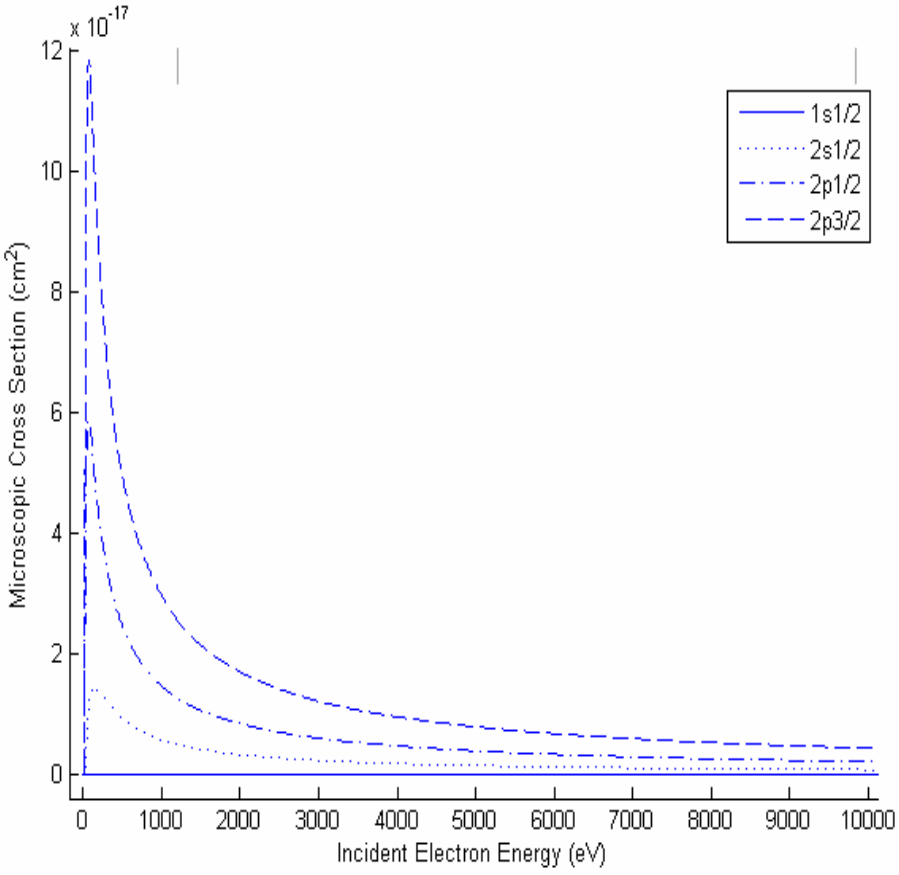

Fig. 4.2. A plot of electron impact ionization subshell dependent cross-sectional data for oxygen.

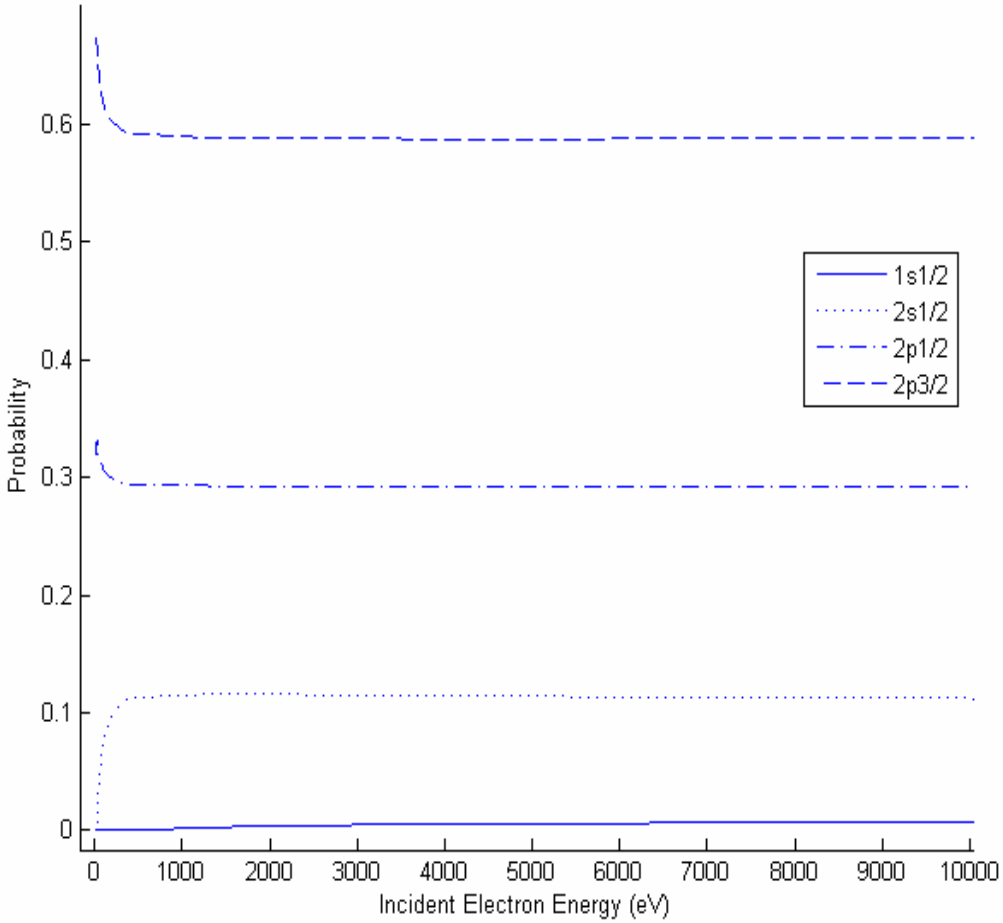

Fig. 4.3. The ratio of each subshell dependent electron impact ionization cross-section to the total ionization cross-section for oxygen.

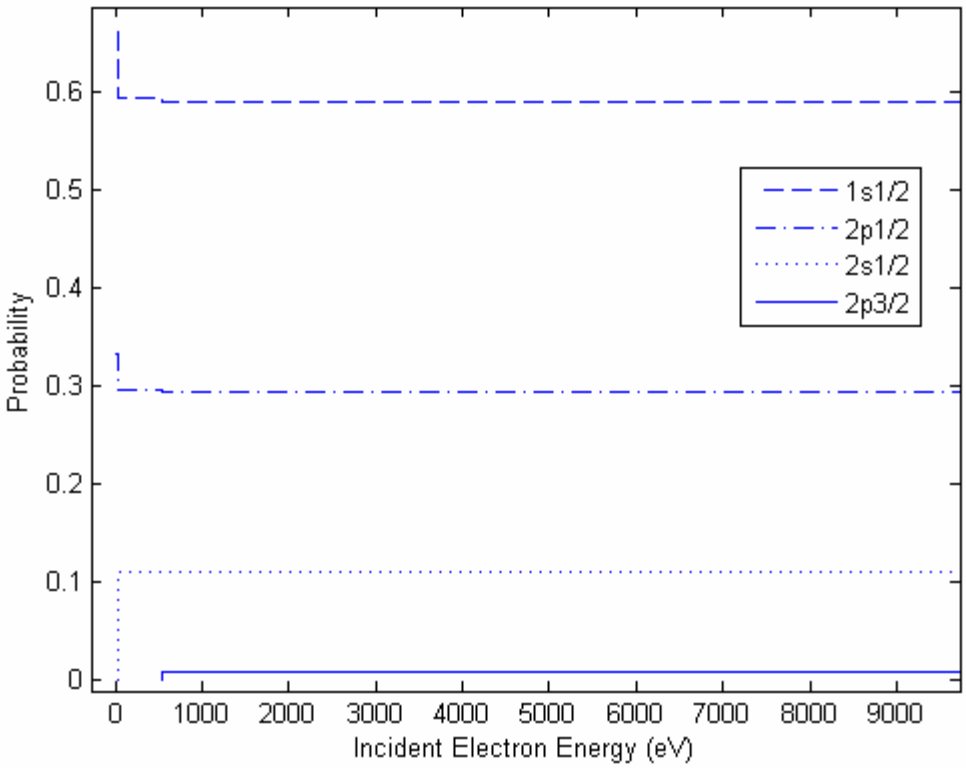

Fig. 4.4. The ratio of each subshell dependent electron impact ionization cross-section to the total ionization cross-section for oxygen. This shows the results "as-stored" in the FPGA with the approximations mentioned in this section.

Integrated Electron Impact Ionization Cross-Sections

With methods in place for sampling the delta-ray energy spectra, determine primary emission angle, secondary emission angle and the subshell where the event occurred, only an integrated EII cross-section is required to fully simulate an ionization. Integrated forms of more complex differential EII cross-sections such as those presented by Kim et al. (*29*) have shown to produce total ionization cross-sections which closely match experimental data. However, the problem again is that there isn't enough input data available for this model to apply it accurately to all materials. For this reason, we

have decided to use the evaluated, subshell-dependent total ionization cross-sections presented in Lawrence Livermore National Labs EEDL97 (*36*).

There were some high energy adjustments that had to be made to the EEDL97 total ionization cross-sections so that they fit better with the differential Mott cross-section and binding energies used to sample secondary electron energy spectra. It is well understood that the Mott cross-section doesn't have the same high-energy accuracy of Bethe's (*37*) stopping power formula. Therefore, at higher energies the EEDL97 total ionization cross-sections were scaled by a small percentage so that the energy loss per unit path length from discreet energy loss events matched the stopping power, which is accepted to be accurate at high energy.

The exact method used to scale the integrated ionization cross-sections at high energies is based on moments matching. Equation 4.12 is used to generate macroscopic ionization cross-sections at a particular energy *T*.

$$\Sigma_{ion}(T) = \frac{\left(\frac{\partial E}{\partial x}\right)_{reduced}}{\sum_i \left[P(i) \cdot \left(\frac{\int_0^{T-B_i} W \sigma_{mott}(W,T) \partial W}{\int_0^{T-B_i} \sigma_{mott}(W,T) \partial W} + B_i \right) \right]} \tag{4.12}$$

Where *T* is the incident electron energy, Σ_{ion} is the macroscopic ionization cross section, *dE/dX* is the stopping power due to ionization only, *P*(i) is the probability of interaction with subshell i, W is the delta-ray energy, *B*(i) is the orbital binding energy of subshell i and σ_{mott} is the differential modified Mott cross-section in Equation 4.3.

CHAPTER V

METHODS FOR SIMULATION OF ELECTRON IMPACT EXCITATION

For track structure electron transport simulation, the treatment of energy loss due to electron impact excitation is an important consideration. For the most accurate simulation, excitation cross-sections must be individually assessed on a subshell by subshell basis. Furthermore, differential discrete probability density functions are required for each subshell to determine the energy lost due to a particular excitation event. Ultimately, this data is highly dependent on the molecular structure of the material in question. While this sort of detailed cross-sectional data has been measured by several sources (*38-40*) for water vapor, it still remains unclear if it can be directly applied to aqueous water for biological simulation. Little to no data is available for molecular materials other than vaporous water and other simple gas molecules.

Alternatively, a less detailed track structure simulation can be performed which models electron scattering events and ionization events as discrete processes, but which applies some form of the electron stopping power over the path length between discrete events to account for energy loss due to excitation. This approach is computationally simpler than sampling excitation events discretely due to the fact that the cross-section for excitation is large. In addition, this data is much more readily available for many more materials than the aforementioned subshell dependent excitation cross-sections. In the remainder of this chapter, we will refer to this approach as Method 1.

There is another approach to treatment of electron impact excitation which is an amalgamation of the previous two methods. While the subshell dependent excitation cross-sections described previously have not been determined for most materials, the total atomic excitation cross-sections for most materials is known. Likewise, although the energy loss spectrum has not been determined for many materials, the mean energy loss per atomic excitation is well known (*36*). Using this data, it is possible to discretely simulate excitation events. In the remainder of this chapter, we will refer to this approach as Method 2. After multiple excitation mean free paths, the energy lost over

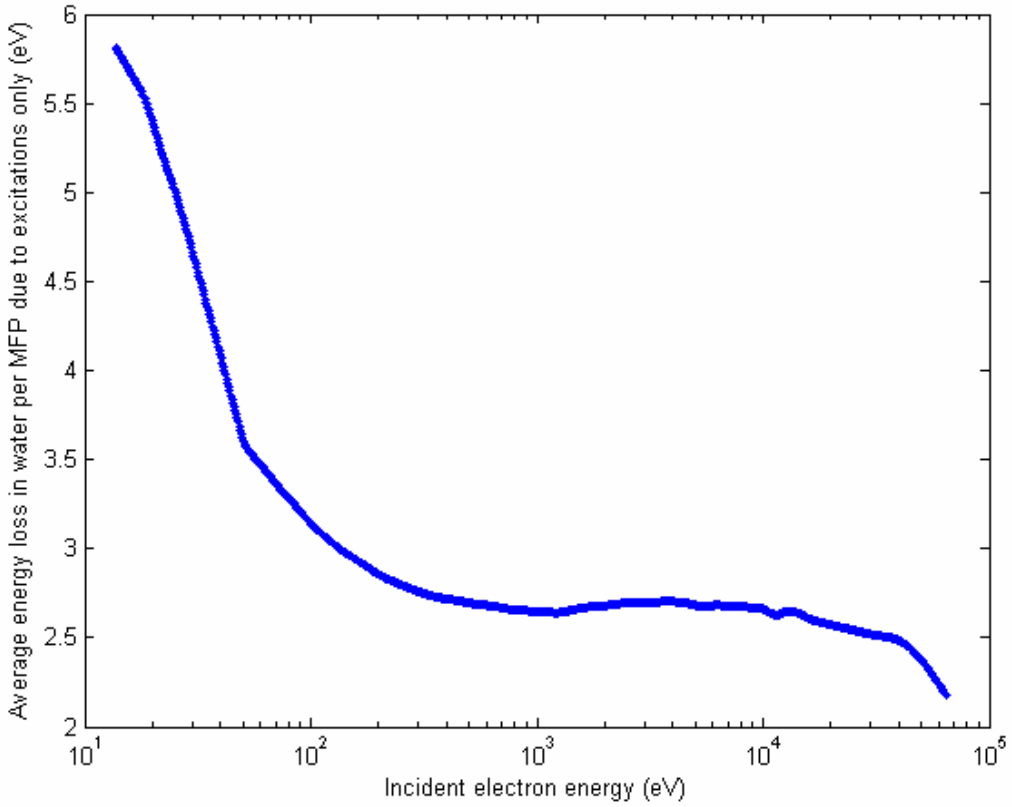

Fig. 5.1. The average energy loss in water (due to excitation events only) per mean free path of all other interaction events

the track using Method 2 will, of course, begin to approach the energy loss stopping power from excitation events. And so, it is common to question the necessity of the use of additional computation resources to model individual excitation events in this manner.

Perhaps in the case of macroscopic targets and geometries, there is little advantage to discrete modeling of excitation events in the fashion described in the previous paragraph by method 2. However, for microscopic targets, discrete simulation of excitation events may increase the accuracy of target dose deposition calculations. Figure 5.1 shows the average energy loss due only to excitation events per mean free path of elastic scatter and ionization events. The data plotted in Figure 5.1 would be appropriate for use in a Monte Carlo code based on method 1 described above. Figure 5.2 shows

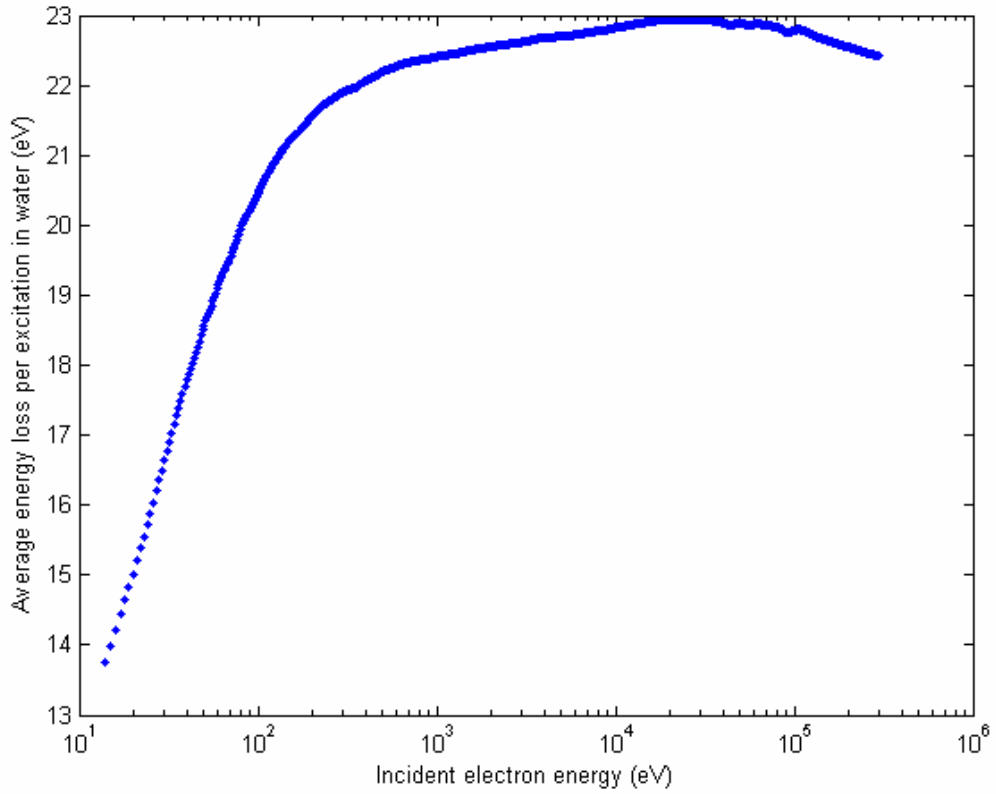

Fig. 5.2. The average energy loss per discrete excitation event in water

the average energy loss per excitation event in water. It is troubling that Method 1 will apply an energy loss over a particular path length which is significantly less than the average energy loss per discrete excitation event if Method 1 is used instead of Method 2. This will likely lead to a less defined dose deposition spectrum since the site size of interest to radiation biology applications (DNA) is of a similar order to the mean free path between electron interaction events.

CHAPTER VI

IMPLEMENTATION METHODS

Introduction

Hardware based implementation of Monte Carlo photon transport methods has previously been discussed by Pasciak et al. (*2-4*). The Monte Carlo transport of all particle types share many inherent similarities, so the general algorithm behind FPGA-based electron transport is not drastically different from FPGA based photon transport. Perhaps the largest logistical difference, other than different cross-sections and scattering distributions, is that electron histories are capable of producing additional electrons (delta-rays) which require simulation as well. To most people accustom to writing software codes for Monte Carlo transport this is simply not an issue, but like so many other simple concepts, implementing this functionality on an FPGA can be difficult.

The FPGA was programmed to perform the complete transport of one electron interaction every clock cycle. This includes, but is not limited to, using the total cross-section to determine distance to next collision, spatial transport to that position, boundary crossing detection, determination of interaction type, sampling of differential cross-sections (if applicable) to determine scattering angle and/or energy loss, delta-ray production, application of coordinate transformations and generation of any random numbers required for these operations. Energy deposition events that take place within a specified tally will also be recorded. All of these computations are performed in serial with heavy pipelining—more than 120 pipelining stages (*41*). A discussion of the hardware/FPGA implementation procedures for simple operations such as pseudo-random number generation will follow. At the end of this chapter we will discuss how all the small pieces we have just described fit into a 120 stage pipelined state-machine capable of evaluating Monte Carlo track-structure electron transport problems.

Pseudorandom Number Generation

In order to efficiently perform Monte Carlo electron track structure simulation in hardware, or more specifically on an FPGA, random numbers must be efficiently generated within the FPGA. As a basis for random number generation using an FPGA, we shall use what is widely considered to be one of the best modern pseudorandom number generation algorithms. Matsumoto and Nishimura have developed the Mersenne Twister, a pseudorandom number generation algorithm, which has passed the most stringent of statistical tests for randomness and has an incredibly large period of $2^{19937} - 1$ (*42*). A period of $2^{19937} - 1$ implies that a virtually unlimited amount of random numbers can be generated from a single seed with no chance of a repeated sequence, which is essential when performing complex Monte-Carlo analysis with a large number of iterations. The methodology behind the Mersenne Twister (MT) is based on Equation 6.1 below.

$$X_{k+n} \coloneqq X_{k+m} \otimes (X^{u}_{k} \mid X^{l}_{k+1})A \tag{6.1}$$

Where the $\otimes$ symbol denotes the *exclusive or* operation (XOR), $n = 624$, $m = 397$, and X_k represents the kth 32-bit random number in a sequence and k ranges from 1 to n. ($X^{u}_{k} \mid X^{l}_{k+1}$) is the most significant bit of the X_k random number concatenated with the lower 31 bits of the X_{k+1} random number. This concatenation is multiplied by a constant matrix A. As shown by Matsumoto and Nishimura, the matrix A can be selected such that the multiplication is reduced to a binary shift and another *exclusive or* (*42*).

The algorithm is simple, and has equally simple hardware requirements. A small 1024 element, 32-bit wide blockram unit onboard the FPGA is used to store the previously generated 624 random numbers. Every time the Mersenne Twister module is called on to generate a new random number, it accesses two previously generated random numbers from the memory element to create the next random number. In

addition to the memory element, the only hardware operations necessary for the complete implementation of this algorithm are several counters, some small registers (flip-flops), and the bitwise exclusive or function. All of these functions are easily and efficiently implemented on an FPGA. When implemented on a large Virtex II FPGA, each MT module requires 2 Virtex II blockram units and negligible (less than 1% of the available) reprogrammable logic space.

It is well known that many commercial Monte Carlo transport codes employ a linear congruential pseudo-random number generator for a number of reasons. However, our research has suggested that generalized feedback shift register-based pseudo-random number generators (such as the MT) are more appropriate for Monte Carlo simulations run on FPGAs. For parallel Monte Carlo simulation using conventional cluster computers, linear congruential pseudo-random number generators are the best choice since it is possible to directly compute, or jump ahead to future sequences arising from the same initial seed. Details on jump-ahead techniques for linear congruential pseudo-random number generators are given by Knuth (*43*). Arbitrarily seeding individual nodes responsible for computing independent particle histories could result in a seed dependence issue which could foul the simulation results, so a jump ahead technique is extremely useful. The MT has no such algorithm to jump ahead to future sequences resulting from the same seed. Since we need to run multiple instances of the MT in parallel on the FPGA to satisfy our random number requirements, we have pre-computed an extensive list of jump-ahead seeds for the MT. By using the FPGA and sheer computational brute-force, we were able to pre-compute jump-ahead seeds spanning almost 10^{15} MT iterations—enough to satisfy the history requirements of the test cases presented in chapter VII. These seeds were computed in a reasonably short time period with just one MT module programmed onto the FPGA (See Appendix B for behavioral MT implementation HDL).

Logarithms

Logarithm evaluations of different bases are used through the Monte Carlo hardware radiation transport schemes described in this dissertation. Regardless of the base required, however, all initial evaluations are computed using $\log_2$—because it is most naturally implemented in a binary number system. Once $\log_2(x)$ is evaluated, the change of base formula was used to convert $\log_2$ to $\log_b$ for any base b by simply multiplying $\log_2(x)$ by a constant k, where k follows the formula in Equation 6.2.

$$k = \frac{1}{\log_2(b)} \tag{6.2}$$

With a conversion mechanism to transform $\log_2(x)$ into $\log_b(x)$ efficiently, great detail must be paid to the accurate and fast evaluation of $\log_2(x)$. The obvious solution to the hardware based evaluation of a logarithm is typically a series expansion. Series expansions for the evaluation of log fit the general form of Equation 6.3 below (*44*).

$$\log_e(1+x) = x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \frac{x^5}{5} - \ldots \tag{6.3}$$

A calculator or a computer which uses a series expansion like that in Equation 6.3 to evaluate a logarithm will cycle through each term in the expansion, evaluating one term at a time. Our designs, on the other hand, will require a much higher work rate than this, since the overall goal of this project is speed. With speed in mind, the expansion in Equation 6.3 can be evaluated with a work rate of 1 evaluation per clock cycle in hardware using (2n – 2) multipliers, where n is the number of expansion terms to be evaluated. Large Xilinx Virtex-II FPGAs have hundreds of embedded multipliers, and so a requirement for (2n – 2) multipliers may not be an issue provided that only a small number of series terms need to be evaluated to obtain convergence. Unfortunately, we need to evaluate log(x) for all values of x, even as x approaches zero. The series expansion for log given in Equation 6.4 converges very slowly as the operand approaches zero and requires the evaluation of many terms to obtain convergence. Due

to a slow convergence as the operand approaches zero, evaluation of the series expansion on an FPGA will result in either the loss of our 1 evaluation per clock cycle work rate or the use of a vast amount of FPGA resources to perform the evaluation; either of which is unacceptable to our project goal.

If an expansion-based evaluation is not an option, the other logical solution is a lookup table-based evaluation. Unfortunately, for a lookup table based evaluation to be effective, there must be a finite region for which the evaluation is performed--in our case we must perform log(x) for any x such that $0 \le x \le \infty$. To solve this problem we have developed a transformation to force the operand of log(x) into a specific region, namely $1 \le x < 2$. The shape of the log curve in the region $1 \le x < 2$ is smooth and simple and can be easily regenerated using a point-wise polynomial interpolation method similar to the one used for cross section retrieval. The transformation used becomes simplistic if 2 is the logarithm base used. Equations 6.4 and 6.5 illustrate the form of the transformation.

$$\log_2(x) = \log_2(m \cdot 2^n) = \log_2(m) + n \tag{6.4}$$

where,

$$x = m \cdot 2^n \text{ , and } 1 \le m < 2 \tag{6.5}$$

For any operand x, m and n can be found by placing x in a pseudo floating point form which is an extremely efficient operation in hardware consisting mostly of binary shift operations. A preprocessing stage using pipelined multiplexer arrays handles the binary shifting such that an equivalent value for x is determined in the form of Equation 6.5. Figure 6.1 shows this preprocessing stage. Once the preprocessing has been completed, the exponent n can be set aside until the $\log_2(m)$ evaluation has been completed using lookup table methods.

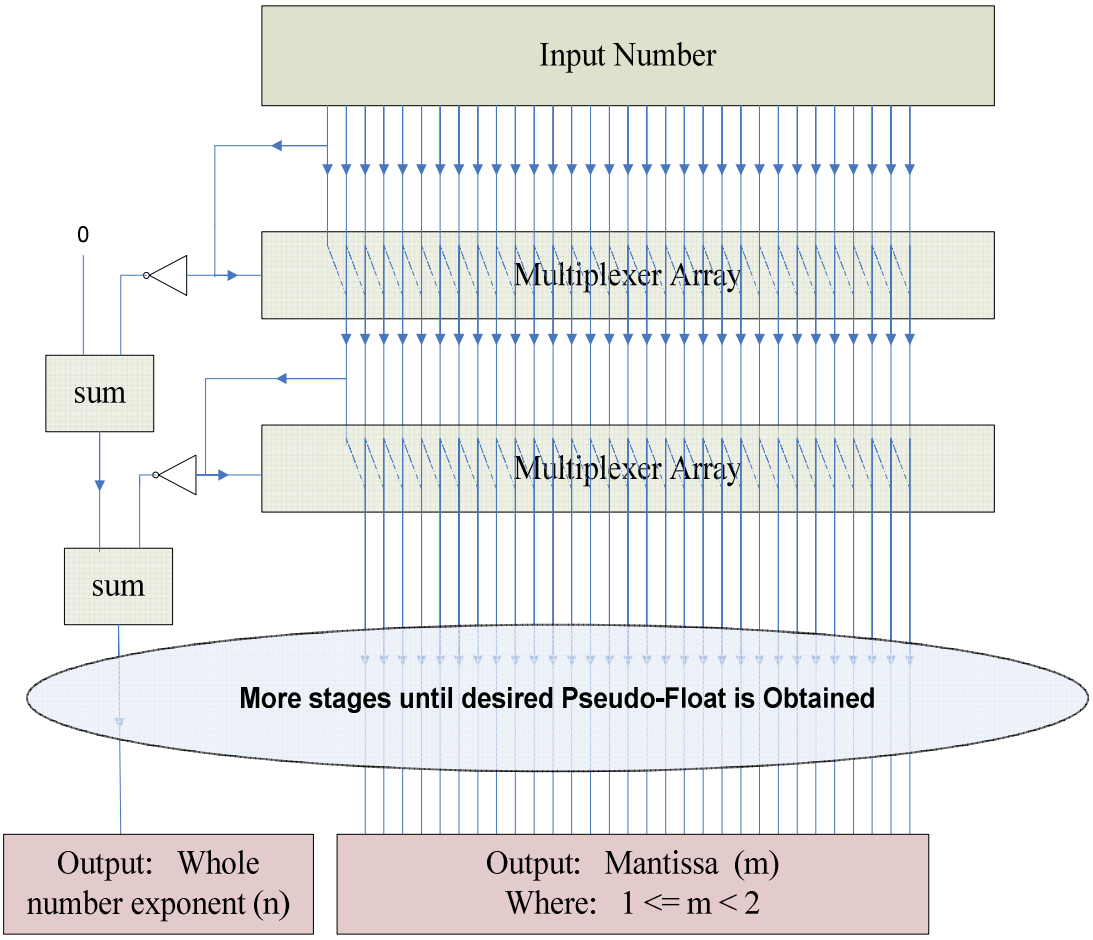

Fig. 6.1. A schematic depicting the log preprocessing stage. The pipelining stages have been omitted.

With n and m in Equation 6.5 determined by the preprocessing stage, the evaluation of $\log_2(m)$ can be completed efficiently using lookup table methods since m now has a very fixed range. A polynomial interpolation method similar to the one used for the cross section retrieval is an excellent solution for the reproduction of $\log_2(m)$.

Portions of the preceding two sections in this chapter were previously published in (*2*). The implementation of additional mathematical operations on the FPGA will be discussed no further since similar techniques have been previously documented in (*2*); however, the best description of the exact implementation methods used for each aspect of the Monte Carlo simulation can be found by analyzing the behavioral Verilog designs in Appendix B.

Control Module and Particle Stack

With hardware implementations in place for performing all of the methods listed in Chapters III-V, as well as pseudorandom number generation, the Cashwell and Everett (*45*) coordinate transformation, distance to next interaction, boundary crossing algorithms, retrieval of total cross-sections and more, all that remains is to develop a state-machine based control module so that these operations can be used to evaluate a transport problem. These operations are organized into a large straight-through processing unit capable of the complete transport of an electron from one interaction to the next. This processing unit has more than 120 stages of pipelining and so, while the overall throughput is one interaction per clock-cycle, the module is actually working on the transport of 120 particles at a time. The input parameters to this module include spatial coordinates, directional unit vector, polar and azimuthal scattering angles (from the previous interaction) and energy. The output parameters include the energy of the primary and secondary particles, spatial coordinates of the interaction, directional unit vector before the interaction, total energy transferred to material and polar and azimuthal scattering angles of both the primary and secondary electrons. Output and input of polar

and azimuthal scattering angles is necessary because the Cashwell and Everett transformation is applied first in the interaction process, updating the directional unit vector from the previous interaction. The Cashwell and Everett transform is performed at the beginning of an interaction rather than the end to prevent the requirement of two transformations per interaction in the case of delta-ray production. Thus, only one hardware module for the Cashwell and Everett transformation is required, saving appreciable FPGA resources.

When an electron impact ionization event occurs which produces a high energy delta-ray (more than 50 eV), information for both the primary and secondary particle are output from the interaction machine as shown in Figure 6.2. A 512-element particle stack is constructed from onboard FPGA blockram, capable of acting as a buffer by holding particle data until the interaction machine is free to work on it. The particle stack is a first-on last-off module, similar to the widely used Stack data-structure in many programming languages. When an energetic delta-ray is produced, the data describing the *primary* electron is stored on the particle stack while the interaction machine continues transport on the delta-ray. When one of the 120 (one for each pipelining stage) particles in the interaction machine drops to an energy below 50 eV, transport on that particle ceases leaving an opening in the interaction machine. The data for one particle is then removed from the particle stack and sent to the interaction machine to take the place of the particle that has just lost all its energy. Storing the primary particle on the particle stack rather than the delta-ray is important because it greatly reduces the amount of memory required for the stack (by at least a factor of 100). When a particle in the interaction machine looses all of its energy and the particle stack is empty, transport on a new source particle begins.

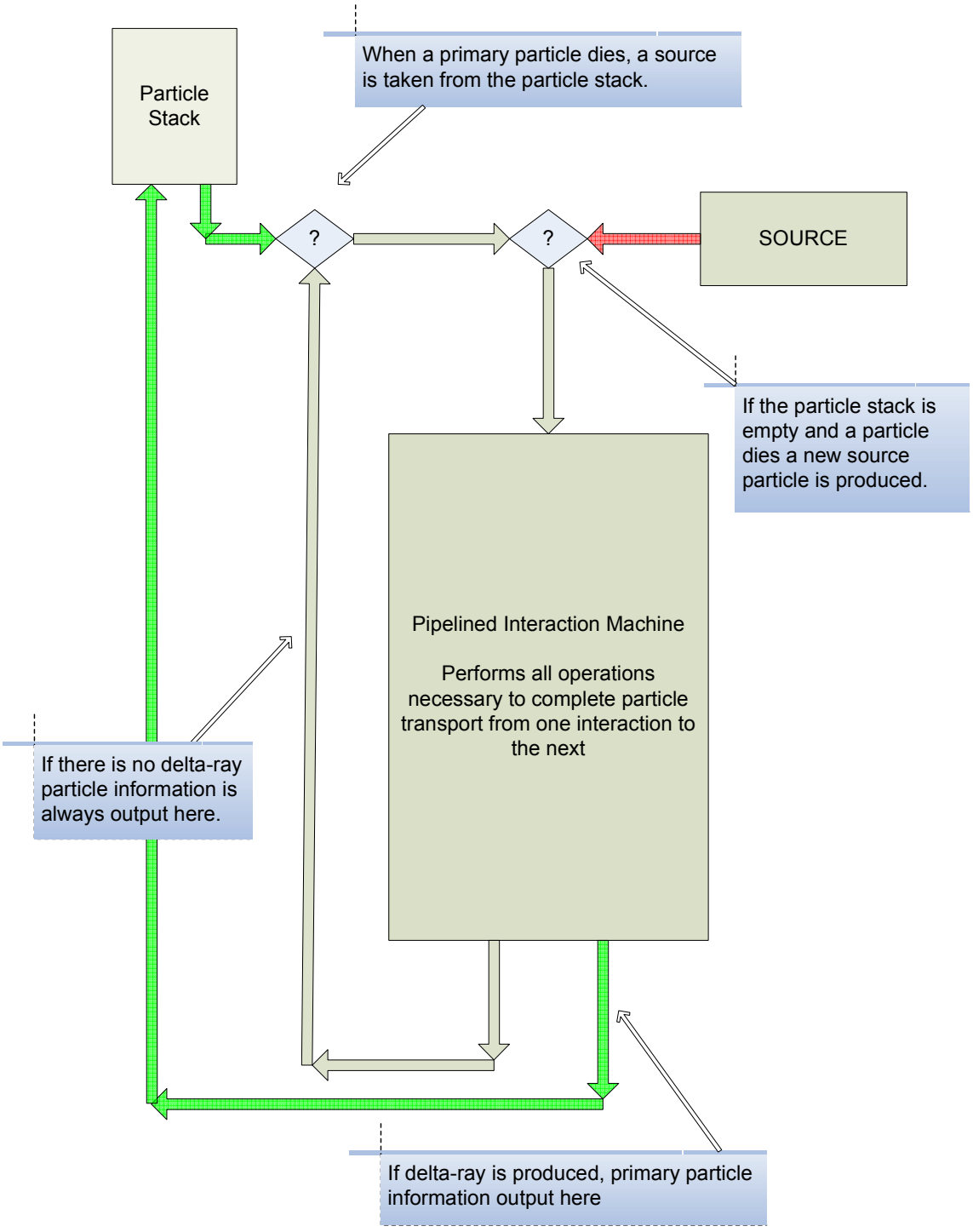

Fig. 6.2. A Schematic depicting the overall FPGA dataflow for electron transport.

CHAPTER VII

TEST CASES AND ASSUMPTIONS

Introduction

In several previous studies documenting Monte Carlo particle transport using FPGAs (*2-4*), the tally results and computational time from the FPGA based simulation were compared to Los Alamos National Lab's MCNP-5 Monte Carlo transport code (*46*) run on a modern desktop workstation. MCNP-5 probably didn't serve as an optimal platform for comparison since the photon transport methods that it used, and those implemented on the FPGA were undoubtedly different. In the case of track-structure electron transport, there simply aren't many track-structure codes available with which to compare the results obtained using the FPGA. In addition, the codes that do exist all use different cross sections—both differential and integrated and make different approximations and assumptions. The available codes will also generate markedly different tally results, especially at low electron energies. This is not to say that some codes are more correct than others, it is simply that there is little experimental data available with which to verify an electron transport code at low energies, and the data that is available is accompanied by significant standard error.

The only way to truly demonstrate the speed increase as well as acceptable accuracy that can be attained by performing track-structure electron transport on an FPGA is to compare it to a software-based code that uses identical methods, cross-sections and approximations. The software for comparison was written in C code and optimized for each simulation. All methods and approximations used in the software code will be identical to the FPGA based method. In fact, the only difference will be that every mathematical operation performed by the software will be to double-precision floating point standards. Mathematical operations performed on the FPGA will be of varying precisions according to need and importance--but all will be performed to less than double-precision standards.

For every prescribed test case, FPGA runs were performed using the Xilinx Virtex-II-Pro 100 FPGA clocked at 100 Mhz. Optimized C code runs will be performed on a 64-bit AMD Opteron 2.4 Ghz server running SunOS 5.10. Electron transport was performed using the methods described in Chapters III-V. Since low-energy electron transport through biological (low Z) media is considered to be the main application of this work, Bremstrahhlung photons will be ignored. Additionally, there will be no simulation of atomic relaxation due to ionizations and excitations.

Test Cases

There are four simple-geometry test cases followed by a more complex situation involving an electron beam incident on endosteal bone surface cells. The first two simple-geometry tests are infinite-slab problems designed to verify our energy loss and scattering models. To verify that our energy-loss and scattering models will work for both high Z and low Z materials, infinite slabs of gold and aluminum are used. In addition to simulations using the FPGA and optimized C code, we will compare both sets of tally results to ITS 3.0 for these two cases. ITS 3.0 is a widely used CH transport code (*47*) with which we can confirm the accuracy of our energy-loss and scattering models in a zero-geometry, single-material environment. These simulations include a 150 KeV, monoenergetic, monodirectional electron pencil-beam source. Electron energy cutoffs will be 50 eV for both track-structure methods, and 5 KeV for ITS 3.0.

The third and fourth simple-geometry tests were high-Z/low-Z interface problems, which are known to be difficult for standard CH codes to evaluate accurately. The first of these problems is an aluminum/gold interface with a 150 KeV pencil-beam initiated in the aluminum, perpendicular to and 10 um from the interface. The second problem is a gold/aluminum interface, with a 150 KeV pencil beam initiated in the gold, perpendicular to and 3 um from the interface.

The last test involved an electron pencil-beam incident on the cell nuclei of endosteal bone surface cells. This test case presents a real situation where the CH

method for electron transport may be inappropriate for several reasons. First, microscopic and sub-microscopic site sizes are too small for most CH codes to simulate accurately without greatly reducing step size. Second, endosteal bone surface cells are in very close proximity (less than 2 um) to the mineral bone surface. Accurate computation of dose near material interfaces (especially when one material contains higher-Z components) is difficult for many CH codes. Dimensions of endosteal bone surface cell nuclei will be those measured via electron micrograph by Lloyd et al. (*48*). Lloyd et al. present the length, width, distance from mineral bone and volume of the nuclei. In Lloyd et al's calculations of mean chord length for these nuclei, they make the assumption that the nuclei are all cylindrical shapes. We make a similar assumption in our mathematical description of the shape of the cell nuclei in our Monte Carlo simulations. The material composition of the bone surface cell nuclei is assumed to be the same as red bone marrow, taken from ICRU 46 (*49*). Mineral bone composition is also defined by ICRU 46. The source is a 60 KeV electron pencil beam originating at an angle of 70 degrees with respect to the normal of the mineral bone interface and directed parallel to the long axis of the cell nuclei. The cell nuclei are arranged in a 64 by 16 element 2-dimensional lattice. The spacing between each nuclei in the lattice is not meant to be representative of typical biological dimensions, but is only meant to describe a dose profile with respect to distance from the source. Figure 7.1 is a visualization of the source and nuclei arrangement for this test case.

More details on the exact simulation parameters of each test case will be presented in Chapter VIII.

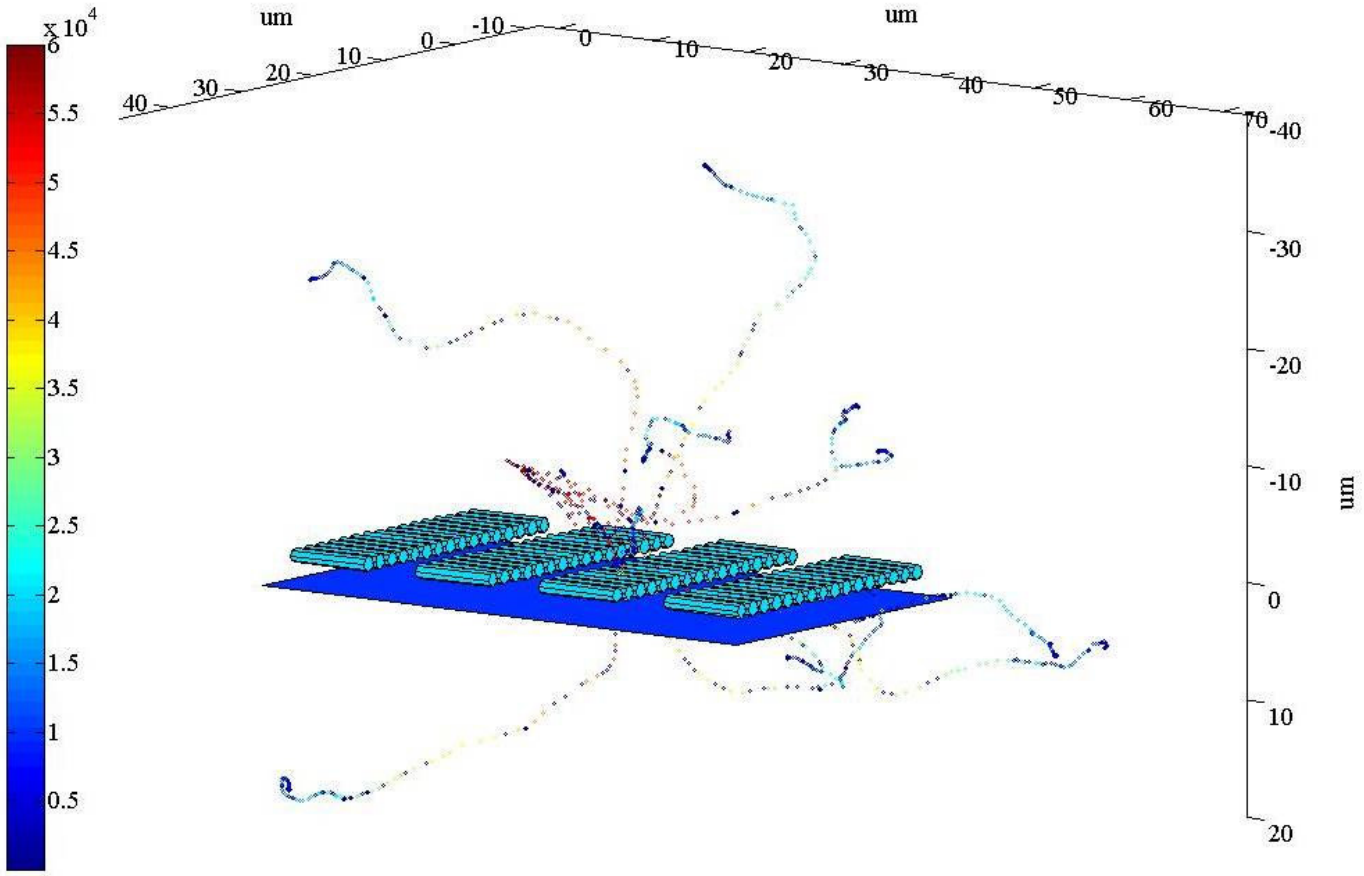

Fig. 7.1. A visualization of the test case involving the dose to endosteal bone surface cells. The light-blue cylinders represent the cell nuclei. The flat, dark-blue surface is the mineral-bone surface. The color-bar on the left shows the energy of the electrons as they traverse their tracks in eV.

CHAPTER VIII

RESULTS AND DISCUSSION

Test Cases 1 and 2: High Z and Low Z Infinite Slab Problems

The infinite slab of aluminum test case is relatively simple. A 150 KeV monoenergetic, monodirectional pencil beam source originates parallel to the axis of measurement. Energy deposition events are recorded by 1024 axial bins in both the FPGA based simulation and the software based comparison. The bin-width in each case is 0.2048 um. The ITS 3.0 simulation used an identical source but 100 bins were used with a bin-width of 2 um, due to a software imposed limit on number of bins. As previously mentioned, energy cutoffs for both track-structure simulations are 50 eV, and 5 KeV for ITS 3.0. One million history simulations were performed using all three transport methods. FPGA, C code and ITS tally results for this simulation are presented in Figure 8.1.

Similar parameters were used for the infinite gold slab test case. Again, a 150 KeV monoenergetic, monodirectional pencil beam source originates parallel to the axis of measurement. In both the FPGA based and C code simulations, 1024 axial bins are used to measure energy deposition with a bin-width of 0.0512 um. ITS 3.0 also used the same source energy and orientation, but recorded data for 100 energy deposition bins with a bin-width of 0.52 um. Energy cutoffs for the gold test case are identical to those in the aluminum test case for each transport method. Again, one million histories were run. Tally results from all three transport methods are presented in Figure 8.2.

Analysis of the tally results presented in Figures 8.1 and 8.2 show very similar curves for both the FPGA based track-structure evaluation and the C code evaluation. In fact, just looking at Figures 8.1 and 8.2 it is very difficult to even discern between the two dose curves, but there are some slight differences which will be discussed at the end of this chapter. However, it is easy to see some significant differences between the dose

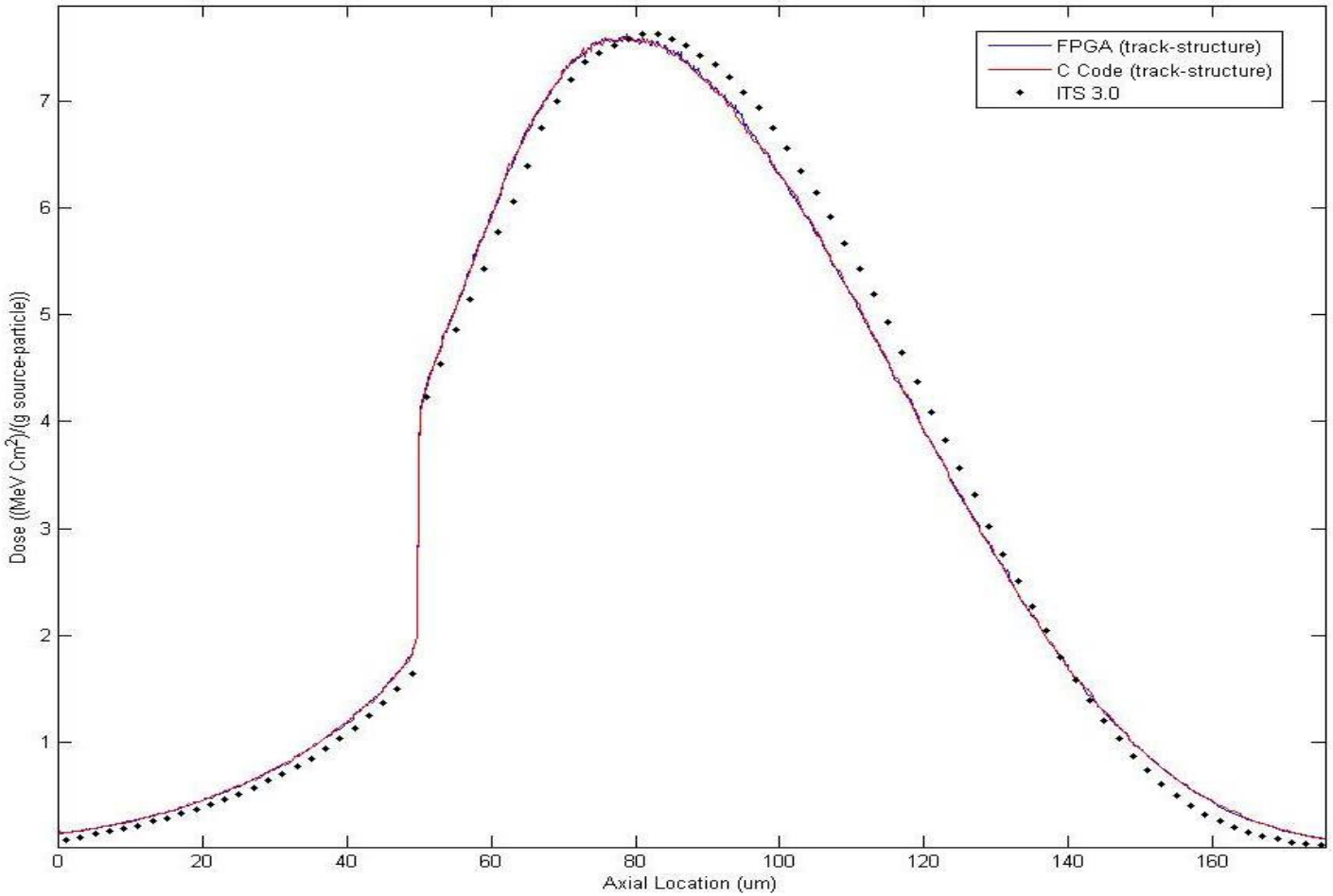

Fig. 8.1. An output plot showing Monte Carlo tally results for a 150 KeV electron beam in aluminum. The beam originates at 50 um and is oriented to point in the positive-X direction. Dose results from the FPGA and C Code may be difficult to distinguish since they are very close.

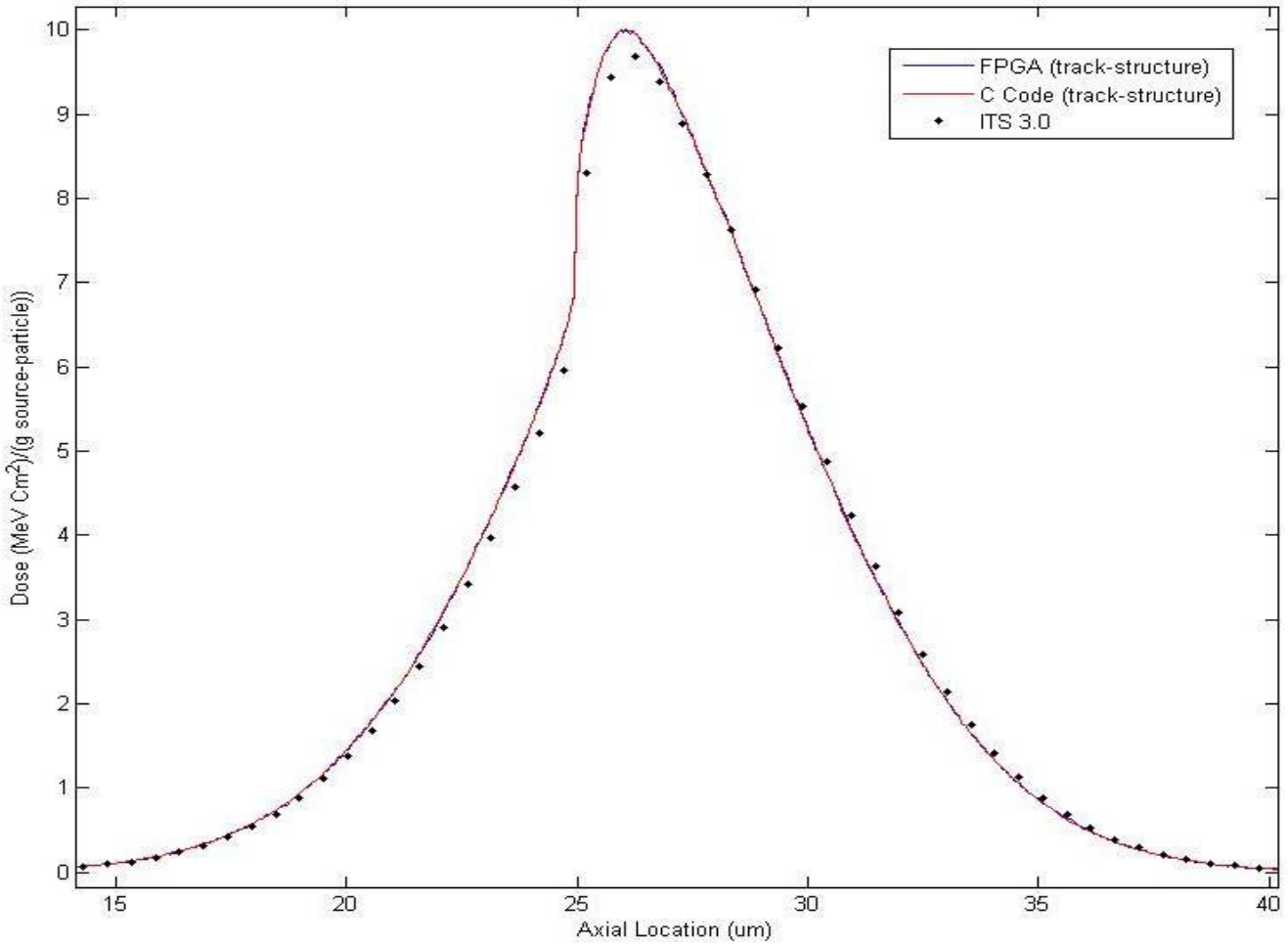

Fig. 8.2. An output plot showing Monte Carlo tally results for a 150 KeV electron beam in gold. The beam originates at 25 um and is oriented to point in the positive-X direction. Dose results from the FPGA and C Code may be difficult to distinguish since they are very close.

curves generated by ITS and those generated by both track-structure methods. It is important to keep in mind that ITS, even though it uses the CH method for electron transport, still builds its multiple scattering distributions from standard differential elastic scattering cross-sections. ITS 3.0 uses a version of the Mott modification to the Screened Rutherford elastic scattering cross-section to build its multiple scattering distributions. Our elastic scattering cross-sections are based on a different set of calculations (see Chapter III). Furthermore, our discrete energy loss treatment may integrate to a slightly different stopping power then the one that ITS applies to its particle tracks. We attribute the ~5 percent difference between the ITS 3.0 dose profiles and the FPGA/C code profiles in Figures 8.1 and 8.2 to a difference in scattering and energy loss methods and cross sections used. However, we do believe that the results of both track-structure methods are close enough to the results of ITS 3.0 to verify the methods described in Chapters III-V.

All FPGA runs were performed using the Xilinx Virtex II Pro 100 FPGA running at 100 Mhz. Track-structure C code comparisons were run on a 64-bit 2.4 Ghz AMD Opteron system running Sun OS. The ITS 3.0 code was run on a 3.0 Ghz Intel P-4 Xeon workstation. For the aluminum infinite slab test case, both track structure methods performed an enormous amount of work to complete the transport of one million histories down to a 50 eV cutoff. Both track-structure methods simulated over 15.2 billion electron interactions consisting of more than 2 billion ionizations, 6.6 billion elastic scattering events and 6.4 billion excitations. Of more than 2 billion ionization events, 360 million delta-rays were tracked. The remaining ionizations produced delta-rays with energies below the cutoff. This enormous amount of computational work was actually completed faster than expected using the track-structure C code, probably due to the efficient methods for sampling differential elastic scattering and ionization cross sections described in Chapters III and IV. One million histories were completed with the track-structure C code in 14 hours, 53 minutes. An identical simulation performed on the FPGA was completed in 156 seconds. The FPGA completed this simulation more

than 343 times faster than it could be completed in software. For perspective, ITS 3.0 performed transport of 1 million, 150 KeV electron histories in aluminum in roughly 422 seconds.

Similar results were obtained for the gold infinite slab simulations. For both track-structure methods, 1 million histories resulted in more than 15.3 billion electron interactions. More than 3.2 billion ionizations, 8.8 billion elastic scattering events and 3.3 billion excitations were completed. In addition, more than 463 million delta-rays were above the 50 eV energy cutoff and were tracked. One million histories in gold were completed using the track-structure C code in 15 hours, 44 minutes. Again, an identical simulation on the FPGA was completed considerably faster—in only 159 seconds. This time, the FPGA based simulation was more than 356 times faster than the track-structure C code method. In theory, the speed that the FPGA can complete a simulation varies linearly with the number of total electron interactions. The computational difficulty of the interactions will not affect performance. However, in software the computation time will depend not only on total number of interactions, but also on the computational difficulty of each interaction. The ratio of "difficult" interactions to total interactions is increased in the gold simulation. Excitation events are the easiest to simulate, since we assume no angular deflection. Elastic scatter and ionization events are more complex—especially when an ionization results in the production of a high-energy delta ray. There are more elastic-scatter events, ionizations and delta rays in the gold simulation, which is why the FPGA produces a slightly higher acceleration factor in gold. For perspective, ITS 3.0 performed transport of 1 million, 150 KeV electron histories in gold in 1072 seconds. ITS performed slower in gold than aluminum because it was forced to decrease its CH step size to account for the more isotropic scattering in high Z materials.

Test Cases 3 and 4: High Z and Low Z Interface Problems

High Z and Low Z interface problems have been utilized for two additional slab-style test cases because they are known to cause difficulty for CH codes. Finding the dose near the High Z / Low Z interface can cause difficulty for both class I and class II CH codes—see Berger (*1*) for an explanation of both code types. Therefore, it may be advantageous to use a fast FPGA based track-structure method for these types of simulations.

The first of the interface problems is an aluminum/gold interface with a 150 KeV pencil-beam initiated in the aluminum, perpendicular to and 10 um from the interface and directed toward the gold. One million histories were run using both track-structure methods. There were 1024 axial bins used to record energy deposition with 0.2048 um bin-widths. The second interface style problem is also an aluminum/gold interface. However, in this test case, the 150 KeV beam originates in the gold, 3 um from, and directed toward the aluminum. The number of axial bins and bin-width is identical in both interface problems. Energy deposition tally results for both interface problems using the FPGA based and C code track-structure methods are presented in Figures 8.3 and 8.4.

Once again, all FPGA runs were performed using the Xilinx Virtex II Pro 100 FPGA running at 100 Mhz. Track-structure C code comparisons were run on a 64-bit 2.4 Ghz AMD Opteron system. The first interface problem, where the beam originates in aluminum, resulted in 15.3 billion electron interactions using both track-structure methods for a 1 million history simulation. Of those interactions, 2.7 billion were ionizations, 7.9 billion were elastic-scatter events, 4.7 billion were excitations and 418 million delta-rays were tracked. The simulation took 15 hours, 26 minutes using the track-structure C code. At 100 Mhz, the Xilinx Virtex-II Pro 100 FPGA completed the same simulation in 158 seconds—more than 351 times faster than the standard computer running the C code.

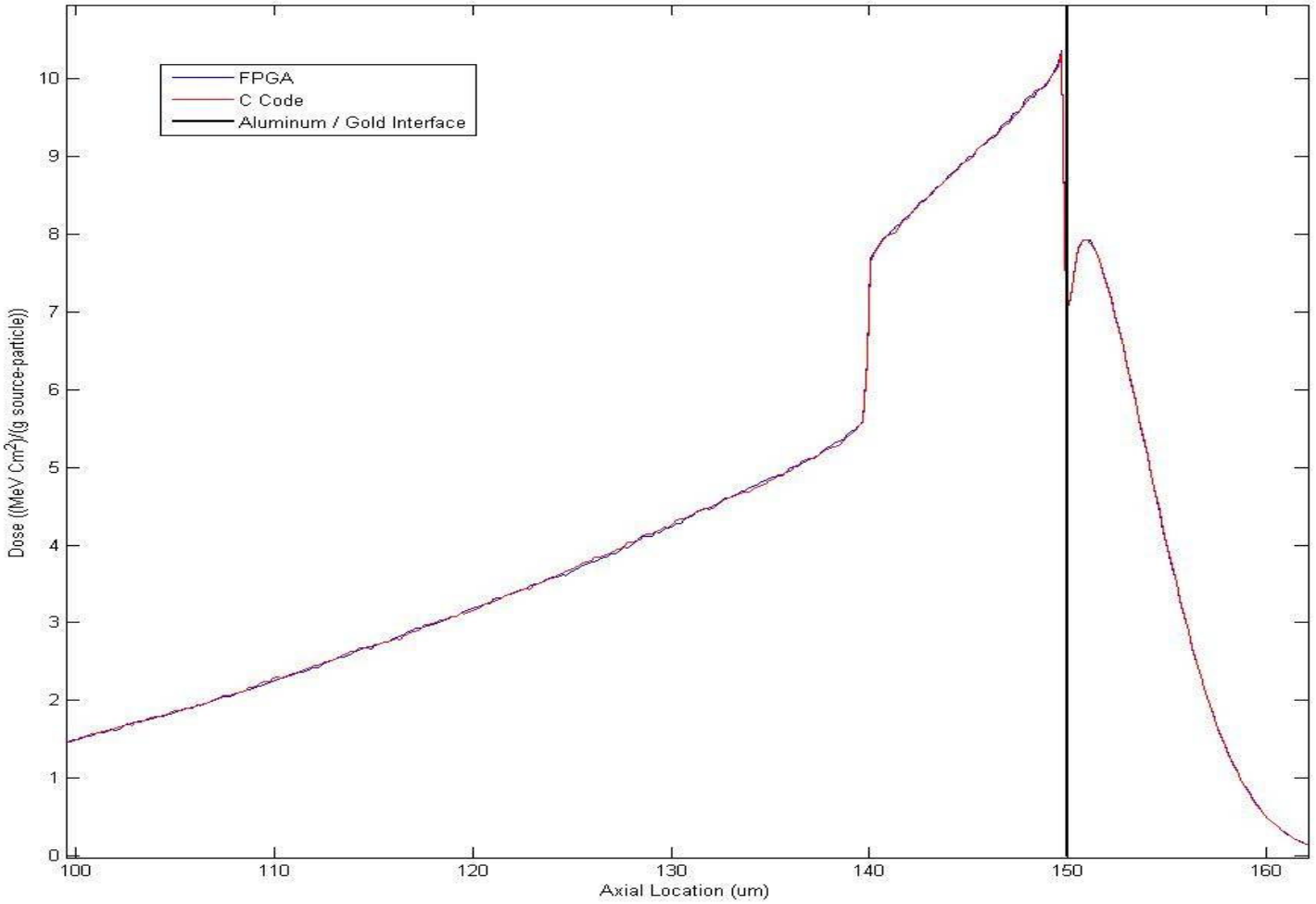

Fig. 8.3. An output plot showing Monte Carlo tally results for a 150 KeV electron beam in an Aluminum/Gold interface problem. The beam originates at 140 um and is oriented to point in the positive-X direction.

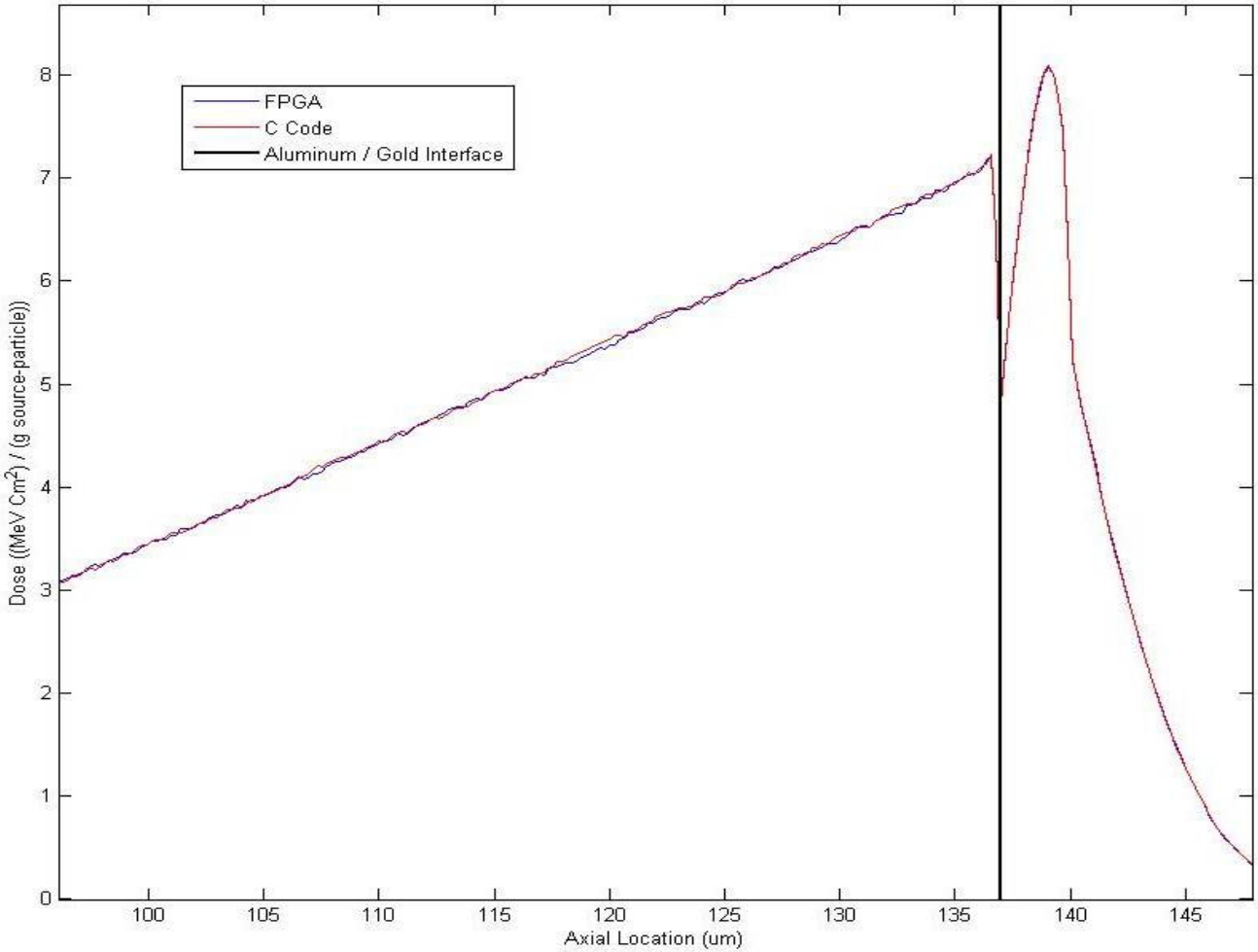

Fig. 8.4. An output plot showing Monte Carlo tally results for a 150 KeV electron beam in an aluminum/gold interface problem. The beam originates at 140 um and is oriented to point in the negative-X direction.

In the other interface problem, where the beam originates in gold, but is directed toward aluminum, very similar results were obtained. One million histories resulted in 15.3 billion interactions, 2.6 billion ionizations, 7.8 billion elastic-scatters, 4.8 billion excitations and 413 million high energy delta-rays that were tracked. Since energetic electrons divide their interactions between both materials similarly in both interface problems, similar simulation times can be expected. The software-based C code simulation was completed 3.5 minutes faster (15 hours, 23 minutes) in this interface problem. The identical FPGA based simulation was completed in about 158 seconds, 350 times faster than the C Code simulation on the standard computer.

Test Case 5: Endosteal Bone Surface Cells

The last test involved an electron pencil-beam incident on the cell nuclei of endosteal bone surface cells. As discussed in the previous chapter, this test case presents a real situation for which the CH method may not be appropriate. The bone surface cell nuclei will be constructed as closed cylinders in accordance with the electron micrograph data of Lloyd et al. (*48*). The length of each cylinder is 7.72 um, the width is 1.28 um and the distance from the center of each cylinder to the mineral bone surface is 1.98 um. The nuclei were arranged in a 1024 element, 16x64 lattice. Figure 7.1 shows a 4x16 section of this arrangement nicely. Nuclei spacing in the lattice is 13.1072 um center-to-center along the cylinder length for all 16 elements in this direction. Center-to-center spacing along the width of the cylinder is 1.6384 um for all 64 elements in this direction. This spacing is rather arbitrary and not meant to represent actual spacing in a living biological system, but rather to provide a dose curve as a function of orientation. The mineral bone is modeled as an infinite slab of material.

Bone surface cell nuclei and surrounding material composition is taken to be the most significant (highest weight-fraction) 6 elements of red bone marrow as defined by ICRU 46 (*49*). Mineral bone composition is also taken from the most significant 6

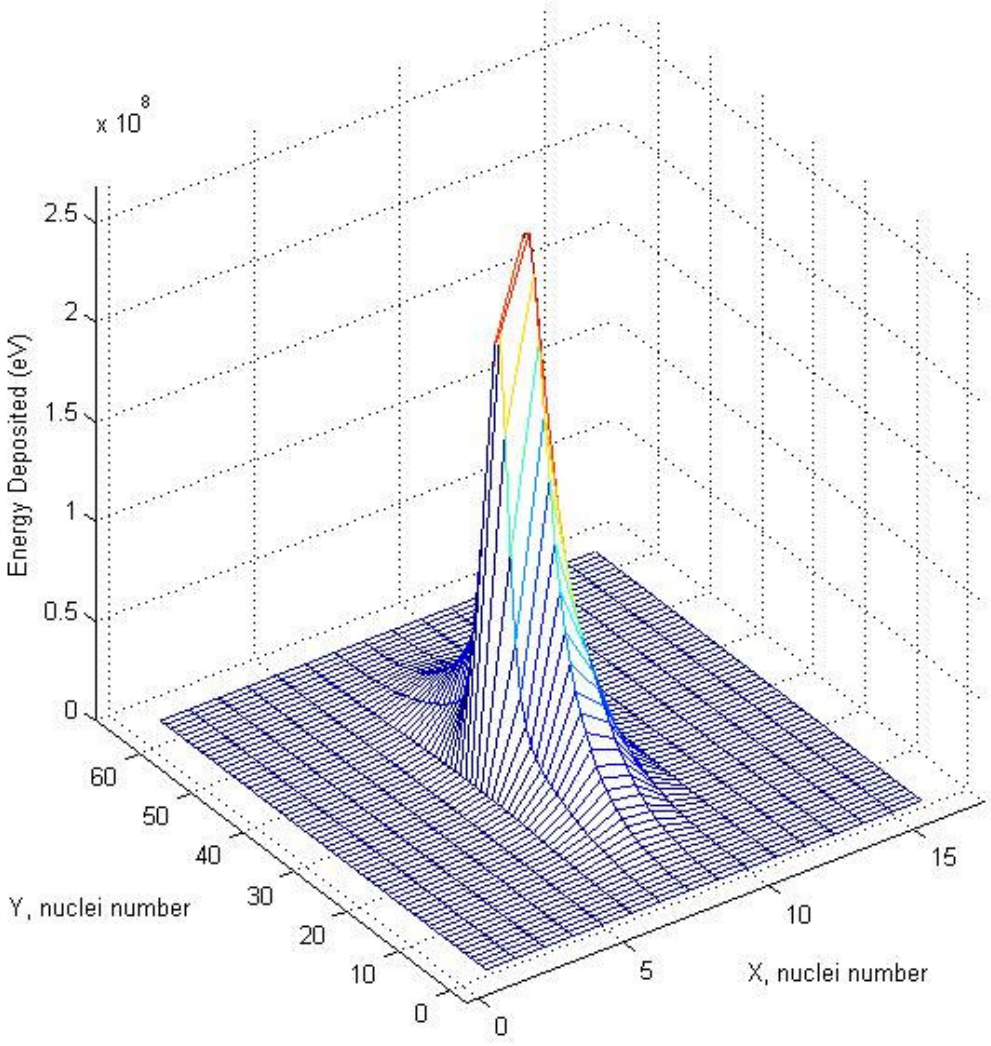

Fig. 8.5. A mesh plot showing energy deposition data collected from the FPGA after a 10 million history run of test case 5. Data collected from the track-structure C code is not shown in this plot because it is nearly indiscernible from the FPGA data.

elements of the mineral bone definition in ICRU 46. The source for this problem is a 60 KeV monoenergetic, monodirectional pencil beam electron source. The source originates near the center of the nuclei grid and at a distance of 9.7152 um from the mineral bone surface. The nuclei grid is oriented such that the long axis (length) of the cylinders is parallel to the X axis and the width parallel to the Y axis. The source is directed toward the positive X axis at a 20 degree angle of depression with respect to the X-Y plane. Figure 7.1 illustrates the source setup.

In order to get good statistics for this test case, it was necessary to run more histories than in the previous slab-style test cases. Ten-million histories were run both on the FPGA and using the track-structure C code method. The energy-deposition results for both methods were very close, as they have been for the previous four test cases. Figure 8.5 shows a 3-dimensional mesh of the FPGA tally results. Once again, the track-structure C code was run on a 2.4 Ghz AMD Opteron system and the Xilinx Virtex-II Pro 100 FPGA was clocked at 100 Mhz. For both methods, the evaluation of 10 million histories resulted in 38.7 billion electron interactions, 13.3 billion ionizations, 15 billion elastic-scattering events, 10.3 billion excitations and more than 1.8 billion high energy delta rays that were tracked. This enormous amount of computational work took 57 hours, 7 minutes using the track-structure C code on a conventional computer. An identical simulation was completed in 406 seconds using the FPGA. The FPGA was able to evaluate this Monte Carlo problem more than 506 times faster than it was done using an optimized C code on a standard computer.

A greater degree of acceleration was obtained on this test case than in the previous ones for one simple reason: this test case was more complicated. As stated before, the time that it takes for the FPGA to solve these problems scales linearly only with the number electron interactions. In this test case, the work required per interaction increases for several reasons: more complicated tally geometries and more complex material composition. Materials composed of many atoms add additional computational steps to every interaction, which slow the track-structure C code down. Additionally, more computational work is required to determine if an energy deposition event takes

place in a cylinder than in an infinite slice of a slab. The FPGA based simulation is unaffected by these increases in work required per interaction; it efficiently performs electron transport with a work rate of one interaction per clock cycle, independent of the computational difficulty of each interaction. However, FPGA resource utilization will increase as the computational difficulty of each interaction increases. For instance, more embedded block-ram units and standard combinatorial logic units were required to store cross-sectional data for more atoms and perform more complex tally calculations in this test case.

The implementation for the entire design to perform track-structure electron transport for an electron beam incident on endosteal bone cells took up considerable resources on our Xilinx Virtex-II Pro 100 FPGA. The number of LUTs (see Chapter II) required was 20768 out of 88192 (23%). In addition, 83 out of 444 dedicated 18x18 multipliers were used as well as 219 out of 444 onboard blockram modules. Traditionally, a working design may consume 65-75% of available LUTs on an FPGA before it becomes too large to successfully place and route. This leaves considerable programmable logic space available on this device to deal with additional complications to this problem while maintaining a 1 interaction per clock-cycle work rate. Furthermore, more than half of the available blockram space is unused, leaving a great deal of room for storing additional cross-sectional data and less than one quarter of the dedicated multipliers were used, opening up the option of greatly increasing operation precision by performing higher bitwidth multiplication.

Error Analysis

The figures presented in this chapter portray a very close agreement between the FPGA based track-structure transport method and the C code one. However, because of the large number of histories run, there may be hidden error which is not obvious from the plots. Using the number of counts in each axial bin, and for the first four test cases

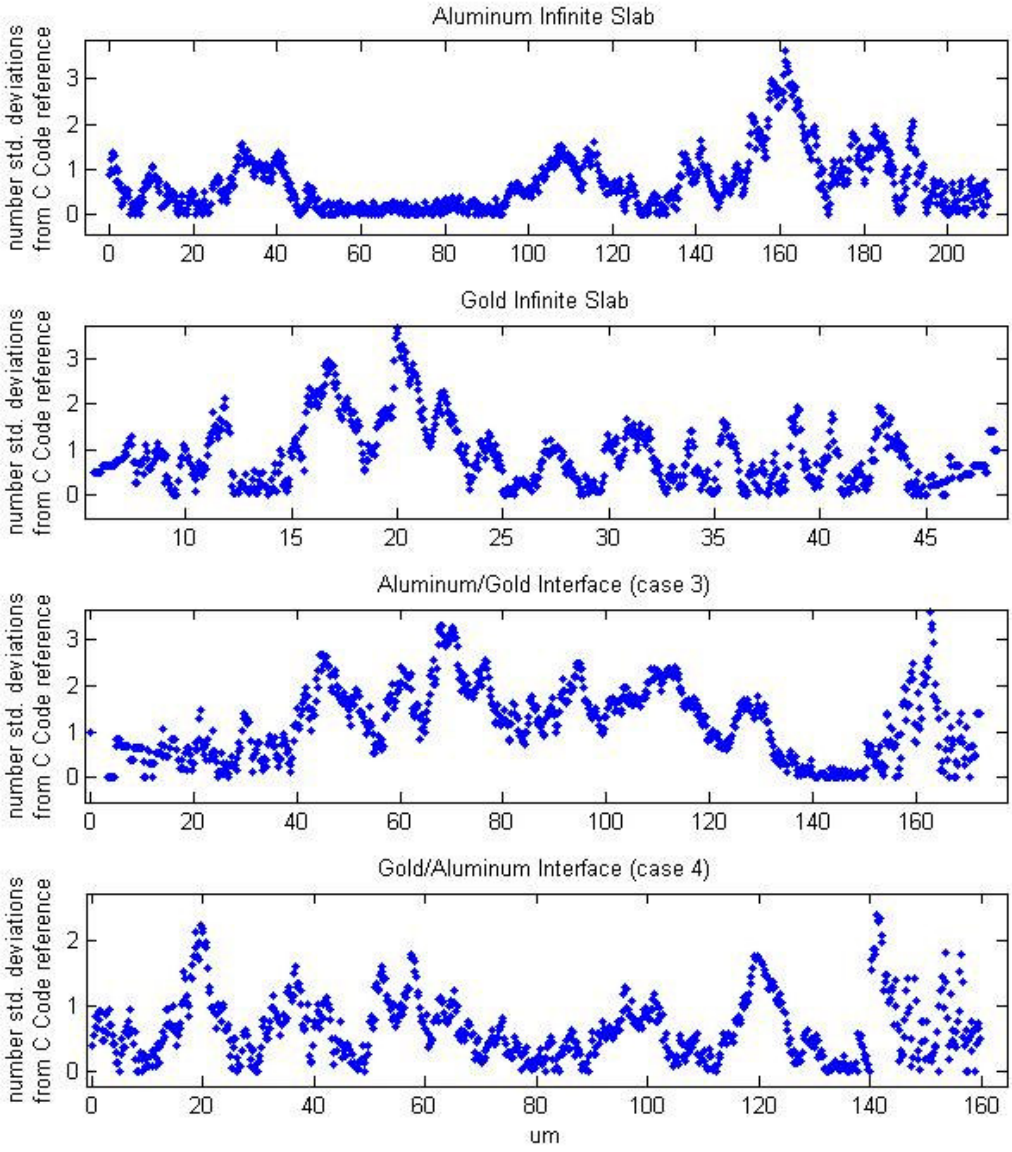

Fig. 8.6. The number of standard deviations the FPGA based output differs from the C code output for 1024 bins in the first four test cases.

described in this chapter, a presentation of the error in terms number of standard deviations can be found in Figure 8.6. In Figure 8.6, the percentage of data points with an error below 1.96 standard deviations is roughly 95% for Test Case 1, 93% for Test Case 2, 85% for Test Case 3, 98% for Test Case 4 and 96% for Test Case 5 (not pictured). Since 1.96 standard deviations corresponds to a 95% confidence interval, we can surmise that for a large number of samples, percentages deviating far from 95% are caused by the lower operation precisions used by the FPGA based transport method, and not Poisson statistics. Test Cases 3, 4 and perhaps 2 deviate somewhat from the 95% confidence interval due to artifacts introduced by the lower bit precisions used by the FPGA. However, even though error introduced by using lower-precision mathematical operations on the FPGA was detectable, it is still small and only detectable because of the large number of histories run. Furthermore, the error associated with the available differential and integrated electron interaction cross-sections is *much* greater than the error introduced by the lower precisions used by the FPGA. Most Monte Carlo codes don't consider the accumulated effect of cross-section error when generating an error report. This is unfortunate since the error associated with cross-sections can have a significant effect on simulation results, often enough to negate the benefit of running large numbers of histories to minimize error caused by Poisson statistics.

CHAPTER IX

CONCLUSION AND FUTURE WORK

It is difficult to name a more computationally demanding Monte Carlo problem than track-structure electron transport, especially at the high level of detail that it was performed in this work. Because electrons carry a charge, their interaction cross-sections are orders of magnitude larger than those of neutral particles. Furthermore, the small mass of electrons leads to erratic scattering behavior, making for a much more difficult problem than heavy charged particles, which tend to travel in straight lines. Despite these difficulties, it has been shown that FPGAs are capable of accelerating the computation time of track-structure electron transport by several orders of magnitude. Acceleration factors of more than 350 times were obtained for simple slab style geometries containing simple material compositions. In addition, an acceleration factor of more than 500 times was obtained for a simulation related to radiation biology involving dose to endosteal bone surface cell nuclei. For several test cases run, some FPGA induced error was detectable, however it was very small—less than one percent in most cases.

There are definite advantages to track-structure electron transport in radiation biology applications. More detail than energy deposition could easily be extracted from the FPGA based electron transport simulations we have presented. For example, consider modeling DNA strands in the endosteal bone surface cell nuclei discussed earlier to identify the likelihood of clustered damage to DNA. It wouldn't take much effort to change our existing design to incorporate this, especially since it already computes the spatial coordinates, type and energy loss of each electron interaction. Most importantly, these simulations would be completed in a matter of minutes, not days. It should also be noted that the FPGA used in this work was introduced by Xilinx Inc. about 4 years prior to the time of this publication, although it was the largest available at that time. Currently available FPGAs are larger, run at higher clock speeds, have more

higher-precision dedicated multipliers and more onboard blockram and are capable of performing more complicated transport problems quicker and with higher precision.

For FPGA based Monte Carlo transport to really become useful, more research concerning the automated generation of synthesizable hardware designs must be performed. The hardware designs for the problems in this paper took *months* to prepare, while the C code used for comparison was written in just a few days. This is the weakness of the FPGA based approach; for it to be truly practical, hardware designs for a specific problem must be quickly generated. However, this is the time to explore FPGA based Monte Carlo particle transport as the benefits of using FPGAs will only grow in the future. The speed of the CPU in a standard desktop PC has steadily increased according to Moore's law (doubling every 18 months) since the advent of the microprocessor. However, it has been shown that the speed of FPGAs is increasing by a factor of 5 every two years (*50*). If these trends continue, Monte Carlo simulations that can be performed *hundreds* of times faster on an FPGA this year will be performed *thousands* of times faster on the FPGAs that become available in five years. The benefits of FPGA based Monte Carlo particle transport are substantial with currently available technology and will be revolutionary with the technology that will become available in just a few years.

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APPENDIX A

Appendix A contains a detailed set of coefficients for the reproduction and sampling of electron elastic single scattering polar angle of collision as described in the dissertation. Data is presented for elements Z = 1 to 96, and for incident electron energies in the range from 50 to 300,000 eV. The data is presented in order or increasing Z.

Electron Elastic Scattering Sampling Data
Solution for Z = 1

Please note that the format of this file (Z = 1) is different
than for the other elements. Hydrogen can be effectively represented
by the standard screened Rutherford cross section. Therefore,
delta, A, and A* have been omitted.

Energy (eV)	Gamma
50	0.147843645314
52	0.141582061931
54	0.135826021299
56	0.130516672470
58	0.125603947336
60	0.121045020348
62	0.116802826159
64	0.112845903287
66	0.109146167438
68	0.105679266303
70	0.102424145209
72	0.099361742609
74	0.096475671316
76	0.093751054518
78	0.091174692802
80	0.088734946962
82	0.086421106617
84	0.084223804181
86	0.082134419325
88	0.080145201483
90	0.078249173256
92	0.076439884800
94	0.074711601120
96	0.073059004988
98	0.071477213592
100	0.069961761318
105	0.066437341370
110	0.063248214008
115	0.060348142894
120	0.057700037842
125	0.055272270794
130	0.053038770169
135	0.050976968253
140	0.049068041034
145	0.047295504103
150	0.045645413727
155	0.044105456324

160	0.042665074018
165	0.041314875351
170	0.040046750703
175	0.038853409195
180	0.037728470031
185	0.036666185441
190	0.035661618203
195	0.034710207429
200	0.033807533067
205	0.032949604582
210	0.032133420263
215	0.031356327127
220	0.030615818327
225	0.029909519365
230	0.029235184715
235	0.028590686281
240	0.027974000117
245	0.027383209352
250	0.026816494132
255	0.026272208547
260	0.025749124121
265	0.025246153835
270	0.024762254417
275	0.024296431959
280	0.023847733579
285	0.023415245316
290	0.022998094490
295	0.022595442127
300	0.022206482953
310	0.021466821485
320	0.020774394178
330	0.020125046709
340	0.019514925070
350	0.018940443333
360	0.018398376237
370	0.017886174259
380	0.017401553548
390	0.016942375520
400	0.016506633379
410	0.016092492445
420	0.015698447358
430	0.015323133040
440	0.014965256139
450	0.014623593342
460	0.014297019939
470	0.013984594138
480	0.013685450871
490	0.013398768449

500	0.013123765781
510	0.012859715462
520	0.012605997339
530	0.012362038988
540	0.012127291350
550	0.011901230813
560	0.011683366407
570	0.011473274977
580	0.011270560737
590	0.011074844509
600	0.010885762722
610	0.010702972836
620	0.010526174106
630	0.010355087580
640	0.010189440930
650	0.010028973934
660	0.009873440530
670	0.009722622980
680	0.009576315682
690	0.009434320602
700	0.009296446463
710	0.009162511496
720	0.009032353873
730	0.008905819811
740	0.008782760863
750	0.008663033228
760	0.008546500329
770	0.008433039434
780	0.008322532744
790	0.008214867784
800	0.008109934078
810	0.008007626534
820	0.007907850449
830	0.007810515264
840	0.007715532474
850	0.007622816627
860	0.007532286038
870	0.007443865389
880	0.007357484230
890	0.007273072270
900	0.007190562664
910	0.007109889675
920	0.007030994778
930	0.006953820847
940	0.006878312689
950	0.006804416195
960	0.006732079572
970	0.006661254273

980	0.006591893776
990	0.006523953074
1000	0.006457386995
1025	0.006296720157
1050	0.006143809785
1075	0.005998118324
1100	0.005859136951
1125	0.005726396258
1150	0.005599496299
1175	0.005478069090
1200	0.005361764901
1225	0.005250258346
1250	0.005143265439
1275	0.005040522978
1300	0.004941780499
1325	0.004846801646
1350	0.004755381542
1375	0.004667326799
1400	0.004582453741
1425	0.004500588805
1450	0.004421578181
1475	0.004345278194
1500	0.004271549734
1550	0.004131299650
1600	0.003999912735
1650	0.003876570389
1700	0.003760558041
1750	0.003651233173
1800	0.003548046047
1850	0.003450499487
1900	0.003358148786
1950	0.003270581282
2000	0.003187407246
2100	0.003032921934
2200	0.002892617761
2300	0.002764754960
2400	0.002647765601
2500	0.002540231745
2600	0.002440930481
2700	0.002348996233
2800	0.002263694785
2900	0.002184351686
3000	0.002110344679
3100	0.002041121036
3200	0.001976252587
3300	0.001915362185
3400	0.001858097889
3500	0.001804131873

3600	0.001753168376
3700	0.001704974246
3800	0.001659340647
3900	0.001616071342
4000	0.001574981513
4100	0.001535902090
4200	0.001498694895
4300	0.001463234053
4400	0.001429400376
4500	0.001397081029
4600	0.001366171652
4700	0.001336585166
4800	0.001308241952
4900	0.001281065669
5000	0.001254983771
5500	0.001138882198
6000	0.001042249365
6500	0.000960574121
7000	0.000890638306
7500	0.000830085521
8000	0.000777156409
8500	0.000730499623
9000	0.000689063063
9500	0.000652019956
10000	0.000618709149
10500	0.000588593692
11000	0.000561242553
11500	0.000536287785
12000	0.000513432643
12500	0.000492422069
13000	0.000473044999
13500	0.000455117441
14000	0.000438485140
14500	0.000423012411
15000	0.000408584528
16000	0.000382467348
17000	0.000359464099
18000	0.000339059713
19000	0.000320841907
20000	0.000304478852
21000	0.000290724354
22000	0.000277033871
23000	0.000263723471
24000	0.000251158521
25000	0.000239683400
26000	0.000229527012
27000	0.000220536074
28000	0.000212474382

29000	0.000205119599
30000	0.000198263766
31000	0.000191744116
32000	0.000185531927
33000	0.000179631275
34000	0.000174046019
35000	0.000168781205
36000	0.000163835015
37000	0.000159181929
38000	0.000154791884
39000	0.000150637062
40000	0.000146691243
41000	0.000142931549
42000	0.000139345122
43000	0.000135922314
44000	0.000132654230
45000	0.000129532527
46000	0.000126549069
47000	0.000123695263
48000	0.000120962655
49000	0.000118343210
50000	0.000115829248
55000	0.000104632768
60000	0.000095313362
65000	0.000087443392
70000	0.000080710613
75000	0.000074877895
80000	0.000069786175
85000	0.000065304654
90000	0.000061322290
95000	0.000057758794
100000	0.000054572664
105000	0.000051684273
110000	0.000049059825
115000	0.000046674563
120000	0.000044492765
125000	0.000042484353
130000	0.000040633678
135000	0.000038926170
140000	0.000037343304
145000	0.000035869993
150000	0.000034497141
155000	0.000033216381
160000	0.000032018269
165000	0.000030894173
170000	0.000029837671
175000	0.000028843349
180000	0.000027906429

185000	0.000027022283
190000	0.000026186006
195000	0.000025393431
200000	0.000024641439
205000	0.000023927311
210000	0.000023248516
215000	0.000022602704
220000	0.000021987687
225000	0.000021401419
230000	0.000020841930
235000	0.000020307463
240000	0.000019796370
245000	0.000019307079
250000	0.000018838124
255000	0.000018388175
260000	0.000017956182
265000	0.000017541196
270000	0.000017142322
275000	0.000016758703
280000	0.000016389534
285000	0.000016034049
290000	0.000015691515
295000	0.000015361243
300000	0.000015042575

Electron Elastic Scattering Sampling Data
Solution for Z = 2

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.311163784650	2.148999082051	+1	0.185251884672	3.771395201659
52	0.302704876483	2.159916046490	+1	0.174253602510	3.652431139752
54	0.294632397602	2.170944613041	+1	0.164110412960	3.543216194440
56	0.286927054892	2.181932357257	+1	0.154735578795	3.441948664991
58	0.279569816805	2.192723884118	+1	0.146052817345	3.347109867379
60	0.272541885711	2.203174881162	+1	0.137995264391	3.257457890570
62	0.265825378270	2.213135158083	+1	0.130503400941	3.171908382011
64	0.259402664598	2.222449723485	+1	0.123525625659	3.089561850421
66	0.253257678502	2.230960893943	+1	0.117014641999	3.009590239781
68	0.247374526244	2.238570424960	+1	0.110929970052	2.931468191729
70	0.241738601691	2.245097937812	+1	0.105234585880	2.854540566489
72	0.236336165470	2.250428024383	+1	0.099895358861	2.778377371131
74	0.231161254177	2.252886839430	+1	0.094863357596	2.698750260951
76	0.226180229648	2.256964293591	+1	0.090171930869	2.626883265334
78	0.221403118174	2.257938348290	+1	0.085737437170	2.551007554633
80	0.216812110604	2.257212235919	+1	0.081558476160	2.474736621255
82	0.212397154063	2.254707062063	+1	0.077615615345	2.397980199603
84	0.208148886427	2.250300642296	+1	0.073891439419	2.320607845587
86	0.204058522986	2.243915965623	+1	0.070370016516	2.242597734495
88	0.200117826305	2.235484209699	+1	0.067036968184	2.163969607418
90	0.196319110076	2.224920020685	+1	0.063879160877	2.084735802090
92	0.192655216425	2.212163043093	+1	0.060884330405	2.004958908035
94	0.189119224033	2.197218334906	+1	0.058042199478	1.924849799628
96	0.185704810240	2.180043217181	+1	0.055342597113	1.844520956466
98	0.182406130965	2.160584417334	+1	0.052775962522	1.764070679844
100	0.179217550361	2.138872837678	+1	0.050334006520	1.683739228637
105	0.171693638303	2.075067955960	+1	0.044726681625	1.485107175082
110	0.164752345178	1.997351417331	+1	0.039746471787	1.291337071044

115	0.158329118952	1.907592006128	+1	0.035309083770	1.106940939852
120	0.152369138788	1.807060607985	+1	0.031343869107	0.934800315003
125	0.146824852117	1.697633277457	+1	0.027790523520	0.777440212631
130	0.141654573092	1.581377694088	+1	0.024600850012	0.636633637846
135	0.136822045326	1.460474982005	+1	0.021732212977	0.513228434462
140	0.132295311738	1.337045015765	+1	0.019150126407	0.407265900083
145	0.128046319191	1.213089657201	+1	0.016823812902	0.318046745270
150	0.124050173825	1.090423759722	+1	0.014728118882	0.244364299132
155	0.120284874338	0.970586911322	+1	0.012840240087	0.184618931748
160	0.116730776316	0.854894851102	+1	0.011141370877	0.137057423003
165	0.113370375950	0.744378858220	+1	0.009614371062	0.099864733062
170	0.110187968980	0.639858817655	+1	0.008244906476	0.071308486367
175	0.107169488756	0.541922542624	+1	0.007019740953	0.049784594944
180	0.104302216893	0.451012699468	+1	0.005927530447	0.033879285921
185	0.101574691575	0.367426069669	+1	0.004957787926	0.022372823746
190	0.098976510807	0.291477201886	+1	0.004102119168	0.014254902477
195	0.096498235950	0.223377037376	+1	0.003352083732	0.008686496218
200	0.094131255540	0.163214463921	+1	0.002698354526	0.004987554272
205	0.091867626659	0.111217210827	+1	0.002132697576	0.002633267357
210	0.089700047585	0.068072871401	+1	0.001650518516	0.001229739477
215	0.087621879972	0.034663914166	+1	0.001247301144	0.000470002053
220	0.085626978935	0.012011634052	+1	0.000917917443	0.000120143091
230	0.082506255081	1.000000000000	+1	0.000000000000	
235	0.080575664406	1.000000000000	+1	0.000000000000	
240	0.078673870619	1.000000000000	+1	0.000000000000	
245	0.071252789652	1.000000000000	+1	0.000000000000	
250	0.074658849803	1.000000000000	+1	0.000000000000	
255	0.073221309401	1.000000000000	+1	0.000000000000	
260	0.071945732710	1.000000000000	+1	0.000000000000	
265	0.070625069105	1.000000000000	+1	0.000000000000	
270	0.069179524706	1.000000000000	+1	0.000000000000	
275	0.067881247222	1.000000000000	+1	0.000000000000	
280	0.066563423404	1.000000000000	+1	0.000000000000	

285	0.065295092601	1.000000000000	+1	0.000000000000
290	0.064073854180	1.000000000000	+1	0.000000000000
295	0.062897008939	1.000000000000	+1	0.000000000000
300	0.061762028836	1.000000000000	+1	0.000000000000
310	0.059608573000	1.000000000000	+1	0.000000000000
320	0.057598534159	1.000000000000	+1	0.000000000000
330	0.055718673230	1.000000000000	+1	0.000000000000
340	0.053956863820	1.000000000000	+1	0.000000000000
350	0.052302603616	1.000000000000	+1	0.000000000000
360	0.050744697370	1.000000000000	+1	0.000000000000
370	0.049275780765	1.000000000000	+1	0.000000000000
380	0.047888809651	1.000000000000	+1	0.000000000000
390	0.046577171816	1.000000000000	+1	0.000000000000
400	0.045334782831	1.000000000000	+1	0.000000000000
410	0.044156079046	1.000000000000	+1	0.000000000000
420	0.043036390639	1.000000000000	+1	0.000000000000
430	0.041971621398	1.000000000000	+1	0.000000000000
440	0.040957862612	1.000000000000	+1	0.000000000000
450	0.039991443478	1.000000000000	+1	0.000000000000
460	0.039068993607	1.000000000000	+1	0.000000000000
470	0.038187680085	1.000000000000	+1	0.000000000000
480	0.037344916932	1.000000000000	+1	0.000000000000
490	0.036538252258	1.000000000000	+1	0.000000000000
500	0.035765361825	1.000000000000	+1	0.000000000000
510	0.035024097118	1.000000000000	+1	0.000000000000
520	0.034312617660	1.000000000000	+1	0.000000000000
530	0.033629225384	1.000000000000	+1	0.000000000000
540	0.032972303916	1.000000000000	+1	0.000000000000
550	0.032340310152	1.000000000000	+1	0.000000000000
560	0.031731807661	1.000000000000	+1	0.000000000000
570	0.031145553076	1.000000000000	+1	0.000000000000
580	0.030580382741	1.000000000000	+1	0.000000000000
590	0.030035192198	1.000000000000	+1	0.000000000000

600	0.029508918372	1.000000000000	+1	0.000000000000
610	0.029000564321	1.000000000000	+1	0.000000000000
620	0.028509258180	1.000000000000	+1	0.000000000000
630	0.028034180039	1.000000000000	+1	0.000000000000
640	0.027574547707	1.000000000000	+1	0.000000000000
650	0.027129604586	1.000000000000	+1	0.000000000000
660	0.026698637988	1.000000000000	+1	0.000000000000
670	0.026281018905	1.000000000000	+1	0.000000000000
680	0.025876154877	1.000000000000	+1	0.000000000000
690	0.025483472252	1.000000000000	+1	0.000000000000
700	0.025102422130	1.000000000000	+1	0.000000000000
710	0.024732480567	1.000000000000	+1	0.000000000000
720	0.024373183449	1.000000000000	+1	0.000000000000
730	0.024024089348	1.000000000000	+1	0.000000000000
740	0.023684771038	1.000000000000	+1	0.000000000000
750	0.023354818975	1.000000000000	+1	0.000000000000
760	0.023033840119	1.000000000000	+1	0.000000000000
770	0.022721485029	1.000000000000	+1	0.000000000000
780	0.022417417330	1.000000000000	+1	0.000000000000
790	0.022121314691	1.000000000000	+1	0.000000000000
800	0.021832862178	1.000000000000	+1	0.000000000000
810	0.021551761275	1.000000000000	+1	0.000000000000
820	0.021277742183	1.000000000000	+1	0.000000000000
830	0.021010545637	1.000000000000	+1	0.000000000000
840	0.020749922434	1.000000000000	+1	0.000000000000
850	0.020495629578	1.000000000000	+1	0.000000000000
860	0.020247433878	1.000000000000	+1	0.000000000000
870	0.020005123268	1.000000000000	+1	0.000000000000
880	0.019768497641	1.000000000000	+1	0.000000000000
890	0.019537358668	1.000000000000	+1	0.000000000000
900	0.019311512802	1.000000000000	+1	0.000000000000
910	0.019090781390	1.000000000000	+1	0.000000000000
920	0.018874992708	1.000000000000	+1	0.000000000000

930	0.018663990000	1.000000000000	+1	0.000000000000
940	0.018457615006	1.000000000000	+1	0.000000000000
950	0.018255716377	1.000000000000	+1	0.000000000000
960	0.018058147465	1.000000000000	+1	0.000000000000
970	0.017864772844	1.000000000000	+1	0.000000000000
980	0.017675459496	1.000000000000	+1	0.000000000000
990	0.017490081755	1.000000000000	+1	0.000000000000
1000	0.017308512403	1.000000000000	+1	0.000000000000
1025	0.016870507280	1.000000000000	+1	0.000000000000
1050	0.016453960167	1.000000000000	+1	0.000000000000
1075	0.016057363463	1.000000000000	+1	0.000000000000
1100	0.015679293462	1.000000000000	+1	0.000000000000
1125	0.015318438042	1.000000000000	+1	0.000000000000
1150	0.014973680876	1.000000000000	+1	0.000000000000
1175	0.014643994196	1.000000000000	+1	0.000000000000
1200	0.014328402515	1.000000000000	+1	0.000000000000
1225	0.014025999076	1.000000000000	+1	0.000000000000
1250	0.013735996472	1.000000000000	+1	0.000000000000
1275	0.013457661791	1.000000000000	+1	0.000000000000
1300	0.013190297289	1.000000000000	+1	0.000000000000
1325	0.012933251351	1.000000000000	+1	0.000000000000
1350	0.012685954150	1.000000000000	+1	0.000000000000
1375	0.012447870306	1.000000000000	+1	0.000000000000
1400	0.012218490330	1.000000000000	+1	0.000000000000
1425	0.011997335284	1.000000000000	+1	0.000000000000
1450	0.011783980682	1.000000000000	+1	0.000000000000
1475	0.011578029038	1.000000000000	+1	0.000000000000
1500	0.011379097778	1.000000000000	+1	0.000000000000
1550	0.011000894042	1.000000000000	+1	0.000000000000
1600	0.010646843918	1.000000000000	+1	0.000000000000
1650	0.010314692278	1.000000000000	+1	0.000000000000
1700	0.010002491672	1.000000000000	+1	0.000000000000
1750	0.009708488916	1.000000000000	+1	0.000000000000

1800	0.009431145584	1.000000000000	+1	0.000000000000
1850	0.009169077149	1.000000000000	+1	0.000000000000
1900	0.008921090352	1.000000000000	+1	0.000000000000
1950	0.008686082838	1.000000000000	+1	0.000000000000
2000	0.008462984893	1.000000000000	+1	0.000000000000
2100	0.008048891587	1.000000000000	+1	0.000000000000
2200	0.007673122751	1.000000000000	+1	0.000000000000
2300	0.007330934630	1.000000000000	+1	0.000000000000
2400	0.007018065714	1.000000000000	+1	0.000000000000
2500	0.006730675262	1.000000000000	+1	0.000000000000
2600	0.006465458024	1.000000000000	+1	0.000000000000
2700	0.006220062820	1.000000000000	+1	0.000000000000
2800	0.005992496994	1.000000000000	+1	0.000000000000
2900	0.005780933835	1.000000000000	+1	0.000000000000
3000	0.005583693825	1.000000000000	+1	0.000000000000
3100	0.005399286022	1.000000000000	+1	0.000000000000
3200	0.005226554404	1.000000000000	+1	0.000000000000
3300	0.005064479999	1.000000000000	+1	0.000000000000
3400	0.004912114872	1.000000000000	+1	0.000000000000
3500	0.004768577526	1.000000000000	+1	0.000000000000
3600	0.004633073950	1.000000000000	+1	0.000000000000
3700	0.004504975388	1.000000000000	+1	0.000000000000
3800	0.004383720195	1.000000000000	+1	0.000000000000
3900	0.004268780742	1.000000000000	+1	0.000000000000
4000	0.004159660269	1.000000000000	+1	0.000000000000
4100	0.004055907152	1.000000000000	+1	0.000000000000
4200	0.003957149841	1.000000000000	+1	0.000000000000
4300	0.003863051386	1.000000000000	+1	0.000000000000
4400	0.003773293745	1.000000000000	+1	0.000000000000
4500	0.003687574745	1.000000000000	+1	0.000000000000
4600	0.003605615266	1.000000000000	+1	0.000000000000
4700	0.003527180667	1.000000000000	+1	0.000000000000
4800	0.003452053325	1.000000000000	+1	0.000000000000

4900	0.003380028709	1.000000000000	+1	0.000000000000
5000	0.003310910108	1.000000000000	+1	0.000000000000
5500	0.003003425604	1.000000000000	+1	0.000000000000
6000	0.002747906901	1.000000000000	+1	0.000000000000
6500	0.002531662082	1.000000000000	+1	0.000000000000
7000	0.002346777604	1.000000000000	+1	0.000000000000
7500	0.002186761139	1.000000000000	+1	0.000000000000
8000	0.002046917507	1.000000000000	+1	0.000000000000
8500	0.001923663324	1.000000000000	+1	0.000000000000
9000	0.001814215789	1.000000000000	+1	0.000000000000
9500	0.001716381019	1.000000000000	+1	0.000000000000
10000	0.001628406781	1.000000000000	+1	0.000000000000
10500	0.001548870306	1.000000000000	+1	0.000000000000
11000	0.001476630042	1.000000000000	+1	0.000000000000
11500	0.001410712940	1.000000000000	+1	0.000000000000
12000	0.001350333477	1.000000000000	+1	0.000000000000
12500	0.001294817223	1.000000000000	+1	0.000000000000
13000	0.001243606084	1.000000000000	+1	0.000000000000
13500	0.001196213959	1.000000000000	+1	0.000000000000
14000	0.001152233514	1.000000000000	+1	0.000000000000
14500	0.001111306961	1.000000000000	+1	0.000000000000
15000	0.001073131306	1.000000000000	+1	0.000000000000
16000	0.001003987977	1.000000000000	+1	0.000000000000
17000	0.000943038498	1.000000000000	+1	0.000000000000
18000	0.000888914212	1.000000000000	+1	0.000000000000
19000	0.000840537090	1.000000000000	+1	0.000000000000
20000	0.000797036582	1.000000000000	+1	0.000000000000
21000	0.000763644290	1.000000000000	+1	0.000000000000
22000	0.000728845711	1.000000000000	+1	0.000000000000
23000	0.000694999886	1.000000000000	+1	0.000000000000
24000	0.000662939397	1.000000000000	+1	0.000000000000
25000	0.000633436545	1.000000000000	+1	0.000000000000
26000	0.000607000264	1.000000000000	+1	0.000000000000

27000	0.000583297154	1.000000000000	+1	0.000000000000
28000	0.000561820898	1.000000000000	+1	0.000000000000
29000	0.000542103470	1.000000000000	+1	0.000000000000
30000	0.000523713287	1.000000000000	+1	0.000000000000
31000	0.000506310777	1.000000000000	+1	0.000000000000
32000	0.000489811337	1.000000000000	+1	0.000000000000
33000	0.000474193910	1.000000000000	+1	0.000000000000
34000	0.000459440009	1.000000000000	+1	0.000000000000
35000	0.000445533163	1.000000000000	+1	0.000000000000
36000	0.000432448925	1.000000000000	+1	0.000000000000
37000	0.000420125588	1.000000000000	+1	0.000000000000
38000	0.000408493105	1.000000000000	+1	0.000000000000
39000	0.000397483027	1.000000000000	+1	0.000000000000
40000	0.000387028791	1.000000000000	+1	0.000000000000
41000	0.000377070586	1.000000000000	+1	0.000000000000
42000	0.000367570669	1.000000000000	+1	0.000000000000
43000	0.000358501261	1.000000000000	+1	0.000000000000
44000	0.000349839452	1.000000000000	+1	0.000000000000
45000	0.000341566467	1.000000000000	+1	0.000000000000
46000	0.000333665504	1.000000000000	+1	0.000000000000
47000	0.000326115452	1.000000000000	+1	0.000000000000
48000	0.000318893189	1.000000000000	+1	0.000000000000
49000	0.000311975071	1.000000000000	+1	0.000000000000
50000	0.000305337120	1.000000000000	+1	0.000000000000
55000	0.000275745183	1.000000000000	+1	0.000000000000
60000	0.000251121393	1.000000000000	+1	0.000000000000
65000	0.000230330355	1.000000000000	+1	0.000000000000
70000	0.000212553057	1.000000000000	+1	0.000000000000
75000	0.000197154030	1.000000000000	+1	0.000000000000
80000	0.000183703097	1.000000000000	+1	0.000000000000
85000	0.000171875863	1.000000000000	+1	0.000000000000
90000	0.000161365515	1.000000000000	+1	0.000000000000
95000	0.000151963164	1.000000000000	+1	0.000000000000

100000	0.000143553048	1.000000000000	+1	0.000000000000
105000	0.000135924671	1.000000000000	+1	0.000000000000
110000	0.000129004135	1.000000000000	+1	0.000000000000
115000	0.000122733329	1.000000000000	+1	0.000000000000
120000	0.000116992888	1.000000000000	+1	0.000000000000
125000	0.000111689051	1.000000000000	+1	0.000000000000
130000	0.000106799964	1.000000000000	+1	0.000000000000
135000	0.000102303630	1.000000000000	+1	0.000000000000
140000	0.000098139152	1.000000000000	+1	0.000000000000
145000	0.000094255264	1.000000000000	+1	0.000000000000
150000	0.000090635131	1.000000000000	+1	0.000000000000
155000	0.000087263827	1.000000000000	+1	0.000000000000
160000	0.000084110832	1.000000000000	+1	0.000000000000
165000	0.000081149065	1.000000000000	+1	0.000000000000
170000	0.000078365585	1.000000000000	+1	0.000000000000
175000	0.000075749048	1.000000000000	+1	0.000000000000
180000	0.000073284255	1.000000000000	+1	0.000000000000
185000	0.000070956863	1.000000000000	+1	0.000000000000
190000	0.000068754971	1.000000000000	+1	0.000000000000
195000	0.000066668687	1.000000000000	+1	0.000000000000
200000	0.000064689791	1.000000000000	+1	0.000000000000
205000	0.000062810742	1.000000000000	+1	0.000000000000
210000	0.000061024899	1.000000000000	+1	0.000000000000
215000	0.000059326080	1.000000000000	+1	0.000000000000
220000	0.000057708488	1.000000000000	+1	0.000000000000
225000	0.000056166742	1.000000000000	+1	0.000000000000
230000	0.000054695641	1.000000000000	+1	0.000000000000
235000	0.000053290261	1.000000000000	+1	0.000000000000
240000	0.000051946463	1.000000000000	+1	0.000000000000
245000	0.000050660121	1.000000000000	+1	0.000000000000
250000	0.000049427270	1.000000000000	+1	0.000000000000
255000	0.000048244485	1.000000000000	+1	0.000000000000
260000	0.000047108937	1.000000000000	+1	0.000000000000

265000	0.000046018173	1.000000000000	+1	0.000000000000
270000	0.000044969822	1.000000000000	+1	0.000000000000
275000	0.000043961637	1.000000000000	+1	0.000000000000
280000	0.000042991483	1.000000000000	+1	0.000000000000
285000	0.000042057490	1.000000000000	+1	0.000000000000
290000	0.000041157676	1.000000000000	+1	0.000000000000
295000	0.000040290196	1.000000000000	+1	0.000000000000
300000	0.000039453315	1.000000000000	+1	0.000000000000

Electron Elastic Scattering Sampling Data
Solution for Z = 3

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.038630130949	156.535399281252	-1	0.182468890542	137179.169490690750
52	0.027731272439	3.655236116769	+1	0.187429721636	137.716287894982
54	0.026997314573	4.313263762331	+1	0.184056968621	186.453244465029
56	0.026296868102	5.194710742486	+1	0.180886064847	263.309280644041
58	0.025627902004	6.437341670691	+1	0.177902254755	394.166224356537
60	0.024988536121	8.321199303249	+1	0.175091910391	642.774166082690
62	0.024377021165	11.516579586096	+1	0.172442528521	1202.859588242273
64	0.023791737517	18.125035605510	+1	0.169942263517	2913.643667584313
66	0.023231169360	39.892983843729	+1	0.167580650000	13815.995835517180
68	0.022769135994	227.634064782229	+1	0.164501014471	440024.319320536040
70	0.022269967037	44.158236336754	-1	0.162249986292	16964.213932694354
72	0.021684160559	16.542173000002	-1	0.161233921319	2517.863785065479
74	0.021209309624	11.206968191741	-1	0.159336721240	1197.149679598249
76	0.020753024344	8.456618131505	-1	0.157536608427	705.928888070943
78	0.020314314935	6.779037467672	-1	0.155827159302	469.644796252339
80	0.019892247497	5.649145769295	-1	0.154202428007	337.547789825371
82	0.019485954207	4.836398978751	-1	0.152657026898	255.989255287125
84	0.019094618345	4.223800215165	-1	0.151185874758	201.958927368078
86	0.018717479125	3.745563061104	-1	0.149784383768	164.225732030468
88	0.018353819127	3.361895203035	-1	0.148448282772	136.772379851837
90	0.018002970669	3.047320224720	-1	0.147173536056	116.134565151396
92	0.017664305476	2.784739184608	-1	0.145956513616	100.198880740484
94	0.017337230536	2.562284984371	-1	0.144793811936	87.617447403049
96	0.017021190628	2.371435516080	-1	0.143682319736	77.495174388627
98	0.016715661140	2.205917513277	-1	0.142619188869	69.218589217986
100	0.016420156316	2.061026100422	-1	0.141601556789	62.356118699877
105	0.015722281879	1.767225065045	-1	0.139240618307	49.537030090564
110	0.015077706244	1.543484266189	-1	0.137113557006	40.758993079227

115	0.014480790183	1.367500884966	-1	0.135191388301	34.451703394622
120	0.013926627349	1.225590559554	-1	0.133448891422	29.748082854156
125	0.013410950655	1.108801524513	-1	0.131864891333	26.132816864110
130	0.012930019550	1.011086863627	-1	0.130421041393	23.285164723493
135	0.012480551078	0.928169357370	-1	0.129101932795	20.995072039770
140	0.012059654971	0.856977784755	-1	0.127893907320	19.121229424589
145	0.011664773071	0.795219031693	-1	0.126785347139	17.564643364499
150	0.011293637709	0.741170433170	-1	0.125766007880	16.254882325366
155	0.010944233284	0.693494485121	-1	0.124826982643	15.140102340169
160	0.010614757036	0.651151248442	-1	0.123960444707	14.181835740591
165	0.010303590485	0.613306029295	-1	0.123159792824	13.350637344641
170	0.010009315349	0.579302331598	-1	0.122418168442	12.624060161383
175	0.009730602991	0.548587801776	-1	0.121730935096	11.984228470355
180	0.009466291676	0.520722152903	-1	0.121093045144	11.417224026904
185	0.009215321584	0.495335813351	-1	0.120500236098	10.911797657251
190	0.008976733749	0.472123873273	-1	0.119948601777	10.458947273757
195	0.008749656164	0.450824219024	-1	0.119434809720	10.051180170752
200	0.008533290908	0.431206304175	-1	0.118955818993	9.682077540170
205	0.008326904447	0.413072128607	-1	0.118509230449	9.346299542104
210	0.008129842130	0.396271084973	-1	0.118092502867	9.039883592413
215	0.007941505794	0.380675312942	-1	0.117703154254	8.759543252033
220	0.007761348373	0.366170387547	-1	0.117338943329	8.502397783105
225	0.007588866631	0.352654214317	-1	0.116997657672	8.265914314701
230	0.007423594496	0.340034369413	-1	0.116677480973	8.047854876186
235	0.007265100232	0.328227211906	-1	0.116376749117	7.846222988518
240	0.007112983457	0.317156809928	-1	0.116094091391	7.659238777207
245	0.006966869761	0.306753626230	-1	0.115828439226	7.485299947849
250	0.006826409484	0.296954296083	-1	0.115578908291	7.322963119237
255	0.006691277832	0.287702488163	-1	0.115344973744	7.170979966527
260	0.006561185142	0.278956921038	-1	0.115125618669	7.028472351207
265	0.006435866075	0.270681865320	-1	0.114919764681	6.894693656815
270	0.006315069296	0.262844057563	-1	0.114726488396	6.768961158202
275	0.006198563460	0.255412713167	-1	0.114544871673	6.650639086664

280	0.006086130540	0.248359357732	-1	0.114374040625	6.539143230778
285	0.005977564297	0.241657147104	-1	0.114213271882	6.433927897423
290	0.005872672912	0.235281134808	-1	0.114061931478	6.334487020829
295	0.005771275013	0.229207945135	-1	0.113919408560	6.240343933520
300	0.005673198137	0.223415446940	-1	0.113785320516	6.151055230053
310	0.005486381405	0.212596765320	-1	0.113540815467	5.985550981034
320	0.005311086246	0.202701843510	-1	0.113324640526	5.835681215952
330	0.005146310275	0.193626625032	-1	0.113133193356	5.699542143017
340	0.004991153798	0.185277625004	-1	0.112963565780	5.575409927095
350	0.004844802751	0.177570048411	-1	0.112813775507	5.461711013449
360	0.004706527073	0.170429754616	-1	0.112682433990	5.357079949654
370	0.004575693489	0.163800670048	-1	0.112567572806	5.260568669591
380	0.004451734754	0.157634461487	-1	0.112467130007	5.171367807853
390	0.004334133789	0.151886437600	-1	0.112379567381	5.088715718323
400	0.004222416650	0.146515421335	-1	0.112303707834	5.011894623769
410	0.004116151985	0.141484327049	-1	0.112238835608	4.940261535237
420	0.004014960636	0.136764263832	-1	0.112183697792	4.873356745783
430	0.003918498598	0.132329528013	-1	0.112137192625	4.810777367935
440	0.003826446907	0.128156016449	-1	0.112098474431	4.752134654735
450	0.003738511996	0.124221216343	-1	0.112066887557	4.697050686941
460	0.003654422344	0.120504563310	-1	0.112042076100	4.645184231398
470	0.003573938558	0.116989677108	-1	0.112023347916	4.596288132775
480	0.003496838772	0.113661845835	-1	0.112009980767	4.550143215019
490	0.003422918950	0.110507175268	-1	0.112001402369	4.506531335489
500	0.003351985921	0.107512357023	-1	0.111997348913	4.465241408539
510	0.003283862416	0.104665276520	-1	0.111997532059	4.426075603386
520	0.003218388808	0.101955994589	-1	0.112001519710	4.388890210732
530	0.003155418307	0.099375535104	-1	0.112008820738	4.353554216969
540	0.003094811566	0.096915216677	-1	0.112019178424	4.319939194908
550	0.003036438703	0.094566848289	-1	0.112032330010	4.287915230907
560	0.002980177959	0.092322752335	-1	0.112048164701	4.257361345375
570	0.002925920196	0.090176612947	-1	0.112066382075	4.228188107309
580	0.002873562037	0.088122606438	-1	0.112086695910	4.200315481620

590	0.002823008129	0.086155168053	-1	0.112108873858	4.173659960682
600	0.002774166894	0.084268903832	-1	0.112132794820	4.148138584022
610	0.002726951990	0.082458790178	-1	0.112158382673	4.123674615561
620	0.002681286207	0.080720600836	-1	0.112185422467	4.100207998793
630	0.002637096234	0.079050467777	-1	0.112213708394	4.077687448758
640	0.002594312215	0.077444545848	-1	0.112243167501	4.056058198464
650	0.002552869358	0.075899264745	-1	0.112273604955	4.035262942275
660	0.002512704683	0.074411127807	-1	0.112305083738	4.015251321870
670	0.002473761945	0.072977270684	-1	0.112337386010	3.995982756482
680	0.002435987294	0.071594951561	-1	0.112370424061	3.977421762942
690	0.002399329173	0.070261555467	-1	0.112404055349	3.959531064651
700	0.002363740440	0.068974523551	-1	0.112438241474	3.942270257283
710	0.002329173735	0.067731432561	-1	0.112472966017	3.925604940927
720	0.002295587385	0.066530215806	-1	0.112508129356	3.909506760843
730	0.002262940319	0.065368915002	-1	0.112543656723	3.893951598342
740	0.002231195681	0.064245672999	-1	0.112579417069	3.878909944931
750	0.002200315740	0.063158632846	-1	0.112615393884	3.864355918666
760	0.002170265828	0.062106021308	-1	0.112651637649	3.850263843325
770	0.002141013690	0.061086391560	-1	0.112687955863	3.836613583433
780	0.002112528943	0.060098255544	-1	0.112724391061	3.823386312152
790	0.002084782221	0.059140232229	-1	0.112760885682	3.810562840642
800	0.002057745010	0.058210996265	-1	0.112797341532	3.798123005578
810	0.002031390872	0.057309227426	-1	0.112833806947	3.786047078403
820	0.002005694851	0.056433816835	-1	0.112870201876	3.774320744773
830	0.001980632884	0.055583698967	-1	0.112906483033	3.762931230756
840	0.001956182101	0.054757816503	-1	0.112942618443	3.751863265857
850	0.001932321196	0.053955148254	-1	0.112978617970	3.741101441719
860	0.001909028082	0.053174748851	-1	0.113014381579	3.730632015436
870	0.001886284078	0.052415716064	-1	0.113050002450	3.720443875497
880	0.001864070439	0.051677271668	-1	0.113085356636	3.710526096331
890	0.001842368310	0.050958586137	-1	0.113120476903	3.700869088529
900	0.001821160857	0.050258889420	-1	0.113155341180	3.691460702177
910	0.001800431533	0.049577450462	-1	0.113189864333	3.682287952792

920	0.001780164483	0.048913578184	-1	0.113224150820	3.673345655051
930	0.001760344886	0.048266685757	-1	0.113258005262	3.664622939943
940	0.001740958421	0.047636103045	-1	0.113291580757	3.656113390887
950	0.001721991014	0.047021253853	-1	0.113324804033	3.647808504905
960	0.001703429255	0.046421558413	-1	0.113357627250	3.639698392008
970	0.001685260689	0.045836481826	-1	0.113390087307	3.631777188708
980	0.001667473300	0.045265534454	-1	0.113422090750	3.624036524015
990	0.001650055029	0.044708182502	-1	0.113453737707	3.616470851771
1000	0.001632994253	0.044163934632	-1	0.113485036175	3.609073265962
1025	0.001591838997	0.042857853245	-1	0.113561379026	3.591266219097
1050	0.001552699401	0.041624902998	-1	0.113634908259	3.574394799937
1075	0.001515434363	0.040459478624	-1	0.113705294582	3.558387242031
1100	0.001479913594	0.039356178280	-1	0.113772577523	3.543162995548
1125	0.001446016587	0.038309970870	-1	0.113836931444	3.528641699279
1150	0.001413637666	0.037316841539	-1	0.113898183358	3.514777745485
1175	0.001382679763	0.036373135019	-1	0.113956114689	3.501527974260
1200	0.001353052648	0.035475290593	-1	0.114010742686	3.488840364727
1225	0.001324672316	0.034619976878	-1	0.114062225222	3.476665246008
1250	0.001297463739	0.033804453458	-1	0.114110401244	3.464970981602
1275	0.001271358212	0.033026190651	-1	0.114155140276	3.453726103116
1300	0.001246290321	0.032282725595	-1	0.114196431999	3.442895347134
1325	0.001222200022	0.031571707216	-1	0.114234507174	3.432442623963
1350	0.001199032729	0.030891234291	-1	0.114269136907	3.422345240025
1375	0.001176737850	0.030239483011	-1	0.114300348295	3.412582492265
1400	0.001155267520	0.029614699193	-1	0.114328185992	3.403130070210
1425	0.001134577216	0.029015209032	-1	0.114352772868	3.393961496313
1450	0.001114626749	0.028439631524	-1	0.114374000730	3.385060668429
1475	0.001095378182	0.027886661333	-1	0.114391773695	3.376411433965
1500	0.001076795239	0.027354985204	-1	0.114406283919	3.367998183022
1550	0.001041496064	0.026350912523	-1	0.114425277578	3.351803742288
1600	0.001008489578	0.025419167621	-1	0.114431100148	3.336378377394
1650	0.000977564230	0.024552393154	-1	0.114423882868	3.321613843702
1700	0.000948533615	0.023744348695	-1	0.114403757887	3.307438898047

1750	0.000921231491	0.022989388703	-1	0.114371109052	3.293778816034
1800	0.000895512558	0.022282698528	-1	0.114325955018	3.280569876696
1850	0.000871245740	0.021619904718	-1	0.114268631459	3.267753147233
1900	0.000848104045	0.020984987654	-1	0.114267774912	3.256357619871
1950	0.000826187042	0.020386592364	-1	0.114261168276	3.245378227552
2000	0.000805402508	0.019821553310	-1	0.114247966142	3.234711641738
2100	0.000766892137	0.018779978013	-1	0.114205067506	3.214107880952
2200	0.000732013018	0.017844442616	-1	0.114136538060	3.194520690901
2300	0.000700302193	0.017002033504	-1	0.114038751655	3.175929839363
2400	0.000671358511	0.016240299379	-1	0.113911663146	3.158171051224
2500	0.000644829927	0.015547129547	-1	0.113760093808	3.140970077755
2600	0.000620413715	0.014911758944	-1	0.113591461711	3.124051376223
2700	0.000597878005	0.014327943090	-1	0.113405819386	3.107424228402
2800	0.000577026478	0.013790692854	-1	0.113201527674	3.091117175287
2900	0.000557684562	0.013295157364	-1	0.112978065227	3.075094513741
3000	0.000539695910	0.012836552555	-1	0.112736869513	3.059270330864
3100	0.000522922009	0.012410506227	-1	0.112480360684	3.043553252246
3200	0.000507250003	0.012014059233	-1	0.112208563091	3.027952550698
3300	0.000492581014	0.011644655380	-1	0.111921070297	3.012474495535
3400	0.000478824809	0.011299769558	-1	0.111618444595	2.997101029409
3500	0.000465899484	0.010976903825	-1	0.111302224348	2.981784985380
3600	0.000453731253	0.010673752193	-1	0.110974478546	2.966479042069
3700	0.000442259019	0.010388770747	-1	0.110635258276	2.951192872747
3800	0.000431428271	0.010120604441	-1	0.110284428891	2.935937196117
3900	0.000421188938	0.009867907855	-1	0.109922409287	2.920708336931
4000	0.000411494800	0.009629351771	-1	0.109549914361	2.905483799451
4100	0.000402303713	0.009403688399	-1	0.109168115877	2.890243651505
4200	0.000393614380	0.009192242998	-1	0.108750798394	2.874662300609
4300	0.000385366559	0.008992440983	-1	0.108317927506	2.859002005587
4400	0.000377523138	0.008803044606	-1	0.107875015909	2.843327978489
4500	0.000370055673	0.008623248918	-1	0.107422790505	2.827631320368
4600	0.000362938359	0.008452304815	-1	0.106962086864	2.811900953478
4700	0.000356148704	0.008289663421	-1	0.106493144112	2.796146736826

4800	0.000349666187	0.008134824305	-1	0.106016136009	2.780376550762
4900	0.000343471409	0.007987294076	-1	0.105531265542	2.764591577619
5000	0.000337546388	0.007846571219	-1	0.105039191599	2.748790634724
5500	0.000311436493	0.007231211803	-1	0.102482459272	2.669574941921
6000	0.000290081319	0.006734776372	-1	0.099793126879	2.590304579740
6500	0.000272349584	0.006328509409	-1	0.097005173535	2.511342005755
7000	0.000257438389	0.005992331182	-1	0.094145783228	2.433032679269
7500	0.000244762682	0.005711751390	-1	0.091238326879	2.355692731031
8000	0.000233885945	0.005476078505	-1	0.088302650864	2.279600638229
8500	0.000224476566	0.005277273035	-1	0.085355521348	2.204988061000
9000	0.000216278016	0.005109173376	-1	0.082411272365	2.132043844573
9500	0.000209088750	0.004966987295	-1	0.079482270165	2.060921679444
10000	0.000202748596	0.004846943272	-1	0.076578917823	1.991734251184
10500	0.000197128284	0.004745996354	-1	0.073710349688	1.924557098541
11000	0.000192123548	0.004661842123	-1	0.070883876047	1.859477392277
11500	0.000187647392	0.004592396854	-1	0.068106208245	1.796493133752
12000	0.000183628824	0.004536132944	-1	0.065382638679	1.735638770966
12500	0.000180007723	0.004491692379	-1	0.062717654040	1.676897108746
13000	0.000176734373	0.004458042494	-1	0.060114912125	1.620263653591
13500	0.000173765961	0.004434254593	-1	0.057577289881	1.565696032056
14000	0.000171066376	0.004419630030	-1	0.055107055660	1.513166670884
14500	0.000168604541	0.004413540655	-1	0.052705934936	1.462621354012
15000	0.000166353992	0.004415518077	-1	0.050375256396	1.414017747401
16000	0.000162396829	0.004442135984	-1	0.045927477517	1.322391074196
17000	0.000159044075	0.004497255526	-1	0.041765458740	1.237813430509
18000	0.000156180060	0.004579692880	-1	0.037886014476	1.159791003673
19000	0.000153715141	0.004689103512	-1	0.034282650359	1.087833599292
20000	0.000151578868	0.004825949962	-1	0.030945865535	1.021465649720
21000	0.000065595904	0.001253376280	-1	0.155709845734	3.528130246566
22000	0.000062362910	0.001187339943	-1	0.157009230430	3.550089796998
23000	0.000059244466	0.001121431578	-1	0.158580495622	3.571274361526
24000	0.000056305049	0.001058043179	-1	0.160348516301	3.592168874641
25000	0.000053600797	0.000999612936	-1	0.162185426472	3.613559150801

26000	0.000051162709	0.000947930601	-1	0.163948980618	3.636538725283
27000	0.000048963643	0.000902495202	-1	0.165583034006	3.660786427611
28000	0.000046964271	0.000862168859	-1	0.167085371291	3.685671015844
29000	0.000045128285	0.000825791243	-1	0.168481243404	3.710563285507
30000	0.000043412523	0.000791964936	-1	0.169884104818	3.736198113184
31000	0.000041786027	0.000759651544	-1	0.171387684852	3.762904637102
32000	0.000040246961	0.000728866117	-1	0.172958496330	3.789904039919
33000	0.000038791967	0.000699658190	-1	0.174582616424	3.817318642880
34000	0.000037427112	0.000672289275	-1	0.176175284605	3.843754552168
35000	0.000036140179	0.000646572659	-1	0.177781931256	3.870728076634
36000	0.000034928628	0.000622530972	-1	0.179377836519	3.898163837481
37000	0.000033786998	0.000600047976	-1	0.180954558082	3.925940748653
38000	0.000032709046	0.000578965325	-1	0.182513669688	3.954000616473
39000	0.000031688715	0.000559122614	-1	0.184061730576	3.982333409589
40000	0.000030720141	0.000540358829	-1	0.185610546800	4.010983053838
41000	0.000029798072	0.000522532955	-1	0.187173211449	4.040035060715
42000	0.000028919264	0.000505581930	-1	0.188749948513	4.069521683712
43000	0.000028081121	0.000489462273	-1	0.190337585963	4.099450858131
44000	0.000027281188	0.000474130319	-1	0.191933573147	4.129831620737
45000	0.000026517150	0.000459542612	-1	0.193535978231	4.160673770200
46000	0.000025786832	0.000445656008	-1	0.195143104336	4.191974388382
47000	0.000025088284	0.000432429016	-1	0.196751665791	4.223663608672
48000	0.000024419932	0.000419826051	-1	0.198355650443	4.255586790208
49000	0.000023780269	0.000407810845	-1	0.199949981607	4.287587374728
50000	0.000023167200	0.000396332285	-1	0.201539020049	4.319697948437
55000	0.000020437297	0.000345774153	-1	0.209615470218	4.488438104789
60000	0.000018171393	0.000304571176	-1	0.217775860134	4.667705774266
65000	0.000016348861	0.000270586167	-1	0.224555113984	4.794027206503
70000	0.000014719269	0.000242050460	-1	0.232791286254	4.990816294787
75000	0.000013307786	0.000217855316	-1	0.241161724151	5.203676884080
80000	0.000012084806	0.000197194674	-1	0.249489752751	5.425402354329
85000	0.000011017077	0.000179380517	-1	0.257789759331	5.656147254054
90000	0.000010068805	0.000163884763	-1	0.266209931171	5.905815438447

95000	0.000009226994	0.000150379398	-1	0.274554242532	6.168969689065
100000	0.000008483004	0.000138472233	-1	0.282846772455	6.438856454514
105000	0.000007811579	0.000127953757	-1	0.291156159500	6.728864897090
110000	0.000007206365	0.000118619920	-1	0.299415913716	7.035652299246
115000	0.000006662224	0.000110264358	-1	0.307640562001	7.354834241878
120000	0.000006169467	0.000102775522	-1	0.315805195427	7.689950128218
125000	0.000005720453	0.000096064869	-1	0.323849156456	8.044008999124
130000	0.000005311745	0.000090014865	-1	0.331778893893	8.414772321201
135000	0.000004939271	0.000084514785	-1	0.339665907149	8.802228029092
140000	0.000004598071	0.000079511489	-1	0.347487904583	9.209538346253
145000	0.000004284342	0.000074963268	-1	0.355187274034	9.638709278343
150000	0.000003996250	0.000070812816	-1	0.362750755920	10.087585524206
155000	0.000003731567	0.000067003882	-1	0.370212630261	10.555856789724
160000	0.000003487424	0.000063503807	-1	0.377572503323	11.046702622391
165000	0.000003261622	0.000060286949	-1	0.384803012188	11.562151789291
170000	0.000003053175	0.000057323044	-1	0.391878576499	12.099356702441
175000	0.000002860901	0.000054582366	-1	0.398802149139	12.656454207199
180000	0.000002682631	0.000052041207	-1	0.405612713412	13.238838289333
185000	0.000002516673	0.000049681754	-1	0.412323873755	13.851318316230
190000	0.000002362492	0.000047490923	-1	0.418887621217	14.490961672420
195000	0.000002219363	0.000045453349	-1	0.425284575543	15.155947297186
200000	0.000002086243	0.000043552327	-1	0.431539899552	15.848401909787
205000	0.000001962139	0.000041773142	-1	0.437683530114	16.571586229629
210000	0.000001846437	0.000040106687	-1	0.443705975492	17.325657205981
215000	0.000001738575	0.000038544940	-1	0.449595193376	18.110459745877
220000	0.000001637991	0.000037080091	-1	0.455344362171	18.926164539750
225000	0.000001544148	0.000035704705	-1	0.460950373696	19.773197962210
230000	0.000001456534	0.000034411772	-1	0.466412899706	20.652180291534
235000	0.000001374671	0.000033194733	-1	0.471734058158	21.563977078273
240000	0.000001298108	0.000032047445	-1	0.476918248827	22.509727213033
245000	0.000001226420	0.000030964150	-1	0.481972470258	23.491033542015
250000	0.000001159207	0.000029939467	-1	0.486906025733	24.510023944056
255000	0.000001096107	0.000028968577	-1	0.491728126246	25.569083718503

260000	0.000001036869	0.000028048019	-1	0.496436012826	26.668498822795
265000	0.000000981266	0.000027174718	-1	0.501025820956	27.808123121094
270000	0.000000929074	0.000026345704	-1	0.505495763263	28.987974883832
275000	0.000000880077	0.000025558136	-1	0.509845790659	30.208223425575
280000	0.000000834063	0.000024809290	-1	0.514077793778	31.469377034379
285000	0.000000790830	0.000024096605	-1	0.518194468152	32.772054736766
290000	0.000000750185	0.000023417622	-1	0.522200549360	34.117409429338
295000	0.000000711942	0.000022770028	-1	0.526101543543	35.506894603190
300000	0.000000675926	0.000022151635	-1	0.529904231526	36.942541265778

Electron Elastic Scattering Sampling Data
Solution for Z = 4

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.043480558409	0.733670327688	+1	0.195362743124	6.806590185470
52	0.042508318659	0.791338626154	+1	0.191230290498	7.563423278945
54	0.041582339356	0.852081216893	+1	0.187209813022	8.392447847964
56	0.040705870460	0.915433663575	+1	0.183261886284	9.287488173903
58	0.039853024458	0.983778736030	+1	0.179514819275	10.303552344610
60	0.039043018769	1.055319395182	+1	0.175842043404	11.407713048038
62	0.038265708313	1.131120493232	+1	0.172285322282	12.628920582180
64	0.037518823651	1.211572197452	+1	0.168842725986	13.983129108414
66	0.036800242712	1.297149888940	+1	0.165512632822	15.489774806943
68	0.036108115755	1.388391572792	+1	0.162292777638	17.171748971069
70	0.035440839172	1.485896583103	+1	0.159180113807	19.055844092232
72	0.034796903993	1.590392372419	+1	0.156172097054	21.175012287323
74	0.034175005303	1.702681068857	+1	0.153265268957	23.567952648401
76	0.033573921817	1.823730736567	+1	0.150456632995	26.282469330196
78	0.032992546593	1.954667024136	+1	0.147742970524	29.376803588799
80	0.032429884095	2.096795543041	+1	0.145120820695	32.922108399517
82	0.031884989239	2.251707835815	+1	0.142587159612	37.008068713914
84	0.031357007995	2.421263879352	+1	0.140138631720	41.745963609204
86	0.030845143811	2.607733692041	+1	0.137772115349	47.277743954123
88	0.030348661075	2.813870517789	+1	0.135484523768	53.785253998666
90	0.029866867088	3.043048314218	+1	0.133272835055	61.504409222699
92	0.029399115929	3.299486471076	+1	0.131134137402	70.746980124173
94	0.028944811717	3.588440524956	+1	0.129065530251	81.928091750742
96	0.028503390653	3.916643710017	+1	0.127064229762	95.614018135810
98	0.028074310677	4.292865053666	+1	0.125127728875	112.593510323970
100	0.027657071187	4.728641728749	+1	0.123253421136	133.985738098253
105	0.026662738926	6.196088230229	+1	0.118824083818	219.646035070546
110	0.025732870116	8.633459063531	+1	0.114731699022	408.369314231891

115	0.024861534793	13.495277668828	+1	0.110945248930	958.066018150998
120	0.024043574393	28.012856369032	+1	0.107435236235	3973.172483860840
125	0.023316201031	133.341532378038	+1	0.103684328706	86848.081472312930
130	0.022549958185	29.490504863084	-1	0.101144279592	4388.012798594195
135	0.021866589499	14.737994513033	-1	0.098319463575	1131.877256360262
140	0.021221039884	9.835481875065	-1	0.095682843319	520.320286825272
145	0.020610373586	7.384984404217	-1	0.093218043878	302.623824293865
150	0.020031949549	5.914256251911	-1	0.090910060985	200.130699639805
155	0.019483372584	4.932853124103	-1	0.088745702933	143.491191943208
160	0.018962478202	4.231137649568	-1	0.086712947864	108.761869901152
165	0.018467297262	3.704151747833	-1	0.084801099553	85.843152522274
170	0.017996046010	3.293770501732	-1	0.083000294615	69.874613012560
175	0.017547087078	2.964972464568	-1	0.081301968140	58.267926868249
180	0.017118927963	2.695565631407	-1	0.079698110683	49.545046667017
185	0.016710207079	2.470697261333	-1	0.078181646056	42.807189031177
190	0.016319671231	2.280188874790	-1	0.076745983366	37.485420429115
195	0.015946165075	2.116679632913	-1	0.075385338256	33.200639957035
200	0.015588653682	1.974676403330	-1	0.074094239144	29.691139973420
205	0.015246170509	1.850053472928	-1	0.072867870602	26.773158177652
210	0.014917803354	1.739854076080	-1	0.071701885551	24.319106651799
215	0.014602708407	1.641793482762	-1	0.070592158322	22.235048926470
220	0.014300112920	1.554025402856	-1	0.069534943309	20.449393052744
225	0.014009305234	1.475046989715	-1	0.068526709628	18.906896165437
230	0.013729631231	1.403615469065	-1	0.067564256440	17.564274308059
235	0.013460480770	1.338695631322	-1	0.066644607397	16.387252032733
240	0.013201293836	1.279414469471	-1	0.065765076003	15.348345028499
245	0.012951547945	1.225032538244	-1	0.064923194278	14.425345884405
250	0.012710753554	1.174914343323	-1	0.064116757186	13.600081814823
255	0.012478456195	1.128530786170	-1	0.063343754214	12.857906496125
260	0.012254217460	1.085488336721	-1	0.062602395856	12.187787239386
265	0.012037624866	1.045457276684	-1	0.061891011393	11.580665604160
270	0.011828303860	1.008150457584	-1	0.061207897057	11.028852652502
275	0.011625895054	0.973308725721	-1	0.060551564855	10.525718258237

280	0.011430072925	0.940703700000	-1	0.059920510609	10.065564834782
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290	0.011056967124	0.881405481345	-1	0.058728704473	9.255121259607
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310	0.010377426581	0.781903854165	-1	0.056591953294	7.971121420652
320	0.010067210086	0.739744908333	-1	0.055631266069	7.455649755743
330	0.009774501974	0.701704038070	-1	0.054733872114	7.005208140309
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350	0.009236097878	0.635790705768	-1	0.053106330713	6.257569639956
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370	0.008752566449	0.580597238092	-1	0.051669665539	5.663072514386
380	0.008528853194	0.556254585584	-1	0.051013604655	5.410050355416
390	0.008316021446	0.533763282366	-1	0.050394676666	5.181270736924
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430	0.007559277145	0.458630888754	-1	0.048233697086	4.451209753536
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460	0.007074671905	0.414178724089	-1	0.046884376946	4.043958296765
470	0.006926385241	0.401100335993	-1	0.046476930574	3.927571796306
480	0.006784064391	0.388772088791	-1	0.046088472718	3.819301848773
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1025	0.003175669906	0.137723894180	-1	0.037217973651	1.901334720608
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13000	0.000272179291	0.013656718590	-1	0.015980880219	0.825773904801
13500	0.000263978432	0.013735784516	-1	0.015157535230	0.811627945450
14000	0.000256399440	0.013857074271	-1	0.014355570919	0.797847826677
14500	0.000249375264	0.014020445200	-1	0.013576089549	0.784436797991
15000	0.000242848364	0.014226250011	-1	0.012820290186	0.771411806115
16000	0.000231091199	0.014769306160	-1	0.011382675419	0.746551538079
17000	0.000220797316	0.015499815198	-1	0.010047317230	0.723356479622
18000	0.000211711157	0.016440442438	-1	0.008816250731	0.701923069831
19000	0.000203632086	0.017624363178	-1	0.007689459327	0.682361462639
20000	0.000196400735	0.019097910882	-1	0.006665217761	0.664801632013
21000	0.000144349774	0.003269286420	-1	0.044449966088	1.056841104850
22000	0.000137523605	0.003075067200	-1	0.045114384429	1.059533665378
23000	0.000131052864	0.002892368555	-1	0.045664433017	1.058964712368
24000	0.000125017729	0.002722244574	-1	0.046154070142	1.056364183861
25000	0.000119477855	0.002566202324	-1	0.046647515703	1.053512442291

26000	0.000114455938	0.002425580696	-1	0.047200062785	1.052254260117
27000	0.000109886333	0.002299064814	-1	0.047811977637	1.052861229044
28000	0.000105693493	0.002184620180	-1	0.048466008832	1.054975748266
29000	0.000101812909	0.002080171629	-1	0.049143001207	1.058037466832
30000	0.000098189080	0.001983594946	-1	0.049824252928	1.061315798283
31000	0.000094778891	0.001893021535	-1	0.050496975054	1.064126190192
32000	0.000091564021	0.001807800934	-1	0.051164424757	1.066467265772
33000	0.000088532703	0.001727656894	-1	0.051832956704	1.068528523912
34000	0.000085674149	0.001652379596	-1	0.052508089621	1.070509559376
35000	0.000082978455	0.001581809716	-1	0.053194506082	1.072618541659
36000	0.000080435426	0.001515763777	-1	0.053895887420	1.075037744126
37000	0.000078031548	0.001453830047	-1	0.054614847482	1.077810500854
38000	0.000075752033	0.001395444664	-1	0.055359576756	1.080979048356
39000	0.000073601874	0.001341371448	-1	0.056071432162	1.083959110428
40000	0.000071569943	0.001291116995	-1	0.056749094093	1.086665577993
41000	0.000069635930	0.001243538524	-1	0.057433034747	1.089393791587
42000	0.000067792937	0.001198441417	-1	0.058123837736	1.092153193022
43000	0.000066034979	0.001155674450	-1	0.058821877848	1.094968093438
44000	0.000064340600	0.001114081780	-1	0.059596173562	1.098478550425
45000	0.000062721528	0.001074635104	-1	0.060378542853	1.102080480514
46000	0.000061173984	0.001037257653	-1	0.061164522637	1.105741609945
47000	0.000059692949	0.001001783429	-1	0.061956218496	1.109485252838
48000	0.000058273987	0.000968070852	-1	0.062754712462	1.113321006605
49000	0.000056913100	0.000935991856	-1	0.063560634741	1.117249023523
50000	0.000055606680	0.000905430543	-1	0.064374129742	1.121259710762
55000	0.000049788751	0.000772347569	-1	0.068544529792	1.142367743983
60000	0.000044912843	0.000663990887	-1	0.073130758846	1.167191037723
65000	0.000040785684	0.000575895194	-1	0.077946250892	1.194282368469
70000	0.000037252629	0.000503605737	-1	0.082940840559	1.223227685320
75000	0.000034183137	0.000443096526	-1	0.088241882448	1.255044443427
80000	0.000031491245	0.000392023115	-1	0.093851794623	1.289798089758
85000	0.000029129805	0.000347893584	-1	0.099488462184	1.319868572082
90000	0.000027010648	0.000310856873	-1	0.105714842335	1.360845024868

95000	0.000025105855	0.000278859078	-1	0.112322847018	1.405830688664
100000	0.000023391280	0.000251187605	-1	0.119210914146	1.453741607598
105000	0.000021833598	0.000227052911	-1	0.126478259486	1.506028009704
110000	0.000020414811	0.000205916836	-1	0.134095676146	1.562326920080
115000	0.000019121043	0.000187363371	-1	0.142009636469	1.622114793320
120000	0.000017932351	0.000170993454	-1	0.150276076544	1.686633499872
125000	0.000016832599	0.000156491611	-1	0.158935991564	1.757088905610
130000	0.000015816048	0.000143625796	-1	0.167918503516	1.832832011409
135000	0.000014877029	0.000132171877	-1	0.177178861004	1.913287615407
140000	0.000014004950	0.000121933515	-1	0.186753615242	1.999563809545
145000	0.000013190759	0.000112753745	-1	0.196668299272	2.092877835124
150000	0.000012430587	0.000104507335	-1	0.206880133608	2.193183968041
155000	0.000011720879	0.000097078485	-1	0.217356915652	2.300432912122
160000	0.000011056709	0.000090373961	-1	0.228078488133	2.415255336879
165000	0.000010433687	0.000084313202	-1	0.239021192241	2.538362995851
170000	0.000009848533	0.000078818746	-1	0.250174434198	2.670364772741
175000	0.000009298293	0.000073821716	-1	0.261534076838	2.811944492829
180000	0.000008780900	0.000069272520	-1	0.273045594390	2.963304241768
185000	0.000008294398	0.000065126509	-1	0.284654876726	3.124644460864
190000	0.000007836061	0.000061338093	-1	0.296361857143	3.297073522264
195000	0.000007403343	0.000057866851	-1	0.308172690648	3.481932325983
200000	0.000006994707	0.000054679857	-1	0.320055861292	3.679858470126
205000	0.000006608815	0.000051747922	-1	0.331978596177	3.891424970143
210000	0.000006244511	0.000049048223	-1	0.343897942717	4.117196660504
215000	0.000005900722	0.000046560528	-1	0.355770012851	4.357715156177
220000	0.000005576406	0.000044266015	-1	0.367554759507	4.613515038911
225000	0.000005270535	0.000042147131	-1	0.379218172495	4.885167333354
230000	0.000004982093	0.000040187628	-1	0.390732506826	5.173296834564
235000	0.000004710054	0.000038372406	-1	0.402078293500	5.478655965969
240000	0.000004453395	0.000036687512	-1	0.413244468645	5.802176046018
245000	0.000004211088	0.000035120079	-1	0.424228524561	6.145034500933
250000	0.000003982095	0.000033658217	-1	0.435037798544	6.508786037077
255000	0.000003765469	0.000032291555	-1	0.445679981483	6.895167790648

260000	0.000003560603	0.000031012642	-1	0.456137153961	7.305218466846
265000	0.000003366980	0.000029815025	-1	0.466386944979	7.739735226728
270000	0.000003184092	0.000028692659	-1	0.476410241236	8.199477504180
275000	0.000003011414	0.000027639792	-1	0.486193952665	8.685309032405
280000	0.000002848437	0.000026651094	-1	0.495727684401	9.198071607747
285000	0.000002694647	0.000025721559	-1	0.505005678743	9.738709121399
290000	0.000002549527	0.000024846490	-1	0.514027166154	10.308350777844
295000	0.000002412566	0.000024021510	-1	0.522795049805	10.908298914828
300000	0.000002283257	0.000023242533	-1	0.531316372578	11.540141808607

Electron Elastic Scattering Sampling Data
Solution for Z = 5

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.055530379367	0.293694751276	+1	0.230316849549	1.939725859096
52	0.054270179159	0.316671469065	+1	0.226941180890	2.139311153968
54	0.053087849084	0.340801818327	+1	0.223589482757	2.353784635200
56	0.051974369871	0.366121376771	+1	0.220270133552	2.584231571290
58	0.050922217367	0.392669242853	+1	0.216989479244	2.831835811644
60	0.049925022803	0.420488431317	+1	0.213752248666	3.097893407380
62	0.048977359367	0.449626350581	+1	0.210562082150	3.383829975839
64	0.048074663144	0.480135016010	+1	0.207421351201	3.691197909976
66	0.047212893403	0.512072116554	+1	0.204332123169	4.021729517142
68	0.046388560340	0.545499846435	+1	0.201295655318	4.377317776323
70	0.045598667302	0.580487072046	+1	0.198312689330	4.760053385543
72	0.044840491424	0.617110798124	+1	0.195383902570	5.172287147430
74	0.044111706587	0.655453071971	+1	0.192509350007	5.616580367329
76	0.043410187100	0.695606081907	+1	0.189689083253	6.095821673418
78	0.042734074041	0.737669922473	+1	0.186922899250	6.613209408457
80	0.042081683468	0.781753777889	+1	0.184210394559	7.172305414857
82	0.041451484121	0.827981537144	+1	0.181551245899	7.777160677150
84	0.040842109568	0.876485212429	+1	0.178944863043	8.432253073230
86	0.040252355689	0.927408991758	+1	0.176390401551	9.142579027624
88	0.039681040974	0.980919753542	+1	0.173887469703	9.913939410202
90	0.039127165026	1.037192767728	+1	0.171435116944	10.752706467547
92	0.038589767683	1.096430202079	+1	0.169032738873	11.666272301749
94	0.038067997540	1.158846439788	+1	0.166679308573	12.662846207310
96	0.037561058898	1.224686102290	+1	0.164374075388	13.751923830205
98	0.037068210092	1.294222814926	+1	0.162116219787	14.944396894729
100	0.036588756776	1.367762358013	+1	0.159904914672	16.252792104852
105	0.035444742057	1.571461650047	+1	0.154574612132	20.131121565288
110	0.034372176871	1.808863402745	+1	0.149514169241	25.122785666700

115	0.033363565583	2.089031301481	+1	0.144711608646	31.668861258819
120	0.032412833242	2.424319463128	+1	0.140152082377	40.436321819802
125	0.031514597985	2.832763314351	+1	0.135823065283	52.493556461841
130	0.030664326618	3.340942794767	+1	0.131710972051	69.608146135311
135	0.029857953810	3.990682432794	+1	0.127804197308	94.907571384895
140	0.029092010519	4.850431592775	+1	0.124090364072	134.282402212423
145	0.028363344821	6.042222982939	+1	0.120558803934	199.983706288754
150	0.027669217472	7.804300051704	+1	0.117198509349	320.802392558187
155	0.027007130763	10.676590117979	+1	0.113999868873	578.318739370642
160	0.026374877461	16.191242779238	+1	0.110953099588	1283.233715321614
165	0.025770438035	31.115507804409	+1	0.108049650796	4579.334782801117
170	0.025215394329	122.355608306015	+1	0.105027172962	68516.271693875693
175	0.024644551442	48.622664573656	-1	0.102564993403	10919.954604531675
180	0.024106655339	21.060879115599	-1	0.100117401334	2093.827395371632
185	0.023596841261	13.711309125763	-1	0.097708519535	904.342647035147
190	0.023107225365	10.201681236719	-1	0.095405809005	509.808452284645
195	0.022636635717	8.145340005871	-1	0.093203280745	330.747906712039
200	0.022183971471	6.792328806484	-1	0.091096117285	233.937322277122
205	0.021748202398	5.832589592909	-1	0.089080074837	175.379923687475
210	0.021328437816	5.116889736978	-1	0.087149422204	137.175659305140
215	0.020923848514	4.563322356747	-1	0.085298584616	110.826324813640
220	0.020533662438	4.122812087707	-1	0.083522596818	91.852385692470
225	0.020157152295	3.764155777191	-1	0.081817013825	77.709062435975
230	0.019793630547	3.466534883674	-1	0.080177937987	66.862038155519
235	0.019442482673	3.215615438660	-1	0.078601524717	58.343721091751
240	0.019103010033	3.000789026501	-1	0.077085915948	51.508035792056
245	0.018774720156	2.814721511242	-1	0.075627363780	45.928104234372
250	0.018457041101	2.651599983014	-1	0.074223977084	41.297589406827
255	0.018149456337	2.507107545391	-1	0.072873674812	37.400607035142
260	0.017851504700	2.378252979666	-1	0.071573668701	34.087629124802
265	0.017562752330	2.262707749941	-1	0.070321240803	31.246866879882
270	0.017282795644	2.158577053809	-1	0.069113795605	28.791977067487
275	0.017011247538	2.064276537039	-1	0.067949063178	26.654941768221

280	0.016747752551	1.978500063481	-1	0.066824811249	24.782121568303
285	0.016491967025	1.900136391400	-1	0.065739069257	23.130347269297
290	0.016243571298	1.828244292563	-1	0.064690005700	21.664737422741
295	0.016002255284	1.762012747604	-1	0.063675963247	20.356739036886
300	0.015767732718	1.700743000756	-1	0.062695425250	19.182862112191
310	0.015317974694	1.590875415174	-1	0.060829183011	17.165113218015
320	0.014892247109	1.495261759313	-1	0.059079980292	15.500324900340
330	0.014488710799	1.411353792197	-1	0.057437675099	14.109338168556
340	0.014105713264	1.337099293836	-1	0.055893305908	12.933059133292
350	0.013741765182	1.270815167255	-1	0.054438997685	11.926551326036
360	0.013395512876	1.211148981493	-1	0.053067871790	11.055797353502
370	0.013065713953	1.157165949505	-1	0.051773469914	10.296831584564
380	0.012751243597	1.108112806279	-1	0.050549891615	9.630982044295
390	0.012451082735	1.063337336695	-1	0.049391696573	9.042998794092
400	0.012164299595	1.022265037724	-1	0.048294012617	8.520281588866
410	0.011890045681	0.984407893452	-1	0.047252456735	8.052592867622
420	0.011627523611	0.949403874252	-1	0.046263158672	7.632234049823
430	0.011376011452	0.916949596191	-1	0.045322543731	7.252890114821
440	0.011134839631	0.886769844393	-1	0.044427280075	6.909120770094
450	0.010903401646	0.858613615034	-1	0.043574294289	6.596207952903
460	0.010681132015	0.832262030301	-1	0.042760743371	6.310168673255
470	0.010467504575	0.807546941060	-1	0.041984190228	6.047904918367
480	0.010262029588	0.784323948364	-1	0.041242336178	5.806792360468
490	0.010064258503	0.762458799245	-1	0.040533007795	5.584487983836
500	0.009873772872	0.741826083060	-1	0.039854178088	5.378898179804
510	0.009690189881	0.722315411144	-1	0.039203890899	5.188204439508
520	0.009513142494	0.703835279633	-1	0.038580610306	5.010936232830
530	0.009342293313	0.686308334592	-1	0.037982789556	4.845831463766
540	0.009177328514	0.669661753238	-1	0.037408939171	4.691738515266
550	0.009017951156	0.653824005368	-1	0.036857722232	4.547591307491
560	0.008863892909	0.638733738055	-1	0.036327760614	4.412456638537
570	0.008714890439	0.624336993353	-1	0.035818036824	4.285560357205
580	0.008570704794	0.610589281347	-1	0.035327448430	4.166231941313

590	0.008431105727	0.597444911957	-1	0.034855035009	4.053834015122
600	0.008295885564	0.584863863456	-1	0.034399760728	3.947790170547
610	0.008164843664	0.572807133108	-1	0.033960712721	3.847569492926
620	0.008037790118	0.561241206605	-1	0.033537167954	3.752729910512
630	0.007914548529	0.550138249496	-1	0.033128341124	3.662884905760
640	0.007794951986	0.539470194165	-1	0.032733516499	3.577664737472
650	0.007678845373	0.529210513069	-1	0.032351983697	3.496722586871
660	0.007566078270	0.519333804803	-1	0.031983096267	3.419739230670
670	0.007456512276	0.509819625200	-1	0.031626271114	3.346451695379
680	0.007350011507	0.500647486180	-1	0.031281007721	3.276613612928
690	0.007246453591	0.491800247798	-1	0.030946730977	3.210001864480
700	0.007145717994	0.483258654445	-1	0.030622964109	3.146392122236
710	0.007047693261	0.475006553180	-1	0.030309200521	3.085586488036
720	0.006952273537	0.467029841359	-1	0.030004997689	3.027414888062
730	0.006859355252	0.459314166186	-1	0.029710007320	2.971718990025
740	0.006768844875	0.451847875139	-1	0.029423789628	2.918354148968
750	0.006680649167	0.444617138503	-1	0.029145999485	2.867171061214
760	0.006594682129	0.437611406124	-1	0.028876229661	2.818042555295
770	0.006510861782	0.430819263423	-1	0.028614201277	2.770848803331
780	0.006429110079	0.424232384582	-1	0.028359572404	2.725490829462
790	0.006349350433	0.417840449247	-1	0.028112093312	2.681864191016
800	0.006271512705	0.411634843851	-1	0.027871438477	2.639870940607
810	0.006195528932	0.405607485244	-1	0.027637313943	2.599422040185
820	0.006121335025	0.399750490458	-1	0.027409496711	2.560437400092
830	0.006048867930	0.394056765264	-1	0.027187757591	2.522844187481
840	0.005978069308	0.388519849634	-1	0.026971848519	2.486572648467
850	0.005908883129	0.383132617561	-1	0.026761564164	2.451552215714
860	0.005841254682	0.377888794099	-1	0.026556682335	2.417718567467
870	0.005775133436	0.372783244890	-1	0.026356991349	2.385017232661
880	0.005710469939	0.367810321426	-1	0.026162330339	2.353394981079
890	0.005647215835	0.362964548779	-1	0.025972530782	2.322799860809
900	0.005585326844	0.358241578901	-1	0.025787380303	2.293184330212
910	0.005524759477	0.353635985234	-1	0.025606731353	2.264498661706

920	0.005465473023	0.349144527458	-1	0.025430398208	2.236707006782
930	0.005407426362	0.344761596616	-1	0.025258303922	2.209765145862
940	0.005350582970	0.340484159633	-1	0.025090266920	2.183638971857
950	0.005294903921	0.336308299474	-1	0.024926150768	2.158292960079
960	0.005240356037	0.332230291409	-1	0.024765810764	2.133690646519
970	0.005186905227	0.328246897651	-1	0.024609127444	2.109802649134
980	0.005134518353	0.324354325258	-1	0.024455997049	2.086596618874
990	0.005083164528	0.320549984503	-1	0.024306281036	2.064046348242
1000	0.005032814065	0.316830746650	-1	0.024159858437	2.042122817528
1025	0.004911140729	0.307886509427	-1	0.023807506326	1.989890252311
1050	0.004795136964	0.299415759715	-1	0.023473778694	1.941079580476
1075	0.004684417918	0.291381622188	-1	0.023157412139	1.895382636446
1100	0.004578635345	0.283751808989	-1	0.022856972927	1.852508844044
1125	0.004477467584	0.276495543913	-1	0.022571144240	1.812187832161
1150	0.004380623241	0.269586692134	-1	0.022299009371	1.774214391144
1175	0.004287830448	0.263000648642	-1	0.022039762424	1.738402350841
1200	0.004198844251	0.256715659506	-1	0.021792468157	1.704571892402
1225	0.004113435910	0.250711580737	-1	0.021556216980	1.672556206397
1250	0.004031394912	0.244970107576	-1	0.021330400179	1.642223587856
1275	0.003952528393	0.239474463288	-1	0.021114424565	1.613451581027
1300	0.003876655816	0.234209124106	-1	0.020907646328	1.586121488683
1325	0.003803612398	0.229160908301	-1	0.020709346742	1.560123778768
1350	0.003733242834	0.224316040984	-1	0.020519144122	1.535368452376
1375	0.003665404761	0.219662886238	-1	0.020336596004	1.511774362869
1400	0.003599964184	0.215190692612	-1	0.020161203035	1.489261329004
1425	0.003536797077	0.210889019463	-1	0.019992512938	1.467752592309
1450	0.003475787955	0.206748361423	-1	0.019830209693	1.447186876633
1475	0.003416829460	0.202760016321	-1	0.019673966246	1.427506196229
1500	0.003359819175	0.198916189424	-1	0.019523414165	1.408655796051
1550	0.003251274075	0.191631570147	-1	0.019238136436	1.373236024400
1600	0.003149467427	0.184840386396	-1	0.018972278847	1.340578248112
1650	0.003053793303	0.178494990370	-1	0.018723830554	1.310368244164
1700	0.002963717051	0.172553937098	-1	0.018491208620	1.282350795059

1750	0.002878764677	0.166981005261	-1	0.018272820498	1.256293263636
1800	0.002798513488	0.161744022391	-1	0.018067391622	1.232001894517
1850	0.002722585280	0.156814354178	-1	0.017873690614	1.209300088144
1900	0.002650643005	0.152165686936	-1	0.017690970795	1.188048912744
1950	0.002582382176	0.147775334209	-1	0.017518305911	1.168115783536
2000	0.002517528639	0.143625957887	-1	0.017354042544	1.149354852925
2100	0.002397073547	0.135981754898	-1	0.017046217448	1.114873966703
2200	0.002287568727	0.129092127182	-1	0.016766853116	1.084070909385
2300	0.002187596088	0.122846280958	-1	0.016515313691	1.056538632830
2400	0.002095968006	0.117163414681	-1	0.016287822105	1.031833754858
2500	0.002011685114	0.111982032908	-1	0.016078150462	1.009459298422
2600	0.001933900830	0.107248983827	-1	0.015880087794	0.988940322963
2700	0.001861898982	0.102905608275	-1	0.015693720874	0.970083421350
2800	0.001795064153	0.098903909552	-1	0.015519412403	0.952757623760
2900	0.001732862351	0.095206715613	-1	0.015356193190	0.936811272196
3000	0.001674829699	0.091785802382	-1	0.015201803856	0.922068991420
3100	0.001620561442	0.088616866569	-1	0.015053793285	0.908356131027
3200	0.001569707148	0.085672661327	-1	0.014912204686	0.895587990157
3300	0.001521958309	0.082929977443	-1	0.014777095267	0.883696764808
3400	0.001477041217	0.080370422632	-1	0.014647770391	0.872600275913
3500	0.001434712042	0.077979075162	-1	0.014522932294	0.862201584379
3600	0.001394754625	0.075743033372	-1	0.014401190921	0.852405712569
3700	0.001356976989	0.073647634845	-1	0.014282658445	0.843171305300
3800	0.001321208419	0.071680525215	-1	0.014167393540	0.834465814515
3900	0.001287294017	0.069831440011	-1	0.014055073788	0.826247906876
4000	0.001255094023	0.068091893678	-1	0.013945049164	0.818468487681
4100	0.001224482058	0.066454586237	-1	0.013836557570	0.811077947653
4200	0.001195345175	0.064911153712	-1	0.013729683426	0.804053803318
4300	0.001167581277	0.063454510286	-1	0.013624427506	0.797376565693
4400	0.001141096341	0.062078303660	-1	0.013520645667	0.791021352573
4500	0.001115804337	0.060777458207	-1	0.013417932503	0.784958756746
4600	0.001091627535	0.059547607757	-1	0.013315808240	0.779158558315
4700	0.001068494610	0.058383545869	-1	0.013214352437	0.773607157774

4800	0.001046340455	0.057280722398	-1	0.013113623735	0.768293511702
4900	0.001025105173	0.056235392976	-1	0.013013489211	0.763202166974
5000	0.001004733191	0.055244294006	-1	0.012913717449	0.758315134056
5500	0.000914050819	0.050867480463	-1	0.012443818167	0.736228958979
6000	0.000838397651	0.047066113379	-1	0.012058879318	0.716876454073
6500	0.000774550392	0.043974587361	-1	0.011683214479	0.700119134573
7000	0.000719970346	0.041436732536	-1	0.011312947931	0.685343281239
7500	0.000672796556	0.039340094245	-1	0.010945743960	0.672113150116
8000	0.000631633315	0.037601601499	-1	0.010580359053	0.660111954739
8500	0.000595414012	0.036158823237	-1	0.010216270421	0.649105260423
9000	0.000563309550	0.034964607401	-1	0.009853313131	0.638918132089
9500	0.000534665506	0.033982250681	-1	0.009491735835	0.629416981632
10000	0.000508958342	0.033183527637	-1	0.009131911161	0.620501225056
10500	0.000485764731	0.032546632677	-1	0.008774172196	0.612085916733
11000	0.000464739114	0.032052906686	-1	0.008419772306	0.604130631505
11500	0.000445594818	0.031690390626	-1	0.008068608036	0.596568548930
12000	0.000428094237	0.031447711221	-1	0.007721749849	0.589377095823
12500	0.000412056056	0.031364937985	-1	0.007370794327	0.582705103726
13000	0.000397302340	0.031420427953	-1	0.007020639170	0.576488463680
13500	0.000383678091	0.031586822428	-1	0.006676585645	0.570613284899
14000	0.000371060285	0.031862206657	-1	0.006339522061	0.565080686649
14500	0.000359342466	0.032247483631	-1	0.006009893017	0.559886205217
15000	0.000348433372	0.032744235449	-1	0.005688375725	0.555037532211
16000	0.000328730299	0.034089059863	-1	0.005071270902	0.546405835817
17000	0.000311423363	0.035945468362	-1	0.004491342115	0.539294162817
18000	0.000296103381	0.038392626752	-1	0.003950781838	0.533875176992
19000	0.000282448162	0.041547883559	-1	0.003450914039	0.530398382998
20000	0.000270200487	0.045579305474	-1	0.002992317844	0.529212923196
21000	0.000230461517	0.007431192545	-1	0.017285946693	0.571269998893
22000	0.000219744029	0.006940174628	-1	0.017622592009	0.570365148887
23000	0.000209593244	0.006510212355	-1	0.017816440145	0.566987284094
24000	0.000200112758	0.006123039088	-1	0.017937066862	0.562171153657
25000	0.000191414647	0.005770550034	-1	0.018047586287	0.557168456994

26000	0.000183530375	0.005443618609	-1	0.018222878994	0.553428914106
27000	0.000176364127	0.005141324834	-1	0.018464557244	0.551122629987
28000	0.000169781388	0.004860044894	-1	0.018768101315	0.550086176310
29000	0.000163683275	0.004599488931	-1	0.019109819109	0.549874188322
30000	0.000157986203	0.004358999068	-1	0.019460321512	0.549886201388
31000	0.000152626679	0.004137287282	-1	0.019792664282	0.549538782179
32000	0.000147576714	0.003932139588	-1	0.020107168308	0.548812121567
33000	0.000142817361	0.003741527034	-1	0.020411652299	0.547850806974
34000	0.000138331008	0.003563802871	-1	0.020714209085	0.546811892351
35000	0.000134101280	0.003397644228	-1	0.021023115144	0.545863998194
36000	0.000130111696	0.003242013061	-1	0.021345179459	0.545152365676
37000	0.000126342205	0.003096081544	-1	0.021680967098	0.544690442683
38000	0.000122773600	0.002959107310	-1	0.022028896962	0.544442931526
39000	0.000119388734	0.002830404264	-1	0.022386637213	0.544355355170
40000	0.000116172175	0.002709306228	-1	0.022751420621	0.544357289961
41000	0.000113110390	0.002595178946	-1	0.023120850216	0.544382629575
42000	0.000110192496	0.002487464375	-1	0.023495563557	0.544436948618
43000	0.000107408857	0.002385683767	-1	0.023876705805	0.544541174228
44000	0.000104750689	0.002289414422	-1	0.024265116619	0.544710478226
45000	0.000102209862	0.002198270880	-1	0.024661524990	0.544957004147
46000	0.000099778917	0.002111908067	-1	0.025066355918	0.545287144403
47000	0.000097450814	0.002030002715	-1	0.025479981773	0.545704962285
48000	0.000095219035	0.001952256379	-1	0.025902588959	0.546209858955
49000	0.000093077566	0.001878390354	-1	0.026334237107	0.546797177005
50000	0.000091020851	0.001808143434	-1	0.026774832960	0.547457557269
55000	0.000081843734	0.001503418916	-1	0.029123682540	0.551815443123
60000	0.000074171211	0.001261013413	-1	0.031745084778	0.558066835604
65000	0.000067712895	0.001071841248	-1	0.034408602538	0.564636004932
70000	0.000062119638	0.000913268592	-1	0.037551347745	0.574099323018
75000	0.000057251119	0.000782660053	-1	0.041042619052	0.585517469820
80000	0.000052975328	0.000674581222	-1	0.044887186836	0.598822587370
85000	0.000049189068	0.000584650457	-1	0.049098803475	0.614038623710
90000	0.000045789482	0.000507890404	-1	0.053906284487	0.632281024370

95000	0.000042713944	0.000442226348	-1	0.059385580306	0.653909688996
100000	0.000039941905	0.000387430703	-1	0.065273955907	0.677597399928
105000	0.000037416502	0.000339596214	-1	0.071854697281	0.702861992612
110000	0.000035090051	0.000298152308	-1	0.079337683837	0.732398682247
115000	0.000032940987	0.000263484252	-1	0.087584957701	0.767989444623
120000	0.000030954257	0.000234150630	-1	0.096566170509	0.808708199160
125000	0.000029108267	0.000208559716	-1	0.106497242549	0.854150641713
130000	0.000027378084	0.000186127514	-1	0.117586702766	0.906071832254
135000	0.000025753075	0.000166716985	-1	0.129759191884	0.965407457253
140000	0.000024222343	0.000149816103	-1	0.143104909538	1.033055778419
145000	0.000022776216	0.000134978807	-1	0.157756681304	1.110153204272
150000	0.000021405903	0.000121964082	-1	0.173750456092	1.198275784761
155000	0.000020099784	0.000110515920	-1	0.191212309881	1.300031989370
160000	0.000018855538	0.000100457112	-1	0.210064205293	1.416894344073
165000	0.000017670969	0.000091609560	-1	0.230226366076	1.550617140742
170000	0.000016539717	0.000083798585	-1	0.251732826950	1.704594128006
175000	0.000015456278	0.000076883068	-1	0.274582724980	1.882945595011
180000	0.000014420738	0.000070766440	-1	0.298544781692	2.088689335126
185000	0.000013434058	0.000065357741	-1	0.323335248072	2.324833530156
190000	0.000012493985	0.000060559433	-1	0.348810751184	2.596476183898
195000	0.000011597685	0.000056286443	-1	0.374850022613	2.910216077418
200000	0.000010743908	0.000052472481	-1	0.401239537547	3.272940039597
205000	0.000009932157	0.000049061481	-1	0.427733303943	3.692229271617
210000	0.000009162868	0.000046007680	-1	0.454050264546	4.176054600816
215000	0.000008436602	0.000043270697	-1	0.479913962777	4.732925312521
220000	0.000007753575	0.000040813608	-1	0.505083950387	5.372165187285
225000	0.000007113592	0.000038603048	-1	0.529364264182	6.104021100987
230000	0.000006516011	0.000036609032	-1	0.552608762029	6.939845083066
235000	0.000005959692	0.000034804711	-1	0.574724761935	7.892535376700
240000	0.000005443067	0.000033166261	-1	0.595667485545	8.976977372456
245000	0.000004964182	0.000031672608	-1	0.615435710556	10.210840534425
250000	0.000004520803	0.000030305240	-1	0.634062821022	11.615531742679
255000	0.000004110660	0.000029048383	-1	0.651598277830	13.216635566716

260000	0.000003732212	0.000027890281	-1	0.668054413592	15.039797396916
265000	0.000003383992	0.000026820922	-1	0.683447238108	17.112500895193
270000	0.000003064385	0.000025831288	-1	0.697808975265	19.465590777930
275000	0.000002771715	0.000024913319	-1	0.711182280254	22.133481737708
280000	0.000002504231	0.000024059782	-1	0.723619167886	25.155255586415
285000	0.000002260180	0.000023264231	-1	0.735176408811	28.575232146934
290000	0.000002037799	0.000022520871	-1	0.745915230127	32.444682531656
295000	0.000001835368	0.000021824534	-1	0.755898045006	36.823289565465
300000	0.000001651213	0.000021170584	-1	0.765187848117	41.781668959585

Electron Elastic Scattering Sampling Data
Solution for Z = 6

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.070120714207	0.143503247117	+1	0.266346499390	0.793918693316
52	0.068302507193	0.153009594418	+1	0.263648073166	0.865684947130
54	0.066633016240	0.162997322691	+1	0.260882340756	0.941425146166
56	0.065091368656	0.173478869056	+1	0.258074243698	1.021399879806
58	0.063660356011	0.184466730401	+1	0.255243419027	1.105882752685
60	0.062325796204	0.195973311048	+1	0.252405147706	1.195156454745
62	0.061075836597	0.208010680208	+1	0.249571383668	1.289513695608
64	0.059900776356	0.220592519331	+1	0.246750992975	1.389262024369
66	0.058791858110	0.233734523209	+1	0.243952324064	1.494763825767
68	0.057742370115	0.247447395836	+1	0.241179690188	1.606321260856
70	0.056746207668	0.261748230252	+1	0.238437600837	1.724321197650
72	0.055798168292	0.276651631622	+1	0.235729144657	1.849144183381
74	0.054893825285	0.292175353449	+1	0.233056554424	1.981211163820
76	0.054029295590	0.308336833074	+1	0.230421419996	2.120961893039
78	0.053201230770	0.325154577601	+1	0.227824758119	2.268863775350
80	0.052406698067	0.342649301039	+1	0.225267181607	2.425425902990
82	0.051643082203	0.360841673756	+1	0.222748990265	2.591183768539
84	0.050908113147	0.379755048812	+1	0.220270219975	2.766721639780
86	0.050199743827	0.399413561717	+1	0.217830695812	2.952662352659
88	0.049516155376	0.419843126346	+1	0.215430113885	3.149677889725
90	0.048855721171	0.441071858463	+1	0.213068031059	3.358496582946
92	0.048216977062	0.463129063031	+1	0.210743928453	3.579897928521
94	0.047598597720	0.486046778895	+1	0.208457205079	3.814731660405
96	0.046999391128	0.509858573480	+1	0.206207186935	4.063908959377
98	0.046418250470	0.534601531515	+1	0.203993319219	4.328435841020
100	0.045854173130	0.560314732017	+1	0.201814892548	4.609394091378
105	0.044512823401	0.629125185092	+1	0.196519403055	5.391661933224
110	0.043260410685	0.705006544956	+1	0.191429552557	6.305607789812

115	0.042086551875	0.788859836255	+1	0.186535887868	7.378244150338
120	0.040982880044	0.881749054922	+1	0.181827767711	8.643230963194
125	0.039942200334	0.984986467169	+1	0.177296238526	10.143846419584
130	0.038958467558	1.100154131985	+1	0.172932209513	11.935467469998
135	0.038026366801	1.229235115244	+1	0.168728161741	14.091009985912
140	0.037141421064	1.374658932477	+1	0.164675939123	16.706091749336
145	0.036299582546	1.539544148955	+1	0.160769184374	19.910508291574
150	0.035497469071	1.727801551096	+1	0.157000514492	23.879980420561
155	0.034731902489	1.944599599087	+1	0.153364535561	28.862139096007
160	0.034000189127	2.196677854301	+1	0.149854980878	35.208008548776
165	0.033299866463	2.493206285997	+1	0.146466728541	43.434228060350
170	0.032628766477	2.846760149564	+1	0.143194318352	54.318098689250
175	0.031984896354	3.275309456925	+1	0.140033100167	69.079720832198
180	0.031366491613	3.805211784576	+1	0.136978340129	89.710361723575
185	0.030771909152	4.477031529302	+1	0.134025966492	119.647176874681
190	0.030199744310	5.355695735371	+1	0.131171059518	165.180219311952
195	0.029648654899	6.553548531147	+1	0.128409628970	238.901380646288
200	0.029117292782	8.285378962433	+1	0.125739770113	369.256441719599
205	0.028604415558	11.015673951709	+1	0.123159812123	631.867933903880
210	0.028109106526	15.949397504356	+1	0.120664710724	1283.624723554909
215	0.027630548237	27.524112464057	+1	0.118249115258	3708.095849631352
220	0.027167951542	86.480440052077	+1	0.115908474643	35542.539789880466
225	0.026720540627	84.298424383701	-1	0.113639062355	33603.151374910871
230	0.026287569274	28.724036215349	-1	0.111437726000	3968.972772144568
235	0.025868314081	17.413405100789	-1	0.109302021892	1482.708575037789
240	0.025462080496	12.544318187968	-1	0.107230034966	781.569482252678
245	0.025068181715	9.831180716370	-1	0.105220555760	487.293352504333
250	0.024685972862	8.099100230358	-1	0.103272646144	335.520508712892
255	0.024314835906	6.895417768585	-1	0.101385490925	246.622828505981
260	0.023954323783	6.010792048381	-1	0.099556231866	189.952993788067
265	0.023604006247	5.333876189281	-1	0.097781842677	151.544945736523
270	0.023263487483	4.799658982255	-1	0.096059594870	124.265763327385
275	0.022932374359	4.367590196952	-1	0.094387103210	104.158650889820

280	0.022610293952	4.011093755954	-1	0.092762244860	88.885129143981
285	0.022296881781	3.711979270621	-1	0.091183193004	76.988559212675
290	0.021991792501	3.457402355641	-1	0.089648291130	67.523746117211
295	0.021694685901	3.237996770166	-1	0.088156200998	59.854243868997
300	0.021405238591	3.046782456048	-1	0.086705777675	53.539027512920
310	0.020848120215	2.729312802698	-1	0.083925001288	43.814152388367
320	0.020318324175	2.476859033649	-1	0.081293262510	36.757202722312
330	0.019813935236	2.271639706047	-1	0.078798915317	31.461472050832
340	0.019333180377	2.101574573718	-1	0.076432442173	27.372636894957
350	0.018874421061	1.958133021472	-1	0.074186158532	24.135972699064
360	0.018436157802	1.835231370396	-1	0.072053323242	21.518207867310
370	0.018017069365	1.728835652406	-1	0.070025984901	19.367800009964
380	0.017615954682	1.635931343741	-1	0.068096706879	17.577792748950
390	0.017231698876	1.554118290681	-1	0.066259048815	16.069260381543
400	0.016863277851	1.481449415327	-1	0.064507506070	14.782831898829
410	0.016509732980	1.416368526396	-1	0.062837205147	13.673814025059
420	0.016170198541	1.357777715011	-1	0.061242935278	12.710203611030
430	0.015843873468	1.304786390216	-1	0.059719874630	11.867067113692
440	0.015530015118	1.256625237176	-1	0.058263751003	11.124224102734
450	0.015227931443	1.212624483071	-1	0.056870744634	10.465193756448
460	0.014936979068	1.172213490831	-1	0.055537453197	9.876625648681
470	0.014656569981	1.134984501319	-1	0.054260329992	9.348545891088
480	0.014386145043	1.100587560289	-1	0.053036156693	8.872710130737
490	0.014125190886	1.068709075517	-1	0.051861926033	8.442091901658
500	0.013873232784	1.039061876084	-1	0.050734927041	8.050632881288
510	0.013629815485	1.011389906138	-1	0.049652737443	7.693188911091
520	0.013394523150	0.985510115157	-1	0.048612875421	7.365825406764
530	0.013166959984	0.961257538480	-1	0.047613095482	7.065141305317
540	0.012946756502	0.938479576524	-1	0.046651321133	6.788137573156
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560	0.012527080804	0.896790944881	-1	0.044834090702	6.294825683939
570	0.012326975250	0.877653272040	-1	0.043975129430	6.074338321619
580	0.012132972149	0.859536347207	-1	0.043147053424	5.869080795638

590	0.011944797107	0.842355920292	-1	0.042348404047	5.677577602539
600	0.011762200224	0.826033264102	-1	0.041577739299	5.498486749298
610	0.011584940327	0.810495601629	-1	0.040833741721	5.330614359512
620	0.011412791027	0.795688858560	-1	0.040115135191	5.173008289947
630	0.011245536054	0.781562873004	-1	0.039420764065	5.024815701944
640	0.011082974302	0.768069189917	-1	0.038749507895	4.885242125496
650	0.010924914460	0.755162178738	-1	0.038100284333	4.753559757879
660	0.010771176890	0.742797087443	-1	0.037472115433	4.629092954176
670	0.010621587761	0.730941181921	-1	0.036864063611	4.511306646506
680	0.010475984108	0.719563351336	-1	0.036275265568	4.399709318975
690	0.010334211833	0.708632827792	-1	0.035704885131	4.293834175293
700	0.010196123465	0.698119829187	-1	0.035152141238	4.193247250875
710	0.010061579491	0.687996960757	-1	0.034616264909	4.097551246710
720	0.009930450176	0.678242975607	-1	0.034096544868	4.006419233680
730	0.009802605185	0.668836261671	-1	0.033592368326	3.919546429835
740	0.009677926445	0.659758554875	-1	0.033103052737	3.836653902835
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770	0.009321772290	0.634310670275	-1	0.031718384761	3.609257593233
780	0.009208667403	0.626371372608	-1	0.031282783402	3.539828586164
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800	0.008990302529	0.611223408461	-1	0.030447591298	3.409385379867
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860	0.008391952468	0.570811277119	-1	0.028198737385	3.074513275401
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890	0.008121062240	0.552989124584	-1	0.027200249690	2.932978758494
900	0.008034526328	0.547350263536	-1	0.026883929987	2.888992339289
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950	0.007627571045	0.521138499768	-1	0.025413963794	2.689600862612
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1025	0.007087639368	0.487030325427	-1	0.023509380684	2.442755864893
1050	0.006923945204	0.476808438811	-1	0.022942571742	2.371591117702
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1150	0.006337210276	0.440495110376	-1	0.020953345274	2.129419431864
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1225	0.005957539301	0.417154192070	-1	0.019702151816	1.982543677607
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1350	0.005415348257	0.383839398275	-1	0.017966384448	1.784833354707
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1450	0.005046926991	0.361094864437	-1	0.016822364827	1.657873544437
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1650	0.004440908820	0.323237824073	-1	0.015005210011	1.460736822356
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1750	0.004188797128	0.307246045723	-1	0.014273637112	1.382665795510
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1850	0.003963469816	0.292800084225	-1	0.013632022103	1.314711373384
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2000	0.003667111543	0.273541409464	-1	0.012806267371	1.227842079118
2100	0.003492768123	0.262110047296	-1	0.012325810864	1.177873594500
2200	0.003334101359	0.251595492557	-1	0.011894737110	1.133167500594
2300	0.003189093425	0.241849275624	-1	0.011509465402	1.093065713676
2400	0.003056062268	0.232790990809	-1	0.011163762369	1.056949955677
2500	0.002933594225	0.224386035718	-1	0.010849386753	1.024199924031
2600	0.002820492407	0.216604837228	-1	0.010558608487	0.994228405838
2700	0.002715729314	0.209358131683	-1	0.010290145115	0.966705211736
2800	0.002618418607	0.202570560853	-1	0.010043252991	0.941391612224
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3100	0.002364042223	0.184614608107	-1	0.009407547330	0.876483683910
3200	0.002289828226	0.179344415674	-1	0.009222833911	0.857868427732
3300	0.002220109037	0.174370344936	-1	0.009050369791	0.840533505579
3400	0.002154489639	0.169667686130	-1	0.008889055033	0.824358016699
3500	0.002092620892	0.165224022721	-1	0.008737190367	0.809221077614
3600	0.002034191374	0.161029893614	-1	0.008593056477	0.795007578777
3700	0.001978923967	0.157059557422	-1	0.008456426117	0.781641200384
3800	0.001926571404	0.153292371493	-1	0.008327042341	0.769061836477
3900	0.001876910240	0.149714018951	-1	0.008204326734	0.757207945563
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4200	0.001742153436	0.140025948291	-1	0.007868024962	0.725399397190
4300	0.001701428663	0.137106590580	-1	0.007765260715	0.715894595002
4400	0.001662563103	0.134323713921	-1	0.007666742394	0.706876341285
4500	0.001625432267	0.131671694149	-1	0.007571935981	0.698307253738
4600	0.001589924549	0.129146658879	-1	0.007480243760	0.690150261805
4700	0.001555935890	0.126738269672	-1	0.007391625529	0.682379439458

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17000	0.000435904503	0.077824112702	-1	0.002349879878	0.453052834110
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19000	0.000392117692	0.089510084453	-1	0.001843376980	0.459126107780
20000	0.000373586160	0.098318028638	-1	0.001614417006	0.467224601288
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22000	0.000323738654	0.015571732659	-1	0.007479758156	0.368010826339
23000	0.000308885152	0.014577645229	-1	0.007531598374	0.363255309435
24000	0.000295031780	0.013752308306	-1	0.007508990462	0.357409026198
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27000	0.000260335625	0.011559930822	-1	0.007579642810	0.342967746499
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31000	0.000225675531	0.009039468018	-1	0.008225886030	0.335149421815
32000	0.000218303442	0.008544274633	-1	0.008368560333	0.333054457884
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37000	0.000187268407	0.006553442216	-1	0.009083605679	0.322835832967
38000	0.000182060346	0.006228371937	-1	0.009249583094	0.321317640045
39000	0.000177119364	0.005922444504	-1	0.009424576611	0.319960848189
40000	0.000172423601	0.005635216643	-1	0.009605330820	0.318701080148
41000	0.000167953681	0.005365864278	-1	0.009789044116	0.317478204875
42000	0.000163693811	0.005112861625	-1	0.009976117212	0.316294321256
43000	0.000159630021	0.004874732345	-1	0.010167659690	0.315165137560
44000	0.000155749430	0.004650237170	-1	0.010364570192	0.314102906779
45000	0.000152040213	0.004438314012	-1	0.010567562909	0.313116172603
46000	0.000148491437	0.004238049775	-1	0.010777155760	0.312210032035
47000	0.000145092791	0.004048619565	-1	0.010993776983	0.311387208082
48000	0.000141834791	0.003869300337	-1	0.011217636318	0.310646090883
49000	0.000138708641	0.003699458182	-1	0.011448725155	0.309981650975
50000	0.000135706303	0.003538508571	-1	0.011686863714	0.309384644444
55000	0.000122313059	0.002848558992	-1	0.012989039810	0.307319206018
60000	0.000111120495	0.002311076023	-1	0.014507447445	0.306840015556
65000	0.000101615670	0.001886959536	-1	0.016284278194	0.307946589085
70000	0.000093431412	0.001548741991	-1	0.018373036340	0.310707780949
75000	0.000086297126	0.001276586575	-1	0.020843020140	0.315267244252
80000	0.000080006547	0.001055617434	-1	0.023793032749	0.321893636310
85000	0.000074397480	0.000874578349	-1	0.027367115844	0.331030435801
90000	0.000069415124	0.000732371956	-1	0.031323077733	0.341390064666

95000	0.000064896844	0.000614195217	-1	0.036116077622	0.354811080462
100000	0.000060726320	0.000513415995	-1	0.042253227882	0.373162652015
105000	0.000056889330	0.000430556033	-1	0.049684700569	0.395836700481
110000	0.000053318565	0.000362110665	-1	0.058822111844	0.424586164473
115000	0.000049966872	0.000305662414	-1	0.070067196679	0.461035188553
120000	0.000046803871	0.000258326215	-1	0.083991865412	0.506193373229
125000	0.000043770101	0.000217512453	-1	0.101937063171	0.564166593912
130000	0.000040713620	0.000181950773	-1	0.126940102501	0.649875730467
135000	0.000037667274	0.000153619451	-1	0.158818872812	0.770096168622
140000	0.000034784872	0.000132254465	-1	0.194518585238	0.918264592665
145000	0.000031909026	0.000114377552	-1	0.238292937726	1.121466383757
150000	0.000029003762	0.000099474980	-1	0.291165141260	1.408913875619
155000	0.000026106340	0.000087413855	-1	0.351061979757	1.811513162232
160000	0.000023235750	0.000077637149	-1	0.415925559765	2.379490210646
165000	0.000020424999	0.000069673590	-1	0.482881235586	3.185499652092
170000	0.000017715748	0.000063178675	-1	0.548494009260	4.332505588565
175000	0.000015155310	0.000057867952	-1	0.609604076524	5.962582777147
180000	0.000012803626	0.000053510513	-1	0.663697839325	8.248302026782
185000	0.000010706515	0.000049907317	-1	0.709673264787	11.394742689721
190000	0.000008861859	0.000046873376	-1	0.748240969320	15.720789668725
195000	0.000007250013	0.000044269567	-1	0.780592353035	21.724766294343
200000	0.000005862160	0.000042008460	-1	0.807543189508	30.069571814958
205000	0.000004684940	0.000040024135	-1	0.829900483723	41.682731677380
210000	0.000003700473	0.000038265771	-1	0.848428532052	57.884997071705
215000	0.000002887709	0.000036693364	-1	0.863813627239	80.600025837296
220000	0.000002223215	0.000035274331	-1	0.876669380128	112.786339898413
225000	0.000001685095	0.000033983216	-1	0.887490810595	159.085230565582
230000	0.000001256649	0.000032802360	-1	0.896601092734	226.353921332144
235000	0.000000919591	0.000031715486	-1	0.904320728130	325.982874172347
240000	0.000000657820	0.000030709364	-1	0.910907422373	477.320080671763
245000	0.000000457442	0.000029773107	-1	0.916569155523	715.054482838283
250000	0.000000306691	0.000028897678	-1	0.921473986496	1105.718166188398
255000	0.000000195834	0.000028075782	-1	0.925752428002	1787.593275360137

260000	0.000000117028	0.000027302180	-1	0.929491399657	3075.557773629984
265000	0.000000073024	0.000026593534	-1	0.931993899879	4991.008056655075
270000	0.000000055483	0.000026540506	-1	0.918207691548	5370.204406752731
275000	0.000000064868	0.000025395550	-1	0.932639287496	5420.530668963303
280000	0.000000063163	0.000024850625	-1	0.932379918720	5425.052821068233
285000	0.000000051892	0.000024849851	-1	0.918886638626	5425.052821068233
290000	0.000000060917	0.000023780777	-1	0.932975663418	5434.242142937500
295000	0.000000059225	0.000023294739	-1	0.932695039707	5450.761112222241
300000	0.000000057483	0.000022822356	-1	0.932105024204	5450.763420375162

Electron Elastic Scattering Sampling Data
Solution for Z = 7

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.089194083454	0.090096960111	+1	0.294466015561	0.421940475516
52	0.086191879705	0.094531642977	+1	0.293233854276	0.458533419599
54	0.083496269936	0.099162995916	+1	0.291716963233	0.496217511638
56	0.081062074403	0.104001750953	+1	0.289972084472	0.535085071795
58	0.078851888556	0.109057208917	+1	0.288045999319	0.575233691854
60	0.076834613371	0.114337545558	+1	0.285977293545	0.616764318065
62	0.074984265858	0.119849814100	+1	0.283797884342	0.659778940899
64	0.073279071531	0.125601639661	+1	0.281533943675	0.704387947076
66	0.071700667646	0.131598753235	+1	0.279207228250	0.750695424225
68	0.070233500929	0.137847172986	+1	0.276835777521	0.798811345901
70	0.068864414649	0.144353316964	+1	0.274434221450	0.848849890094
72	0.067582133301	0.151122148608	+1	0.272014799271	0.900920187634
74	0.066377048904	0.158160152222	+1	0.269587477427	0.955143155766
76	0.065240876289	0.165472678231	+1	0.267160482538	1.011635645151
78	0.064166471267	0.173065477704	+1	0.264740538426	1.070520029475
80	0.063147669557	0.180944934196	+1	0.262333094091	1.131925747455
82	0.062179090471	0.189116456001	+1	0.259942569920	1.195979077268
84	0.061256077377	0.197586778011	+1	0.257572494993	1.262818485978
86	0.060374522811	0.206362122772	+1	0.255225721892	1.332583573036
88	0.059530850017	0.215448971391	+1	0.252904426051	1.405418712634
90	0.058721897538	0.224854594175	+1	0.250610346170	1.481479436888
92	0.057944870167	0.234585642792	+1	0.248344747247	1.560920921351
94	0.057197299506	0.244650089795	+1	0.246108594438	1.643913917682
96	0.056476986295	0.255055625549	+1	0.243902531901	1.730632484800
98	0.055781966738	0.265810239090	+1	0.241726971304	1.821259164888
100	0.055110483274	0.276922242130	+1	0.239582092899	1.915985210546
105	0.053524794548	0.306324753913	+1	0.234354136773	2.172091736325
110	0.052056235781	0.338175048338	+1	0.229315509137	2.458666260118

115	0.050688521818	0.372637703610	+1	0.224460388535	2.779680177315
120	0.049408900400	0.409909584123	+1	0.219781158457	3.139810429628
125	0.048206899415	0.450209656510	+1	0.215269546561	3.544471384263
130	0.047074056998	0.493790435437	+1	0.210916780349	4.000015230467
135	0.046003198768	0.540938275949	+1	0.206714408445	4.513912068114
140	0.044988394252	0.591982364127	+1	0.202653967204	5.094989975215
145	0.044024477422	0.647302647570	+1	0.198727790876	5.753795390441
150	0.043107073597	0.707336405797	+1	0.194928389419	6.502917779555
155	0.042232321711	0.772593442574	+1	0.191249057816	7.357582933008
160	0.041396878087	0.843664612853	+1	0.187683317775	8.336201259599
165	0.040597725851	0.921249423634	+1	0.184225600412	9.461419719989
170	0.039832305339	1.006156446389	+1	0.180869987081	10.760816662963
175	0.039098176935	1.099365130249	+1	0.177611963226	12.269087888539
180	0.038393244448	1.202033108407	+1	0.174446793132	14.029478495850
185	0.037715565874	1.315564068763	+1	0.171370461133	16.097016909958
190	0.037063475389	1.441619321057	+1	0.168378382371	18.541191134829
195	0.036435402600	1.582256846184	+1	0.165466838238	21.452503357479
200	0.035829694603	1.740178621726	+1	0.162634484927	24.953921604672
205	0.035244841534	1.918841368012	+1	0.159880274497	29.212224632717
210	0.034679819849	2.122339604702	+1	0.157199590602	34.446006361657
215	0.034133735862	2.355837454537	+1	0.154587513927	40.953541592039
220	0.033605698936	2.626100557266	+1	0.152039995540	49.154790287893
225	0.033094827927	2.942174277368	+1	0.149553753627	59.656030015213
230	0.032600272087	3.316440142027	+1	0.147126162585	73.358347783659
235	0.032121157701	3.766384011596	+1	0.144755495037	91.650855380757
240	0.031656665297	4.317480293606	+1	0.142440480354	116.762949620699
245	0.031205962188	5.008477136834	+1	0.140180634460	152.464212233195
250	0.030768251452	5.901286276948	+1	0.137976004340	205.540347032326
255	0.030342791581	7.100747607153	+1	0.135826506980	289.184823577812
260	0.029929090233	8.796102908930	+1	0.133729632320	431.535960230524
265	0.029526717662	11.371420636292	+1	0.131682538081	701.828756710418
270	0.029135243757	15.746391653990	+1	0.129682808938	1310.436655842915
275	0.028754247033	24.809818808515	+1	0.127728363918	3169.790111595684

280	0.028383300658	54.763207034440	+1	0.125817551582	15057.672587305800
285	0.028071911609	275.969843795603	+1	0.123424362861	372915.238424582290
290	0.027740726653	71.889067987112	-1	0.121371279647	25388.344693946507
295	0.027326708860	22.969239989159	-1	0.120334679556	2682.738334334034
300	0.026991935695	15.692092956940	-1	0.118587707849	1271.309155640665
310	0.026346366794	9.642390592979	-1	0.115210641015	494.153565234062
320	0.025730971097	6.988765069176	-1	0.111979214606	266.750186399415
330	0.025143717714	5.500837648688	-1	0.108882943988	169.515337789124
340	0.024582665406	4.549550039289	-1	0.105914077188	118.747554210155
350	0.024045940364	3.888532565090	-1	0.103067586338	88.708540470225
360	0.023531828026	3.401880915904	-1	0.100339305551	69.341418616455
370	0.023038941400	3.029088195468	-1	0.097721768295	56.080883193494
380	0.022566018598	2.734795382750	-1	0.095207928196	46.576803619114
390	0.022111854885	2.496708772113	-1	0.092792205848	39.510131518344
400	0.021675299243	2.300031325655	-1	0.090470439207	34.092880623346
410	0.021255292918	2.134667375007	-1	0.088238935726	29.833175359100
420	0.020850903417	1.993805454208	-1	0.086092740905	26.417004399835
430	0.020461303322	1.872516632028	-1	0.084026845772	23.631632138814
440	0.020085687978	1.767020729203	-1	0.082037310016	21.326376515583
450	0.019723295490	1.674381163379	-1	0.080120893720	19.392367940380
460	0.019373408728	1.592311238920	-1	0.078274755154	17.749903534384
470	0.019035401700	1.519153835637	-1	0.076495197135	16.341809196324
480	0.018708690082	1.453585167701	-1	0.074778756273	15.124494575021
490	0.018392715854	1.394498698470	-1	0.073122454175	14.063712201220
500	0.018086946319	1.340956855120	-1	0.071523796799	13.132211814816
510	0.017790892261	1.292182116827	-1	0.069980475887	12.308393775074
520	0.017504102168	1.247591133108	-1	0.068489796749	11.575822060747
530	0.017226152755	1.206692818384	-1	0.067049242704	10.921139480139
540	0.016956642282	1.169052867703	-1	0.065656587086	10.333174630231
550	0.016695190303	1.134285050080	-1	0.064309877073	9.802528685790
560	0.016441443584	1.102057494488	-1	0.063007257881	9.321394406351
570	0.016195064356	1.072112714571	-1	0.061746793006	8.883588053306
580	0.015955739622	1.044229169302	-1	0.060526600745	8.483898597717

590	0.015723182132	1.018207741565	-1	0.059344891779	8.117819239688
600	0.015497100897	0.993858544499	-1	0.058200209917	7.781364026097
610	0.015277233497	0.971015777229	-1	0.057091108847	7.471121000425
620	0.015063328831	0.949551198165	-1	0.056016080728	7.184343008142
630	0.014855152906	0.929352767021	-1	0.054973653229	6.918655925097
640	0.014652479013	0.910311197816	-1	0.053962578285	6.671906532527
650	0.014455095005	0.892327246279	-1	0.052981589505	6.442184815332
660	0.014262796315	0.875307659878	-1	0.052029602727	6.227787923286
670	0.014075394167	0.859182746185	-1	0.051105404248	6.027339735647
680	0.013892700333	0.843885667446	-1	0.050207976203	5.839600445798
690	0.013714549671	0.829358168425	-1	0.049336189808	5.663465815282
700	0.013540770578	0.815538724783	-1	0.048489151412	5.497893727919
710	0.013371209954	0.802374122340	-1	0.047665920573	5.341967558006
720	0.013205715479	0.789820384999	-1	0.046865634593	5.194916786678
730	0.013044146477	0.777839280285	-1	0.046087402808	5.056057223674
740	0.012886362189	0.766391718888	-1	0.045330459406	4.924745820216
750	0.012732237802	0.755442603201	-1	0.044593978831	4.800395063315
760	0.012581649202	0.744956837055	-1	0.043877244913	4.682457781664
770	0.012434471442	0.734905048892	-1	0.043179636068	4.570474149342
780	0.012290598675	0.725265721137	-1	0.042500355786	4.464047921469
790	0.012149919508	0.716012298083	-1	0.041838813369	4.362781031069
800	0.012012329055	0.707120538872	-1	0.041194400259	4.266308321035
810	0.011877731323	0.698568560965	-1	0.040566502416	4.174296271263
820	0.011746027296	0.690336786287	-1	0.039954603287	4.086455737667
830	0.011617127204	0.682410200023	-1	0.039358102978	4.002534811642
840	0.011490944746	0.674771389966	-1	0.038776506097	3.922281468080
850	0.011367395684	0.667404294458	-1	0.038209307011	3.845462469690
860	0.011246399757	0.660292403559	-1	0.037656050550	3.771853575065
870	0.011127879554	0.653424058275	-1	0.037116259331	3.701273850150
880	0.011011760326	0.646787368956	-1	0.036589501311	3.633550623449
890	0.010897969873	0.640369953527	-1	0.036075376576	3.568515796532
900	0.010786443198	0.634161146112	-1	0.035573447774	3.506013964784
910	0.010677111737	0.628149356019	-1	0.035083338323	3.445895066733

920	0.010569914126	0.622326245404	-1	0.034604670334	3.388035951933
930	0.010464786700	0.616683156479	-1	0.034137096518	3.332318697577
940	0.010361672545	0.611211493330	-1	0.033680281638	3.278628499256
950	0.010260516449	0.605904000210	-1	0.033233864528	3.226860676884
960	0.010161259539	0.600750562740	-1	0.032797578625	3.176903352755
970	0.010063856373	0.595747174483	-1	0.032371042672	3.128676399245
980	0.009968250203	0.590885430700	-1	0.031954022813	3.082088402247
990	0.009874394855	0.586159167162	-1	0.031546214805	3.037056222166
1000	0.009782244067	0.581562430278	-1	0.031147321260	2.993501061156
1025	0.009559030449	0.570600076600	-1	0.030187430039	2.890614719472
1050	0.009345521329	0.560342335575	-1	0.029277938600	2.795603210347
1075	0.009141098619	0.550723543491	-1	0.028415427608	2.707642493038
1100	0.008945207881	0.541679291358	-1	0.027596565377	2.625952109420
1125	0.008757335673	0.533148454614	-1	0.026818300270	2.549828535292
1150	0.008577003203	0.525088345800	-1	0.026078049305	2.478755528239
1175	0.008403772302	0.517463521450	-1	0.025373333305	2.412284328833
1200	0.008237234806	0.510233623813	-1	0.024701888032	2.349967181512
1225	0.008077021486	0.503366433968	-1	0.024061412620	2.291409867161
1250	0.007922777528	0.496829486324	-1	0.023450209564	2.236285814342
1275	0.007774181392	0.490602610433	-1	0.022866426306	2.184329720950
1300	0.007630931010	0.484658059395	-1	0.022308455150	2.135258693828
1325	0.007492749497	0.478972867328	-1	0.021774675541	2.088818797868
1350	0.007359376950	0.473531373606	-1	0.021263676696	2.044821099324
1375	0.007230563109	0.468312850060	-1	0.020774306346	2.003075822802
1400	0.007106086737	0.463305659237	-1	0.020305173834	1.963418278372
1425	0.006985734779	0.458492943186	-1	0.019855119946	1.925678651611
1450	0.006869307007	0.453862457512	-1	0.019423139839	1.889728226840
1475	0.006756617337	0.449402263827	-1	0.019008296009	1.855445604472
1500	0.006647490179	0.445101620708	-1	0.018609637915	1.822714207900
1550	0.006439276526	0.436934629148	-1	0.017857481439	1.761467031594
1600	0.006243466404	0.429293137379	-1	0.017160571999	1.705279578008
1650	0.006058996183	0.422116244961	-1	0.016513353936	1.653521543958
1700	0.005884916706	0.415350636613	-1	0.015911227882	1.605682698567

1750	0.005720386726	0.408953990971	-1	0.015349847285	1.561315693217
1800	0.005564646614	0.402888996321	-1	0.014825517103	1.520049829192
1850	0.005417020179	0.397124387518	-1	0.014334809422	1.481553877186
1900	0.005276893630	0.391626866282	-1	0.013875128020	1.445560684186
1950	0.005143713481	0.386369445596	-1	0.013443877539	1.411820796256
2000	0.005016986744	0.381344084087	-1	0.013037835482	1.380090359531
2100	0.004781136051	0.371940960498	-1	0.012291500203	1.321852380022
2200	0.004566151520	0.363217405029	-1	0.011626420532	1.269778046478
2300	0.004369385349	0.355020915439	-1	0.011034247001	1.223059464491
2400	0.004188630720	0.347280485735	-1	0.010504814685	1.180934298201
2500	0.004022041056	0.339994450344	-1	0.010026617575	1.142657342397
2600	0.003868045032	0.333168095119	-1	0.009589374761	1.107529152607
2700	0.003725272665	0.326704258200	-1	0.009189704199	1.075144938266
2800	0.003592542546	0.320522591807	-1	0.008824951357	1.045218517705
2900	0.003468833886	0.314588767806	-1	0.008491482836	1.017496267787
3000	0.003353267303	0.308915154455	-1	0.008184752004	0.991752743686
3100	0.003245070609	0.303517551217	-1	0.007900531395	0.967766519899
3200	0.003143564827	0.298347859180	-1	0.007637248759	0.945355078922
3300	0.003048151557	0.293363551468	-1	0.007393542501	0.924365890032
3400	0.002958301726	0.288550136485	-1	0.007167495454	0.904666898749
3500	0.002873545363	0.283914837266	-1	0.006956787221	0.886136543731
3600	0.002793465536	0.279470490510	-1	0.006759170930	0.868660919809
3700	0.002717687989	0.275189932527	-1	0.006573872856	0.852147685182
3800	0.002645876922	0.271047261818	-1	0.006400247898	0.836517121494
3900	0.002577730945	0.267035380371	-1	0.006237301538	0.821705054405
4000	0.002512977610	0.263159711874	-1	0.006083810870	0.807653324786
4100	0.002451370878	0.259428126920	-1	0.005938587301	0.794306362379
4200	0.002392688792	0.255824255156	-1	0.005801187383	0.781610046959
4300	0.002336729744	0.252333014384	-1	0.005671227740	0.769518127710
4400	0.002283308962	0.248947487520	-1	0.005548161164	0.757987527864
4500	0.002232258814	0.245672593246	-1	0.005431244515	0.746985616516
4600	0.002183425130	0.242512868227	-1	0.005319773951	0.736478133986
4700	0.002136668464	0.239458354214	-1	0.005213479464	0.726433082332

4800	0.002091859262	0.236496557567	-1	0.005112170993	0.716818149177
4900	0.002048879746	0.233625058265	-1	0.005015487525	0.707610164782
5000	0.002007620178	0.230845399032	-1	0.004922992718	0.698786740062
5500	0.001823855003	0.218251419901	-1	0.004513304087	0.659737942358
6000	0.001670789462	0.207577613544	-1	0.004173102495	0.627659390094
6500	0.001541360478	0.198574306204	-1	0.003883308058	0.601044373251
7000	0.001430512079	0.191040881315	-1	0.003630949861	0.578816170681
7500	0.001334532042	0.184819675829	-1	0.003406932758	0.560193367998
8000	0.001250634656	0.179787956835	-1	0.003204725635	0.544598167930
8500	0.001176686209	0.175845117710	-1	0.003019647640	0.531592337683
9000	0.001111027534	0.172917889897	-1	0.002848217400	0.520849600930
9500	0.001052347827	0.170952275964	-1	0.002687875247	0.512125020043
10000	0.000999597535	0.169912953130	-1	0.002536718403	0.505238340633
10500	0.000951851454	0.168592350996	-1	0.002403746616	0.498255862782
11000	0.000908426782	0.166840393119	-1	0.002287677890	0.490928136001
11500	0.000868816093	0.165687570566	-1	0.002177581105	0.484716900779
12000	0.000832542759	0.165091854749	-1	0.002072967879	0.479525417311
12500	0.000799203700	0.165060423826	-1	0.001973000515	0.475304446637
13000	0.000768460633	0.165575853062	-1	0.001877350777	0.472001984416
13500	0.000740022940	0.166657337629	-1	0.001785461910	0.469599908468
14000	0.000713643176	0.168306706046	-1	0.001697128381	0.468079614488
14500	0.000689106942	0.170557505146	-1	0.001611982539	0.467453875484
15000	0.000666229730	0.173426197947	-1	0.001529936092	0.467730264792
16000	0.000624825362	0.181226442674	-1	0.001374244103	0.471178995941
17000	0.000588363676	0.192183846316	-1	0.001229088480	0.478934448757
18000	0.000556015401	0.207032541225	-1	0.001093856204	0.491886510613
19000	0.000527126338	0.226895361798	-1	0.000968128280	0.511497036177
20000	0.000501173021	0.253489271827	-1	0.000851639640	0.540133117724
21000	0.000467891558	0.039783056860	-1	0.003170546516	0.281064367212
22000	0.000446417541	0.036450242425	-1	0.003244795872	0.275367488412
23000	0.000426005468	0.034203246612	-1	0.003231411421	0.269073541117
24000	0.000406947744	0.032599768578	-1	0.003162696273	0.262339931950
25000	0.000389462119	0.031205200291	-1	0.003086228164	0.255686720765

26000	0.000373636036	0.029638070398	-1	0.003050051121	0.249779784449
27000	0.000359254063	0.027874603874	-1	0.003061004222	0.244785958791
28000	0.000346065976	0.026020757474	-1	0.003110569152	0.240635545283
29000	0.000333860035	0.024199311966	-1	0.003185214690	0.237138644485
30000	0.000322458009	0.022524237359	-1	0.003266099169	0.233970259674
31000	0.000311726101	0.021065888330	-1	0.003334224623	0.230765205913
32000	0.000301609688	0.019791320583	-1	0.003388756559	0.227470152649
33000	0.000292073471	0.018653637704	-1	0.003434441735	0.224141058193
34000	0.000283084303	0.017615400923	-1	0.003476615730	0.220854721010
35000	0.000274610953	0.016646401527	-1	0.003521145573	0.217705342261
36000	0.000266621231	0.015725727908	-1	0.003573263008	0.214781225382
37000	0.000259074491	0.014849934136	-1	0.003633712686	0.212090278663
38000	0.000251931647	0.014020431505	-1	0.003701524145	0.209607627595
39000	0.000245157769	0.013239175747	-1	0.003775066584	0.207294610897
40000	0.000238721601	0.012508150403	-1	0.003852029205	0.205098251685
41000	0.000232596018	0.011827756872	-1	0.003930143400	0.202966470088
42000	0.000226759558	0.011193234052	-1	0.004009608692	0.200896565008
43000	0.000221193621	0.010600045843	-1	0.004090999373	0.198896967736
44000	0.000215880362	0.010043768556	-1	0.004175081422	0.196975389455
45000	0.000210793066	0.009510658322	-1	0.004267514098	0.195166789595
46000	0.000205926223	0.009008277779	-1	0.004364488597	0.193449853858
47000	0.000201265651	0.008534355009	-1	0.004466396513	0.191825213927
48000	0.000196798262	0.008087056485	-1	0.004573460768	0.190290688836
49000	0.000192511985	0.007664887125	-1	0.004685700924	0.188840368616
50000	0.000188401180	0.007270955700	-1	0.004799670222	0.187444743186
55000	0.000170069589	0.005604803725	-1	0.005446086382	0.181444340614
60000	0.000154751363	0.004334372407	-1	0.006256998536	0.177090324979
65000	0.000141742534	0.003358508873	-1	0.007280208320	0.174324335813
70000	0.000130536168	0.002604222519	-1	0.008585914394	0.173201457330
75000	0.000120756940	0.002018630769	-1	0.010276070811	0.173892624167
80000	0.000112118636	0.001562719264	-1	0.012501993817	0.176715918764
85000	0.000104395834	0.001207245379	-1	0.015494643590	0.182202587063
90000	0.000097403863	0.000930056378	-1	0.019616736336	0.191216511557

95000	0.000090983083	0.000714138265	-1	0.025460158441	0.205188814355
100000	0.000084984039	0.000546309167	-1	0.034033410785	0.226592107433
105000	0.000079243608	0.000415958571	-1	0.047207458509	0.260162266086
110000	0.000073590172	0.000316015813	-1	0.068198936666	0.314375476871
115000	0.000067808331	0.000240444276	-1	0.102852673931	0.406591382324
120000	0.000061666971	0.000184892125	-1	0.160277826673	0.572343992253
125000	0.000054590156	0.000143783465	-1	0.258366959111	0.917658832545
130000	0.000046174007	0.000114998697	-1	0.406621550007	1.706804814764
135000	0.000036924243	0.000096341948	-1	0.572496356293	3.494318876393
140000	0.000027344206	0.000083843294	-1	0.718287362093	7.818428115824
145000	0.000017932227	0.000074994504	-1	0.826353137326	19.903008534685
150000	0.000010606577	0.000068996348	-1	0.888027689091	51.593153465526
155000	0.000006160815	0.000064881854	-1	0.918121650594	118.097778576358
160000	0.000003490254	0.000061654144	-1	0.935034072661	254.256619241491
165000	0.000001755406	0.000058831554	-1	0.946978047907	598.607034817823
170000	0.000000724553	0.000056322672	-1	0.955646098047	1674.953116253168
175000	0.000000200208	0.000054077378	-1	0.961954694895	6829.856743438322
180000	0.000000178038	0.000052320730	-1	0.962144384574	7469.547630022054
185000	0.000000174517	0.000050640923	-1	0.962633526417	7475.933450358582
190000	0.000000161963	0.000049098372	-1	0.962798127904	7845.927935810797
195000	0.000000120601	0.000047315827	-1	0.966876402952	11452.752473153781
200000	0.000000073636	0.000047303677	-1	0.946885263190	11452.752472888922
205000	0.000000111497	0.000044614355	-1	0.966974870334	11716.645395782505
210000	0.000000096030	0.000043630052	-1	0.962674891978	11718.660365713140
215000	0.000000071126	0.000042936190	-1	0.954670621292	12714.085645311641
220000	0.000000101100	0.000040876276	-1	0.969671892792	12927.643192892578
225000	0.000000112713	0.000039572426	-1	0.973633559337	12965.208138094620
230000	0.000000094643	0.000038563064	-1	0.973427751003	14927.143973874719
235000	0.000000056438	0.000038532120	-1	0.956261224273	14927.144392467391
240000	0.000000040341	0.000038531595	-1	0.939858712143	14927.144392504624
245000	0.000000044792	0.000037178967	-1	0.947492274386	14978.452492287106
250000	0.000000033499	0.000037164050	-1	0.931038726663	14978.452493076733
255000	0.000000027695	0.000037163928	-1	0.917775450728	14978.452493093488

260000	0.000000022987	0.000037163866	-1	0.902574579026	14978.452493094886
265000	0.000000019683	0.000037163665	-1	0.888053297670	14978.452493092776
270000	0.000000017337	0.000037163616	-1	0.874801368840	14978.452493085753
275000	0.000000015329	0.000037163583	-1	0.860681634262	14978.452493080349
280000	0.000000013828	0.000037163573	-1	0.847860558825	14978.452493080349
285000	0.000000012704	0.000037163562	-1	0.836602650592	14978.452493080349
290000	0.000000011515	0.000037163552	-1	0.822722953658	14978.452493078046
295000	0.000000010858	0.000037163548	-1	0.813994339401	14978.452493078046
300000	0.000000012464	0.000034314318	-1	0.844730794934	14978.452562486420

Electron Elastic Scattering Sampling Data
Solution for Z = 8

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.118052450356	0.068366333022	+1	0.306377500654	0.244432524506
52	0.112766467897	0.070899632197	+1	0.307942173195	0.269237487805
54	0.108069135685	0.073467774153	+1	0.308899490090	0.294369855949
56	0.103876840024	0.076088449928	+1	0.309340507413	0.319815982665
58	0.100118894970	0.078776665912	+1	0.309343963218	0.345583741071
60	0.096735899344	0.081544646698	+1	0.308977041844	0.371692594991
62	0.093677745056	0.084402464255	+1	0.308297314060	0.398171433311
64	0.090901809270	0.087358826718	+1	0.307353850322	0.425058515477
66	0.088372092885	0.090420783663	+1	0.306188848072	0.452395152013
68	0.086058017006	0.093594223290	+1	0.304838019317	0.480224165811
70	0.083933113616	0.096884982147	+1	0.303332471897	0.508598496166
72	0.081974956584	0.100297322646	+1	0.301698540617	0.537565330726
74	0.080164153026	0.103835734738	+1	0.299958787364	0.567177901906
76	0.078483997555	0.107503833900	+1	0.298132588834	0.597487389332
78	0.076920037005	0.111305120053	+1	0.296236639047	0.628546821390
80	0.075459723492	0.115242982274	+1	0.294285084575	0.660409911004
82	0.074092143387	0.119320205063	+1	0.292290219758	0.693128445596
84	0.072807771359	0.123540009166	+1	0.290262458265	0.726757653680
86	0.071598267385	0.127905079931	+1	0.288210815033	0.761350643335
88	0.070456332771	0.132418126036	+1	0.286142912682	0.796960831312
90	0.069375503785	0.137082132450	+1	0.284065403622	0.833645289014
92	0.068350140909	0.141899431342	+1	0.281983800213	0.871455875047
94	0.067375225601	0.146873088837	+1	0.279902951414	0.910451229827
96	0.066446319647	0.152005792733	+1	0.277826872868	0.950687530240
98	0.065559473998	0.157300164936	+1	0.275759041077	0.992221687914
100	0.064711189627	0.162758796319	+1	0.273702337413	1.035110611226
105	0.062739412294	0.177142785416	+1	0.268624518339	1.148657715501
110	0.060949450794	0.192622625685	+1	0.263659043218	1.272065775157

115	0.059310195313	0.209242414960	+1	0.258823099518	1.406344591983
120	0.057797704305	0.227059176411	+1	0.254126311466	1.552657632602
125	0.056393102532	0.246128418225	+1	0.249572831758	1.712228705029
130	0.055081508230	0.266516252656	+1	0.245163219921	1.886448240801
135	0.053850903992	0.288289490610	+1	0.240895442616	2.076811544610
140	0.052691596700	0.311526422858	+1	0.236765949402	2.285024833964
145	0.051595580512	0.336309123519	+1	0.232769992600	2.512960948797
150	0.050556255455	0.362731738857	+1	0.228902362864	2.762756564786
155	0.049568033154	0.390895389056	+1	0.225157495929	3.036796621829
160	0.048626233233	0.420914597314	+1	0.221529680137	3.337801284395
165	0.047726812581	0.452914483927	+1	0.218013288365	3.668845012778
170	0.046866318025	0.487035513070	+1	0.214602750405	4.033441992995
175	0.046041700894	0.523434110020	+1	0.211292867731	4.435620762645
180	0.045250317735	0.562285419194	+1	0.208078520480	4.880006366878
185	0.044489797557	0.603786550531	+1	0.204955085659	5.371955487887
190	0.043758134034	0.648153207442	+1	0.201917589549	5.917564511829
195	0.043053450972	0.695631604414	+1	0.198961747009	6.523979755296
200	0.042373867022	0.746520925919	+1	0.196084849784	7.199925322654
205	0.041717673600	0.801165077005	+1	0.193284363606	7.955759763211
210	0.041083668592	0.859920205558	+1	0.190555804250	8.803044224079
215	0.040470778605	0.923184522224	+1	0.187894742963	9.755293267772
220	0.039878035050	0.991408512301	+1	0.185296905762	10.828433866322
225	0.039304374919	1.065126641692	+1	0.182759258406	12.041862552207
230	0.038748846328	1.144955016835	+1	0.180278872472	13.418871261553
235	0.038210488002	1.231625696884	+1	0.177853527054	14.988058629478
240	0.037688379600	1.326008500761	+1	0.175481453156	16.784715327410
245	0.037181612642	1.429153623728	+1	0.173161465634	18.853040894168
250	0.036689288648	1.542342223558	+1	0.170892917324	21.249087957356
255	0.036210657757	1.667104370933	+1	0.168674714854	24.043480039537
260	0.035745127926	1.805207900715	+1	0.166504675097	27.324095094505
265	0.035292246335	1.958752377402	+1	0.164379939422	31.202245658412
270	0.034851511895	2.130337768734	+1	0.162298380873	35.823238057177
275	0.034422494843	2.323177946177	+1	0.160257737430	41.377930858541

280	0.034004684748	2.541374324792	+1	0.158256710590	48.123996299949
285	0.033597629038	2.790159773570	+1	0.156293859672	56.412735871330
290	0.033200863309	3.076387199608	+1	0.154368277281	66.735831933299
295	0.032813928295	3.409182673021	+1	0.152479288987	79.797372588262
300	0.032436374777	3.800999840497	+1	0.150626553206	96.635521420853
310	0.031707846707	4.838039923979	+1	0.147027144646	148.824810237195
320	0.031012813903	6.440958063080	+1	0.143559418544	251.251431786337
330	0.030349074232	9.238490332637	+1	0.140213396278	493.294115744323
340	0.029714439764	15.347941070363	+1	0.136982356483	1301.588778284830
350	0.029106806676	39.173638623375	+1	0.133862077062	8119.898012768599
360	0.028528346714	85.187817499176	-1	0.130865944930	37676.485443373334
370	0.027965038032	21.270853806745	-1	0.127939190253	2417.602294537650
380	0.027428029751	12.115857962308	-1	0.125123330255	806.485040602007
390	0.026911808160	8.493811421654	-1	0.122397792825	406.951889328525
400	0.026415051765	6.552669214361	-1	0.119759697767	248.344000738058
410	0.025936535741	5.342193268674	-1	0.117206756341	169.051975449153
420	0.025475278183	4.515956182859	-1	0.114734274145	123.579353564647
430	0.025030360817	3.916643647276	-1	0.112337995589	94.985648553322
440	0.024600906390	3.462296691304	-1	0.110014522421	75.767677797505
450	0.024186049042	3.105939207490	-1	0.107761623050	62.179167875555
460	0.023784976330	2.818836353899	-1	0.105577392364	52.181625021171
470	0.023397013452	2.582766634152	-1	0.103458512123	44.595902277074
480	0.023021535101	2.385403614986	-1	0.101401771842	38.693076060563
490	0.022657928003	2.218009548850	-1	0.099404723809	33.999890340080
500	0.022305597624	2.074219113862	-1	0.097465531428	30.198272946503
510	0.021963994044	1.949328111132	-1	0.095582474921	27.068888686709
520	0.021632628221	1.839904987175	-1	0.093753159056	24.458767595758
530	0.021311050443	1.743310497301	-1	0.091975193649	22.256651230246
540	0.020998822115	1.657438495324	-1	0.090246679041	20.379242983813
550	0.020695525153	1.580589667105	-1	0.088566023705	18.763219676560
560	0.020400755850	1.511389532388	-1	0.086931887187	17.359986831796
570	0.020114162722	1.448784438829	-1	0.085342355409	16.132796276987
580	0.019835406429	1.391905216519	-1	0.083795665941	15.052604609265

590	0.019564170895	1.340015917305	-1	0.082290249193	14.095996621454
600	0.019300140349	1.292480892271	-1	0.080824877527	13.243845271764
610	0.019043023782	1.248764344399	-1	0.079398351712	12.480608067957
620	0.018792547987	1.208441061969	-1	0.078009225695	11.793949167137
630	0.018548463936	1.171147960204	-1	0.076656087461	11.173640591569
640	0.018310526010	1.136563513709	-1	0.075337679902	10.611030069039
650	0.018078502448	1.104401229737	-1	0.074052918957	10.098752389692
660	0.017852165981	1.074407219535	-1	0.072800873916	9.630545580284
670	0.017631310400	1.046380720382	-1	0.071580344394	9.201329218277
680	0.017415742172	1.020144867677	-1	0.070390223974	8.806748388992
690	0.017205270912	0.995538839725	-1	0.069229498774	8.443001227135
700	0.016999715273	0.972412359011	-1	0.068097335135	8.106721800717
710	0.016798904591	0.950633211472	-1	0.066992859445	7.794999854399
720	0.016602672248	0.930093459724	-1	0.065915176455	7.505416385581
730	0.016410867924	0.910697742909	-1	0.064863353114	7.235852734829
740	0.016223339972	0.892354858809	-1	0.063836610434	6.984396781551
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770	0.015685032996	0.842848908501	-1	0.060899420859	6.322604604308
780	0.015513256055	0.827970649433	-1	0.059965616555	6.128499666487
790	0.015345107387	0.813811311581	-1	0.059053294982	5.945814073260
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810	0.015019243591	0.787450187931	-1	0.057290568704	5.610996311300
820	0.014861314700	0.775162410530	-1	0.056438953014	5.457274682736
830	0.014706585267	0.763419991260	-1	0.055606423471	5.311765604980
840	0.014554962416	0.752191058947	-1	0.054792330800	5.173869821951
850	0.014406348284	0.741439955196	-1	0.053996266641	5.043006234235
860	0.014260662516	0.731139053648	-1	0.053217600651	4.918670908985
870	0.014117811239	0.721260101945	-1	0.052455941358	4.800405250085
880	0.013977719316	0.711782030151	-1	0.051710720542	4.687815423538
890	0.013840305294	0.702681190387	-1	0.050981487136	4.580514468972
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910	0.013573211043	0.685524390530	-1	0.049569257030	4.380383770766

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930	0.013315955452	0.669637875141	-1	0.048215879760	4.197558174632
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1025	0.012213117192	0.607976336961	-1	0.042498971519	3.509999183437
1050	0.011951832623	0.594760613718	-1	0.041166962314	3.367047091741
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1150	0.011007069716	0.550950630370	-1	0.036433209881	2.903356465534
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1750	0.007432868254	0.430778267253	-1	0.020078461032	1.686524626995
1800	0.007235065395	0.425918693828	-1	0.019264763419	1.637042927146
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2000	0.006537039973	0.410119869360	-1	0.016487903155	1.473471236528
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4300	0.003068194685	0.358907804708	-1	0.005349426876	0.852307363016
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9000	0.001456950621	0.351041883400	-1	0.001947204944	0.634174505618
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10500	0.001246773968	0.367039787362	-1	0.001556384944	0.626554596904
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16000	0.000814921470	0.564715353495	-1	0.000744512778	0.807218342071
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120000	0.000011615091	0.000105303118	-1	0.954336881706	189.493994707691
125000	0.000002555860	0.000098856844	-1	0.973977957054	1447.835542597361
130000	0.000000455708	0.000093900715	-1	0.980557761786	10393.209535708651
135000	0.000000149926	0.000093486793	-1	0.954174508063	12984.783350659554
140000	0.000000197161	0.000086222963	-1	0.981497998173	23201.207541908821
145000	0.000000077772	0.000086176474	-1	0.954414338593	23201.208030391681
150000	0.000000049093	0.000086176031	-1	0.929657003889	23201.208030414531
155000	0.000000036592	0.000085626270	-1	0.913522128803	24721.623557758012
160000	0.000000036529	0.000085626269	-1	0.913386035142	24721.623557758012
165000	0.000000023262	0.000085630210	-1	0.870384108092	24721.623557832470
170000	0.000000019405	0.000085630200	-1	0.848522854846	24721.623557832470
175000	0.000000016829	0.000085630189	-1	0.829300906853	24721.623557854360
180000	0.000000014745	0.000085630184	-1	0.809762413186	24721.623557854586
185000	0.000000013695	0.000085630182	-1	0.798120670360	24721.623557854586
190000	0.000000014378	0.000079311407	-1	0.817564700294	24722.170749193672
195000	0.000000015580	0.000074447766	-1	0.838016859641	24723.670749193683
200000	0.000000014138	0.000074447762	-1	0.824397005866	24723.670749193683
205000	0.000000015979	0.000068569281	-1	0.852096206627	24724.169885271469
210000	0.000000014180	0.000068569275	-1	0.836400419584	24724.169885271469
215000	0.000000012876	0.000068565428	-1	0.822794644421	24727.169885271469
220000	0.000000014694	0.000063017305	-1	0.852186522989	24727.159117297171
225000	0.000000013204	0.000063017297	-1	0.838207744208	24727.159117297782
230000	0.000000011751	0.000063017291	-1	0.821768661375	24727.159117300027
235000	0.000000010901	0.000063017288	-1	0.810505403904	24727.159117300027
240000	0.000000010901	0.000063017288	-1	0.810505096332	24727.159117300027
245000	0.000000009510	0.000063017285	-1	0.788643194915	24727.159117300027
250000	0.000000008426	0.000063014072	-1	0.767784544663	24728.159117300027
255000	0.000000007592	0.000063006876	-1	0.748708341569	24729.159117300027

260000	0.000000007265	0.000062998485	-1	0.740378267522	24730.159117300027
265000	0.000000006843	0.000062984137	-1	0.728759852322	24731.159117300027
270000	0.000000006411	0.000062972044	-1	0.715732570830	24732.159117300027
275000	0.000000006085	0.000062845304	-1	0.705408593722	24733.159117300027
280000	0.000000005749	0.000062811966	-1	0.693598802195	24732.159117300027
285000	0.000000005453	0.000062797387	-1	0.682261470619	24731.159117300027
290000	0.000000005220	0.000062797386	-1	0.672727052749	24731.159117300027
295000	0.000000004987	0.000062797386	-1	0.662602729289	24731.159117300027
300000	0.000000004754	0.000062797386	-1	0.651832007419	24731.159117300027

Electron Elastic Scattering Sampling Data
Solution for Z = 9

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.163708526776	0.056625859803	+1	0.296184302302	0.132167177730
52	0.154577982878	0.058752063976	+1	0.301752059973	0.150621535695
54	0.146462434068	0.060766307198	+1	0.306372652557	0.169558776666
56	0.139228495375	0.062699884223	+1	0.310157625184	0.188873486624
58	0.132761854781	0.064578426498	+1	0.313206177573	0.208476511875
60	0.126963623646	0.066423846849	+1	0.315607660414	0.228300604018
62	0.121748876173	0.068254549876	+1	0.317441300133	0.248295687523
64	0.117044131820	0.070085734312	+1	0.318777539142	0.268427484288
66	0.112786552956	0.071930456176	+1	0.319678470220	0.288675153612
68	0.108921932491	0.073799593564	+1	0.320198770721	0.309028553383
70	0.105403266083	0.075702167799	+1	0.320386670940	0.329486860325
72	0.102190187773	0.077645952249	+1	0.320284641587	0.350056555889
74	0.099247487658	0.079637453835	+1	0.319929947940	0.370750333157
76	0.096544767272	0.081682205458	+1	0.319355398198	0.391584859000
78	0.094055553313	0.083784966530	+1	0.318589784673	0.412580418306
80	0.091756653932	0.085949884087	+1	0.317658487642	0.433760832173
82	0.089627902429	0.088180500827	+1	0.316583901376	0.455151181005
84	0.087651573557	0.090480016483	+1	0.315385591364	0.476778525194
86	0.085812235926	0.092850879670	+1	0.314080629506	0.498667499828
88	0.084096074634	0.095295855567	+1	0.312684527328	0.520849476543
90	0.082491052740	0.097817107634	+1	0.311210587436	0.543352350562
92	0.080986497519	0.100416574944	+1	0.309670647082	0.566204533842
94	0.079572963171	0.103096213237	+1	0.308075084841	0.589435359033
96	0.078242033328	0.105857785295	+1	0.306433115169	0.613074205923
98	0.076986256302	0.108702808861	+1	0.304752806327	0.637149021846
100	0.075798954018	0.111632782280	+1	0.303041375515	0.661688667014
105	0.073092802359	0.119338778522	+1	0.298665941566	0.725257141768
110	0.070701852728	0.127609135776	+1	0.294212406857	0.792369896660

115	0.068566955545	0.136462232961	+1	0.289738988188	0.863455257254
120	0.066642342638	0.145921376008	+1	0.285287369666	0.938978719849
125	0.064892222970	0.156006273000	+1	0.280887460150	1.019387806488
130	0.063288417200	0.166741265369	+1	0.276560334817	1.105172091616
135	0.061808485277	0.178147947227	+1	0.272320325339	1.196812658000
140	0.060434454994	0.190252880573	+1	0.268176953681	1.294843894491
145	0.059151754541	0.203080965495	+1	0.264135944096	1.399807026135
150	0.057948546669	0.216661950543	+1	0.260200434026	1.512305127477
155	0.056815066781	0.231024780545	+1	0.256371402784	1.632962986373
160	0.055743275351	0.246203182249	+1	0.252648389727	1.762476239207
165	0.054726424537	0.262231088773	+1	0.249029874742	1.901581478178
170	0.053758887615	0.279147364474	+1	0.245513593654	2.051099419863
175	0.052835865272	0.296991915254	+1	0.242096716433	2.211910302643
180	0.051953290609	0.315809547963	+1	0.238776089386	2.384993428769
185	0.051107652056	0.335647401765	+1	0.235548362554	2.571414333554
190	0.050295985096	0.356558296336	+1	0.232409897396	2.772357524979
195	0.049515659737	0.378598466450	+1	0.229357179973	2.989126895638
200	0.048764226737	0.401827316665	+1	0.226387024497	3.223165120838
205	0.048039543954	0.426308456298	+1	0.223496208302	3.476061390582
210	0.047339950865	0.452115916818	+1	0.220681076798	3.749604677281
215	0.046664006581	0.479331190947	+1	0.217937964895	4.045791313257
220	0.046010331743	0.508043949784	+1	0.215263675454	4.366876791208
225	0.045377679754	0.538350756371	+1	0.212655068095	4.715371228342
230	0.044764862119	0.570357865886	+1	0.210109321101	5.094113195294
235	0.044170771430	0.604181711223	+1	0.207623819091	5.506306506775
240	0.043594375863	0.639950522070	+1	0.205196172226	5.955582621688
245	0.043034688135	0.677806889287	+1	0.202824272550	6.446090526576
250	0.042490799146	0.717907392373	+1	0.200506075661	6.982539695072
255	0.041961871866	0.760427488608	+1	0.198239711671	7.570339987651
260	0.041447291980	0.805554254262	+1	0.196022629383	8.215505076112
265	0.040946486002	0.853497330305	+1	0.193852424111	8.924949662755
270	0.040458941127	0.904487541945	+1	0.191726699032	9.706566364547
275	0.039984134956	0.958787048786	+1	0.189643399281	10.569550578760

280	0.039521500139	1.016699691628	+1	0.187601101479	11.524791699629
285	0.039070548343	1.078564254895	+1	0.185598153391	12.584901970060
290	0.038630775191	1.144773362286	+1	0.183633354243	13.764886260368
295	0.038201692870	1.215780162395	+1	0.181705668811	15.082603537273
300	0.037782815715	1.292111933982	+1	0.179814339149	16.559503595719
310	0.036974022740	1.463239955475	+1	0.176136761617	20.097987591003
320	0.036201773716	1.663964726973	+1	0.172589222664	24.648523227112
330	0.035463702285	1.902154632051	+1	0.169161273225	30.607765807060
340	0.034757456307	2.188924808623	+1	0.165845337015	38.587376801121
350	0.034080768706	2.540512651777	+1	0.162636047655	49.570833345233
360	0.033431484874	2.981520675595	+1	0.159529614355	65.218130482831
370	0.032808003121	3.550033968121	+1	0.156518907197	88.458426586722
380	0.032208846475	4.309374730605	+1	0.153597454225	124.888355721866
390	0.031632557488	5.373763448321	+1	0.150760501790	186.325600637609
400	0.031077673887	6.972596831663	+1	0.148005115530	301.365968062725
410	0.030542840005	9.643157717801	+1	0.145328953199	554.456467649967
420	0.030026991694	14.997422258379	+1	0.142727458777	1291.501213099998
430	0.029529157072	31.128676634194	+1	0.140196229794	5364.148402369484
440	0.029103264761	170.371584134697	+1	0.137174083636	154983.046281653250
450	0.028583643121	31.854491885516	-1	0.135333191805	5571.392803595304
460	0.028134095548	15.994087720541	-1	0.132997738351	1441.446855007644
470	0.027698987462	10.690336437175	-1	0.130722601158	660.208108051649
480	0.027277642222	8.037018338667	-1	0.128504759287	382.190291322334
490	0.026869382010	6.445198390001	-1	0.126342004538	251.504632831465
500	0.026473545158	5.384102534267	-1	0.124232836181	179.432477640777
510	0.026089503638	4.626149529509	-1	0.122176022732	135.318887641393
520	0.025716734676	4.058014802043	-1	0.120169247808	106.278315593499
530	0.025354752097	3.616600231721	-1	0.118210294615	86.095317726143
540	0.025003071694	3.263878775321	-1	0.116297540890	71.463585851461
550	0.024661221751	2.975565899453	-1	0.114429771369	60.490846649118
560	0.024328751055	2.735466153947	-1	0.112605970715	52.030966184083
570	0.024005273046	2.532518808443	-1	0.110824448863	45.360348916951
580	0.023690434751	2.358815049213	-1	0.109083478703	40.000025752605

590	0.023383874633	2.208499212388	-1	0.107381802404	35.621245050433
600	0.023085247848	2.077145049007	-1	0.105718419664	31.992251543180
610	0.022794223416	1.961364635176	-1	0.104092474579	28.946316567705
620	0.022510510170	1.858585827921	-1	0.102502643881	26.362259365178
630	0.022233839218	1.766779609297	-1	0.100947567848	24.149217896794
640	0.021963935074	1.684292339409	-1	0.099426315413	22.237382032791
650	0.021700545878	1.609777078731	-1	0.097937931037	20.572608970323
660	0.021443412978	1.542119589433	-1	0.096481813494	19.112362268868
670	0.021192318982	1.480442439032	-1	0.095056777159	17.823640402733
680	0.020947050902	1.424004286951	-1	0.093661861882	16.679810213423
690	0.020707403373	1.372177913458	-1	0.092296158164	15.659223569566
700	0.020473174538	1.324418878103	-1	0.090958975428	14.743990806163
710	0.020244171263	1.280260410062	-1	0.089649740659	13.919356409157
720	0.020020219615	1.239326293544	-1	0.088367499729	13.173409519484
730	0.019801153626	1.201287216033	-1	0.087111456857	12.496117349651
740	0.019586811414	1.165852465600	-1	0.085880895594	11.878956545800
750	0.019377033433	1.132763054895	-1	0.084675233792	11.314640060854
760	0.019171669138	1.101792336489	-1	0.083493882128	10.796961918072
770	0.018970581434	1.072750801043	-1	0.082336130405	10.320731291384
780	0.018773636990	1.045472216780	-1	0.081201292627	9.881492242804
790	0.018580705547	1.019804196270	-1	0.080088784464	9.475327005978
800	0.018391661457	0.995608669178	-1	0.078998069179	9.098801460856
810	0.018206382561	0.972759875633	-1	0.077928703135	8.748897759337
820	0.018024759937	0.951155966781	-1	0.076880021845	8.423086116734
830	0.017846683699	0.930701866132	-1	0.075851514119	8.119109648921
840	0.017672049591	0.911311364707	-1	0.074842651604	7.834964320478
850	0.017500756597	0.892904351356	-1	0.073852943905	7.568850108249
860	0.017332707044	0.875406200530	-1	0.072882034551	7.319156830447
870	0.017167808079	0.858755827646	-1	0.071929379359	7.084510889844
880	0.017005971898	0.842896271212	-1	0.070994526127	6.863674120157
890	0.016847115281	0.827775070979	-1	0.070077000022	6.655526185935
900	0.016691150891	0.813341478895	-1	0.069176451901	6.459042044478
910	0.016538001517	0.799549625856	-1	0.068292480761	6.273297656406

920	0.016387590418	0.786359870995	-1	0.067424705876	6.097488596925
930	0.016239842956	0.773737032596	-1	0.066572698137	5.930894972010
940	0.016094692635	0.761648156795	-1	0.065736015361	5.772852579338
950	0.015952067572	0.750059059789	-1	0.064914397774	5.622735180069
960	0.015811900437	0.738939579698	-1	0.064107501672	5.479979583657
970	0.015674131050	0.728264211310	-1	0.063314936941	5.344090744983
980	0.015538694164	0.718007055573	-1	0.062536430742	5.214604212888
990	0.015405534653	0.708145324780	-1	0.061771614204	5.091096037146
1000	0.015274591051	0.698655742174	-1	0.061020227086	4.973167397811
1025	0.014956574418	0.676431234655	-1	0.059198568724	4.700488960450
1050	0.014651267655	0.656156957466	-1	0.057454104392	4.455903527084
1075	0.014357923345	0.637612003024	-1	0.055782379135	4.235547658965
1100	0.014075849127	0.620585482115	-1	0.054179700265	4.036049460799
1125	0.013804398035	0.604888752519	-1	0.052642792774	3.854552419122
1150	0.013542981828	0.590390273901	-1	0.051168053916	3.688892846047
1175	0.013291057482	0.576976849198	-1	0.049752031879	3.537234332859
1200	0.013048117177	0.564535415046	-1	0.048391800197	3.397913124644
1225	0.012813687586	0.552962526334	-1	0.047084682795	3.269477287933
1250	0.012587331916	0.542183949199	-1	0.045827901902	3.150793372361
1275	0.012368640491	0.532131996360	-1	0.044618926016	3.040866709691
1300	0.012157231123	0.522739046194	-1	0.043455464871	2.938779320445
1325	0.011952747895	0.513942619985	-1	0.042335358426	2.843713527617
1350	0.011754856692	0.505696454103	-1	0.041256540115	2.755022113085
1375	0.011563245669	0.497959421494	-1	0.040217005591	2.672131886256
1400	0.011377622045	0.490689579874	-1	0.039214917847	2.594503534187
1425	0.011197712789	0.483847449464	-1	0.038248545710	2.521647538571
1450	0.011023256923	0.477401916854	-1	0.037316325563	2.453166397852
1475	0.010854013015	0.471327755467	-1	0.036416609342	2.388712417206
1500	0.010689752315	0.465596226556	-1	0.035547979080	2.327944239906
1550	0.010375332347	0.455059971425	-1	0.033898600821	2.216275975536
1600	0.010078414668	0.445634815468	-1	0.032357948312	2.116199667167
1650	0.009797590295	0.437175575501	-1	0.030916936848	2.026037918125
1700	0.009531594314	0.429571102871	-1	0.029567349245	1.944474919779

1750	0.009279292585	0.422718310022	-1	0.028301785162	1.870364168844
1800	0.009039664115	0.416535833136	-1	0.027113552589	1.802783908823
1850	0.008811789284	0.410948577717	-1	0.025996581123	1.740925436757
1900	0.008594826116	0.405899949302	-1	0.024945650351	1.684168686554
1950	0.008388015935	0.401336190908	-1	0.023955792550	1.631942284329
2000	0.008190683650	0.397197961811	-1	0.023021854120	1.583644040900
2100	0.007822013496	0.390003808487	-1	0.021304624781	1.496955156782
2200	0.007484323161	0.384115834711	-1	0.019768782336	1.421985636745
2300	0.007173857877	0.379394280976	-1	0.018392542435	1.357143919858
2400	0.006887486803	0.375680967211	-1	0.017155139916	1.300781921562
2500	0.006622578828	0.372795078185	-1	0.016036809281	1.251184027891
2600	0.006376879320	0.370554126142	-1	0.015020429245	1.206796708492
2700	0.006148368638	0.368862135286	-1	0.014095833220	1.166965215497
2800	0.005935299304	0.367661172806	-1	0.013254109746	1.131250669763
2900	0.005736168966	0.366905443221	-1	0.012486142770	1.099187348994
3000	0.005549678131	0.366562259906	-1	0.011782705215	1.070282457720
3100	0.005374687924	0.366601818734	-1	0.011135512500	1.044068130489
3200	0.005210169208	0.366973147158	-1	0.010539689358	1.020269727503
3300	0.005055211165	0.367630842276	-1	0.009990899855	0.998658547376
3400	0.004909013102	0.368544482632	-1	0.009484539133	0.979000409125
3500	0.004770865297	0.369696712069	-1	0.009015871237	0.961051840263
3600	0.004640134711	0.371079962008	-1	0.008580491616	0.944591178120
3700	0.004516240378	0.372662533293	-1	0.008175826363	0.929485181123
3800	0.004398658706	0.374416893342	-1	0.007799565453	0.915626859187
3900	0.004286921114	0.376329756532	-1	0.007449209240	0.902911519396
4000	0.004180608439	0.378411006272	-1	0.007122036047	0.891249837661
4100	0.004079340561	0.380665842996	-1	0.006815637697	0.880544114388
4200	0.003982773857	0.383064366580	-1	0.006528654722	0.870704108548
4300	0.003890596664	0.385574539734	-1	0.006259867802	0.861644220898
4400	0.003802522789	0.388168756713	-1	0.006007982380	0.853273950633
4500	0.003718291689	0.390832199442	-1	0.005771588113	0.845510371182
4600	0.003637662474	0.393563076658	-1	0.005549273438	0.838290381803
4700	0.003560402901	0.396359853778	-1	0.005340005436	0.831594098142

4800	0.003486297794	0.399231145398	-1	0.005142772884	0.825419142718
4900	0.003415153554	0.402211063094	-1	0.004956420974	0.819789959560
5000	0.003346790515	0.405344430513	-1	0.004779787500	0.814735787103
5500	0.003041612922	0.423356092569	-1	0.004019920054	0.797192578751
6000	0.002786827902	0.442722842294	-1	0.003432580022	0.787245256977
6500	0.002570910836	0.464040066081	-1	0.002966464813	0.784216116066
7000	0.002385652090	0.487399174559	-1	0.002589826993	0.787167825483
7500	0.002224995288	0.513053992179	-1	0.002280459992	0.795677635773
8000	0.002084373483	0.541352923280	-1	0.002022722403	0.809689260477
8500	0.001960280520	0.572804358272	-1	0.001805203954	0.829513126034
9000	0.001849980523	0.608067382691	-1	0.001619508198	0.855801740248
9500	0.001751307724	0.647991418725	-1	0.001459332143	0.889590651939
10000	0.001662527830	0.693778764337	-1	0.001319808929	0.932549645885
10500	0.001582228813	0.747021459636	-1	0.001197168018	0.987076380388
11000	0.001509259782	0.809245246569	-1	0.001088906338	1.055898853337
11500	0.001442664102	0.883839242749	-1	0.000992276964	1.144695218356
12000	0.001381648223	0.974351790331	-1	0.000905712051	1.260453662676
12500	0.001325541072	1.086963269541	-1	0.000827588679	1.415582869134
13000	0.001273777386	1.230003179922	-1	0.000756885702	1.629012724169
13500	0.001225872983	1.418210220755	-1	0.000692498106	1.936317487468
14000	0.001181414910	1.675429981163	-1	0.000633731592	2.403174552927
14500	0.001140044555	2.047928203482	-1	0.000579852064	3.173013417047
15000	0.001101454570	2.631566124911	-1	0.000530377896	4.599169117750
16000	0.001031565179	6.039646303332	-1	0.000442783872	18.239042455686
17000	0.000969910447	46.937467585137	+1	0.000371960814	862.384301385869
18000	0.000914869198	11.221821473894	+1	0.000331081045	49.604522361730
19000	0.000866150197	1.992214023250	+1	0.000264539247	1.819551921928
20000	0.000822119412	1.104733409216	+1	0.000221701592	0.626654107168
21000	0.000781554457	0.357018928114	-1	0.000619465942	0.383941590137
22000	0.000745793848	0.318551701987	-1	0.000618508370	0.348296253235
23000	0.000711689768	0.317290495856	-1	0.000577170444	0.338917305288
24000	0.000679775205	0.341524029494	-1	0.000513846859	0.346271066258
25000	0.000650475221	0.377825814098	-1	0.000451736053	0.361454606697

26000	0.000624002557	0.399373244167	-1	0.000409578983	0.366750592561
27000	0.000600007834	0.393844687644	-1	0.000387321121	0.354292025855
28000	0.000578058627	0.365712401878	-1	0.000380011217	0.328274813485
29000	0.000557778980	0.327865413513	-1	0.000381974822	0.298089038241
30000	0.000538844505	0.293167605670	-1	0.000386100389	0.271607236614
31000	0.000521008978	0.268662302966	-1	0.000385323557	0.252042794322
32000	0.000504182120	0.252006018706	-1	0.000379370323	0.237377266683
33000	0.000488311771	0.240076053420	-1	0.000370063573	0.225592697084
34000	0.000473349147	0.230517658276	-1	0.000359380448	0.215335422624
35000	0.000459248651	0.221288646642	-1	0.000349376913	0.205577756562
36000	0.000445961764	0.210872833109	-1	0.000341759101	0.195657475916
37000	0.000433420819	0.199304506892	-1	0.000336654520	0.185643311518
38000	0.000421558974	0.187133729049	-1	0.000333631451	0.175801363353
39000	0.000410315721	0.174984415247	-1	0.000332073482	0.166384779369
40000	0.000399636412	0.163479474341	-1	0.000331154133	0.157600432428
41000	0.000389473447	0.153036746008	-1	0.000330088280	0.149542758469
42000	0.000379790880	0.143485915386	-1	0.000328939600	0.142098564600
43000	0.000370557392	0.134595803587	-1	0.000327962381	0.135152099162
44000	0.000361744098	0.126212433631	-1	0.000327358925	0.128626457707
45000	0.000353324189	0.118237889463	-1	0.000327284990	0.122470737116
46000	0.000345272818	0.110617983563	-1	0.000327847008	0.116651883441
47000	0.000337566452	0.103322351525	-1	0.000329125039	0.111146226947
48000	0.000330183217	0.096348050804	-1	0.000331143305	0.105938258910
49000	0.000323102809	0.089709715985	-1	0.000333871378	0.101016771344
50000	0.000316306400	0.083431321125	-1	0.000337219766	0.096370625898
55000	0.000286035756	0.057082385758	-1	0.000363512800	0.076690934252
60000	0.000260812984	0.037532525527	-1	0.000413096083	0.061687556207
65000	0.000239457927	0.023427635675	-1	0.000501384660	0.050215899416
70000	0.000221121799	0.013669730334	-1	0.000663098232	0.041571413474
75000	0.000205119504	0.007124906986	-1	0.001016169681	0.035577406008
80000	0.000190910724	0.003226560626	-1	0.001936604957	0.032893382516
85000	0.000177693223	0.001172997749	-1	0.005794442910	0.038511796588
90000	0.000159061902	0.000292828338	-1	0.095127358251	0.193563287668

95000	0.000046379881	0.000165614389	-1	0.965719729104	100.606739815117
100000	0.000002510174	0.000153438450	-1	0.993057273245	8744.602907843468
105000	0.000000931154	0.000146871496	-1	0.985085284514	10419.296311646109
110000	0.000000744992	0.000139185145	-1	0.986448412569	13601.466430135937
115000	0.000000990833	0.000130603585	-1	0.996922976968	42711.180469301566
120000	-0.000001094672	0.000128956588	-1	1.002766204200	42710.180468420789
125000	-0.000001095012	0.000128956587	-1	1.002765343088	42710.180468420789
130000	-0.000001095022	0.000128956587	-1	1.002765318318	42710.180468420789
135000	-0.000001081899	0.000103671680	-1	1.002248970595	42708.129284850213
140000	-0.000001082169	0.000103672173	-1	1.002248367879	42709.129284850213
145000	-0.000001084805	0.000103671930	-1	1.002243360473	42700.129284850213
150000	-0.000001084990	0.000103671930	-1	1.002242976980	42700.129284850213
155000	-0.000001085215	0.000103671930	-1	1.002242511634	42700.129284850213
160000	-0.000001085215	0.000103671930	-1	1.002242511633	42700.129284850213
165000	-0.000001085215	0.000103671930	-1	1.002242511631	42700.129284850213
170000	-0.000001085215	0.000103671930	-1	1.002242511628	42700.129284850213
175000	-0.000001085215	0.000103671930	-1	1.002242511625	42700.129284850213
180000	-0.000001085215	0.000103671930	-1	1.002242511622	42700.129284850213
185000	-0.000001085215	0.000103671930	-1	1.002242511619	42700.129284850213
190000	-0.000001085215	0.000103671930	-1	1.002242511618	42700.129284850213
195000	-0.000001085215	0.000103671930	-1	1.002242511617	42700.129284850213
200000	-0.000001085215	0.000103671930	-1	1.002242511616	42700.129284850213
205000	-0.000001085215	0.000103671930	-1	1.002242511614	42700.129284850213
210000	-0.000001085215	0.000103671930	-1	1.002242511613	42700.129284850213
215000	-0.000001085215	0.000103671930	-1	1.002242511612	42700.129284850213
220000	-0.000001085215	0.000103671930	-1	1.002242511610	42700.129284850213
225000	-0.000001085215	0.000103671930	-1	1.002242511609	42700.129284850213
230000	-0.000001085215	0.000103671930	-1	1.002242511607	42700.129284850213
235000	-0.000001085215	0.000103671930	-1	1.002242511606	42700.129284850213
240000	-0.000001085215	0.000103671930	-1	1.002242511604	42700.129284850213
245000	-0.000001085215	0.000103671930	-1	1.002242511602	42700.129284850213
250000	-0.000001085215	0.000103671930	-1	1.002242511600	42700.129284850213
255000	-0.000001085215	0.000103671930	-1	1.002242511598	42700.129284850213

260000	-0.000001085215	0.000103671930	-1	1.002242511596	42700.129284850213
265000	-0.000001085215	0.000103671930	-1	1.002242511594	42700.129284850213
270000	-0.000001085215	0.000103671930	-1	1.002242511592	42700.129284850213
275000	-0.000001085215	0.000103671930	-1	1.002242511590	42700.129284850213
280000	-0.000001085215	0.000103671930	-1	1.002242511588	42700.129284850213
285000	-0.000001085215	0.000103671930	-1	1.002242511586	42700.129284850213
290000	-0.000001085215	0.000103671930	-1	1.002242511583	42700.129284850213
295000	-0.000001085215	0.000103671930	-1	1.002242511581	42700.129284850213
300000	-0.000001085215	0.000103671930	-1	1.002242511579	42700.129284850213

Electron Elastic Scattering Sampling Data
Solution for Z = 10

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.234121072109	0.045922796244	+1	0.262368852173	0.059129296120
52	0.219294943937	0.048558825887	+1	0.272444915192	0.071307697313
54	0.205999362803	0.050945065857	+1	0.281372218134	0.084381336456
56	0.194067216098	0.053118759418	+1	0.289239658327	0.098237878342
58	0.183350780529	0.055110695003	+1	0.296130764329	0.112753282073
60	0.173710929997	0.056952436880	+1	0.302133239088	0.127821954687
62	0.165026753831	0.058669442212	+1	0.307326240871	0.143335243892
64	0.157187151896	0.060286657001	+1	0.311789135099	0.159207419401
66	0.150095584208	0.061825286752	+1	0.315593341974	0.175360170081
68	0.143667163522	0.063303429261	+1	0.318804391917	0.191725438065
70	0.137826775988	0.064736794704	+1	0.321482894338	0.208247970102
72	0.132508970787	0.066139173490	+1	0.323683390181	0.224882724170
74	0.127655786612	0.067522221469	+1	0.325455779652	0.241595115782
76	0.123216711271	0.068896078534	+1	0.326844859275	0.258358830236
78	0.119147406081	0.070269322708	+1	0.327890818785	0.275154353616
80	0.115408333155	0.071649722805	+1	0.328630655576	0.291973128570
82	0.111965558551	0.073043382811	+1	0.329096453267	0.308805826661
84	0.108788528922	0.074455894263	+1	0.329317806244	0.325652402062
86	0.105850537410	0.075892017620	+1	0.329321034970	0.342515373938
88	0.103127899680	0.077355898327	+1	0.329129834967	0.359401064986
90	0.100599632130	0.078851068882	+1	0.328765404473	0.376318097283
92	0.098247170946	0.080380643485	+1	0.328246842117	0.393277378543
94	0.096053959352	0.081947328780	+1	0.327591225367	0.410291578107
96	0.094005275882	0.083553491374	+1	0.326813901685	0.427374588937
98	0.092087994563	0.085201243159	+1	0.325928705022	0.444541533980
100	0.090290397735	0.086892389149	+1	0.324948059227	0.461807827802
105	0.086253685772	0.091320629852	+1	0.322149322200	0.505516720742
110	0.082765087436	0.096052296346	+1	0.318965820279	0.550215530684

115	0.079719571567	0.101103944995	+1	0.315509995022	0.596165035563
120	0.077035231395	0.106490935529	+1	0.311867554397	0.643634567700
125	0.074647993800	0.112225156219	+1	0.308105036821	0.692878664878
130	0.072507139734	0.118319285725	+1	0.304273160512	0.744158207724
135	0.070572276312	0.124783605296	+1	0.300411263172	0.797718733119
140	0.068810973972	0.131629957616	+1	0.296549090845	0.853814193010
145	0.067196930384	0.138868676466	+1	0.292709675526	0.912690024517
150	0.065708789529	0.146511848961	+1	0.288910081369	0.974602356521
155	0.064329015802	0.154570371629	+1	0.285163218177	1.039801565185
160	0.063043136235	0.163057334672	+1	0.281478558273	1.108557822901
165	0.061839171293	0.171984660034	+1	0.277862764527	1.181135844348
170	0.060707113663	0.181366707888	+1	0.274320539094	1.257826458245
175	0.059638572659	0.191216989643	+1	0.270854797405	1.338920729153
180	0.058626467223	0.201550964684	+1	0.267467276828	1.424735452127
185	0.057664794175	0.212383739141	+1	0.264158572885	1.515594588000
190	0.056748487460	0.223734201976	+1	0.260928674945	1.611866273456
195	0.055873177067	0.235620284487	+1	0.257776808718	1.713925355364
200	0.055034990587	0.248056178013	+1	0.254701757987	1.822133816368
205	0.054230623497	0.261055286769	+1	0.251701676358	1.936857771434
210	0.053457364715	0.274642524447	+1	0.248774829903	2.058581111969
215	0.052712830822	0.288846770733	+1	0.245919472876	2.187850999285
220	0.051994895366	0.303697716735	+1	0.243133780805	2.325253314913
225	0.051301655030	0.319225727808	+1	0.240415779435	2.471412896457
230	0.050631394216	0.335461750326	+1	0.237763488356	2.626997247903
235	0.049982578779	0.352437151133	+1	0.235174776449	2.792714624573
240	0.049353820441	0.370183427123	+1	0.232647480526	2.969315788858
245	0.048743878176	0.388732049259	+1	0.230179342379	3.157592426171
250	0.048151630448	0.408113844726	+1	0.227768002508	3.358372812127
255	0.047576084414	0.428361505745	+1	0.225411139089	3.572550933153
260	0.047016422754	0.449517354879	+1	0.223106528620	3.801172805813
265	0.046471901315	0.471628988219	+1	0.220852168652	4.045410653287
270	0.045941815683	0.494747532550	+1	0.218646087702	4.306552250280
275	0.045425497400	0.518928328062	+1	0.216486563334	4.586024589295

280	0.044922327136	0.544230601385	+1	0.214371831176	4.885393252374
285	0.044431701804	0.570719044676	+1	0.212300374583	5.206405652350
290	0.043953053100	0.598463503799	+1	0.210270732858	5.550996768496
295	0.043485847843	0.627540074336	+1	0.208281555099	5.921322279297
300	0.043029564852	0.658031970739	+1	0.206331608243	6.319795141508
310	0.042148016077	0.723626116630	+1	0.202544114247	7.212132805027
320	0.041305456918	0.796045932555	+1	0.198896625239	8.252942988097
330	0.040499247043	0.876249423136	+1	0.195378702990	9.473605510648
340	0.039726931002	0.965399746253	+1	0.191981337518	10.914186938063
350	0.038986073351	1.064943864252	+1	0.188697702427	12.626984576747
360	0.038274512559	1.176671229088	+1	0.185521558230	14.680501766749
370	0.037590548214	1.302753961449	+1	0.182445289982	17.164102736132
380	0.036932616178	1.445925380024	+1	0.179462034822	20.197721712162
390	0.036299182358	1.609713561295	+1	0.176566307440	23.946312657970
400	0.035688735280	1.798763996427	+1	0.173754008939	28.642143910926
410	0.035099862639	2.019273498719	+1	0.171021698661	34.619276350537
420	0.034531455144	2.279477803557	+1	0.168364403478	42.364168763420
430	0.033982493461	2.590767557859	+1	0.165777449045	52.612730564555
440	0.033451948252	2.969480650605	+1	0.163257272067	66.524722742476
450	0.032938804718	3.439934252713	+1	0.160801293306	86.013968219067
460	0.032442104057	4.039847533695	+1	0.158407378375	114.414519279898
470	0.031961084625	4.830355960085	+1	0.156072080360	157.909857540339
480	0.031495024395	5.918317314783	+1	0.153792264858	229.058883359697
490	0.031043201948	7.509388296224	+1	0.151565563665	356.649632929963
500	0.030604908340	10.056527349762	+1	0.149390223104	619.120664270250
510	0.030179460557	14.790647979477	+1	0.147264879269	1297.322137094405
520	0.029766312497	26.632332823164	+1	0.145187087934	4077.744067114784
530	0.029379700960	94.664466208931	+1	0.143013836920	49971.101280668001
540	0.028974822381	55.273821377347	-1	0.141165836881	17148.283834862144
550	0.028595449445	22.115779962573	-1	0.139219429325	2811.102492087286
560	0.028226324051	13.826006138688	-1	0.137314430524	1124.194681348694
570	0.027867037141	10.059395726679	-1	0.135449114529	608.500818213227
580	0.027517206333	7.908423306749	-1	0.133621793409	384.297081692943

590	0.027176438951	6.517533213597	-1	0.131831240101	266.523307464390
600	0.026844357745	5.544430592973	-1	0.130076543990	196.829018556647
610	0.026520596017	4.825477716349	-1	0.128356903623	152.055260453882
620	0.026204843259	4.272823235045	-1	0.126671050515	121.518395982315
630	0.025896803906	3.834932382975	-1	0.125017719051	99.717316641863
640	0.025596187547	3.479508565402	-1	0.123395911152	83.578366141536
650	0.025302704750	3.185280205493	-1	0.121804925239	71.273319092135
660	0.025016077435	2.937691407245	-1	0.120244165873	61.659474548110
670	0.024736067380	2.726546372930	-1	0.118712568626	53.995288586896
680	0.024462446562	2.544412789385	-1	0.117209179813	47.779296413293
690	0.024194987563	2.385730120302	-1	0.115733211437	42.661909673916
700	0.023933468471	2.246245628194	-1	0.114284123401	38.393058811028
710	0.023677676883	2.122677760717	-1	0.112861331672	34.790652845334
720	0.023427419288	2.012478232679	-1	0.111464090086	31.720030871265
730	0.023182521604	1.913621761779	-1	0.110091574709	29.079320403598
740	0.022942805418	1.824458185598	-1	0.108743156521	26.789847881998
750	0.022708093822	1.743630445744	-1	0.107418363157	24.790099320828
760	0.022478221826	1.670023123465	-1	0.106116703655	23.031616302836
770	0.022253037276	1.602724662608	-1	0.104837575879	21.476058034268
780	0.022032395508	1.540975515705	-1	0.103580319972	20.092579873099
790	0.021816157267	1.484124733935	-1	0.102344419732	18.855897716597
800	0.021604183865	1.431614788363	-1	0.101129395198	17.745190094504
810	0.021396338373	1.382963107292	-1	0.099934960844	16.743171015530
820	0.021192500321	1.337771427198	-1	0.098760511407	15.835699966381
830	0.020992557129	1.295694271686	-1	0.097605499657	15.010892630600
840	0.020796390688	1.256425000946	-1	0.096469502851	14.258623565601
850	0.020603891575	1.219692154258	-1	0.095352163258	13.570239193356
860	0.020414948940	1.185258087167	-1	0.094253116365	12.938365726278
870	0.020229464816	1.152919659579	-1	0.093171919218	12.356762355880
880	0.020047342881	1.122497374618	-1	0.092108159237	11.820050671251
890	0.019868489292	1.093828949457	-1	0.091061430673	11.323522046574
900	0.019692817364	1.066769300766	-1	0.090031354862	10.863071938917
910	0.019520231785	1.041184347564	-1	0.089017726334	10.435075901865

920	0.019350653590	1.016962727392	-1	0.088020103865	10.036453492553
930	0.019184004513	0.994002222169	-1	0.087038131030	9.664470040212
940	0.019020206675	0.972210128615	-1	0.086071436594	9.316699746072
950	0.018859184274	0.951500533334	-1	0.085119747129	8.990973397992
960	0.018700864203	0.931793785575	-1	0.084182824174	8.685342121076
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980	0.018392061400	0.895123355430	-1	0.082351848413	8.127783311189
990	0.018241443099	0.878036244277	-1	0.081457327116	7.872945935198
1000	0.018093265886	0.861708135255	-1	0.080576386723	7.632369625449
1025	0.017733095534	0.823895275408	-1	0.078431964128	7.086293686365
1050	0.017386926292	0.789908087052	-1	0.076366283785	6.608459060802
1075	0.017053944376	0.759225964236	-1	0.074375277419	6.187532602861
1100	0.016733387061	0.731389864726	-1	0.072455822600	5.814221259270
1125	0.016424535986	0.706007832817	-1	0.070605312556	5.480996001442
1150	0.016126762384	0.682795672192	-1	0.068820107115	5.182136209520
1175	0.015839479404	0.661507899308	-1	0.067096978319	4.912899916010
1200	0.015562133621	0.641921228875	-1	0.065433190206	4.669239583239
1225	0.015294205831	0.623836607440	-1	0.063826396984	4.447728646283
1250	0.015035221458	0.607103931541	-1	0.062273903114	4.245669180090
1275	0.014784738438	0.591591563327	-1	0.060773180945	4.060761761135
1300	0.014542337721	0.577173494643	-1	0.059322141682	3.890965207928
1325	0.014307626873	0.563736997083	-1	0.057918852165	3.734518246501
1350	0.014080241707	0.551195384454	-1	0.056561257323	3.590004501889
1375	0.013859849683	0.539474309024	-1	0.055247190839	3.456199290024
1400	0.013646125125	0.528497558980	-1	0.053975041447	3.331980197766
1425	0.013438766735	0.518196478684	-1	0.052743219135	3.216358268635
1450	0.013237496309	0.508519920536	-1	0.051549944236	3.108534188989
1475	0.013042048643	0.499420506551	-1	0.050393598934	3.007795262379
1500	0.012852171737	0.490849751532	-1	0.049272845897	2.913477159443
1550	0.012488199851	0.475130483172	-1	0.047132642499	2.741844756425
1600	0.012143854181	0.461094397480	-1	0.045118677075	2.589860030205
1650	0.011817583753	0.448504784614	-1	0.043221723132	2.454408655541
1700	0.011508001967	0.437180895556	-1	0.041433080477	2.333072028625

1750	0.011213860358	0.426959955540	-1	0.039745033906	2.223806948556
1800	0.010934036951	0.417714025102	-1	0.038150303880	2.124981367378
1850	0.010667512916	0.409326308263	-1	0.036642460522	2.035198914829
1900	0.010413360182	0.401711731700	-1	0.035215586357	1.953385224702
1950	0.010170740069	0.394788918352	-1	0.033864196484	1.878575699864
2000	0.009938900454	0.388463857957	-1	0.032583073275	1.809798068051
2100	0.009504837272	0.377310873093	-1	0.030213544129	1.687344515145
2200	0.009106201153	0.367987805673	-1	0.028075009028	1.582445254352
2300	0.008738815560	0.360308532459	-1	0.026139868534	1.492407680421
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2600	0.007791651363	0.344625071343	-1	0.021326110848	1.285942252379
2700	0.007518931792	0.341089042110	-1	0.019992430583	1.231834001188
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3100	0.006591679921	0.333331795200	-1	0.015672208779	1.066488044498
3200	0.006393724111	0.332682755619	-1	0.014794611735	1.034694283277
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3500	0.005863747118	0.333155533104	-1	0.012536421089	0.956017730188
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3700	0.005555636425	0.335156820830	-1	0.011285717328	0.914321179694
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4100	0.005025406103	0.342450183905	-1	0.009253846364	0.850172923096
4200	0.004907948085	0.344894052408	-1	0.008824869205	0.837346900863
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5000	0.004131678746	0.372020415716	-1	0.006204452132	0.768097805342
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6500	0.003179456170	0.457187392173	-1	0.003544291033	0.742932837234
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16000	0.001274508456	1.530793597015	+1	0.000322808635	0.980308670462
17000	0.001197936966	0.790982504141	+1	0.000256908983	0.303525502785
18000	0.001129925075	0.434762247009	+1	0.000203447237	0.112210070569
19000	0.001069117621	0.234951026967	+1	0.000160042623	0.043395300975
20000	0.001014429939	0.116305945176	+1	0.000124895150	0.015970649329
21000	0.000966926375	4.190535571540	-1	0.000301470554	6.777108114558
22000	0.000922645646	3.272282461015	-1	0.000290285386	4.395684885300
23000	0.000880364707	5.801644226688	-1	0.000252882826	11.327899494120
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25000	0.000804376212	2.036832015874	+1	0.000160543093	1.233754992710

26000	0.000771525046	1.049378874028	+1	0.000131382745	0.365986442411
27000	0.000741781080	0.774342405248	+1	0.000114510728	0.211967169798
28000	0.000714603790	0.721376494470	+1	0.000105845620	0.183815091526
29000	0.000689515755	0.780278834365	+1	0.000101872469	0.205114040057
30000	0.000666098339	0.874996630815	+1	0.000098994087	0.243686563124
31000	0.000644030558	0.894110935909	+1	0.000094000719	0.247048794113
32000	0.000623200545	0.821286039613	+1	0.000086960141	0.208608601351
33000	0.000603547975	0.698711573769	+1	0.000078856569	0.154994351357
34000	0.000585016960	0.570261564811	+1	0.000070635429	0.108062973538
35000	0.000567555940	0.463346179357	+1	0.000063116859	0.075365114483
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38000	0.000520916783	0.300199033785	+1	0.000047467304	0.035550014667
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170000	0.000101096870	200.957044905509	-1	0.000000000000	0.000016760252
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180000	0.000094561403	200.957044905509	-1	0.000000000000	0.000016760252
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190000	0.000088735934	200.957044905509	-1	0.000000000000	0.000016760252
195000	0.000086056091	200.957044905509	-1	0.000000000000	0.000016760252
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220000	0.000074500753	200.957044905509	-1	0.000000000000	0.000016760252
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235000	0.000068781465	200.957044905509	-1	0.000000000000	0.000016760252
240000	0.000067043375	200.957044905509	-1	0.000000000000	0.000016760252
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250000	0.000063790517	200.957044905509	-1	0.000000000000	0.000016760252
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270000	0.000058061405	200.957044905509	-1	0.000000000000	0.000016760252
275000	0.000056769239	200.957044905509	-1	0.000000000000	0.000016760252
280000	0.000055526537	200.957044905509	+1	0.000000000000	0.000016760252
285000	0.000054330347	200.957044905509	-1	0.000000000000	0.000016760252
290000	0.000053177886	200.957044905509	-1	0.000000000000	0.000016760252
295000	0.000052066542	200.957044905509	+1	0.000000000000	0.000016760252
300000	0.000050993844	200.957044905509	-1	0.000000000000	0.000016760252

Electron Elastic Scattering Sampling Data
Solution for Z = 11

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.036097147502	0.186791458618	+1	0.288815968993	2.407117383184
52	0.035093921705	0.178228144597	+1	0.285934123577	2.314843981629
54	0.034133365409	0.171018387964	+1	0.283224312875	2.241806523825
56	0.033216898115	0.164926203175	+1	0.280659014104	2.184146122303
58	0.032344612875	0.159768603855	+1	0.278216912501	2.139010712562
60	0.031515735153	0.155401684685	+1	0.275881304401	2.104252878453
62	0.030728921703	0.151711200041	+1	0.273639160625	2.078237985567
64	0.029982433428	0.148604039954	+1	0.271479697594	2.059680975183
66	0.029274369512	0.146005873874	+1	0.269394690290	2.047597876103
68	0.028602712915	0.143855316202	+1	0.267377308251	2.041203475513
70	0.027965407799	0.142101096226	+1	0.265421868752	2.039863124432
72	0.027360451651	0.140701313132	+1	0.263523876415	2.043079588885
74	0.026785864199	0.139620091026	+1	0.261679317699	2.050438909545
76	0.026239777546	0.138827653621	+1	0.259884947741	2.061611767289
78	0.025720396467	0.138298691531	+1	0.258137976757	2.076330194879
80	0.025226023441	0.138011405176	+1	0.256436002107	2.094371983429
82	0.024755081123	0.137947461217	+1	0.254776958929	2.115560085321
84	0.024306062421	0.138090884705	+1	0.253158974265	2.139748672287
86	0.023877579276	0.138428017848	+1	0.251580404929	2.166820368795
88	0.023468334326	0.138947120811	+1	0.250039778647	2.196682617479
90	0.023077113312	0.139637923066	+1	0.248535704826	2.229260697739
92	0.022702793516	0.140491658678	+1	0.247067016306	2.264500180348
94	0.022344320725	0.141500664698	+1	0.245632523405	2.302359923557
96	0.022000724605	0.142658277577	+1	0.244231204745	2.342811531579
98	0.021671105053	0.143958737765	+1	0.242862080380	2.385837910682
100	0.021354621101	0.145397051104	+1	0.241524228836	2.431432529536
105	0.020615905465	0.149569086535	+1	0.238310762095	2.556689616653
110	0.019943739453	0.154525633886	+1	0.235274596907	2.698303684077

115	0.019329207211	0.160231406410	+1	0.232404604210	2.856775537606
120	0.018764742374	0.166666422974	+1	0.229690584337	3.032887401839
125	0.018244040114	0.173819428433	+1	0.227123151664	3.227586004401
130	0.017761741911	0.181689634744	+1	0.224693480019	3.442063956173
135	0.017313345700	0.190281440003	+1	0.222393326029	3.677664597810
140	0.016894981385	0.199607680670	+1	0.220215156076	3.935999913170
145	0.016503369301	0.209684677839	+1	0.218151846312	4.218848343456
150	0.016135666711	0.220536023534	+1	0.216196825482	4.528285764311
155	0.015789446074	0.232188156651	+1	0.214343806542	4.866591619603
160	0.015462585598	0.244674263045	+1	0.212586962154	5.236389934712
165	0.015153252512	0.258030609248	+1	0.210920819695	5.640580878921
170	0.014859835815	0.272300386466	+1	0.209340269166	6.082484328606
175	0.014580935674	0.287530181719	+1	0.207840436737	6.565777214114
180	0.014315308879	0.303773467246	+1	0.206416908694	7.094652646539
185	0.014061866483	0.321088336507	+1	0.205065469555	7.673794086744
190	0.013819632166	0.339543470848	+1	0.203782161776	8.308627275295
195	0.013587745112	0.359212128147	+1	0.202563082349	9.005201795541
200	0.013365464134	0.380166797526	+1	0.201404253761	9.770060700568
205	0.013152125293	0.402486163885	+1	0.200301924985	10.610552926593
210	0.012947086495	0.426275864808	+1	0.199253445311	11.535760455916
215	0.012749763695	0.451657379223	+1	0.198256576162	12.556284446562
220	0.012559631182	0.478763998942	+1	0.197309010697	13.684262319338
225	0.012376220257	0.507742360375	+1	0.196408446308	14.933629273270
230	0.012199113553	0.538754220762	+1	0.195552606798	16.320433011514
235	0.012027935104	0.571977925910	+1	0.194739116473	17.863178054016
240	0.011862349510	0.607610750559	+1	0.193965606178	19.583276372920
245	0.011702057246	0.645871217787	+1	0.193229690051	21.505566161070
250	0.011546790313	0.687001713079	+1	0.192528898388	23.658925977614
255	0.011396302154	0.731277758124	+1	0.191860949370	26.077400284779
260	0.011250342012	0.779033803722	+1	0.191224308668	28.802561086032
265	0.011108676408	0.830659547520	+1	0.190617661290	31.884521675966
270	0.010971084725	0.886604532852	+1	0.190039736685	35.383698414361
275	0.010837365877	0.947390410608	+1	0.189489266004	39.373392057429

280	0.010707335130	1.013625474099	+1	0.188965028977	43.943157269398
285	0.010580818891	1.086024023558	+1	0.188465796097	49.203287466453
290	0.010457656810	1.165430049668	+1	0.187990366321	55.290724257648
295	0.010337702471	1.252848617782	+1	0.187537576028	62.377079023921
300	0.010220817817	1.349485466110	+1	0.187106247945	70.679508003242
310	0.009995747300	1.576604297592	+1	0.186303763097	92.128699167369
320	0.009781512418	1.863173833351	+1	0.185575729284	123.066014226440
330	0.009577277656	2.235170827059	+1	0.184915768241	169.667143072832
340	0.009382296088	2.736327304077	+1	0.184317973115	243.946691874351
350	0.009195892029	3.446432688871	+1	0.183776824410	371.786834372158
360	0.009017463482	4.528174829574	+1	0.183287310674	617.426088647204
370	0.008846483002	6.372636852721	+1	0.182844989923	1177.944690417641
380	0.008682467822	10.216884000165	+1	0.182445903269	2920.186932740209
390	0.008524970618	23.124938861011	+1	0.182086517661	14445.670060138742
400	0.008373572530	134.185807915607	-1	0.181763820291	477237.111043810550
410	0.008227890399	17.377174788522	-1	0.181475085282	8534.848498064173
420	0.008087595763	9.190023215775	-1	0.181217460824	2542.175583960739
430	0.007952385822	6.202136881044	-1	0.180988395294	1231.475943821937
440	0.007821975500	4.655612154925	-1	0.180785655701	737.093460237643
450	0.007696089444	3.710820157557	-1	0.180607456886	496.832986239050
460	0.007574470904	3.074190107630	-1	0.180452239605	361.352082963585
470	0.007456902058	2.616455899312	-1	0.180318139816	277.080377988992
480	0.007343181724	2.271764816435	-1	0.180203404141	220.871967601498
490	0.007233113881	2.003024973889	-1	0.180106641819	181.368712635168
500	0.007126508362	1.787745950034	-1	0.180026821847	152.452916953855
510	0.007023184987	1.611510403806	-1	0.179963029477	130.587365265442
520	0.006922993571	1.464676040939	-1	0.179914004562	113.610065158407
530	0.006825793242	1.340531169379	-1	0.179878529539	100.134799021041
540	0.006731445202	1.234250849564	-1	0.179855717552	89.237502003024
550	0.006639813099	1.142278759901	-1	0.179844908603	80.282389039412
560	0.006550766589	1.061939810329	-1	0.179845597917	72.820267234168
570	0.006464198825	0.991196096810	-1	0.179856873473	66.527004431921
580	0.006380005596	0.928457805779	-1	0.179877917529	61.162974586905

590	0.006298087621	0.872463475904	-1	0.179908085830	56.547501052945
600	0.006218342961	0.822198292184	-1	0.179947023835	52.542177055995
610	0.006140676678	0.776840189589	-1	0.179994376772	49.039634285008
620	0.006065008607	0.735722020380	-1	0.180049547122	45.955858697129
630	0.005991263015	0.698291796451	-1	0.180111891801	43.223950564697
640	0.005919361717	0.664086542993	-1	0.180181014627	40.789989940674
650	0.005849232074	0.632715664966	-1	0.180256632841	38.610084139063
660	0.005780799388	0.603847847833	-1	0.180338589938	36.648282832075
670	0.005714004516	0.577204713926	-1	0.180426431389	34.875068893815
680	0.005648788890	0.552547477685	-1	0.180519653616	33.265860401436
690	0.005585094045	0.529668534332	-1	0.180618006475	31.799977911778
700	0.005522862794	0.508387247829	-1	0.180721304585	30.459936118593
710	0.005462038326	0.488545696674	-1	0.180829460583	29.230874212923
720	0.005402574331	0.470008329603	-1	0.180942112040	28.100216421903
730	0.005344425354	0.452655853621	-1	0.181058889827	27.057157516404
740	0.005287546288	0.436382031305	-1	0.181179621371	26.092340865217
750	0.005231892933	0.421092315216	-1	0.181304162910	25.197629957600
760	0.005177420541	0.406702385256	-1	0.181432479371	24.365947463132
770	0.005124092357	0.393138689886	-1	0.181564264272	23.591160101537
780	0.005071873048	0.380335138468	-1	0.181699297105	22.867875751748
790	0.005020725826	0.368232135945	-1	0.181837386506	22.191338617465
800	0.004970617244	0.356775547152	-1	0.181978466721	21.557314998022
810	0.004921510019	0.345916402557	-1	0.182122535601	20.962070244384
820	0.004873375131	0.335611439309	-1	0.182269367232	20.402299664801
830	0.004826185269	0.325821474329	-1	0.182418715120	19.875051863814
840	0.004779910775	0.316510441427	-1	0.182570493743	19.377685196386
850	0.004734523387	0.307645275340	-1	0.182724638515	18.907813608128
860	0.004689995052	0.299195674901	-1	0.182881165572	18.463293575168
870	0.004646301553	0.291134607757	-1	0.183039875525	18.042205537680
880	0.004603419854	0.283437398650	-1	0.183200598588	17.642823220008
890	0.004561327043	0.276081084975	-1	0.183363216143	17.263567104093
900	0.004519999601	0.269044301947	-1	0.183527721119	16.903001332095
910	0.004479414237	0.262307348497	-1	0.183694112713	16.559819932959

920	0.004439552301	0.255852615868	-1	0.183862212631	16.232841555949
930	0.004400394356	0.249663731249	-1	0.184031927890	15.920993277496
940	0.004361920865	0.243725384104	-1	0.184203164646	15.623283436344
950	0.004324113705	0.238023221345	-1	0.184375957388	15.338800285586
960	0.004286952342	0.232544026813	-1	0.184550252283	15.066715737460
970	0.004250422357	0.227275678076	-1	0.184725943370	14.806255858660
980	0.004214505910	0.222206736538	-1	0.184903033655	14.556718928173
990	0.004179187761	0.217326797714	-1	0.185081359470	14.317453873728
1000	0.004144451164	0.212625606156	-1	0.185261039944	14.087849175467
1025	0.004060056299	0.201596231087	-1	0.185715758151	13.552578927260
1050	0.003979004686	0.191503960851	-1	0.186176403103	13.066778435858
1075	0.003901104631	0.182241329026	-1	0.186641585662	12.624114712713
1100	0.003826161538	0.173713517227	-1	0.187111546203	12.219221597938
1125	0.003753987132	0.165838213134	-1	0.187587177391	11.847568057897
1150	0.003684438352	0.158548531836	-1	0.188066989207	11.505363493399
1175	0.003617379381	0.151785924880	-1	0.188549833482	11.189362291439
1200	0.003552674132	0.145497723692	-1	0.189035477848	10.896733944578
1225	0.003490188292	0.139637082713	-1	0.189524472593	10.625044129545
1250	0.003429815116	0.134165086387	-1	0.190015683713	10.372200812570
1275	0.003371453657	0.129047039138	-1	0.190508228015	10.136369746878
1300	0.003314999680	0.124251112478	-1	0.191002212916	9.915939795992
1325	0.003260352807	0.119748693418	-1	0.191498013299	9.709486918609
1350	0.003207431972	0.115515732418	-1	0.191994823899	9.515771798276
1375	0.003156160329	0.111530525035	-1	0.192491958007	9.333687867821
1400	0.003106458756	0.107772900335	-1	0.192989466673	9.162249020877
1425	0.003058251102	0.104224550175	-1	0.193487625735	9.000575777149
1450	0.003011474441	0.100869837883	-1	0.193985793993	8.847884469441
1475	0.002966069226	0.097694556989	-1	0.194483480697	8.703473714883
1500	0.002921974645	0.094685348028	-1	0.194980661972	8.566703234616
1550	0.002837488167	0.089117849354	-1	0.195973799415	8.313861106545
1600	0.002757615223	0.084085235927	-1	0.196962823313	8.085411907011
1650	0.002681979405	0.079517526622	-1	0.197947708646	7.878103960714
1700	0.002610263918	0.075357409928	-1	0.198926393300	7.689218713411

1750	0.002542170499	0.071555338943	-1	0.199898669726	7.516475305905
1800	0.002477437268	0.068069855419	-1	0.200863426761	7.357954087035
1850	0.002415819064	0.064864880740	-1	0.201820817693	7.212027553438
1900	0.002357114594	0.061910955242	-1	0.202767967896	7.077290803013
1950	0.002301127291	0.059181521338	-1	0.203704189185	6.952535066260
2000	0.002247638994	0.056650779701	-1	0.204635184028	6.836750018063
2100	0.002147081181	0.052091267135	-1	0.206539705388	6.630049339341
2200	0.002054797024	0.048126433656	-1	0.208414676017	6.450115900664
2300	0.001970046250	0.044665155304	-1	0.210217825860	6.291830434233
2400	0.001892008576	0.041624314086	-1	0.211942022771	6.151387573836
2500	0.001819815598	0.038928911504	-1	0.213614928305	6.026115217234
2600	0.001752648963	0.036516252624	-1	0.215280067049	5.914200110778
2700	0.001690066987	0.034349485395	-1	0.216922901015	5.813680124138
2800	0.001631716469	0.032399228705	-1	0.218521157469	5.722764123252
2900	0.001577231309	0.030637859157	-1	0.220066715907	5.640032183180
3000	0.001526229761	0.029039465601	-1	0.221566627954	5.564437994235
3100	0.001478346768	0.027581269427	-1	0.223035661002	5.495228703320
3200	0.001433345640	0.026248022561	-1	0.224465037581	5.431543598412
3300	0.001391018223	0.025026695225	-1	0.225845263231	5.372610795715
3400	0.001351150058	0.023904808031	-1	0.227175283237	5.317835912225
3500	0.001313519872	0.022870447239	-1	0.228462881973	5.266806799863
3600	0.001277917356	0.021912963738	-1	0.229719865557	5.219242522851
3700	0.001244205307	0.021025192075	-1	0.230941376437	5.174717768592
3800	0.001212262909	0.020200940785	-1	0.232121501396	5.132833790346
3900	0.001181966519	0.019434188229	-1	0.233259148023	5.093279246166
4000	0.001153189412	0.018719087239	-1	0.234358614471	5.055841513907
4100	0.001125810099	0.018050315023	-1	0.235426303164	5.020371551610
4200	0.001099743005	0.017424079647	-1	0.236459404575	4.986637065890
4300	0.001074910987	0.016837020918	-1	0.237454733072	4.954418887823
4400	0.001051234926	0.016285839211	-1	0.238412268102	4.923552687365
4500	0.001028634229	0.015767295894	-1	0.239335520943	4.893932715559
4600	0.001007031343	0.015278418880	-1	0.240229105795	4.865488202595
4700	0.000986371021	0.014817047945	-1	0.241091410607	4.838082186468

4800	0.000966602256	0.014381243786	-1	0.241920396552	4.811582545584
4900	0.000947673114	0.013969087680	-1	0.242716298117	4.785894864160
5000	0.000929531064	0.013578688069	-1	0.243481546546	4.760958512623
5500	0.000849316362	0.011904864740	-1	0.246807861192	4.643860567899
6000	0.000783236934	0.010588476541	-1	0.249443917326	4.536954344397
6500	0.000728056482	0.009530268537	-1	0.251464190188	4.436156921605
7000	0.000681444577	0.008663973982	-1	0.252931792806	4.338907886377
7500	0.000641678212	0.007943764344	-1	0.253902526370	4.243636988469
8000	0.000607458124	0.007337070575	-1	0.254424984718	4.149405174659
8500	0.000577788500	0.006820051428	-1	0.254544818873	4.055668763826
9000	0.000551890788	0.006375109449	-1	0.254298282946	3.962169540882
9500	0.000529151238	0.005988806915	-1	0.253720285204	3.868810432816
10000	0.000509078900	0.005650817252	-1	0.252840756178	3.775602358954
10500	0.000491272673	0.005352965549	-1	0.251690348426	3.682665856390
11000	0.000475420277	0.005089153988	-1	0.250281100361	3.590009935884
11500	0.000461240878	0.004853922577	-1	0.248647431122	3.497904272639
12000	0.000448519807	0.004643307771	-1	0.246800871727	3.406433180842
12500	0.000437066696	0.004453798379	-1	0.244763386908	3.315785646496
13000	0.000426729441	0.004282715076	-1	0.242544934384	3.226061268229
13500	0.000417370717	0.004127619030	-1	0.240164560580	3.137434698653
14000	0.000408879773	0.003986636735	-1	0.237631396608	3.050002882446
14500	0.000401156841	0.003858061305	-1	0.234959843555	2.963892585819
15000	0.000394120187	0.003740557893	-1	0.232157606992	2.879180385284
16000	0.000381818168	0.003534049877	-1	0.226204867371	2.714303210305
17000	0.000371494310	0.003359449439	-1	0.219842281333	2.555877253058
18000	0.000362779078	0.003211018680	-1	0.213129731295	2.404231424461
19000	0.000355382654	0.003084385631	-1	0.206120373032	2.259549521293
20000	0.000349076445	0.002976195395	-1	0.198860547417	2.121878232007
21000	0.000168152882	0.001828678873	-1	0.377027371866	6.592611522593
22000	0.000158771969	0.001725962983	-1	0.381322984379	6.710681548183
23000	0.000149515094	0.001622721184	-1	0.386859722596	6.857909938346
24000	0.000140597530	0.001523087556	-1	0.393357053017	7.033975922022
25000	0.000132302752	0.001431598369	-1	0.400176106210	7.228422783798

26000	0.000124906871	0.001351906696	-1	0.406445466974	7.420523333754
27000	0.000118380752	0.001283128478	-1	0.411890913383	7.600092172911
28000	0.000112587022	0.001223101593	-1	0.416569108864	7.765220790595
29000	0.000107362475	0.001169577719	-1	0.420706077829	7.919858198686
30000	0.000102523527	0.001120277367	-1	0.424690021549	8.074467796951
31000	0.000097906585	0.001073330303	-1	0.428945045111	8.242683303698
32000	0.000093484285	0.001028500098	-1	0.433508571850	8.427056697776
33000	0.000089266845	0.000985952477	-1	0.438293240611	8.626013522446
34000	0.000085267358	0.000945846765	-1	0.443191634907	8.836846946743
35000	0.000081501177	0.000908331644	-1	0.448076822578	9.055518474509
36000	0.000077979129	0.000873478029	-1	0.452827895968	9.277439877115
37000	0.000074686179	0.000841079317	-1	0.457422108741	9.501331238726
38000	0.000071599225	0.000810858132	-1	0.461878569627	9.727584129549
39000	0.000068693583	0.000782537069	-1	0.466235614022	9.957595622500
40000	0.000065943059	0.000755840040	-1	0.470551510947	10.193979601909
41000	0.000063324156	0.000730530168	-1	0.474885168252	10.439812920707
42000	0.000060828412	0.000706513491	-1	0.479233118465	10.695417840792
43000	0.000058451141	0.000683729842	-1	0.483576440814	10.960291002751
44000	0.000056187381	0.000662116299	-1	0.487899899513	11.233999829694
45000	0.000054031958	0.000641608769	-1	0.492191443425	11.516187327158
46000	0.000051979492	0.000622142276	-1	0.496442419239	11.806603144729
47000	0.000050024224	0.000603650650	-1	0.500648326415	12.105198833278
48000	0.000048160281	0.000586068200	-1	0.504807956057	12.412098468328
49000	0.000046381389	0.000569328160	-1	0.508925557963	12.727786634137
50000	0.000044681136	0.000553364875	-1	0.513009254763	13.053071774355
55000	0.000037199663	0.000483519981	-1	0.532992924687	14.841137442322
60000	0.000031126353	0.000427136771	-1	0.552120753001	16.923251130374
65000	0.000026140476	0.000380868187	-1	0.570373834233	19.350139941883
70000	0.000022011327	0.000342368464	-1	0.587741361613	22.182123530770
75000	0.000018566038	0.000309945968	-1	0.604234088080	25.495299766484
80000	0.000015681207	0.000282358047	-1	0.619819730211	29.363802917371
85000	0.000013250978	0.000258663373	-1	0.634549529528	33.902409296632
90000	0.000011198085	0.000238145067	-1	0.648436870138	39.233835643562

95000	0.000009460420	0.000220245338	-1	0.661503403480	45.505682600936
100000	0.000007986675	0.000204524965	-1	0.673784007282	52.903099035111
105000	0.000006734843	0.000190631713	-1	0.685320087522	61.655517593989
110000	0.000005671755	0.000178290656	-1	0.696130053661	72.025898794155
115000	0.000004767653	0.000167265190	-1	0.706272409835	84.372130889788
120000	0.000003999298	0.000157371890	-1	0.715773580239	99.110857634771
125000	0.000003346242	0.000148453277	-1	0.724678614608	116.788744937231
130000	0.000002791890	0.000140382499	-1	0.733016502826	138.071408175698
135000	0.000002321595	0.000133049268	-1	0.740829514351	163.838371948989
140000	0.000001923337	0.000126363830	-1	0.748146272773	195.190941459741
145000	0.000001586529	0.000120247602	-1	0.755003665989	233.598169592073
150000	0.000001302403	0.000114635621	-1	0.761427876421	280.952234505742
155000	0.000001063247	0.000109470600	-1	0.767450385334	339.817077686348
160000	0.000000862589	0.000104704422	-1	0.773095384358	413.614682811724
165000	0.000000694767	0.000100294434	-1	0.778390214461	507.095000397481
170000	0.000000555027	0.000096204739	-1	0.783355181778	626.808007270746
175000	0.000000439196	0.000092403089	-1	0.788013293438	782.154560118568
180000	0.000000343680	0.000088860756	-1	0.792387000436	986.908062276608
185000	0.000000265394	0.000085552777	-1	0.796497240200	1261.808992938003
190000	0.000000201895	0.000082461630	-1	0.800343646214	1637.403064246283
195000	0.000000150881	0.000079568598	-1	0.803938759206	2162.582184748515
200000	0.000000109884	0.000076843361	-1	0.807358190234	2931.031205002461
205000	0.000000077229	0.000074260355	-1	0.810667803501	4117.454190221844
210000	0.000000051799	0.000071810692	-1	0.813867181051	6062.150161697348
215000	0.000000042476	0.000069646270	-1	0.815376875860	7241.972721633782
220000	0.000000037015	0.000067629191	-1	0.816319530912	8120.522845803012
225000	0.000000035483	0.000065566271	-1	0.818502092436	8333.643439261063
230000	0.000000033991	0.000064013359	-1	0.816905041994	8403.015228222675
235000	0.000000032485	0.000062113408	-1	0.818849604494	8643.715979839217
240000	0.000000028818	0.000060828615	-1	0.816146649826	9370.584029193189
245000	0.000000026395	0.000060631750	-1	0.804270247549	9439.521529193189
250000	0.000000026157	0.000056915868	-1	0.826941896334	10398.076482668183
255000	0.000000022169	0.000056372894	-1	0.818608603659	11476.221696385661

260000	0.000000020238	0.000055243119	-1	0.817371791536	12217.502946385661
265000	0.000000019814	0.000052698420	-1	0.831465448647	13122.091783216123
270000	0.000000017963	0.000051971838	-1	0.826290932937	13763.572897380578
275000	0.000000016568	0.000051971833	-1	0.814386204344	13763.572897382945
280000	0.000000018616	0.000048492936	-1	0.840921178711	13770.861153200480
285000	0.000000017200	0.000048492932	-1	0.830055917954	13770.861153204840
290000	0.000000015705	0.000048492924	-1	0.816835994755	13770.861153216174
295000	0.000000014535	0.000048483061	-1	0.805078863766	13777.861153216405
300000	0.000000013490	0.000048483058	-1	0.793110086067	13777.861153216405

Electron Elastic Scattering Sampling Data
Solution for Z = 12

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.033054002972	0.198098761249	+1	0.242408065434	2.224021674713
52	0.032496418149	0.187210391789	+1	0.240450072385	2.097018099415
54	0.031936307829	0.177993170138	+1	0.238507407462	1.992712754227
56	0.031378026712	0.170141308419	+1	0.236580993103	1.906432611681
58	0.030824972272	0.163419178498	+1	0.234672160194	1.834702596192
60	0.030279740731	0.157642706966	+1	0.232782477624	1.774895894617
62	0.029744285378	0.152666436165	+1	0.230913659142	1.724998851557
64	0.029220069689	0.148372725956	+1	0.229066948745	1.683422848153
66	0.028708108990	0.144667528541	+1	0.227243949329	1.648935202796
68	0.028209088639	0.141473736980	+1	0.225445986807	1.620548583325
70	0.027723455540	0.138727167347	+1	0.223673996427	1.597456110758
72	0.027251415344	0.136375373146	+1	0.221929120248	1.579018011647
74	0.026793042442	0.134373529924	+1	0.220211890213	1.564692556684
76	0.026348259088	0.132684588161	+1	0.218523065381	1.554046167208
78	0.025916899558	0.131276911305	+1	0.216863109871	1.546714095415
80	0.025498725281	0.130123380774	+1	0.215232277667	1.542388835430
82	0.025093438089	0.129201081781	+1	0.213630856326	1.540817955486
84	0.024700704525	0.128490005811	+1	0.212058898520	1.541783652718
86	0.024320159052	0.127973059531	+1	0.210516457779	1.545105441970
88	0.023951419220	0.127635380909	+1	0.209003469555	1.550629654745
90	0.023594090380	0.127463956229	+1	0.207519721954	1.558224276210
92	0.023247784459	0.127447535117	+1	0.206065096166	1.567779348162
94	0.022912096275	0.127576157326	+1	0.204639264517	1.579199798635
96	0.022586633944	0.127841178038	+1	0.203241928105	1.592406420113
98	0.022271014703	0.128234953391	+1	0.201872760659	1.607331684874
100	0.021964861715	0.128750740449	+1	0.200531412101	1.623918966140
105	0.021238498450	0.130536806313	+1	0.197297019881	1.672369936035
110	0.020563575602	0.132974740783	+1	0.194226411923	1.730397755334

115	0.019935176872	0.136009058097	+1	0.191312783458	1.797713070110
120	0.019348827586	0.139599351195	+1	0.188548228951	1.874208294866
125	0.018800550844	0.143715818189	+1	0.185925286656	1.959914604300
130	0.018286768761	0.148338149153	+1	0.183436303193	2.054995126752
135	0.017804325854	0.153452050510	+1	0.181074087026	2.159703368401
140	0.017350383944	0.159049744267	+1	0.178831555083	2.274402417939
145	0.016922440042	0.165126931931	+1	0.176702068851	2.399523171918
150	0.016518244376	0.171684185611	+1	0.174679170129	2.535596304411
155	0.016135808493	0.178724345080	+1	0.172756876489	2.683216144039
160	0.015773336627	0.186254189601	+1	0.170929474574	2.843078893161
165	0.015429237457	0.194282172508	+1	0.169191614024	3.015947211191
170	0.015102069311	0.202820112629	+1	0.167538227971	3.202691795627
175	0.014790546917	0.211881267622	+1	0.165964594006	3.404261781016
180	0.014493505872	0.221481572999	+1	0.164466223523	3.621716954386
185	0.014209902990	0.231638541613	+1	0.163038938176	3.856214803796
190	0.013938777208	0.242374156131	+1	0.161678907816	4.109086494463
195	0.013679268289	0.253711186352	+1	0.160382498911	4.381765974315
200	0.013430626488	0.265669196093	+1	0.159145910326	4.675692672324
205	0.013192170929	0.278269145164	+1	0.157965596086	4.992429482435
210	0.012963223039	0.291544511327	+1	0.156838788220	5.333968361095
215	0.012743157456	0.305533618029	+1	0.155762985922	5.702569281223
220	0.012531407588	0.320276848938	+1	0.154735753419	6.100709848860
225	0.012327466231	0.335816529628	+1	0.153754748744	6.531100008676
230	0.012130872065	0.352197236331	+1	0.152817678732	6.996712153596
235	0.011941209416	0.369465505900	+1	0.151922280932	7.500793642679
240	0.011758101205	0.387670119248	+1	0.151066349724	8.046901157896
245	0.011581206552	0.406861867116	+1	0.150247694679	8.638918006671
250	0.011410212925	0.427093833022	+1	0.149464180879	9.281095996953
255	0.011244832242	0.448423588735	+1	0.148713751765	9.978155218068
260	0.011084767331	0.470924606730	+1	0.147994945214	10.735749234378
265	0.010929739552	0.494679261415	+1	0.147306393714	11.560310989105
270	0.010779490896	0.519777480887	+1	0.146646807726	12.459097651491
275	0.010633782448	0.546317580086	+1	0.146014943968	13.440311126439

280	0.010492396540	0.574406701982	+1	0.145409526489	14.513210544942
285	0.010355128243	0.604162793407	+1	0.144829380938	15.688332541545
290	0.010221790700	0.635714847162	+1	0.144273291556	16.977630877881
295	0.010092205711	0.669205629878	+1	0.143740127506	18.394786286784
300	0.009966219858	0.704790621703	+1	0.143228661641	19.955327351668
310	0.009724418232	0.782973623440	+1	0.142266932793	23.581823129004
320	0.009495230591	0.871982889665	+1	0.141381284405	28.040878951328
330	0.009277630023	0.974013955007	+1	0.140565618845	33.584128752416
340	0.009070708948	1.091897045890	+1	0.139814154676	40.561874350408
350	0.008873666952	1.229344339843	+1	0.139121385359	49.472375346356
360	0.008685784824	1.391335872751	+1	0.138482224369	61.043212767210
370	0.008506406529	1.584750767408	+1	0.137892520024	76.371996392340
380	0.008334938916	1.819332116597	+1	0.137348537620	97.171669531436
390	0.008170842436	2.109330475076	+1	0.136846762230	126.228425358133
400	0.008013629411	2.476457967229	+1	0.136383929508	168.311879229335
410	0.007862851424	2.955514314439	+1	0.135957125958	232.124618408475
420	0.007718109376	3.605960274911	+1	0.135563593193	334.889210869314
430	0.007579031868	4.538538244960	+1	0.135200980538	514.615611546455
440	0.007445278517	5.985701748204	+1	0.134867028564	869.051720300286
450	0.007316532818	8.532293352198	+1	0.134559742559	1715.812965029211
460	0.007192503755	14.190370556794	+1	0.134277267247	4615.228364206330
470	0.007072927640	37.560330057499	+1	0.134017882377	31467.615395412609
480	0.006957564131	67.676360727063	-1	0.133779918291	102456.274848374970
490	0.006846180803	17.765139202507	-1	0.133562015785	7455.115832035071
500	0.006738566513	10.141923049691	-1	0.133362864433	2563.267083610723
510	0.006634521669	7.057054995149	-1	0.133181291229	1308.077085598834
520	0.006533866842	5.388382983003	-1	0.133016081633	803.052312217670
530	0.006436433358	4.343333880868	-1	0.132866188085	548.949324950946
540	0.006342063822	3.627731006124	-1	0.132730611537	402.572428486288
550	0.006250606896	3.107248105482	-1	0.132608500062	310.209239209950
560	0.006161920884	2.711826696484	-1	0.132499154399	247.975530348101
570	0.006075879231	2.401392001468	-1	0.132401698092	203.917612596241
580	0.005992361287	2.151328706403	-1	0.132315397597	171.496910496960

590	0.005911254320	1.945680122032	-1	0.132239551225	146.885602641951
600	0.005832448432	1.773645860909	-1	0.132173628442	127.718361626027
610	0.005755840841	1.627659914378	-1	0.132117127640	112.468133926283
620	0.005681337888	1.502278341035	-1	0.132069444551	100.113440354807
630	0.005608852369	1.393472460866	-1	0.132030045049	89.948061365683
640	0.005538300745	1.298195676109	-1	0.131998434109	81.470480785270
650	0.005469601553	1.214099062985	-1	0.131974240714	74.316131662338
660	0.005402676756	1.139345296228	-1	0.131957150556	68.214860262661
670	0.005337457220	1.072484399176	-1	0.131946722493	62.963405289311
680	0.005273877640	1.012351110697	-1	0.131942529141	58.405910692778
690	0.005211874964	0.957995323512	-1	0.131944250542	54.420971873920
700	0.005151385385	0.908635261580	-1	0.131951642357	50.912906769360
710	0.005092352174	0.863623528819	-1	0.131964474908	47.805491349489
720	0.005034721195	0.822422772439	-1	0.131982412919	45.037607167328
730	0.004978442263	0.784580338392	-1	0.132005133842	42.559544282594
740	0.004923466891	0.749710588067	-1	0.132032420132	40.330437632257
750	0.004869746512	0.717483665076	-1	0.132064083680	38.316476792165
760	0.004817236404	0.687616069540	-1	0.132099946194	36.489470317019
770	0.004765894289	0.659865385631	-1	0.132139774236	34.825928255416
780	0.004715681752	0.634020689263	-1	0.132183354492	33.305971416907
790	0.004666560050	0.609897893916	-1	0.132230462966	31.912716805982
800	0.004618491474	0.587334218511	-1	0.132281023577	30.631680247865
810	0.004571440279	0.566187045624	-1	0.132334881974	29.450445881702
820	0.004525373461	0.546331511545	-1	0.132391875650	28.358368718455
830	0.004480260288	0.527657001485	-1	0.132451816633	27.346214887698
840	0.004436070646	0.510064672886	-1	0.132514538433	26.405923564166
850	0.004392773889	0.493465511814	-1	0.132579972696	25.530425604953
860	0.004350341640	0.477780235984	-1	0.132648004415	24.713529680592
870	0.004308747846	0.462938183562	-1	0.132718527869	23.949813782176
880	0.004267967719	0.448875773396	-1	0.132791385486	23.234476907988
890	0.004227975544	0.435535417625	-1	0.132866483034	22.563271720983
900	0.004188748135	0.422864587999	-1	0.132943743408	21.932387835526
910	0.004150261733	0.410815434513	-1	0.133023161854	21.338433493666

920	0.004112495077	0.399345374302	-1	0.133104574289	20.778399005835
930	0.004075428937	0.388415755830	-1	0.133187838061	20.249592175198
940	0.004039042317	0.377990630003	-1	0.133272901614	19.749575842387
950	0.004003315921	0.368037097101	-1	0.133359697045	19.276144722281
960	0.003968231146	0.358524973080	-1	0.133448154139	18.827303576572
970	0.003933770075	0.349426852488	-1	0.133538186640	18.401263150203
980	0.003899915677	0.340717299891	-1	0.133629765703	17.996392151116
990	0.003866651645	0.332373009293	-1	0.133722809719	17.611206722034
1000	0.003833960303	0.324371960985	-1	0.133817322603	17.244342106045
1025	0.003754640461	0.305744355628	-1	0.134059727213	16.399517728628
1050	0.003678594566	0.288873541082	-1	0.134309500784	15.645360336847
1075	0.003605622138	0.273534070961	-1	0.134565562841	14.968506139914
1100	0.003535529213	0.259533330553	-1	0.134827567499	14.357923932021
1125	0.003468132916	0.246707492525	-1	0.135095695605	13.804511518906
1150	0.003403281409	0.234923158986	-1	0.135368888434	13.300880554261
1175	0.003340834225	0.224065594541	-1	0.135646289887	12.840823367281
1200	0.003280653608	0.214033925842	-1	0.135927615768	12.419044962860
1225	0.003222609341	0.204740205795	-1	0.136212911940	12.031039048509
1250	0.003166590720	0.196111027849	-1	0.136501433286	11.673043557894
1275	0.003112493764	0.188081857789	-1	0.136792565079	11.341812452510
1300	0.003060216678	0.180594752698	-1	0.137086177584	11.034509526831
1325	0.003009662706	0.173598368194	-1	0.137382344499	10.748671064786
1350	0.002960749181	0.167049166782	-1	0.137680527253	10.482195097866
1375	0.002913397562	0.160908318971	-1	0.137980280613	10.233237620438
1400	0.002867531384	0.155140408919	-1	0.138281544888	10.000156261687
1425	0.002823077602	0.149713640091	-1	0.138584353602	9.781497813693
1450	0.002779972759	0.144600728683	-1	0.138888315760	9.576008808745
1475	0.002738157506	0.139777136380	-1	0.139193017001	9.382569255579
1500	0.002697573444	0.135220184257	-1	0.139498347552	9.200167634721
1550	0.002619879687	0.126826131051	-1	0.140110821718	8.864968392553
1600	0.002546497546	0.119279433498	-1	0.140724130244	8.564307706263
1650	0.002477066748	0.112463428296	-1	0.141338088470	8.293195814539
1700	0.002411278748	0.106283422325	-1	0.141951191300	8.047585895021

1750	0.002348850156	0.100658748376	-1	0.142562970792	7.824102100840
1800	0.002289530269	0.095522070384	-1	0.143172593276	7.619944649562
1850	0.002233087314	0.090815471745	-1	0.143779959112	7.432752280087
1900	0.002179325818	0.086491605942	-1	0.144383216729	7.260560550088
1950	0.002128059760	0.082508357464	-1	0.144981860650	7.101670165350
2000	0.002079096946	0.078825974639	-1	0.145578905272	6.954573273624
2100	0.001987428110	0.072235976118	-1	0.146776252270	6.690877514350
2200	0.001903371887	0.066535537259	-1	0.147954160589	6.461654495668
2300	0.001826136408	0.061578984749	-1	0.149090917137	6.260763390259
2400	0.001754956848	0.057239703470	-1	0.150182061172	6.083241573093
2500	0.001689085702	0.053406902921	-1	0.151242246426	5.925135563142
2600	0.001627842511	0.049989334367	-1	0.152294813722	5.783406799394
2700	0.001570794467	0.046930480423	-1	0.153331128460	5.655728693437
2800	0.001517584949	0.044185192273	-1	0.154338348635	5.540129313620
2900	0.001467866946	0.041712124670	-1	0.155311768689	5.434933604469
3000	0.001421215599	0.039469375233	-1	0.156270527636	5.339112303418
3100	0.001377241838	0.037421002141	-1	0.157238357751	5.251897770936
3200	0.001335872477	0.035551743525	-1	0.158183857532	5.171694282351
3300	0.001296907839	0.033842213842	-1	0.159101550713	5.097672107038
3400	0.001260153542	0.032274261563	-1	0.159990619079	5.029113052103
3500	0.001225417727	0.030830847922	-1	0.160855464635	4.965418971442
3600	0.001192522356	0.029496917395	-1	0.161702453057	4.906095172536
3700	0.001161338165	0.028261939781	-1	0.162528790496	4.850688395189
3800	0.001131749603	0.027116807087	-1	0.163331017355	4.798790605920
3900	0.001103643948	0.026052819440	-1	0.164108590067	4.750046614135
4000	0.001076910398	0.025061699620	-1	0.164863775516	4.704152926472
4100	0.001051445007	0.024135952717	-1	0.165600132449	4.660854573392
4200	0.001027167362	0.023270075353	-1	0.166316041601	4.619911783202
4300	0.001004005080	0.022459185277	-1	0.167009668608	4.581101426068
4400	0.000981886905	0.021698592692	-1	0.167680858012	4.544229752968
4500	0.000960742270	0.020983729787	-1	0.168331699113	4.509135863770
4600	0.000940505156	0.020310461939	-1	0.168964652612	4.475680322778
4700	0.000921123788	0.019675684984	-1	0.169578650315	4.443720543376

4800	0.000902550165	0.019076590038	-1	0.170172768329	4.413130880487
4900	0.000884737803	0.018510466888	-1	0.170746983270	4.383794603090
5000	0.000867640544	0.017974679714	-1	0.171302562851	4.355615300890
5500	0.000791548041	0.015678367354	-1	0.173820708539	4.229249846018
6000	0.000728342305	0.013877885549	-1	0.175928066336	4.121233504054
6500	0.000675121215	0.012434425622	-1	0.177663389623	4.025928832393
7000	0.000629784209	0.011255473507	-1	0.179062057455	3.939605217505
7500	0.000590887845	0.010280656226	-1	0.180092997066	3.858633272837
8000	0.000557163121	0.009461829110	-1	0.180825256543	3.782015200357
8500	0.000527684906	0.008765567884	-1	0.181293954960	3.708701263209
9000	0.000501743657	0.008167471809	-1	0.181522308281	3.637841251653
9500	0.000478777122	0.007649094598	-1	0.181530937133	3.568834942385
10000	0.000458334017	0.007196225872	-1	0.181338915825	3.501262293961
10500	0.000440046169	0.006797681376	-1	0.180965183394	3.434838819719
11000	0.000423620805	0.006445043703	-1	0.180418419280	3.369328827691
11500	0.000408802294	0.006130928374	-1	0.179719778243	3.304635374802
12000	0.000395388553	0.005849878693	-1	0.178877579653	3.240650938934
12500	0.000383203255	0.005597135921	-1	0.177905998867	3.177337981260
13000	0.000372102504	0.005369014014	-1	0.176812568006	3.114657304807
13500	0.000361959136	0.005162227351	-1	0.175609572461	3.052613502931
14000	0.000352668070	0.004974213226	-1	0.174303477666	2.991201270748
14500	0.000344135721	0.004802661222	-1	0.172904260101	2.930444188286
15000	0.000336284112	0.004645744415	-1	0.171417631321	2.870355532163
16000	0.000322352103	0.004369445774	-1	0.168211827811	2.752283427318
17000	0.000310415820	0.004134903819	-1	0.164734939189	2.637182848836
18000	0.000300122233	0.003934316746	-1	0.161028827429	2.525240358876
19000	0.000291193898	0.003761730620	-1	0.157130015445	2.416618942537
20000	0.000283410248	0.003612535694	-1	0.153070273816	2.311442480478
21000	0.000175706825	0.002339184957	-1	0.258238643804	4.644846511401
22000	0.000166601217	0.002205296148	-1	0.261212078935	4.689716225609
23000	0.000157764152	0.002071780401	-1	0.264870678466	4.740627737192
24000	0.000149359520	0.001943556154	-1	0.269073288183	4.798873831272
25000	0.000141579218	0.001825995902	-1	0.273470700739	4.862826480340

26000	0.000134591940	0.001723411778	-1	0.277568823686	4.927578888293
27000	0.000128346114	0.001634631692	-1	0.281202873331	4.990042096106
28000	0.000122723493	0.001556957532	-1	0.284396624871	5.049210464250
29000	0.000117596619	0.001487600120	-1	0.287275215204	5.105780891431
30000	0.000112830598	0.001423739914	-1	0.290063771649	5.162342387961
31000	0.000108307883	0.001363057869	-1	0.293014901910	5.222497084269
32000	0.000104002409	0.001305226743	-1	0.296155105754	5.286961420992
33000	0.000099913445	0.001250414849	-1	0.299436154216	5.355327352809
34000	0.000096042548	0.001198787260	-1	0.302796776205	5.426863669463
35000	0.000092393398	0.001150503474	-1	0.306161801540	5.500460371693
36000	0.000088967068	0.001105631899	-1	0.309458296131	5.574870276644
37000	0.000085748285	0.001063905991	-1	0.312671339727	5.649707954599
38000	0.000082716995	0.001024972538	-1	0.315812456537	5.725066880337
39000	0.000079852705	0.000988478703	-1	0.318905624741	5.801322010059
40000	0.000077134105	0.000954071462	-1	0.321989302370	5.879224065499
41000	0.000074541240	0.000921440661	-1	0.325106167071	5.959751171136
42000	0.000072071990	0.000890509096	-1	0.328232822815	6.042133870983
43000	0.000069729722	0.000861258280	-1	0.331323464077	6.124846136803
44000	0.000067494810	0.000833507247	-1	0.334416056945	6.209488267037
45000	0.000065361658	0.000807172799	-1	0.337503089411	6.295922570593
46000	0.000063324649	0.000782170530	-1	0.340579375185	6.384053770085
47000	0.000061374185	0.000758389995	-1	0.343657886538	6.474488793222
48000	0.000059500394	0.000735720059	-1	0.346756978894	6.568054562573
49000	0.000057708163	0.000714144504	-1	0.349837465980	6.663128739411
50000	0.000055991020	0.000693573466	-1	0.352907803802	6.759988986041
55000	0.000048374760	0.000603568556	-1	0.368192023355	7.275085318709
60000	0.000042086858	0.000530885208	-1	0.383294504504	7.843702637620
65000	0.000036822905	0.000471215580	-1	0.398198922977	8.471051510750
70000	0.000032366101	0.000421550602	-1	0.412879948051	9.162736392750
75000	0.000028557145	0.000379724179	-1	0.427308829662	9.924927121001
80000	0.000025276630	0.000344139569	-1	0.441456296697	10.764266848291
85000	0.000022432760	0.000313593860	-1	0.455296098307	11.688121161165
90000	0.000019953834	0.000287165745	-1	0.468804012147	12.704537149426

95000	0.000017782919	0.000264138014	-1	0.481959263980	13.822330187724
100000	0.000015874123	0.000243944767	-1	0.494745637709	15.051254768825
105000	0.000014190027	0.000226131536	-1	0.507152271988	16.401953458184
110000	0.000012700129	0.000210342726	-1	0.519158737390	17.885604911582
115000	0.000011377285	0.000196271493	-1	0.530781009891	19.518151028299
120000	0.000010201694	0.000183679517	-1	0.541993830705	21.310163520435
125000	0.000009155268	0.000172360201	-1	0.552799594846	23.275678726385
130000	0.000008221977	0.000162148351	-1	0.563199878151	25.432141306400
135000	0.000007387529	0.000152900591	-1	0.573210681808	27.801862852533
140000	0.000006640923	0.000144499226	-1	0.582829561808	30.403600602516
145000	0.000005972183	0.000136840438	-1	0.592067624888	33.259929849742
150000	0.000005372734	0.000129838666	-1	0.600930060769	36.394659813948
155000	0.000004834765	0.000123418447	-1	0.609430926629	39.836650741457
160000	0.000004351676	0.000117516433	-1	0.617577905425	43.615415203062
165000	0.000003917479	0.000112076348	-1	0.625385120619	47.765771064539
170000	0.000003527112	0.000107050965	-1	0.632859959529	52.322939890705
175000	0.000003175913	0.000102397623	-1	0.640016410311	57.328795982523
180000	0.000002859692	0.000098078107	-1	0.646871538371	62.831805152897
185000	0.000002574740	0.000094059299	-1	0.653441568450	68.887165081639
190000	0.000002318502	0.000090319166	-1	0.659708075166	75.528499910448
195000	0.000002088179	0.000086833261	-1	0.665675326196	82.803603225377
200000	0.000001879017	0.000083557789	-1	0.671466373925	90.894199319829
205000	0.000001686831	0.000080454383	-1	0.677210514967	100.072931563353
210000	0.000001510382	0.000077512430	-1	0.682903489290	110.531302940870
215000	0.000001349086	0.000074727354	-1	0.688507705441	122.442791804471
220000	0.000001202317	0.000072094164	-1	0.693986712864	135.994933758033
225000	0.000001069406	0.000069607472	-1	0.699305902660	151.385864626149
230000	0.000000949636	0.000067261599	-1	0.704433195014	168.819701547481
235000	0.000000842258	0.000065050693	-1	0.709338726450	188.495531167024
240000	0.000000746486	0.000062968732	-1	0.713995945247	210.597703548823
245000	0.000000661518	0.000061009665	-1	0.718380849908	235.275060727376
250000	0.000000586535	0.000059167406	-1	0.722472921365	262.621569018291
255000	0.000000520671	0.000057435330	-1	0.726259915255	292.680842642542

260000	0.000000462851	0.000055804339	-1	0.729757831520	325.593936775935
265000	0.000000412045	0.000054265383	-1	0.732990325610	361.553875121178
270000	0.000000367318	0.000052810044	-1	0.735983240773	400.805127560031
275000	0.000000327842	0.000051430575	-1	0.738763193146	443.659889924257
280000	0.000000292874	0.000050119770	-1	0.741358476050	490.545718216398
285000	0.000000261763	0.000048870971	-1	0.743797962587	542.045134447677
290000	0.000000233934	0.000047677998	-1	0.746111532732	598.970095657419
295000	0.000000208890	0.000046535149	-1	0.748329195568	662.436327029031
300000	0.000000186195	0.000045437118	-1	0.750481814804	734.007381984744

Electron Elastic Scattering Sampling Data
Solution for Z = 13

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.030961163606	0.205224855534	+1	0.200172143626	1.939302568320
52	0.030436715536	0.194054612848	+1	0.200283707018	1.850285427208
54	0.029927303740	0.184587611629	+1	0.200200371781	1.775739501475
56	0.029432400005	0.176502354704	+1	0.199945301198	1.712818387191
58	0.028951514683	0.169553381007	+1	0.199539696075	1.659395122283
60	0.028484190794	0.163550092074	+1	0.199002770511	1.613847448976
62	0.028029974937	0.158342832680	+1	0.198351951389	1.574924634624
64	0.027588461743	0.153812057150	+1	0.197602717374	1.541637307607
66	0.027159241375	0.149861577308	+1	0.196769005621	1.513201215234
68	0.026741912537	0.146413425143	+1	0.195863298917	1.488989345348
70	0.026336109879	0.143403004411	+1	0.194896477869	1.468481936889
72	0.025941446750	0.140777352897	+1	0.193878511856	1.451262913213
74	0.025557578202	0.138491779945	+1	0.192817887769	1.436977413297
76	0.025184149973	0.136509002170	+1	0.191722335972	1.425335580090
78	0.024820827556	0.134797310367	+1	0.190598576063	1.416090508379
80	0.024467279066	0.133329773418	+1	0.189452528700	1.409034487715
82	0.024123181513	0.132083331840	+1	0.188289495337	1.403991748542
84	0.023788229396	0.131038086383	+1	0.187114003843	1.400809801171
86	0.023462118647	0.130176838787	+1	0.185930107758	1.399359022692
88	0.023144556112	0.129484678774	+1	0.184741367032	1.399528093742
90	0.022835261282	0.128948526404	+1	0.183550802607	1.401218844165
92	0.022533955431	0.128557034126	+1	0.182361208398	1.404349359475
94	0.022240377671	0.128300148924	+1	0.181174852297	1.408845472165
96	0.021954269421	0.128169050476	+1	0.179993780439	1.414644282337
98	0.021675381417	0.128155927025	+1	0.178819780064	1.421691037007
100	0.021403471960	0.128253872865	+1	0.177654406857	1.429938564588
105	0.020752731086	0.128945912319	+1	0.174786886516	1.455551684294
110	0.020140809492	0.130216268861	+1	0.171996015699	1.487906766119

115	0.019564589449	0.132004838080	+1	0.169292650301	1.526661313018
120	0.019021200928	0.134267146143	+1	0.166682862360	1.571609315961
125	0.018508116896	0.136967397126	+1	0.164169816806	1.622608509356
130	0.018022976958	0.140079769812	+1	0.161754444752	1.679621847598
135	0.017563651463	0.143584003902	+1	0.159436521546	1.742669500841
140	0.017128199661	0.147465597908	+1	0.157214325977	1.811832106375
145	0.016714861407	0.151713498604	+1	0.155085637800	1.887233412188
150	0.016322029841	0.156320792249	+1	0.153047539883	1.969050681391
155	0.015948243211	0.161282738129	+1	0.151096941755	2.057496005618
160	0.015592165491	0.166597460564	+1	0.149230436198	2.152826794495
165	0.015252583089	0.172264494245	+1	0.147444580615	2.255329897460
170	0.014928379107	0.178286084631	+1	0.145735889489	2.365345028331
175	0.014618536746	0.184665384551	+1	0.144100872611	2.483239022914
180	0.014322122053	0.191407338528	+1	0.142536158707	2.609425023813
185	0.014038282036	0.198517754218	+1	0.141038474616	2.744349392510
190	0.013766219142	0.206005259745	+1	0.139604629658	2.888529269628
195	0.013505211655	0.213878698835	+1	0.138231597419	3.042511323068
200	0.013254615804	0.222144539067	+1	0.136916326973	3.206821725396
205	0.013013838846	0.230810067915	+1	0.135655978730	3.382028732436
210	0.012782291889	0.239889938890	+1	0.134447910294	3.568873767363
215	0.012559422140	0.249401260578	+1	0.133289673848	3.768191289140
220	0.012344727516	0.259361680431	+1	0.132178951297	3.980874392655
225	0.012137751783	0.269789289507	+1	0.131113523821	4.207876066074
230	0.011938074428	0.280702416957	+1	0.130091235614	4.450209891056
235	0.011745311848	0.292119932093	+1	0.129110052349	4.708960458121
240	0.011559112965	0.304060729325	+1	0.128167989525	4.985275181286
245	0.011379152754	0.316544003196	+1	0.127263119808	5.280375186318
250	0.011205133930	0.329588722963	+1	0.126393558175	5.595545882217
255	0.011036776380	0.343215696750	+1	0.125557570209	5.932194527237
260	0.010873795208	0.357453178062	+1	0.124753653360	6.292002685503
265	0.010715921247	0.372332741556	+1	0.123980440747	6.676846714711
270	0.010562905927	0.387888020534	+1	0.123236628496	7.088779047000
275	0.010414517878	0.404154358029	+1	0.122520926519	7.530032926891

280	0.010270543713	0.421169523931	+1	0.121832127869	8.003058341264
285	0.010130784209	0.438973240359	+1	0.121169008860	8.510523689000
290	0.009995053922	0.457608029578	+1	0.120530448143	9.055365054559
295	0.009863180398	0.477118599195	+1	0.119915286620	9.640782186726
300	0.009735002446	0.497552951593	+1	0.119322471629	10.270305063813
310	0.009489126328	0.541407430938	+1	0.118199869901	11.677789078045
320	0.009256255374	0.589668409872	+1	0.117155855874	13.315503361170
330	0.009035344380	0.642927263079	+1	0.116184341286	15.230529348374
340	0.008825470187	0.701882700684	+1	0.115279576457	17.481817848354
350	0.008625814986	0.767366001545	+1	0.114436116200	20.143829905519
360	0.008435644012	0.840381707443	+1	0.113648978481	23.311909777274
370	0.008254276612	0.922176656611	+1	0.112913978574	27.110673483763
380	0.008081094510	1.014297380759	+1	0.112227372106	31.704454053136
390	0.007915537773	1.118680363381	+1	0.111585663677	37.312962614192
400	0.007757106018	1.237775222803	+1	0.110985458570	44.234371978399
410	0.007605339690	1.374742767932	+1	0.110423695588	52.882017100664
420	0.007459814665	1.533733891192	+1	0.109897741081	63.841650676744
430	0.007320142324	1.720305926160	+1	0.109405189249	77.964006905679
440	0.007185967243	1.942063085080	+1	0.108943717082	96.520034131158
450	0.007056962828	2.209707935433	+1	0.108511252409	121.475147495562
460	0.006932827753	2.538788627427	+1	0.108105814299	155.993311204258
470	0.006813285135	2.952776000398	+1	0.107725648042	205.422452625542
480	0.006698077281	3.488873269939	+1	0.107369138366	279.370609794218
490	0.006586966263	4.209782927119	+1	0.107034801778	396.490754467855
500	0.006479730844	5.230062515892	+1	0.106721225532	596.899306362541
510	0.006376165163	6.783693733182	+1	0.106427137127	980.064097009643
520	0.006276079450	9.434302324938	+1	0.106151328762	1851.096498474209
530	0.006179297401	14.971910338904	+1	0.105892714124	4555.080454113705
540	0.006085653593	33.727119066748	+1	0.105650225031	22597.939532553817
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560	0.005912251836	25.368024004942	-1	0.105122988761	13212.516756321411
570	0.005822047537	13.136641309362	-1	0.105010663830	3720.910513870322
580	0.005739503412	8.909730763010	-1	0.104824001790	1791.096210608100

590	0.005659416937	6.715367641113	-1	0.104649367177	1064.013811971365
600	0.005581675476	5.372154122748	-1	0.104486100401	711.605001327363
610	0.005506173196	4.465631603831	-1	0.104333636614	513.531064480088
620	0.005432812564	3.812889128521	-1	0.104191353381	390.749730548601
630	0.005361502111	3.320639092103	-1	0.104058692439	309.143229071367
640	0.005292154347	2.936313044455	-1	0.103935121873	251.993920379409
650	0.005224686505	2.628024415701	-1	0.103820200241	210.311454147298
660	0.005159020062	2.375316598577	-1	0.103713516448	178.905025417295
670	0.005095081596	2.164479098345	-1	0.103614612094	154.605013675625
680	0.005032802962	1.985964201949	-1	0.103523081290	135.382935178134
690	0.004972117494	1.832916624161	-1	0.103438555577	119.890148078496
700	0.004912962412	1.700286585157	-1	0.103360710754	107.200748970822
710	0.004855277349	1.584273604612	-1	0.103289242365	96.661566553367
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730	0.004744099481	1.391110600227	-1	0.103164183584	80.272737629796
740	0.004690503325	1.309897131993	-1	0.103109998152	73.814160003172
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770	0.004537112235	1.111023835279	-1	0.102977943713	59.076138223539
780	0.004488302923	1.056424170521	-1	0.102943299627	55.297076942326
790	0.004440587132	1.006455869787	-1	0.102912995454	51.939211698361
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810	0.004348286224	0.918275009946	-1	0.102864637495	46.247609831856
820	0.004303630913	0.879191654286	-1	0.102846225817	43.820371100539
830	0.004259927918	0.842969620049	-1	0.102831467622	41.623032383937
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850	0.004175257361	0.777964502954	-1	0.102812115711	37.805152731778
860	0.004134230213	0.748698149028	-1	0.102807320250	36.138780960039
870	0.004094038820	0.721319363589	-1	0.102805559314	34.609292897760
880	0.004054656977	0.695655767499	-1	0.102806727750	33.201380020955
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900	0.003978222550	0.648883370984	-1	0.102817304808	30.699304915150
910	0.003941122399	0.627518640680	-1	0.102826538564	29.583750687623

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1025	0.003560989619	0.448920769832	-1	0.103088311511	20.919899838012
1050	0.003488181034	0.421477891648	-1	0.103176453481	19.691428531975
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1225	0.003053326877	0.289410430110	-1	0.104002535797	14.143118564705
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1275	0.002948747457	0.264177865100	-1	0.104288838163	13.147952649340
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1350	0.002804895559	0.232739686742	-1	0.104747017237	11.934509410568
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1550	0.002482792808	0.173905024094	-1	0.106083851472	9.733749840046
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1750	0.002227574509	0.136526228974	-1	0.107510351312	8.372286162770
1800	0.002171803631	0.129271696946	-1	0.107873027787	8.110084099282
1850	0.002118760863	0.122647812703	-1	0.108237625176	7.871025460740
1900	0.002068255993	0.116582441039	-1	0.108602284288	7.652261202779
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2000	0.001974152597	0.105878103892	-1	0.109330126042	7.266064726556
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2300	0.001736905600	0.082023432090	-1	0.111504799579	6.401521213666
2400	0.001670114435	0.076067561059	-1	0.112190857566	6.183095293181
2500	0.001608291208	0.070823376611	-1	0.112861314216	5.989429515140
2600	0.001550828930	0.066162600210	-1	0.113529423851	5.816252187753
2700	0.001497305386	0.062002957088	-1	0.114189385285	5.660604491949
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2900	0.001400678937	0.054930618876	-1	0.115457409568	5.392559813046
3000	0.001356930724	0.051906010292	-1	0.116064247986	5.276254834156
3100	0.001315836159	0.049159287144	-1	0.116658148960	5.169640923885
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3300	0.001240586267	0.044361702888	-1	0.117825917770	4.981730945035
3400	0.001206035995	0.042257369653	-1	0.118401615561	4.898696672885
3500	0.001173365228	0.040322939925	-1	0.118962717056	4.821636325629
3600	0.001142414157	0.038537897088	-1	0.119512864741	4.749879213374
3700	0.001113058679	0.036887489544	-1	0.120050262472	4.682899041611
3800	0.001085188303	0.035358976760	-1	0.120572693186	4.620229165585
3900	0.001058696984	0.033940353617	-1	0.121079784339	4.561448910011
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4200	0.000986530935	0.030238096730	-1	0.122521749901	4.404838052897
4300	0.000964646594	0.029161496848	-1	0.122975493782	4.358260795357
4400	0.000943734030	0.028152567505	-1	0.123414926463	4.314097041512
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7500	0.000570764421	0.013139391517	-1	0.131488926888	3.529015563565
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24000	0.000153350974	0.002408964033	-1	0.194331894866	3.797607180212
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30000	0.000117808252	0.001759612820	-1	0.208890711855	3.950357603664
31000	0.000113364001	0.001683745743	-1	0.210979275384	3.977719248203
32000	0.000109146971	0.001611595116	-1	0.213182654902	4.006582947837
33000	0.000105151395	0.001543316663	-1	0.215472847210	4.036906142771
34000	0.000101373492	0.001479068834	-1	0.217813189353	4.068511203764
35000	0.000097811272	0.001419008615	-1	0.220157824101	4.101067184964
36000	0.000094461057	0.001363190085	-1	0.222461646987	4.134162517747
37000	0.000091307366	0.001311277383	-1	0.224715239057	4.167633185678
38000	0.000088331890	0.001262836172	-1	0.226925398044	4.201466730145
39000	0.000085516562	0.001217435936	-1	0.229106763237	4.235754926792
40000	0.000082843291	0.001174647486	-1	0.231283191075	4.270726626629
41000	0.000080295818	0.001134099931	-1	0.233479847643	4.306670113304
42000	0.000077864784	0.001095627839	-1	0.235698851484	4.343668585258
43000	0.000075542000	0.001059105573	-1	0.237939860742	4.381831228088
44000	0.000073332681	0.001024559102	-1	0.240157403018	4.420024524950
45000	0.000071232651	0.000991896501	-1	0.242338060498	4.457927823161
46000	0.000069225755	0.000960889398	-1	0.244514856802	4.496473800997
47000	0.000067306402	0.000931431451	-1	0.246685973599	4.535634248203
48000	0.000065469139	0.000903416999	-1	0.248851232382	4.575401471033
49000	0.000063705584	0.000876708039	-1	0.251024858831	4.616148099311
50000	0.000062003455	0.000851127438	-1	0.253241037362	4.658808914175
55000	0.000054444414	0.000739318884	-1	0.264303331450	4.881796119837
60000	0.000048174825	0.000649053490	-1	0.275356584337	5.122622169441
65000	0.000042896023	0.000574936875	-1	0.286413537202	5.382463110758
70000	0.000038396600	0.000513226337	-1	0.297468083384	5.662349117816
75000	0.000034522783	0.000461241512	-1	0.308501711825	5.963130731765
80000	0.000031160149	0.000417016016	-1	0.319484107052	6.285382837989
85000	0.000028205549	0.000378934724	-1	0.330531691566	6.635371072653
90000	0.000025606403	0.000346008046	-1	0.341483307796	7.009377218576

95000	0.000023310519	0.000317362474	-1	0.352284973830	7.406984807891
100000	0.000021266197	0.000292232122	-1	0.362997569643	7.832824793868
105000	0.000019438288	0.000270061458	-1	0.373602274775	8.288439337621
110000	0.000017798796	0.000250413942	-1	0.384065244487	8.774839807157
115000	0.000016322786	0.000232910239	-1	0.394384160354	9.294169258993
120000	0.000014990508	0.000217254941	-1	0.404536496489	9.847901828419
125000	0.000013784485	0.000203192720	-1	0.414517147703	10.438261348721
130000	0.000012690540	0.000190518122	-1	0.424308214616	11.066869987979
135000	0.000011695900	0.000179051537	-1	0.433906389819	11.736128489609
140000	0.000010789819	0.000168646681	-1	0.443300780780	12.448301082497
145000	0.000009962778	0.000159175160	-1	0.452488459286	13.206077737036
150000	0.000009207341	0.000150529231	-1	0.461456432681	14.010636160458
155000	0.000008516500	0.000142612925	-1	0.470204094417	14.863934222348
160000	0.000007883613	0.000135347696	-1	0.478729725639	15.769151983794
165000	0.000007302730	0.000128664222	-1	0.487034978083	16.730066520010
170000	0.000006769195	0.000122502290	-1	0.495115106948	17.748890972581
175000	0.000006278723	0.000116807479	-1	0.502972451845	18.828299047619
180000	0.000005827442	0.000111533990	-1	0.510606200463	19.971137784191
185000	0.000005411781	0.000106640608	-1	0.518019913403	21.180867779896
190000	0.000005028658	0.000102091166	-1	0.525215323776	22.460473547962
195000	0.000004675206	0.000097853148	-1	0.532198210887	23.813654012420
200000	0.000004348957	0.000093900379	-1	0.538965365788	25.243435775716
205000	0.000004047681	0.000090209233	-1	0.545513776763	26.752667191771
210000	0.000003769473	0.000086757842	-1	0.551840538380	28.342957752998
215000	0.000003512516	0.000083525669	-1	0.557947587602	30.016219692088
220000	0.000003275029	0.000080493288	-1	0.563843542314	31.775639492228
225000	0.000003055277	0.000077642444	-1	0.569542918858	33.626185890019
230000	0.000002851573	0.000074955936	-1	0.575066373552	35.575396540378
235000	0.000002662294	0.000072417664	-1	0.580439927716	37.634131203519
240000	0.000002485895	0.000070012624	-1	0.585694156427	39.817388745827
245000	0.000002320894	0.000067726737	-1	0.590865025277	42.145867401412
250000	0.000002165902	0.000065546963	-1	0.595991975451	44.646943858431
255000	0.000002019797	0.000063462885	-1	0.601106057211	47.351359076028

260000	0.000001882241	0.000061471323	-1	0.606191244700	50.274475487558
265000	0.000001753072	0.000059570573	-1	0.611219769009	53.425729560537
270000	0.000001632125	0.000057758778	-1	0.616163336009	56.811779513200
275000	0.000001519216	0.000056033824	-1	0.620994397040	60.436093295887
280000	0.000001414149	0.000054393458	-1	0.625685753472	64.297555651443
285000	0.000001316706	0.000052835271	-1	0.630211362308	68.389634465836
290000	0.000001226657	0.000051356776	-1	0.634545867382	72.698676615255
295000	0.000001143756	0.000049955385	-1	0.638665169645	77.202909163875
300000	0.000001067740	0.000048628478	-1	0.642546561099	81.871174434606

Electron Elastic Scattering Sampling Data
Solution for Z = 14

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.035964828627	0.214922913949	+1	0.191893712062	1.664181519244
52	0.035273708999	0.201265518890	+1	0.193091011367	1.584307870102
54	0.034613865025	0.189916742024	+1	0.194038054536	1.519230993090
56	0.033983279974	0.180392651050	+1	0.194753796829	1.465628076180
58	0.033380026974	0.172332669100	+1	0.195257232193	1.421090649254
60	0.032802278054	0.165463329193	+1	0.195566910306	1.383836006653
62	0.032248291350	0.159574434701	+1	0.195700797660	1.352527246719
64	0.031716517801	0.154500616117	+1	0.195675507721	1.326122602896
66	0.031205439560	0.150112380821	+1	0.195507089428	1.303831835468
68	0.030713686763	0.146305927475	+1	0.195210288640	1.285028482655
70	0.030240021482	0.142996947434	+1	0.194798615279	1.269207639050
72	0.029783262966	0.140117134275	+1	0.194284755960	1.255971427336
74	0.029342373918	0.137610092720	+1	0.193680114061	1.244991214787
76	0.028916375471	0.135429159110	+1	0.192995242734	1.236000936127
78	0.028504366743	0.133535555782	+1	0.192239782776	1.228783399557
80	0.028105550674	0.131896443992	+1	0.191422344602	1.223153254677
82	0.027719163593	0.130484212092	+1	0.190550946529	1.218960081241
84	0.027344527909	0.129275411235	+1	0.189632710356	1.216075692997
86	0.026981008168	0.128249939585	+1	0.188674137169	1.214392159669
88	0.026628020591	0.127390548439	+1	0.187681088856	1.213817933356
90	0.026285033561	0.126682418673	+1	0.186658859686	1.214275410691
92	0.025951547180	0.126112566622	+1	0.185612250503	1.215697345121
94	0.025627113436	0.125669834160	+1	0.184545464519	1.218025860175
96	0.025311302064	0.125344464841	+1	0.183462422766	1.221212825663
98	0.025003723277	0.125127805104	+1	0.182366601626	1.225214814596
100	0.024704005559	0.125012277554	+1	0.181261117791	1.229995032462
105	0.023986929414	0.125124184126	+1	0.178472831169	1.245153319081
110	0.023312266567	0.125744316948	+1	0.175676277041	1.264592988499

115	0.022675930704	0.126808287345	+1	0.172899198323	1.288039114029
120	0.022074520057	0.128268513595	+1	0.170161200817	1.315302072058
125	0.021505026317	0.130087729542	+1	0.167477177985	1.346255509549
130	0.020964863480	0.132237886214	+1	0.164857229241	1.380823014493
135	0.020451719514	0.134696548773	+1	0.162308718519	1.418965269711
140	0.019963569626	0.137446996268	+1	0.159836079770	1.460677549992
145	0.019498599868	0.140475473124	+1	0.157442115615	1.505974306654
150	0.019055137225	0.143773003777	+1	0.155128193715	1.554917468664
155	0.018631752559	0.147330834092	+1	0.152894288811	1.607552068235
160	0.018227094795	0.151144020309	+1	0.150739756721	1.663970208445
165	0.017839949656	0.155208388958	+1	0.148663338836	1.724268738754
170	0.017469211695	0.159521824205	+1	0.146663237777	1.788567203961
175	0.017113861050	0.164083032896	+1	0.144737446238	1.856998306752
180	0.016772971838	0.168891881676	+1	0.142883642786	1.929709062326
185	0.016445687485	0.173949019719	+1	0.141099441744	2.006861598878
190	0.016131212140	0.179256880911	+1	0.139382295149	2.088645792694
195	0.015828815600	0.184818039363	+1	0.137729695829	2.175260268577
200	0.015537837776	0.190633532756	+1	0.136139217687	2.266888744167
205	0.015257662421	0.196704878504	+1	0.134608481285	2.363729115005
210	0.014987695875	0.203038066294	+1	0.133134871548	2.466047736815
215	0.014727384572	0.209640478582	+1	0.131715899705	2.574143772090
220	0.014476216131	0.216519593302	+1	0.130349213362	2.688332008642
225	0.014233716800	0.223682818231	+1	0.129032544372	2.808939963442
230	0.013999448147	0.231137635885	+1	0.127763758919	2.936311953104
235	0.013773004442	0.238891445831	+1	0.126540831179	3.070806972870
240	0.013554008892	0.246951403021	+1	0.125361794168	3.212795767674
245	0.013342108953	0.255324532404	+1	0.124224791622	3.362665116626
250	0.013136980457	0.264017551026	+1	0.123128022565	3.520812474393
255	0.012938314240	0.273037695107	+1	0.122069743490	3.687662734107
260	0.012745801270	0.282396683883	+1	0.121048363888	3.863743876219
265	0.012559165558	0.292106231353	+1	0.120062189392	4.049599992531
270	0.012378125721	0.302180565944	+1	0.119109857726	4.245863749351
275	0.012202434143	0.312632947662	+1	0.118189905486	4.453172473280

280	0.012031857975	0.323477561168	+1	0.117300965556	4.672214762318
285	0.011866177440	0.334728945818	+1	0.116441727976	4.903722385992
290	0.011705187817	0.346402183655	+1	0.115610941019	5.148475374300
295	0.011548696529	0.358512721526	+1	0.114807380743	5.407300946528
300	0.011396522943	0.371076875491	+1	0.114029929739	5.681090108266
310	0.011104448867	0.397636664545	+1	0.112548935137	6.277470100322
320	0.010827641643	0.426247387407	+1	0.111160247511	6.946589638393
330	0.010564916756	0.457097641426	+1	0.109856843661	7.699004950763
340	0.010315222050	0.490397823852	+1	0.108632230681	8.547065565775
350	0.010077618919	0.526383358886	+1	0.107480357986	9.505269075393
360	0.009851264713	0.565320184622	+1	0.106395597409	10.590747951500
370	0.009635363525	0.607525669628	+1	0.105373197985	11.824373703073
380	0.009429196374	0.653366305056	+1	0.104408799618	13.231301285200
390	0.009232114812	0.703265260373	+1	0.103498288119	14.841959367552
400	0.009043531848	0.757714121668	+1	0.102637847564	16.693424424584
410	0.008862911178	0.817288966526	+1	0.101823942426	18.831265502966
420	0.008689751019	0.882675651097	+1	0.101053503158	21.312246979636
430	0.008523591036	0.954691406688	+1	0.100323715876	24.207497114964
440	0.008364011130	1.034315676720	+1	0.099631905320	27.606913371412
450	0.008210625138	1.122734056317	+1	0.098975593360	31.625437955197
460	0.008063079650	1.221393858281	+1	0.098352480501	36.411717530870
470	0.007921037798	1.332087399313	+1	0.097760559947	42.160991874169
480	0.007784196985	1.457049394599	+1	0.097197901823	49.132756598294
490	0.007652270703	1.599113260689	+1	0.096662745708	57.678322727552
500	0.007524996682	1.761923183406	+1	0.096153439068	68.282047462379
510	0.007402130269	1.950242973653	+1	0.095668438205	81.625887008062
520	0.007283442505	2.170415407787	+1	0.095206348070	98.693148545620
530	0.007168720520	2.431082805322	+1	0.094765854962	120.942246213429
540	0.007057765649	2.744341989745	+1	0.094345752816	150.609389622103
550	0.006950393204	3.127648119201	+1	0.093944873879	191.258862446472
560	0.006846427222	3.607186013839	+1	0.093562200747	248.851049793657
570	0.006745707684	4.223985003482	+1	0.093196719729	333.936990578737
580	0.006648081886	5.046311967003	+1	0.092847500388	466.638460996166

590	0.006553406104	6.196778655314	+1	0.092513722753	689.233401805170
600	0.006461546196	7.919759749685	+1	0.092194565834	1103.174131518094
610	0.006372376213	10.782557673903	+1	0.091889282723	2004.598076094766
620	0.006285777394	16.471364395051	+1	0.091597172157	4587.537784074432
630	0.006201638093	33.234483477471	+1	0.091317564329	18323.290215879162
640	0.006138367946	103.376387647282	+1	0.090614174434	174084.836498113640
650	0.006077359913	80.284719509114	-1	0.090003142369	105563.371659266910
660	0.005962951026	17.485997739985	-1	0.090547769422	5365.225111376644
670	0.005887652217	11.527012122898	-1	0.090312373374	2420.625423067404
680	0.005814340694	8.569475563671	-1	0.090086733384	1388.305120230366
690	0.005742938136	6.802395887963	-1	0.089870393952	907.365284916787
700	0.005673368747	5.627718679157	-1	0.089662929406	643.886292057824
710	0.005605560215	4.790508854491	-1	0.089463967665	483.506934773999
720	0.005539445773	4.163790906888	-1	0.089273092982	378.376841376975
730	0.005474960858	3.677175479392	-1	0.089089969939	305.561806772506
740	0.005412045815	3.288510880918	-1	0.088914217635	252.936900787062
750	0.005350641213	2.970995480376	-1	0.088745536654	213.591932845889
760	0.005290691923	2.706784835963	-1	0.088583670479	183.351236760280
770	0.005232145221	2.483556363882	-1	0.088428279586	159.569923561676
780	0.005174952964	2.292507365717	-1	0.088279079703	140.502905968467
790	0.005119066089	2.127183674436	-1	0.088135837476	124.960433073910
800	0.005064439252	1.982744974993	-1	0.087998313263	112.107950582758
810	0.005011029422	1.855494700298	-1	0.087866258003	101.346068499335
820	0.004958794901	1.742560700316	-1	0.087739469643	92.235027629370
830	0.004907696637	1.641677513769	-1	0.087617729765	84.445969454926
840	0.004857697046	1.551032227249	-1	0.087500829119	77.728711190187
850	0.004808759548	1.469155461491	-1	0.087388583085	71.890005143470
860	0.004760850368	1.394846203350	-1	0.087280831388	66.778770557528
870	0.004713935795	1.327113987008	-1	0.087177391597	62.275507625747
880	0.004667984588	1.265135034969	-1	0.087078082246	58.284654385895
890	0.004622966634	1.208214968091	-1	0.086982771010	54.728805040879
900	0.004578853361	1.155767238707	-1	0.086891299059	51.544851075801
910	0.004535616111	1.107291356092	-1	0.086803529064	48.680835615202

920	0.004493228622	1.062359814093	-1	0.086719349488	46.093777043100
930	0.004451666005	1.020605970133	-1	0.086638564668	43.747848351015
940	0.004410902945	0.981708722798	-1	0.086561121389	41.612799330363
950	0.004370916555	0.945390328454	-1	0.086486856663	39.663092835618
960	0.004331683651	0.911406901448	-1	0.086415673061	37.876988627490
970	0.004293182297	0.879544093091	-1	0.086347483201	36.235888868338
980	0.004255391996	0.849614026294	-1	0.086282166325	34.723858541735
990	0.004218292339	0.821449437812	-1	0.086219617271	33.327091580561
1000	0.004181863898	0.794900696618	-1	0.086159799885	32.033578638847
1025	0.004093608051	0.734766240948	-1	0.086021470667	29.186402368975
1050	0.004009163306	0.682234957497	-1	0.085898011841	26.792772555347
1075	0.003928283266	0.635986104269	-1	0.085788116283	24.757228228502
1100	0.003850737802	0.594978681510	-1	0.085690836833	23.008298783838
1125	0.003776314481	0.558384624109	-1	0.085605458857	21.491703610752
1150	0.003704825802	0.525550986091	-1	0.085530930445	20.166101705301
1175	0.003636098324	0.495945271268	-1	0.085466373522	18.999105961352
1200	0.003569969705	0.469126443411	-1	0.085411098516	17.964919778025
1225	0.003506287660	0.444727377381	-1	0.085364639700	17.042847230238
1250	0.003444917583	0.422447718069	-1	0.085326227676	16.216354399382
1275	0.003385733367	0.402033532602	-1	0.085295231994	15.471905900770
1300	0.003328616171	0.383266946857	-1	0.085271207492	14.798255196583
1325	0.003273453838	0.365961222672	-1	0.085253837084	14.186041849031
1350	0.003220147031	0.349960003333	-1	0.085242561934	13.627553965634
1375	0.003168601716	0.335127560528	-1	0.085236923877	13.116273507401
1400	0.003118728932	0.321344704906	-1	0.085236597056	12.646624676827
1425	0.003070444893	0.308506874244	-1	0.085241373922	12.213834757971
1450	0.003023673909	0.296524978801	-1	0.085250848530	11.813884778428
1475	0.002978344389	0.285320373441	-1	0.085264672149	11.443302516025
1500	0.002934389168	0.274822577359	-1	0.085282605837	11.099040726490
1550	0.002850348887	0.255704670321	-1	0.085330059413	10.479236928616
1600	0.002771095848	0.238755875765	-1	0.085391071927	9.937187167330
1650	0.002696221007	0.223640580702	-1	0.085464236564	9.459394555935
1700	0.002625363540	0.210089688859	-1	0.085548229727	9.035337588787

1750	0.002558199141	0.197881296623	-1	0.085642179080	8.656575369740
1800	0.002494443685	0.186836147347	-1	0.085744370485	8.316373072391
1850	0.002433839597	0.176803421977	-1	0.085853566869	8.009206506322
1900	0.002376157252	0.167658092894	-1	0.085968866643	7.730623485154
1950	0.002321183801	0.159292048310	-1	0.086090045886	7.476873712328
2000	0.002268718339	0.151609175805	-1	0.086217600836	7.244676391375
2100	0.002170614506	0.137985990472	-1	0.086492423768	6.834605621438
2200	0.002080718198	0.126325448846	-1	0.086781581563	6.484726656520
2300	0.001998086201	0.116273946813	-1	0.087073997117	6.183366580154
2400	0.001921875976	0.107539421319	-1	0.087365656395	5.921225594956
2500	0.001851322199	0.099877544124	-1	0.087660428775	5.690808669346
2600	0.001785753477	0.093092009314	-1	0.087965771741	5.486246894030
2700	0.001724673225	0.087054604843	-1	0.088276863685	5.303613113545
2800	0.001667661436	0.081663153989	-1	0.088587467794	5.139772996453
2900	0.001614334170	0.076827641957	-1	0.088894675822	4.992026642248
3000	0.001564337631	0.072468449166	-1	0.089198962018	4.858032668389
3100	0.001517352776	0.068517647177	-1	0.089502640321	4.735831643523
3200	0.001473126627	0.064926451347	-1	0.089802918932	4.623990318974
3300	0.001431434665	0.061653592448	-1	0.090096969762	4.521302286998
3400	0.001392068977	0.058661526315	-1	0.090383825610	4.426680034652
3500	0.001354834919	0.055915938534	-1	0.090664586854	4.339145028844
3600	0.001319554847	0.053386818212	-1	0.090941268090	4.257854696404
3700	0.001286085328	0.051052296507	-1	0.091212304960	4.182179187179
3800	0.001254298380	0.048893531252	-1	0.091475891540	4.111570595827
3900	0.001224073467	0.046892935533	-1	0.091731414249	4.045523403985
4000	0.001195297125	0.045034137149	-1	0.091979371883	3.983569258230
4100	0.001167864573	0.043302422094	-1	0.092220912614	3.925294639408
4200	0.001141685518	0.041686388279	-1	0.092455561043	3.870386712044
4300	0.001116542271	0.040162268379	-1	0.092711765847	3.818995059662
4400	0.001092497691	0.038735117996	-1	0.092961514900	3.770443538187
4500	0.001069479892	0.037396087385	-1	0.093205399154	3.724483651776
4600	0.001047422294	0.036137126030	-1	0.093444295241	3.680888634966
4700	0.001026269066	0.034952055773	-1	0.093677548956	3.639477374589

4800	0.001005968116	0.033835292627	-1	0.093904565253	3.600088458057
4900	0.000986470428	0.032781521958	-1	0.094125201694	3.562566959975
5000	0.000967728865	0.031785648295	-1	0.094339842321	3.526766188366
5500	0.000883976740	0.027534377435	-1	0.095326274401	3.369517299147
6000	0.000813908739	0.024221752173	-1	0.096167350664	3.240485884460
6500	0.000754486095	0.021580856815	-1	0.096868431721	3.131799059549
7000	0.000703505363	0.019435013136	-1	0.097436253615	3.038185190603
7500	0.000659329974	0.017663110889	-1	0.097878214851	2.955990458832
8000	0.000620718703	0.016179663699	-1	0.098201878944	2.882611657556
8500	0.000586712860	0.014922792640	-1	0.098414778591	2.816153394681
9000	0.000556560914	0.013846732414	-1	0.098524125294	2.755203850875
9500	0.000529664776	0.012916969352	-1	0.098536937400	2.698699560026
10000	0.000505556079	0.012108017516	-1	0.098452030722	2.645738416919
10500	0.000483892137	0.011402792872	-1	0.098243554990	2.595323699983
11000	0.000464292615	0.010780926378	-1	0.097949791370	2.547373072485
11500	0.000446485834	0.010228907492	-1	0.097579202522	2.501472104993
12000	0.000430250166	0.009736610893	-1	0.097135544877	2.457331124725
12500	0.000415395767	0.009295340452	-1	0.096624831532	2.414691962473
13000	0.000401763915	0.008898288396	-1	0.096050729938	2.373368080477
13500	0.000389216741	0.008539494486	-1	0.095418704361	2.333191956007
14000	0.000377637774	0.008214244644	-1	0.094732146825	2.294041864710
14500	0.000366924963	0.007918361825	-1	0.093995655346	2.255805320921
15000	0.000356991426	0.007648509629	-1	0.093212274674	2.218403598021
16000	0.000339162750	0.007175377842	-1	0.091519845086	2.145824934145
17000	0.000323644290	0.006776021320	-1	0.089680663145	2.075889284518
18000	0.000310041714	0.006436403388	-1	0.087717176136	2.008306424063
19000	0.000298043109	0.006145830228	-1	0.085649861157	1.942885087859
20000	0.000287399312	0.005896060011	-1	0.083496798776	1.879491299857
21000	0.000217429385	0.003797213203	-1	0.136150436709	2.762353358776
22000	0.000206879959	0.003569873295	-1	0.137810359961	2.767395468878
23000	0.000196786656	0.003346566052	-1	0.139684868762	2.769880742393
24000	0.000187289554	0.003134078435	-1	0.141751379709	2.771967540091
25000	0.000178531830	0.002939936161	-1	0.143901045603	2.775617539090

26000	0.000170613948	0.002770113629	-1	0.145959793398	2.782052142521
27000	0.000163454696	0.002622554982	-1	0.147858125299	2.790788838541
28000	0.000156932021	0.002493017663	-1	0.149594728036	2.801027285916
29000	0.000150928453	0.002377168302	-1	0.151210250064	2.812130933769
30000	0.000145330115	0.002270663046	-1	0.152788561529	2.823696488518
31000	0.000140041752	0.002169923703	-1	0.154429599691	2.835621449081
32000	0.000135034178	0.002074339653	-1	0.156147108345	2.848030701976
33000	0.000130296411	0.001984051409	-1	0.157924692391	2.861039149258
34000	0.000125819662	0.001899210853	-1	0.159739620295	2.874701966665
35000	0.000121597120	0.001819974154	-1	0.161562484392	2.889007267037
36000	0.000117620773	0.001746377326	-1	0.163363203329	2.903875780198
37000	0.000113872067	0.001677967330	-1	0.165134935191	2.919225465179
38000	0.000110330508	0.001614174214	-1	0.166881224333	2.934998561246
39000	0.000106976249	0.001554431688	-1	0.168611473733	2.951178457292
40000	0.000103790028	0.001498181090	-1	0.170341246819	2.967796361137
41000	0.000100754656	0.001444938594	-1	0.172087280172	2.984913849196
42000	0.000097859697	0.001394488513	-1	0.173849662518	3.002538208243
43000	0.000095096928	0.001346683417	-1	0.175623919766	3.020650458312
44000	0.000092458587	0.001301375475	-1	0.177406320817	3.039231266109
45000	0.000089937394	0.001258418554	-1	0.179193808522	3.058259362618
46000	0.000087526349	0.001217666781	-1	0.180984330434	3.077718549653
47000	0.000085218698	0.001178976096	-1	0.182776749197	3.097597985026
48000	0.000083007921	0.001142203485	-1	0.184571198505	3.117895484055
49000	0.000080887603	0.001107205272	-1	0.186369679644	3.138627498865
50000	0.000078851517	0.001073839667	-1	0.188175842526	3.159825931636
55000	0.000069798060	0.000928360414	-1	0.197237715053	3.270762037828
60000	0.000062290648	0.000811594344	-1	0.206294758570	3.388990774966
65000	0.000055908161	0.000715442787	-1	0.215676818465	3.521230367548
70000	0.000050453567	0.000635674891	-1	0.225157090899	3.663272447825
75000	0.000045739261	0.000568667309	-1	0.234746432609	3.815836830798
80000	0.000041627936	0.000511796180	-1	0.244434148943	3.979292443998
85000	0.000038017057	0.000463127268	-1	0.254184028149	4.153584174669
90000	0.000034811045	0.000420997951	-1	0.264101414344	4.341935426914

95000	0.000031949744	0.000384308315	-1	0.274150098603	4.544718360361
100000	0.000029399939	0.000352335242	-1	0.284130898614	4.758112685776
105000	0.000027109705	0.000324228434	-1	0.294114912043	4.984692290993
110000	0.000025042145	0.000299378697	-1	0.304108405105	5.225830647783
115000	0.000023168697	0.000277297190	-1	0.314099344331	5.482265061741
120000	0.000021466383	0.000257600575	-1	0.324060040904	5.754503553749
125000	0.000019914959	0.000239957316	-1	0.333978104318	6.043376121593
130000	0.000018497837	0.000224100356	-1	0.343829453528	6.349466352180
135000	0.000017200189	0.000209795997	-1	0.353603572644	6.673678821762
140000	0.000016009679	0.000196853421	-1	0.363282515573	7.016759677304
145000	0.000014915205	0.000185105001	-1	0.372858130981	7.379732947292
150000	0.000013907606	0.000174412734	-1	0.382311486551	7.763245763581
155000	0.000012978550	0.000164654310	-1	0.391632034162	8.168168380263
160000	0.000012120823	0.000155726734	-1	0.400807120205	8.595322950876
165000	0.000011327794	0.000147538046	-1	0.409831972599	9.045821262760
170000	0.000010593844	0.000140010676	-1	0.418695913559	9.520486551937
175000	0.000009913773	0.000133075329	-1	0.427394065576	10.020391507507
180000	0.000009282930	0.000126673623	-1	0.435918068707	10.546656330425
185000	0.000008697139	0.000120752723	-1	0.444263286297	11.100448648777
190000	0.000008153071	0.000115264100	-1	0.452426565522	11.682211711665
195000	0.000007647492	0.000110164422	-1	0.460410514014	12.292736631852
200000	0.000007177312	0.000105422028	-1	0.468202027012	12.932985467631
205000	0.000006739796	0.000101008985	-1	0.475784682204	13.603633626500
210000	0.000006332628	0.000096896978	-1	0.483150369612	14.304862418931
215000	0.000005953582	0.000093058827	-1	0.490299442461	15.037075340969
220000	0.000005600445	0.000089468998	-1	0.497240047209	15.801264505875
225000	0.000005271023	0.000086103471	-1	0.503988329828	16.599288712866
230000	0.000004963149	0.000082939772	-1	0.510567870950	17.434133685961
235000	0.000004674706	0.000079956912	-1	0.517009596043	18.310259040082
240000	0.000004403643	0.000077135388	-1	0.523350594931	19.233876201910
245000	0.000004147969	0.000074457098	-1	0.529634366408	20.213510532566
250000	0.000003905771	0.000071905224	-1	0.535910235595	21.260489643715
255000	0.000003675507	0.000069466650	-1	0.542216657100	22.387240743207

260000	0.000003456833	0.000067138252	-1	0.548530927967	23.598937809590
265000	0.000003249693	0.000064918920	-1	0.554813771774	24.897817985375
270000	0.000003054036	0.000062807174	-1	0.561024777716	26.284702081440
275000	0.000002869795	0.000060801155	-1	0.567123329606	27.758723225857
280000	0.000002696879	0.000058898663	-1	0.573069231667	29.316901976868
285000	0.000002535179	0.000057097260	-1	0.578822228352	30.953523401664
290000	0.000002384554	0.000055394261	-1	0.584343429289	32.659849337123
295000	0.000002244834	0.000053786838	-1	0.589594932715	34.423521323251
300000	0.000002115816	0.000052272022	-1	0.594540483163	36.228230818003

Electron Elastic Scattering Sampling Data
Solution for Z = 15

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.042425126637	0.250866038638	+1	0.194709390396	1.715611375848
52	0.041547224057	0.229494219311	+1	0.196524310839	1.594853534301
54	0.040707444541	0.212157810996	+1	0.198112157275	1.499730372501
56	0.039905166041	0.197918573690	+1	0.199477143118	1.423673484191
58	0.039139067965	0.186101849878	+1	0.200627819700	1.362167908611
60	0.038407672554	0.176208579424	+1	0.201574389320	1.311977562300
62	0.037709302724	0.167864708378	+1	0.202328541618	1.270752056905
64	0.037042274044	0.160781197983	+1	0.202901910793	1.236704364087
66	0.036404776471	0.154737495605	+1	0.203307286158	1.208518088043
68	0.035795053198	0.149559747886	+1	0.203557053202	1.185170717685
70	0.035211428510	0.145108225973	+1	0.203663028668	1.165845990645
72	0.034652230932	0.141272363551	+1	0.203637082930	1.149917681474
74	0.034115936395	0.137961392754	+1	0.203490063946	1.136869411792
76	0.033601071714	0.135101583740	+1	0.203232549404	1.126291405927
78	0.033106249439	0.132632261405	+1	0.202874482939	1.117850807499
80	0.032630206880	0.130502602491	+1	0.202424968758	1.111267512227
82	0.032171731185	0.128670387951	+1	0.201892761660	1.106315121831
84	0.031729728115	0.127100055324	+1	0.201285814432	1.102802360194
86	0.031303163178	0.125761439228	+1	0.200611584046	1.100569439442
88	0.030891095529	0.124628876593	+1	0.199876980719	1.099481249549
90	0.030492648508	0.123680483716	+1	0.199088338893	1.099423900012
92	0.030107002023	0.122897370120	+1	0.198251579340	1.100300590094
94	0.029733420842	0.122263402488	+1	0.197372079793	1.102029059336
96	0.029371215146	0.121764460146	+1	0.196454772394	1.104537708910
98	0.029019738852	0.121388295380	+1	0.195504287561	1.107766374983
100	0.028678403315	0.121124150065	+1	0.194524838881	1.111662029885
105	0.027865949967	0.120895446117	+1	0.191973945480	1.124039674407
110	0.027106213647	0.121195548371	+1	0.189316402509	1.139779066489

115	0.026392929167	0.121936363966	+1	0.186594156092	1.158486483737
120	0.025721027402	0.123054878040	+1	0.183839641978	1.179901928541
125	0.025086173508	0.124501860605	+1	0.181078998510	1.203835920016
130	0.024484769515	0.126241395568	+1	0.178332272821	1.230170934350
135	0.023913697550	0.128244595712	+1	0.175615381145	1.258823726724
140	0.023370326440	0.130490383661	+1	0.172940202522	1.289753853648
145	0.022852350584	0.132961422686	+1	0.170315923722	1.322937872837
150	0.022357793126	0.135645106699	+1	0.167749129997	1.358378937342
155	0.021884889247	0.138531009949	+1	0.165244702090	1.396091536818
160	0.021432102429	0.141611741292	+1	0.162805783815	1.436107732700
165	0.020998050430	0.144881176836	+1	0.160434521127	1.478467363775
170	0.020581509309	0.148335227928	+1	0.158131879351	1.523222843352
175	0.020181366567	0.151970567556	+1	0.155898210878	1.570432307463
180	0.019796625524	0.155785219129	+1	0.153733213053	1.620164285962
185	0.019426373593	0.159777727435	+1	0.151636185993	1.672492268931
190	0.019069784306	0.163948216829	+1	0.149605879764	1.727504012157
195	0.018726096239	0.168296774250	+1	0.147640914129	1.785288541595
200	0.018394602241	0.172822686024	+1	0.145740016328	1.845930601166
205	0.018074651798	0.177525418790	+1	0.143901727526	1.909517573957
210	0.017765653921	0.182407705475	+1	0.142123919767	1.976168903608
215	0.017467063884	0.187473161753	+1	0.140404415842	2.046016960727
220	0.017178366608	0.192725431098	+1	0.138741153149	2.119200886794
225	0.016899084611	0.198168045293	+1	0.137132144056	2.195863284568
230	0.016628770974	0.203804401114	+1	0.135575482902	2.276150744040
235	0.016367004021	0.209637907601	+1	0.134069366645	2.360216880997
240	0.016113388300	0.215671645484	+1	0.132612036618	2.448216644796
245	0.015867553876	0.221908598220	+1	0.131201830647	2.540310348450
250	0.015629154579	0.228351268458	+1	0.129837098317	2.636656769473
255	0.015397863174	0.235002677161	+1	0.128516246521	2.737428252733
260	0.015173367386	0.241868180885	+1	0.127237544652	2.842832509984
265	0.014955378107	0.248953825880	+1	0.125999292299	2.953093259894
270	0.014743616236	0.256265901248	+1	0.124799883254	3.068448657993
275	0.014537825443	0.263810862513	+1	0.123637828526	3.189148998222

280	0.014337760937	0.271595136648	+1	0.122511647802	3.315453489921
285	0.014143193214	0.279625372282	+1	0.121419964387	3.447636216600
290	0.013953905067	0.287908286356	+1	0.120361445471	3.585983313539
295	0.013769692520	0.296450646847	+1	0.119334815703	3.730793266612
300	0.013590361460	0.305259418848	+1	0.118338876510	3.882381240111
310	0.013245610985	0.323706898889	+1	0.116434475167	4.207265200889
320	0.012918240749	0.343321977180	+1	0.114639480505	4.563709759346
330	0.012606974813	0.364184121686	+1	0.112945938263	4.955217549278
340	0.012310674046	0.386378439469	+1	0.111346460108	5.385710074161
350	0.012028308799	0.409997098234	+1	0.109834294020	5.859612217657
360	0.011758945829	0.435141360537	+1	0.108403241897	6.381949938606
370	0.011501709593	0.461928611974	+1	0.107047668912	6.958585205790
380	0.011255799632	0.490490538907	+1	0.105762450489	7.596282055704
390	0.011020493448	0.520972852962	+1	0.104542814294	8.302806523542
400	0.010795132239	0.553537540952	+1	0.103384327086	9.087116651622
410	0.010579110736	0.588366470036	+1	0.102282935947	9.959621886692
420	0.010371860109	0.625666358977	+1	0.101234942081	10.932527775069
430	0.010172856238	0.665672137292	+1	0.100237006085	12.020187934736
440	0.009981619793	0.708649325139	+1	0.099285961850	13.239474261108
450	0.009797709698	0.754901118246	+1	0.098378884871	14.610382714246
460	0.009620717844	0.804773549649	+1	0.097513027377	16.156689466119
470	0.009450260723	0.858666446392	+1	0.096685967384	17.906962597755
480	0.009285980653	0.917041905124	+1	0.095895399667	19.895637851561
490	0.009127549277	0.980437139043	+1	0.095139210467	22.164520528830
500	0.008974661057	1.049481140280	+1	0.094415405274	24.764757806283
510	0.008827031961	1.124914460565	+1	0.093722111998	27.759409562514
520	0.008684393353	1.207612994836	+1	0.093057640787	31.226857659741
530	0.008546495872	1.298622603903	+1	0.092420420861	35.265483731184
540	0.008413104963	1.399202737496	+1	0.091808967102	40.000065093026
550	0.008284005393	1.510885753675	+1	0.091221891236	45.590729653428
560	0.008158990073	1.635552731347	+1	0.090657904102	52.245538135378
570	0.008037872815	1.775524105494	+1	0.090115735332	60.237657322725
580	0.007920466037	1.933732203568	+1	0.089594371413	69.933552622796

590	0.007806603941	2.113892989189	+1	0.089092701518	81.830514545098
600	0.007696127457	2.320822889700	+1	0.088609727951	96.619077449636
610	0.007588886524	2.560865548918	+1	0.088144541466	115.279038798050
620	0.007484741310	2.842522173321	+1	0.087696247228	139.234390830726
630	0.007383554512	3.177513760578	+1	0.087264113523	170.622201710575
640	0.007285204542	3.582372804346	+1	0.086847283818	212.755021176989
650	0.007189572072	4.081318892515	+1	0.086445060718	270.999339267203
660	0.007096543962	4.711238538370	+1	0.086056800907	354.497667739032
670	0.007006014954	5.531137226118	+1	0.085681821266	479.834479976064
680	0.006917884237	6.641783772631	+1	0.085319544993	679.659300898096
690	0.006832056949	8.230536905855	+1	0.084969392731	1025.589368737185
700	0.006748441722	10.689901457802	+1	0.084630823269	1700.561589438727
710	0.006666954233	15.003980746583	+1	0.084303349258	3293.930529866007
720	0.006587512210	24.536129695661	+1	0.083986481011	8663.545574170834
730	0.006510960076	61.793150141977	+1	0.083662054121	54058.241976863843
740	0.006434461675	120.865054891334	-1	0.083382788381	206904.830826186720
750	0.006360709795	30.883569113471	-1	0.083095124083	13940.759019672591
760	0.006288717310	17.623251007369	-1	0.082816422142	4682.923266317293
770	0.006218420795	12.290756057282	-1	0.082546300137	2348.926194628875
780	0.006149760590	9.413221453156	-1	0.082284409541	1420.404339591937
790	0.006082678997	7.612893117787	-1	0.082030424519	957.451738216576
800	0.006017120791	6.380465735308	-1	0.081784039424	692.892351050189
810	0.005953034136	5.483986893142	-1	0.081544967864	527.183399905354
820	0.005890369362	4.802710787932	-1	0.081312908057	416.309250090893
830	0.005829078328	4.267551215916	-1	0.081087601290	338.332542833215
840	0.005769115942	3.836130238062	-1	0.080868800449	281.311354180519
850	0.005710438664	3.481010216275	-1	0.080656249968	238.286205198199
860	0.005653004515	3.183635068267	-1	0.080449736607	204.973982976570
870	0.005596774007	2.931026123955	-1	0.080249034943	178.621422308580
880	0.005541708704	2.713822296911	-1	0.080053924269	157.390674831581
890	0.005487771965	2.525095467795	-1	0.079864221366	140.015520508433
900	0.005434928972	2.359613637456	-1	0.079679735271	125.600477133381
910	0.005383145486	2.213353110161	-1	0.079500265371	113.497514339879

920	0.005332389608	2.083167515433	-1	0.079325666387	103.227987605183
930	0.005282631088	1.966564758127	-1	0.079155755016	94.432163730766
940	0.005233839383	1.861540707240	-1	0.078990349936	86.835004772112
950	0.005185986683	1.766463001451	-1	0.078829336951	80.223086052908
960	0.005139043799	1.679993301845	-1	0.078672564984	74.428986067250
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1025	0.004854398767	1.265825614047	-1	0.077747689402	49.567785147112
1050	0.004753527510	1.152968152338	-1	0.077431013165	43.620983812824
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1100	0.004564414015	0.974774625304	-1	0.076853708788	34.950487275497
1125	0.004475635982	0.903273485781	-1	0.076590669941	31.718154188221
1150	0.004390397496	0.840655755068	-1	0.076343036036	29.003011024408
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1225	0.004153881843	0.692384303768	-1	0.075682412709	23.001997101637
1250	0.004080839119	0.652911843888	-1	0.075486780542	21.505218681021
1275	0.004010427154	0.617252316345	-1	0.075302077105	20.189182251038
1300	0.003942501804	0.584890810767	-1	0.075127668991	19.024424649743
1325	0.003876928039	0.555398260651	-1	0.074963024273	17.987297502365
1350	0.003813584051	0.528421881504	-1	0.074807490336	17.058884378479
1375	0.003752356217	0.503663381697	-1	0.074660477337	16.223703970092
1400	0.003693136482	0.480866794592	-1	0.074521550766	15.468921855534
1425	0.003635824228	0.459812991055	-1	0.074390302139	14.783860424574
1450	0.003580327091	0.440316946265	-1	0.074266262853	14.159701750978
1475	0.003526558563	0.422218460512	-1	0.074148999382	13.589007955502
1500	0.003474436942	0.405376836997	-1	0.074038159775	13.065423757462
1550	0.003374829929	0.374988026190	-1	0.073834585541	12.138709120325
1600	0.003280951758	0.348345665193	-1	0.073652914336	11.345024512779
1650	0.003192307844	0.324817285847	-1	0.073491163375	10.658392692761
1700	0.003108464355	0.303908242454	-1	0.073347235152	10.059176874714

1750	0.003029031030	0.285218447568	-1	0.073219575660	9.532080305672
1800	0.002953661405	0.268425892883	-1	0.073106650338	9.065151116412
1850	0.002882042600	0.253265129845	-1	0.073007286677	8.648842577503
1900	0.002813899333	0.239522356976	-1	0.072919979457	8.275625623813
1950	0.002748979332	0.227015968957	-1	0.072843650809	7.939289646661
2000	0.002687044437	0.215585173739	-1	0.072778234748	7.634523431925
2100	0.002571298020	0.195441041734	-1	0.072679455713	7.103265258366
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2700	0.002045539060	0.121447131455	-1	0.072571992206	5.199477079553
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3100	0.001801136448	0.095000186876	-1	0.072784912789	4.525550281145
3200	0.001748973621	0.089903680691	-1	0.072857291496	4.394908737725
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3500	0.001609351075	0.077151790945	-1	0.073093394418	4.065518190059
3600	0.001567678535	0.073581585650	-1	0.073178523397	3.972413382761
3700	0.001528128831	0.070289528006	-1	0.073265894232	3.886113590781
3800	0.001490548861	0.067248036831	-1	0.073353943637	3.805936064283
3900	0.001454797034	0.064431661824	-1	0.073441898642	3.731252137737
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4100	0.001388259708	0.059382629096	-1	0.073618015161	3.596110744111
4200	0.001357248738	0.057112773365	-1	0.073705794592	3.534750487815
4300	0.001327614484	0.054993158242	-1	0.073792073973	3.477053343023
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4500	0.001272127094	0.051151898434	-1	0.073959204422	3.371372329155
4600	0.001246114068	0.049406312445	-1	0.074040501343	3.322804804325
4700	0.001221162437	0.047764754907	-1	0.074119829560	3.276781708584

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5500	0.001053052660	0.037515491551	-1	0.074679402288	2.979934039070
6000	0.000969634387	0.032904058842	-1	0.075057028138	2.841560802458
6500	0.000898703735	0.029233114631	-1	0.075379290937	2.726908705758
7000	0.000837687284	0.026254169415	-1	0.075642701909	2.629873162413
7500	0.000784673818	0.023797263921	-1	0.075845844367	2.546235411918
8000	0.000738212986	0.021742619795	-1	0.075988753224	2.472995226777
8500	0.000697184429	0.020003648562	-1	0.076072387522	2.407962308133
9000	0.000660708696	0.018516362481	-1	0.076098326800	2.349503890437
9500	0.000628085434	0.017232557794	-1	0.076068562489	2.296381555891
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10500	0.000572243930	0.015135701812	-1	0.075851357370	2.202513334725
11000	0.000548189803	0.014271765061	-1	0.075667418454	2.160447495793
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12500	0.000487829858	0.012206805802	-1	0.074848480370	2.048147460373
13000	0.000470942659	0.011658922234	-1	0.074464565104	2.014079535878
13500	0.000455371184	0.011165397644	-1	0.074031615426	1.981318050178
14000	0.000440963443	0.010718219508	-1	0.073560013073	1.949769152938
14500	0.000427598722	0.010311603928	-1	0.073052351856	1.919280705737
15000	0.000415173584	0.009940874068	-1	0.072510519813	1.889742212079
16000	0.000392787698	0.009291163138	-1	0.071332776503	1.833104139457
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18000	0.000355947021	0.008276810325	-1	0.068653638916	1.727647755366
19000	0.000340649101	0.007877886552	-1	0.067179835569	1.678044546655
20000	0.000327009964	0.007534786601	-1	0.065633180007	1.630174381368
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23000	0.000242837134	0.004400671816	-1	0.104261319469	2.118104176420
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80000	0.000054483483	0.000631049133	-1	0.190919927151	2.734691761604
85000	0.000050004797	0.000568111998	-1	0.199756638558	2.837437946149
90000	0.000046029804	0.000513971949	-1	0.208771252141	2.947624077507

95000	0.000042480781	0.000467083358	-1	0.217945092346	3.065463214985
100000	0.000039298254	0.000426256970	-1	0.227236160341	3.190780323922
105000	0.000036412053	0.000390274897	-1	0.236813507293	3.327016034558
110000	0.000033790458	0.000358508447	-1	0.246587679829	3.473641247840
115000	0.000031413953	0.000330479188	-1	0.256389623079	3.628326687695
120000	0.000029253237	0.000305644826	-1	0.266189747338	3.791147482649
125000	0.000027273800	0.000283456061	-1	0.276085526516	3.964676176415
130000	0.000025456890	0.000263574911	-1	0.286039652182	4.149103526376
135000	0.000023785162	0.000245698647	-1	0.296034208547	4.344935711421
140000	0.000022244090	0.000229578779	-1	0.306043986855	4.552595227864
145000	0.000020820616	0.000214996857	-1	0.316052862241	4.772655011377
150000	0.000019503662	0.000201771419	-1	0.326039077665	5.005616430830
155000	0.000018283226	0.000189742387	-1	0.335987901555	5.252107832900
160000	0.000017150856	0.000178775851	-1	0.345878136364	5.512615402244
165000	0.000016098805	0.000168752619	-1	0.355695658197	5.787762125713
170000	0.000015120257	0.000159571362	-1	0.365424569872	6.078172337430
175000	0.000014208975	0.000151141721	-1	0.375054145191	6.384584843643
180000	0.000013359671	0.000143386632	-1	0.384568103851	6.707530066160
185000	0.000012567467	0.000136237167	-1	0.393954735114	7.047625549441
190000	0.000011828138	0.000129635648	-1	0.403197177751	7.405354443288
195000	0.000011137616	0.000123528604	-1	0.412286746469	7.781404358504
200000	0.000010491609	0.000117862158	-1	0.421236606225	8.177187626974
205000	0.000009886117	0.000112588519	-1	0.430065114637	8.594526481417
210000	0.000009318732	0.000107677009	-1	0.438749662675	9.033770928920
215000	0.000008787443	0.000103101571	-1	0.447260481460	9.494754335956
220000	0.000008289977	0.000098835666	-1	0.455581377503	9.977750879992
225000	0.000007824347	0.000094855379	-1	0.463694132589	10.482641400549
230000	0.000007388524	0.000091137695	-1	0.471587944703	11.009477736786
235000	0.000006980493	0.000087660738	-1	0.479258471921	11.558504485358
240000	0.000006598529	0.000084405170	-1	0.486697957766	12.129481349131
245000	0.000006240725	0.000081351728	-1	0.493911425734	12.722923631500
250000	0.000005905219	0.000078482404	-1	0.500908787373	13.339714249075
255000	0.000005590255	0.000075780656	-1	0.507703368895	13.981069195987

260000	0.000005294350	0.000073232351	-1	0.514305089526	14.647958611954
265000	0.000005016105	0.000070824586	-1	0.520726044698	15.341629211981
270000	0.000004754135	0.000068545197	-1	0.526982880516	16.063968228840
275000	0.000004507104	0.000066382895	-1	0.533095185839	16.817517962116
280000	0.000004273704	0.000064327094	-1	0.539086340241	17.605743197074
285000	0.000004052659	0.000062367869	-1	0.544983582048	18.433277778304
290000	0.000003842766	0.000060496105	-1	0.550815541387	19.305877591142
295000	0.000003642847	0.000058703218	-1	0.556614941081	20.231064688493
300000	0.000003451796	0.000056981333	-1	0.562415681699	21.218093640987

Electron Elastic Scattering Sampling Data
Solution for Z = 16

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.049495975146	0.338026098169	+1	0.202185423924	2.206541148855
52	0.048480341701	0.299111923512	+1	0.204233615612	1.961986283204
54	0.047491920304	0.268319864195	+1	0.206129026230	1.776235052070
56	0.046533987040	0.243566157765	+1	0.207859444722	1.632036069034
58	0.045608836769	0.223397052218	+1	0.209417599381	1.518073019655
60	0.044717853623	0.206773626065	+1	0.210800611206	1.426678487926
62	0.043861626063	0.192939549832	+1	0.212009389982	1.352527460851
64	0.043040187964	0.181325320886	+1	0.213046575112	1.291749474274
66	0.042252977382	0.171507679231	+1	0.213918094201	1.241589323729
68	0.041499116862	0.163159490016	+1	0.214630869563	1.199975018918
70	0.040777493989	0.156023122186	+1	0.215192287931	1.165307391668
72	0.040086799941	0.149898956224	+1	0.215610959418	1.136387976933
74	0.039425613116	0.144625153319	+1	0.215895196996	1.112254353106
76	0.038792674122	0.140071061107	+1	0.216052942169	1.092132156438
78	0.038185878615	0.136136943216	+1	0.216095204803	1.075500410501
80	0.037604408073	0.132730578778	+1	0.216027638670	1.061782625255
82	0.037046596581	0.129782953559	+1	0.215859305681	1.050613234832
84	0.036511089690	0.127234225231	+1	0.215597678667	1.041656620397
86	0.035996561362	0.125034655957	+1	0.215250148583	1.034639827456
88	0.035501757731	0.123142214982	+1	0.214823632534	1.029332895455
90	0.035025515590	0.121520998928	+1	0.214324528841	1.025538172377
92	0.034566695775	0.120140684906	+1	0.213759122365	1.023093562790
94	0.034124281799	0.118975068531	+1	0.213133013942	1.021855579348
96	0.033697285434	0.118001644798	+1	0.212451617544	1.021703801101
98	0.033284790938	0.117200922097	+1	0.211719984827	1.022534056438
100	0.032885953441	0.116555771773	+1	0.210942766228	1.024253667290
105	0.031943516236	0.115531292441	+1	0.208828287386	1.031956326933
110	0.031070790595	0.115207541049	+1	0.206514915929	1.043778806646

115	0.030258543591	0.115447022197	+1	0.204053213663	1.059002154774
120	0.029499251360	0.116150366711	+1	0.201484075916	1.077118309811
125	0.028786530525	0.117240169636	+1	0.198841623097	1.097734483709
130	0.028115097279	0.118659722646	+1	0.196153568680	1.120580676477
135	0.027480444275	0.120363243613	+1	0.193442809174	1.145441314531
140	0.026878810916	0.122317070379	+1	0.190727748490	1.172175465800
145	0.026306954857	0.124493262433	+1	0.188023463482	1.200669345796
150	0.025762140204	0.126871384916	+1	0.185341903545	1.230857191200
155	0.025241979335	0.129434062912	+1	0.182692735033	1.262686671834
160	0.024744435389	0.132168713164	+1	0.180083457160	1.296136867783
165	0.024267713187	0.135064538781	+1	0.177520010242	1.331194555178
170	0.023810255085	0.138113970023	+1	0.175006820652	1.367868840998
175	0.023370680543	0.141310335726	+1	0.172547238766	1.406171052629
180	0.022947776202	0.144648995935	+1	0.170143638757	1.446127136981
185	0.022540448044	0.148126047393	+1	0.167797648171	1.487766906832
190	0.022147740820	0.151739526874	+1	0.165510048298	1.531133806239
195	0.021768773084	0.155487643481	+1	0.163281305684	1.576273597944
200	0.021402725672	0.159367634614	+1	0.161111782949	1.623223834434
205	0.021048850824	0.163377135328	+1	0.159001482203	1.672025252246
210	0.020706526298	0.167517322566	+1	0.156949371840	1.722744379273
215	0.020375134877	0.171791553710	+1	0.154954534512	1.775480985747
220	0.020054292084	0.176198275507	+1	0.153014765584	1.830244330805
225	0.019743345534	0.180742881605	+1	0.151129758765	1.887181159082
230	0.019441873278	0.185425958638	+1	0.149297984717	1.946349706096
235	0.019149429898	0.190248984038	+1	0.147518202477	2.007830042065
240	0.018865597623	0.195213271807	+1	0.145789197000	2.071703338986
245	0.018589981679	0.200319754719	+1	0.144109737948	2.138048805236
250	0.018322209597	0.205569134326	+1	0.142478627662	2.206946143403
255	0.018061939694	0.210962287168	+1	0.140894600439	2.278477556606
260	0.017808861965	0.216502127111	+1	0.139356080955	2.352746112057
265	0.017562691456	0.222192132079	+1	0.137861471429	2.429862890899
270	0.017323154679	0.228035799107	+1	0.136409268901	2.509944135963
275	0.017089994957	0.234036850217	+1	0.134998066206	2.593113495492

280	0.016862964491	0.240198776638	+1	0.133626455304	2.679495302280
285	0.016641831105	0.246525305083	+1	0.132293145895	2.769222392501
290	0.016426373449	0.253020059880	+1	0.130996866149	2.862430323554
295	0.016216381142	0.259686773350	+1	0.129736438269	2.959262126481
300	0.016011652058	0.266529196563	+1	0.128510716818	3.059866355011
310	0.015617230983	0.280757076726	+1	0.126158763197	3.273017061980
320	0.015241684470	0.295740780428	+1	0.123931914091	3.503258881817
330	0.014883718851	0.311520777758	+1	0.121821683319	3.752116696900
340	0.014542162256	0.328139843594	+1	0.119820316752	4.021266072454
350	0.014215943371	0.345643435837	+1	0.117920724048	4.312555638148
360	0.013904085022	0.364080165465	+1	0.116116284443	4.628024232350
370	0.013605677364	0.383505772078	+1	0.114400777659	4.969989002464
380	0.013319886090	0.403981248571	+1	0.112768426250	5.341041705655
390	0.013045949018	0.425572893445	+1	0.111213931802	5.744080560162
400	0.012783166483	0.448352798738	+1	0.109732371599	6.182348919888
410	0.012530890254	0.472399914491	+1	0.108319221304	6.659498266233
420	0.012288514942	0.497801272049	+1	0.106970277476	7.179656959986
430	0.012055475377	0.524652791018	+1	0.105681615501	7.747499668822
440	0.011831255353	0.553060263697	+1	0.104449620808	8.368327950251
450	0.011615375310	0.583140633005	+1	0.103270933059	9.048174853333
460	0.011407391165	0.615023494250	+1	0.102142412599	9.793924426857
470	0.011206882229	0.648852578809	+1	0.101061184662	10.613467384628
480	0.011013457320	0.684787948034	+1	0.100024545053	11.515867668063
490	0.010826752305	0.723008725168	+1	0.099030003589	12.511591396919
500	0.010646432575	0.763716293657	+1	0.098075204064	13.612764193923
510	0.010472179085	0.807137528631	+1	0.097157980881	14.833513863290
520	0.010303691326	0.853528876336	+1	0.096276357653	16.190371086821
530	0.010140701674	0.903170920741	+1	0.095428267689	17.702389437400
540	0.009982936239	0.956398524559	+1	0.094612125688	19.392598976716
550	0.009830155563	1.013585046488	+1	0.093826218326	21.287965895770
560	0.009682129751	1.075161558966	+1	0.093069000469	23.420754246523
570	0.009538641083	1.141621129344	+1	0.092338999931	25.829540380275
580	0.009399485637	1.213535832169	+1	0.091634882147	28.560931679035

590	0.009264471245	1.291573330758	+1	0.090955381655	31.671629305734
600	0.009133416941	1.376516227930	+1	0.090299281491	35.231083955406
610	0.009006153081	1.469289291776	+1	0.089665465070	39.325145128404
620	0.008882517566	1.570986682743	+1	0.089052886884	44.060609255229
630	0.008762356923	1.682917200834	+1	0.088460557775	49.571769314969
640	0.008645527761	1.806661061773	+1	0.087887522111	56.029326269718
650	0.008531894070	1.944149654008	+1	0.087332928831	63.653183059949
660	0.008421326533	2.097757574189	+1	0.086795918243	72.729676263248
670	0.008313703057	2.270437328583	+1	0.086275733795	83.637043912574
680	0.008208906377	2.465908298227	+1	0.085771618115	96.882884680241
690	0.008106829149	2.688929578603	+1	0.085282865766	113.161106997345
700	0.008007362659	2.945707832474	+1	0.084808873563	133.441490732487
710	0.007910410628	3.244440968645	+1	0.084348968718	159.106969388239
720	0.007815878347	3.596221402864	+1	0.083902564627	192.186086503646
730	0.007723676142	4.016431280403	+1	0.083469111080	235.748193085224
740	0.007633717606	4.527047055643	+1	0.083048076357	294.613335194528
750	0.007545922723	5.160603304033	+1	0.082638954508	376.696024674193
760	0.007460212768	5.967394488042	+1	0.082241287566	495.721113806196
770	0.007376514404	7.029414381270	+1	0.081854612694	677.160632316148
780	0.007294757152	8.490132771157	+1	0.081478501422	972.686896629127
790	0.007214874550	10.625364499677	+1	0.081112539852	1500.462606235246
800	0.007136801291	14.041752306257	+1	0.080756339568	2581.509052467808
810	0.007060476011	20.384985441597	+1	0.080409558883	5360.966119170597
820	0.006985841135	36.228283035882	+1	0.080071808912	16688.004251516471
830	0.006921839766	89.859180650393	+1	0.079551978420	101243.158263080780
840	0.006841419355	74.206470005471	-1	0.079422145338	69898.971041627970
850	0.006771527790	29.489508469581	-1	0.079109611450	11329.785248752114
860	0.006703115937	18.341644395587	-1	0.078804885025	4497.332870841740
870	0.006636137355	13.279226641272	-1	0.078507696857	2418.299639845773
880	0.006570546602	10.388178746854	-1	0.078217767132	1517.836708314901
890	0.006506300684	8.518425705587	-1	0.077934844536	1046.511245364983
900	0.006443358287	7.210190707326	-1	0.077658689807	768.593622036329
910	0.006381678426	6.243648861138	-1	0.077389088808	590.689660642635

920	0.006321224848	5.500510556838	-1	0.077125808595	469.753287852858
930	0.006261959535	4.911425393831	-1	0.076868641190	383.675574589426
940	0.006203848682	4.433060823222	-1	0.076617363400	320.144898283399
950	0.006146856771	4.036914752909	-1	0.076371826400	271.853992614747
960	0.006090952718	3.703511373946	-1	0.076131832548	234.244654896490
970	0.006036104167	3.419074899120	-1	0.075897187507	204.350203797361
980	0.005982281528	3.173583421164	-1	0.075667737132	180.170827461735
990	0.005929455617	2.959568830515	-1	0.075443336339	160.317653095218
1000	0.005877598100	2.771365555589	-1	0.075223809614	143.802390945345
1025	0.005752019309	2.387241124688	-1	0.074695395476	112.834071647282
1050	0.005631939468	2.092370629557	-1	0.074194313310	91.555385147287
1075	0.005516999551	1.859039695375	-1	0.073718541809	76.251825952762
1100	0.005406869919	1.669893873847	-1	0.073266366829	64.840272584291
1125	0.005301247178	1.513530337536	-1	0.072836232860	56.077934693285
1150	0.005199856453	1.382185558439	-1	0.072426621484	49.186748799874
1175	0.005102444813	1.270364210121	-1	0.072036132171	43.657057041598
1200	0.005008777463	1.174055795886	-1	0.071663531105	39.142685914080
1225	0.004918636559	1.090269036080	-1	0.071307779106	35.401799190472
1250	0.004831824412	1.016749235066	-1	0.070967765196	32.262021517519
1275	0.004748155799	0.951748529951	-1	0.070642513323	29.596968983746
1300	0.004667460070	0.893887393496	-1	0.070331142717	27.311994040553
1325	0.004589575952	0.842063962444	-1	0.070032949235	25.335146105810
1350	0.004514357542	0.795401229026	-1	0.069747085282	23.611343445861
1375	0.004441667213	0.753180761554	-1	0.069472876104	22.097412339193
1400	0.004371376393	0.714808676342	-1	0.069209661164	20.759066203029
1425	0.004303364704	0.679789197555	-1	0.068956924948	19.568795016526
1450	0.004237521151	0.647713477524	-1	0.068714057119	18.504563673941
1475	0.004173741918	0.618234937811	-1	0.068480524279	17.548330414157
1500	0.004111928867	0.591057249650	-1	0.068255850356	16.685177950192
1550	0.003993838910	0.542624631226	-1	0.067831483103	15.190604458970
1600	0.003882585402	0.500790962581	-1	0.067437579272	13.944303048404
1650	0.003777575936	0.464322779660	-1	0.067071434659	12.891258632032
1700	0.003678290146	0.432280083496	-1	0.066730430180	11.991388806974

1750	0.003584260079	0.403923374997	-1	0.066412464505	11.214594814424
1800	0.003495070382	0.378670712526	-1	0.066115519599	10.538076686576
1850	0.003410346963	0.356052090024	-1	0.065837987598	9.944137394885
1900	0.003329759060	0.335693917130	-1	0.065578037317	9.419097531964
1950	0.003253003846	0.317284462312	-1	0.065334313749	8.951964750313
2000	0.003179799281	0.300554859620	-1	0.065106205755	8.533634833227
2100	0.003043056411	0.271295000948	-1	0.064694221799	7.815745824207
2200	0.002917863716	0.246643372022	-1	0.064330742712	7.223996322707
2300	0.002802833551	0.225669912879	-1	0.064005412826	6.729420898701
2400	0.002696763748	0.207644487661	-1	0.063712172514	6.310445672261
2500	0.002598599571	0.191982933189	-1	0.063449592069	5.950642788209
2600	0.002507427093	0.178229181697	-1	0.063218682007	5.637673119789
2700	0.002422526790	0.166080014030	-1	0.063014599224	5.363331893398
2800	0.002343283141	0.155297415998	-1	0.062832105994	5.121309158969
2900	0.002269149205	0.145678105955	-1	0.062667845536	4.906374936312
3000	0.002199633193	0.137047073415	-1	0.062520399393	4.714152457641
3100	0.002134298658	0.129257668859	-1	0.062389512837	4.541061548436
3200	0.002072782236	0.122203132092	-1	0.062272600062	4.384511994459
3300	0.002014763470	0.115794356795	-1	0.062167070637	4.242367556562
3400	0.001959951215	0.109951762651	-1	0.062071449275	4.112754690290
3500	0.001908079518	0.104604020390	-1	0.061985370111	3.994019992770
3600	0.001858907490	0.099689319364	-1	0.061909057355	3.884754202293
3700	0.001812231939	0.095161977910	-1	0.061841020645	3.783919742787
3800	0.001767871206	0.090982864910	-1	0.061779660076	3.690629823324
3900	0.001725657773	0.087116049669	-1	0.061724025542	3.604078634913
4000	0.001685436270	0.083528397727	-1	0.061673835875	3.523529305973
4100	0.001647064970	0.080190499744	-1	0.061629103263	3.448332526457
4200	0.001610421001	0.077079683176	-1	0.061588912219	3.377994188383
4300	0.001575392458	0.074176042498	-1	0.061552315845	3.312081717826
4400	0.001541875428	0.071460955580	-1	0.061518745801	3.250189178470
4500	0.001509772706	0.068916892971	-1	0.061488130979	3.191937594703
4600	0.001478994322	0.066528118131	-1	0.061460512210	3.136987751907
4700	0.001449461647	0.064282300554	-1	0.061435243037	3.085075688074

4800	0.001421102082	0.062168335867	-1	0.061411762617	3.035966909453
4900	0.001393847435	0.060175807847	-1	0.061389661503	2.989438099911
5000	0.001367634117	0.058294741089	-1	0.061368906731	2.945275938166
5500	0.001250284365	0.050288344629	-1	0.061277780529	2.754167583628
6000	0.001151798472	0.044079149892	-1	0.061189167272	2.601277316917
6500	0.001068008219	0.039151593930	-1	0.061085569446	2.475727216624
7000	0.000995665892	0.035131388077	-1	0.061011008852	2.370787704553
7500	0.000932509530	0.031787532546	-1	0.060975424078	2.281743858903
8000	0.000877059932	0.028991551543	-1	0.060923837161	2.204751732684
8500	0.000828004871	0.026625453839	-1	0.060852575107	2.137282330444
9000	0.000784314027	0.024602050483	-1	0.060759253374	2.077454674528
9500	0.000745166793	0.022855682313	-1	0.060642411334	2.023844180757
10000	0.000709902040	0.021336070236	-1	0.060501159066	1.975349410266
10500	0.000677979476	0.020003854349	-1	0.060335395932	1.931096185962
11000	0.000648957898	0.018829056449	-1	0.060143997784	1.890438628557
11500	0.000622465381	0.017786186741	-1	0.059928334635	1.852785718330
12000	0.000598194354	0.016855934451	-1	0.059688157939	1.817717996957
12500	0.000575882735	0.016021855093	-1	0.059424445382	1.784856108573
13000	0.000555309868	0.015270988813	-1	0.059137366316	1.753914432520
13500	0.000536285052	0.014592080280	-1	0.058828052970	1.724628838641
14000	0.000518645456	0.013976161827	-1	0.058496956001	1.696803069222
14500	0.000502249265	0.013415341304	-1	0.058145221002	1.670251618783
15000	0.000486974583	0.012903266920	-1	0.057773347199	1.644833962485
16000	0.000459400847	0.012007796867	-1	0.056953890883	1.596784842622
17000	0.000435245651	0.011258939587	-1	0.056018687942	1.551693622009
18000	0.000413889968	0.010621360069	-1	0.055013080027	1.509190822277
19000	0.000394891845	0.010074857372	-1	0.053944459072	1.468835112224
20000	0.000377896672	0.009603857797	-1	0.052819891602	1.430291324648
21000	0.000325637463	0.006614327970	-1	0.077372692013	1.714093363944
22000	0.000310361947	0.006197514469	-1	0.078320878157	1.706849987260
23000	0.000295841851	0.005794782072	-1	0.079291875763	1.696153402901
24000	0.000282251044	0.005415329664	-1	0.080311703352	1.684032464122
25000	0.000269736574	0.005069529552	-1	0.081377504805	1.672915838018

26000	0.000258377871	0.004765767477	-1	0.082451384495	1.664941713331
27000	0.000248045520	0.004500409738	-1	0.083501578168	1.660068610854
28000	0.000238575671	0.004266521625	-1	0.084513945503	1.657562172047
29000	0.000229821452	0.004057052352	-1	0.085490963127	1.656574031499
30000	0.000221646185	0.003864840162	-1	0.086456814583	1.656229132882
31000	0.000213921550	0.003683414855	-1	0.087462146912	1.656033800845
32000	0.000206623426	0.003512075135	-1	0.088500877953	1.655802143185
33000	0.000199729130	0.003350809480	-1	0.089569593286	1.655725152972
34000	0.000193225599	0.003199847500	-1	0.090654971745	1.655888526317
35000	0.000187095004	0.003059247097	-1	0.091746378831	1.656454455881
36000	0.000181311498	0.002928709177	-1	0.092839675310	1.657646023294
37000	0.000175848577	0.002807433695	-1	0.093930365572	1.659419798100
38000	0.000170678550	0.002694428481	-1	0.095018694103	1.661696284575
39000	0.000165775394	0.002588713681	-1	0.096107752125	1.664395491502
40000	0.000161114550	0.002489321822	-1	0.097203946565	1.667440395055
41000	0.000156674067	0.002395409443	-1	0.098314832147	1.670774308312
42000	0.000152438715	0.002306573242	-1	0.099440645132	1.674395090077
43000	0.000148395660	0.002222524021	-1	0.100579620761	1.678310262690
44000	0.000144533070	0.002142981553	-1	0.101730057187	1.682521212115
45000	0.000140839968	0.002067671802	-1	0.102890447113	1.687023569798
46000	0.000137306045	0.001996325817	-1	0.104059734232	1.691811307229
47000	0.000133921450	0.001928680923	-1	0.105237212530	1.696876813992
48000	0.000130676911	0.001864479545	-1	0.106422752042	1.702210936154
49000	0.000127563653	0.001803468132	-1	0.107616931172	1.707803663562
50000	0.000124573401	0.001745399862	-1	0.108821000536	1.713644163130
55000	0.000111229419	0.001492711694	-1	0.115008548206	1.746412385087
60000	0.000100082264	0.001290470427	-1	0.121463709421	1.784819865907
65000	0.000090628291	0.001125850852	-1	0.128195297933	1.828602359750
70000	0.000082506368	0.000989938126	-1	0.135213037680	1.877690024297
75000	0.000075448086	0.000876302105	-1	0.142539838099	1.932304563874
80000	0.000069265275	0.000780498240	-1	0.150133605404	1.992013953750
85000	0.000063848417	0.000699743677	-1	0.157757297953	2.054078838597
90000	0.000059002407	0.000629984945	-1	0.165792265852	2.123236567859

95000	0.000054645398	0.000569448111	-1	0.174203099090	2.199412545492
100000	0.000050726147	0.000516898387	-1	0.182848280547	2.281202711757
105000	0.000047181205	0.000470991924	-1	0.191733134030	2.369031538028
110000	0.000043961574	0.000430708130	-1	0.200836563454	2.463116388914
115000	0.000041026666	0.000395192149	-1	0.210139263702	2.563613431603
120000	0.000038341950	0.000363749346	-1	0.219625131410	2.670841283117
125000	0.000035853879	0.000335511347	-1	0.229551299329	2.788927416830
130000	0.000033562446	0.000310323353	-1	0.239659962070	2.915202034195
135000	0.000031457151	0.000287883082	-1	0.249803169907	3.048111351197
140000	0.000029516554	0.000267798847	-1	0.259984371147	3.188253705877
145000	0.000027715296	0.000249679373	-1	0.270306579880	3.337918392551
150000	0.000026041548	0.000233300422	-1	0.280730872785	3.497336971895
155000	0.000024483979	0.000218456642	-1	0.291233300253	3.666951835277
160000	0.000023032720	0.000204973913	-1	0.301786865930	3.847199377480
165000	0.000021678721	0.000192697099	-1	0.312371013060	4.038613945528
170000	0.000020414190	0.000181494759	-1	0.322960782923	4.241679468346
175000	0.000019231942	0.000171249498	-1	0.333536753467	4.456969649450
180000	0.000018125658	0.000161860279	-1	0.344077412371	4.685031253885
185000	0.000017089519	0.000153237109	-1	0.354565624551	4.926491868143
190000	0.000016118649	0.000145305358	-1	0.364975178089	5.181812699557
195000	0.000015208380	0.000137995987	-1	0.375287813114	5.451566407337
200000	0.000014353547	0.000131238774	-1	0.385513391136	5.736945776268
205000	0.000013549736	0.000124974255	-1	0.395657487216	6.039129443607
210000	0.000012794539	0.000119164981	-1	0.405677851384	6.358132740866
215000	0.000012084649	0.000113771581	-1	0.415558964794	6.694773018784
220000	0.000011417701	0.000108761710	-1	0.425268613176	7.049171081193
225000	0.000010791302	0.000104104348	-1	0.434781571560	7.421477053929
230000	0.000010202544	0.000099767547	-1	0.444094197436	7.812564597069
235000	0.000009650037	0.000095728557	-1	0.453166555381	8.221530614355
240000	0.000009131447	0.000091961266	-1	0.461991725499	8.648614413493
245000	0.000008644495	0.000088441483	-1	0.470568196307	9.094180714705
250000	0.000008186931	0.000085146558	-1	0.478901177893	9.558840221855
255000	0.000007756588	0.000082055677	-1	0.487001037881	10.043465338966

260000	0.000007351571	0.000079150554	-1	0.494877887243	10.548887419701
265000	0.000006970026	0.000076414318	-1	0.502547176854	11.076318024733
270000	0.000006610129	0.000073831371	-1	0.510028749885	11.627443077231
275000	0.000006270067	0.000071387112	-1	0.517348454591	12.204650584451
280000	0.000005948067	0.000069068064	-1	0.524536270634	12.811116420073
285000	0.000005642394	0.000066861756	-1	0.531626432042	13.451017225298
290000	0.000005351356	0.000064756592	-1	0.538657744036	14.129785852096
295000	0.000005073340	0.000062741976	-1	0.545671248919	14.854229179944
300000	0.000004806776	0.000060808112	-1	0.552711976216	15.633043193596

Electron Elastic Scattering Sampling Data
Solution for Z = 17

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.056621940497	0.524541852513	+1	0.211935886286	3.594662098178
52	0.055590665576	0.446874262264	+1	0.213937985797	2.998815944342
54	0.054559038821	0.387171506323	+1	0.215855259115	2.569581156020
56	0.053532147190	0.340393595549	+1	0.217683531689	2.251097839524
58	0.052515905320	0.303121835124	+1	0.219410641428	2.008712489450
60	0.051515922844	0.272986593226	+1	0.221023651001	1.820213317561
62	0.050536999465	0.248312672855	+1	0.222511978501	1.670941122064
64	0.049582998545	0.227877701141	+1	0.223866864557	1.550818449331
66	0.048656762933	0.210794596084	+1	0.225084204384	1.452927279241
68	0.047760288413	0.196394547701	+1	0.226162002964	1.372285796212
70	0.046894809798	0.184164680514	+1	0.227100228640	1.305223891072
72	0.046060864552	0.173716237976	+1	0.227901872518	1.249078931605
74	0.045258559868	0.164738919749	+1	0.228570075251	1.201775172736
76	0.044487544479	0.156991432983	+1	0.229109905754	1.161758337050
78	0.043747174237	0.150279982439	+1	0.229526893919	1.127808789308
80	0.043036590329	0.144446820403	+1	0.229826760355	1.098951115026
82	0.042354743368	0.139365788682	+1	0.230016137112	1.074430757399
84	0.041700512609	0.134931068221	+1	0.230101090548	1.053615483969
86	0.041072690157	0.131056329299	+1	0.230088080185	1.036003226965
88	0.040470020634	0.127669501481	+1	0.229983484274	1.021180726262
90	0.039891304808	0.124709268709	+1	0.229793123276	1.008793915386
92	0.039335272322	0.122125022464	+1	0.229523183121	0.998562054049
94	0.038800753116	0.119872781694	+1	0.229179082004	0.990235166375
96	0.038286572944	0.117915507369	+1	0.228766288240	0.983608319782
98	0.037791612425	0.116221312116	+1	0.228289961442	0.978505274997
100	0.037314799968	0.114762610012	+1	0.227754962370	0.974773783407
105	0.036195624202	0.111997161998	+1	0.226190230060	0.970627308024
110	0.035169412206	0.110264552861	+1	0.224349919023	0.972626122205

115	0.034223607086	0.109350453824	+1	0.222290135302	0.979606616314
120	0.033347749813	0.109096849203	+1	0.220056744899	0.990695806604
125	0.032532850854	0.109383405115	+1	0.217689103897	1.005227627796
130	0.031771407183	0.110120206081	+1	0.215219895334	1.022707675877
135	0.031056990825	0.111235800068	+1	0.212676871557	1.042739957845
140	0.030384240346	0.112675979234	+1	0.210082929460	1.065029723963
145	0.029748546297	0.114396173760	+1	0.207457460487	1.089332975496
150	0.029146030770	0.116362413594	+1	0.204816362106	1.115472112616
155	0.028573345205	0.118545917081	+1	0.202173057537	1.143295896534
160	0.028027653824	0.120924764445	+1	0.199538479566	1.172698504459
165	0.027506452990	0.123480261425	+1	0.196921890197	1.203594087482
170	0.027007656149	0.126197787212	+1	0.194330512761	1.235918728012
175	0.026529387364	0.129064874762	+1	0.191770516392	1.269625106029
180	0.026070027241	0.132071978413	+1	0.189246787546	1.304686220692
185	0.025628153629	0.135210534484	+1	0.186763259370	1.341078324429
190	0.025202523512	0.138475263651	+1	0.184322848114	1.378805412361
195	0.024792033158	0.141860758337	+1	0.181927878151	1.417866043836
200	0.024395636075	0.145360468363	+1	0.179580486320	1.458249375771
205	0.024012401778	0.148968254380	+1	0.177282148562	1.499943934189
210	0.023641590672	0.152683739853	+1	0.175033357629	1.542988804383
215	0.023282541575	0.156507839512	+1	0.172834205550	1.587434652705
220	0.022934626819	0.160441321894	+1	0.170684673230	1.633332832296
225	0.022597270434	0.164484659307	+1	0.168584624665	1.680732007295
230	0.022269929394	0.168637991121	+1	0.166533776577	1.729678236391
235	0.021952098229	0.172901134604	+1	0.164531769962	1.780215190024
240	0.021643300912	0.177273474725	+1	0.162578119581	1.832382431382
245	0.021343095564	0.181753998529	+1	0.160672289009	1.886215924632
250	0.021051068949	0.186341146990	+1	0.158813656672	1.941745790121
255	0.020766842937	0.191033657298	+1	0.157001451291	1.999004315442
260	0.020490096659	0.195833119698	+1	0.155234552777	2.058051182314
265	0.020220541752	0.200741750744	+1	0.153511767053	2.118952463508
270	0.019957896261	0.205761891879	+1	0.151831942683	2.181778858663
275	0.019701895411	0.210895799137	+1	0.150193975181	2.246602159037

280	0.019452289093	0.216145794041	+1	0.148596826476	2.313497744424
285	0.019208827928	0.221514051208	+1	0.147039409363	2.382541574817
290	0.018971286564	0.227002806666	+1	0.145520758881	2.453813136204
295	0.018739443967	0.232614296266	+1	0.144039902790	2.527394762538
300	0.018513089190	0.238350578619	+1	0.142595872298	2.603368814770
310	0.018076077202	0.250206822510	+1	0.139814395439	2.762843664714
320	0.017658827782	0.262593343467	+1	0.137167878745	2.932981007966
330	0.017260061909	0.275533891566	+1	0.134648314401	3.114590555648
340	0.016878601324	0.289053193830	+1	0.132248323496	3.308550454479
350	0.016513359588	0.303176980127	+1	0.129961070927	3.515812371899
360	0.016163344481	0.317932781437	+1	0.127780207614	3.737416238884
370	0.015827645640	0.333351362615	+1	0.125699298693	3.974500219799
380	0.015505434793	0.349466442541	+1	0.123712419087	4.228321582577
390	0.015195938068	0.366314259734	+1	0.121814039749	4.500263009306
400	0.014898443281	0.383933927744	+1	0.119999131055	4.791851714562
410	0.014612286225	0.402367602872	+1	0.118262962208	5.104770916380
420	0.014336849788	0.421660264585	+1	0.116600996056	5.440864607089
430	0.014071561663	0.441860223350	+1	0.115008937217	5.802162292626
440	0.013815888341	0.463020436228	+1	0.113482878154	6.190929503429
450	0.013569334559	0.485198530251	+1	0.112019149005	6.609683180611
460	0.013331437714	0.508457338577	+1	0.110614366753	7.061231913136
470	0.013101760070	0.532864074924	+1	0.109265279150	7.548682754774
480	0.012879895428	0.558492090729	+1	0.107968866409	8.075508359225
490	0.012665462683	0.585421771814	+1	0.106722290967	8.645602665213
500	0.012458104769	0.613742436682	+1	0.105522975439	9.263373425047
510	0.012257490202	0.643551352206	+1	0.104368442184	9.933761868934
520	0.012063300538	0.674954361777	+1	0.103256384976	10.662331600622
530	0.011875240001	0.708067188198	+1	0.102184631035	11.455356271568
540	0.011693028049	0.743018989463	+1	0.101151137512	12.319990733764
550	0.011516404540	0.779953019535	+1	0.100154017870	13.264391618022
560	0.011345122673	0.819028959460	+1	0.099191504322	14.297901271846
570	0.011178947691	0.860421275963	+1	0.098261888679	15.431145893838
580	0.011017658411	0.904325346849	+1	0.097363590742	16.676370747394

590	0.010861045279	0.950960548966	+1	0.096495139480	18.047740913199
600	0.010708913906	1.000573484024	+1	0.095655122229	19.561678760802
610	0.010561078465	1.053443099293	+1	0.094842238604	21.237355431642
620	0.010417361245	1.109880100160	+1	0.094055230173	23.097051614236
630	0.010277594115	1.170239091682	+1	0.093292938509	25.167018843867
640	0.010141620061	1.234923208910	+1	0.092554256067	27.478225475459
650	0.010009288868	1.304395639522	+1	0.091838149039	30.067523529815
660	0.009880458861	1.379188381923	+1	0.091143613435	32.978911451267
670	0.009754992844	1.459913495740	+1	0.090469746982	36.265211993800
680	0.009632762559	1.547279443014	+1	0.089815644536	39.990209602532
690	0.009513646216	1.642116646310	+1	0.089180490035	44.231771087232
700	0.009397527206	1.745401639297	+1	0.088563495030	49.085562030890
710	0.009284293731	1.858289986629	+1	0.087963900341	54.670096048982
720	0.009173843525	1.982154366380	+1	0.087381016612	61.133304904808
730	0.009066072782	2.118641516952	+1	0.086814145973	68.661842127219
740	0.008960885585	2.269753941367	+1	0.086262693355	77.494386666830
750	0.008858194810	2.437929510855	+1	0.085725983691	87.938460689247
760	0.008757909329	2.626206583392	+1	0.085203508206	100.398452014358
770	0.008659947117	2.838366106489	+1	0.084694704974	115.410434738456
780	0.008564227890	3.079202080394	+1	0.084199041323	133.698855420180
790	0.008470677285	3.354893019602	+1	0.083716020296	156.261948918694
800	0.008379221394	3.673543328578	+1	0.083245180752	184.505699168512
810	0.008289790882	4.045974900597	+1	0.082786076387	220.458062433911
820	0.008202319862	4.486966472251	+1	0.082338279135	267.128304224018
830	0.008116744380	5.017261019760	+1	0.081901376336	329.135489282792
840	0.008033004030	5.666908247995	+1	0.081474969427	413.857789170330
850	0.007951038505	6.481224402859	+1	0.081058731437	533.677009652324
860	0.007870793428	7.531676859484	+1	0.080652269420	710.623370340380
870	0.007792215221	8.938147433212	+1	0.080255250574	987.022717373454
880	0.007715252543	10.918165953541	+1	0.079867355251	1452.747061288061
890	0.007639854684	13.911888669669	+1	0.079488281128	2327.030607271305
900	0.007565975658	18.964705275969	+1	0.079117722160	4267.172781476619
910	0.007493569201	29.312692271624	+1	0.078755401601	10061.311856369794

920	0.007422591461	62.432366429846	+1	0.078401061784	45054.009431566417
930	0.007368715619	160.075072596868	+1	0.077715856386	292695.929383167240
940	0.007310779321	149.071258493495	-1	0.077176650054	254057.274700698330
950	0.007249537324	48.276932799309	-1	0.076706156533	27066.135629142980
960	0.007152151374	18.392922713926	-1	0.077058323583	4134.352757744965
970	0.007087717564	13.849040820147	-1	0.076740144449	2394.655556305163
980	0.007024483749	11.090678784658	-1	0.076428525468	1568.697985287179
990	0.006962414967	9.238355623737	-1	0.076123291379	1111.617207854783
1000	0.006901480142	7.908776081822	-1	0.075824220948	831.862363365764
1025	0.006753900600	5.798671320642	-1	0.075102427709	470.798303859859
1050	0.006612761034	4.562320751295	-1	0.074415337750	306.508759877901
1075	0.006477645038	3.750563267827	-1	0.073760503646	217.631071691783
1100	0.006348170881	3.176969830051	-1	0.073135712923	163.904512082303
1125	0.006223986131	2.750279044649	-1	0.072539004197	128.811013085893
1150	0.006104771384	2.420641921119	-1	0.071968511194	104.545503081394
1175	0.005990230316	2.158466202135	-1	0.071422470409	87.016357666015
1200	0.005880089620	1.945045499420	-1	0.070899354122	73.904542617123
1225	0.005774095964	1.767989460372	-1	0.070397801735	63.814829936445
1250	0.005672016944	1.618804500392	-1	0.069916464658	55.867739536626
1275	0.005573636934	1.491445169312	-1	0.069454103266	49.484157587590
1300	0.005478755184	1.381481844159	-1	0.069009643513	44.269260227768
1325	0.005387183344	1.285601314621	-1	0.068582109775	39.946427909517
1350	0.005298750280	1.201295541272	-1	0.068170502251	36.317810924813
1375	0.005213294336	1.126615106819	-1	0.067773938047	33.238045438450
1400	0.005130665085	1.060018440161	-1	0.067391594417	30.598120130785
1425	0.005050720673	1.000271964299	-1	0.067022795350	28.315049083770
1450	0.004973331268	0.946389336276	-1	0.066666773572	26.325118811075
1475	0.004898373836	0.897562274086	-1	0.066322882671	24.578378989310
1500	0.004825733546	0.853121615508	-1	0.065990500572	23.035142846454
1550	0.004686976187	0.775258334212	-1	0.065358188962	20.438042071207
1600	0.004556276311	0.709339884081	-1	0.064765601753	18.345198439643
1650	0.004432936684	0.652855709719	-1	0.064209211472	16.628698001604
1700	0.004316341467	0.603957376027	-1	0.063685763157	15.199647609959

1750	0.004205939451	0.561239705589	-1	0.063192527052	13.994183053885
1800	0.004101241081	0.523626763080	-1	0.062727001249	12.965702294596
1850	0.004001805301	0.490273697382	-1	0.062286997718	12.079296512691
1900	0.003907240440	0.460520114284	-1	0.061870352125	11.308686090794
1950	0.003817189683	0.433828283960	-1	0.061475275122	10.633381582714
2000	0.003731322245	0.409744964842	-1	0.061100680669	10.036931669077
2100	0.003570978213	0.368010152976	-1	0.060408737404	9.031806322186
2200	0.003424224612	0.333219144469	-1	0.059781810696	8.221008110269
2300	0.003289411225	0.303876888520	-1	0.059208601093	7.555815097535
2400	0.003165119282	0.278842288461	-1	0.058681661532	7.001305126032
2500	0.003050115283	0.257224939760	-1	0.058197499268	6.531781668011
2600	0.002943334527	0.238341230502	-1	0.057754978785	6.128427688256
2700	0.002843921906	0.221735938704	-1	0.057348710984	5.778764816105
2800	0.002751145010	0.207055127285	-1	0.056973257667	5.473353393255
2900	0.002664357679	0.194001798498	-1	0.056624676237	5.204558004440
3000	0.002582983196	0.182323171341	-1	0.056300804167	4.966119555183
3100	0.002506510968	0.171809832652	-1	0.056000440886	4.753001990842
3200	0.002434510777	0.162308939850	-1	0.055720803681	4.561558598359
3300	0.002366604097	0.153694021611	-1	0.055459101129	4.388817021390
3400	0.002302448041	0.145853033110	-1	0.055213548361	4.232215328789
3500	0.002241731877	0.138686369296	-1	0.054983265432	4.089524183297
3600	0.002184175321	0.132108379080	-1	0.054767854928	3.958863986387
3700	0.002129538456	0.126055461344	-1	0.054565704193	3.838844396891
3800	0.002077606644	0.120473353035	-1	0.054375154202	3.728288187938
3900	0.002028182906	0.115312535938	-1	0.054195088072	3.626138713168
4000	0.001981086264	0.110527646263	-1	0.054024916217	3.531439661354
4100	0.001936151301	0.106078532993	-1	0.053864337201	3.443356882986
4200	0.001893233502	0.101934272197	-1	0.053712303676	3.361250489635
4300	0.001852201171	0.098067663780	-1	0.053567841207	3.284564363650
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9000	0.000923180731	0.032332292147	-1	0.050035542137	1.902566218739
9500	0.000876875509	0.030006201711	-1	0.049809683637	1.846015959519
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10500	0.000797256710	0.026204340321	-1	0.049350802531	1.749591750495
11000	0.000762799161	0.024636803482	-1	0.049113052882	1.707972978646
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12500	0.000675825972	0.020887389657	-1	0.048353277118	1.602078819445
13000	0.000651277552	0.019883466676	-1	0.048081566789	1.571710911134
13500	0.000628548527	0.018975341830	-1	0.047800017542	1.543268413289
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14500	0.000587812082	0.017400220757	-1	0.047206285827	1.491261539890
15000	0.000569496424	0.016714299582	-1	0.046894007147	1.467320545261
16000	0.000536339031	0.015508332712	-1	0.046239212453	1.422811270597
17000	0.000507143243	0.014485755110	-1	0.045545062223	1.382044813997
18000	0.000481257253	0.013611111053	-1	0.044813501377	1.344309901133
19000	0.000458163924	0.012857415463	-1	0.044046946679	1.309065601182
20000	0.000437517031	0.012217586941	-1	0.043201265988	1.275705024667
21000	0.000389764877	0.008711583087	-1	0.060002545703	1.438583747059
22000	0.000371695041	0.008153011978	-1	0.060675881801	1.427897369438
23000	0.000354552300	0.007617957279	-1	0.061319823120	1.413785159669
24000	0.000338529899	0.007116197526	-1	0.061973845089	1.398224928443
25000	0.000323781916	0.006659175676	-1	0.062663295025	1.383653513297

26000	0.000310379861	0.006256311334	-1	0.063388139774	1.372293523449
27000	0.000298166183	0.005902922598	-1	0.064128087536	1.364165857299
28000	0.000286950687	0.005590393776	-1	0.064866568976	1.358560510753
29000	0.000276565625	0.005309907099	-1	0.065597147245	1.354625940023
30000	0.000266860932	0.005052556179	-1	0.066326066114	1.351412868331
31000	0.000257716224	0.004810860264	-1	0.067069148163	1.348114338387
32000	0.000249082668	0.004583083920	-1	0.067832010138	1.344721972619
33000	0.000240931212	0.004369028955	-1	0.068614690077	1.341430787604
34000	0.000233236303	0.004168608760	-1	0.069414666483	1.338429142803
35000	0.000225975760	0.003981833266	-1	0.070226432771	1.335895091799
36000	0.000219128999	0.003808608852	-1	0.071041087187	1.333937160888
37000	0.000212644192	0.003647128896	-1	0.071872862869	1.332734887739
38000	0.000206502206	0.003496598905	-1	0.072710446546	1.332075365362
39000	0.000200675020	0.003355814102	-1	0.073553451173	1.331849327060
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42000	0.000184837593	0.002981028350	-1	0.076133583471	1.332770420275
43000	0.000180040862	0.002869668659	-1	0.077014831649	1.333541797579
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47000	0.000162858753	0.002480647802	-1	0.080652464574	1.339359629209
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50000	0.000151753078	0.002238322534	-1	0.083485467779	1.346361838271
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65000	0.000111370429	0.001422381702	-1	0.099193667631	1.408210924734
70000	0.000101691503	0.001244401189	-1	0.105024402386	1.437641873519
75000	0.000093277618	0.001096126282	-1	0.111168035142	1.471223598400
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90000	0.000073523295	0.000774545118	-1	0.131603569718	1.597628207360

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120000	0.000048642235	0.000433879127	-1	0.180858764308	1.970168057532
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130000	0.000042853812	0.000366819771	-1	0.199856188049	2.138717832892
135000	0.000040283785	0.000338699063	-1	0.209735314162	2.232093029923
140000	0.000037898152	0.000313527788	-1	0.219871378705	2.332277224469
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150000	0.000033564473	0.000270124773	-1	0.241442795949	2.562201103914
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160000	0.000029810476	0.000235055344	-1	0.263520186990	2.821911507648
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170000	0.000026529160	0.000206314786	-1	0.286068004197	3.116716985707
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180000	0.000023637155	0.000182460066	-1	0.309066176525	3.453477390472
185000	0.000022319990	0.000172048188	-1	0.320659580338	3.638965051897
190000	0.000021081116	0.000162511350	-1	0.332270239382	3.836562068434
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200000	0.000018816734	0.000145704934	-1	0.355456229762	4.270894441834
205000	0.000017779863	0.000138265502	-1	0.367040659234	4.509995602826
210000	0.000016801307	0.000131389177	-1	0.378586185282	4.764860019253
215000	0.000015878327	0.000125031339	-1	0.390045564260	5.035927871012
220000	0.000015008146	0.000119149129	-1	0.401378427116	5.323664985175
225000	0.000014189634	0.000113710229	-1	0.412509369026	5.627356652945
230000	0.000013419733	0.000108674291	-1	0.423415117890	5.947403771509
235000	0.000012695237	0.000104003006	-1	0.434085145186	6.284468551165
240000	0.000012013590	0.000099663825	-1	0.444500170702	6.638818701923
245000	0.000011372159	0.000095626129	-1	0.454650515045	7.010887879498
250000	0.000010767237	0.000091857015	-1	0.464565757785	7.402600930618
255000	0.000010197673	0.000088336533	-1	0.474211202985	7.813285128323

260000	0.000009660981	0.000085040617	-1	0.483599084116	8.243969864409
265000	0.000009154750	0.000081947383	-1	0.492747087909	8.696003781471
270000	0.000008676597	0.000079036757	-1	0.501679289838	9.171227495264
275000	0.000008224138	0.000076290230	-1	0.510426533520	9.672160230723
280000	0.000007795010	0.000073690737	-1	0.519026188458	10.202173023381
285000	0.000007386908	0.000071222706	-1	0.527520357735	10.765633663036
290000	0.000006997561	0.000068871801	-1	0.535956800812	11.368233831844
295000	0.000006624775	0.000066624975	-1	0.544387044640	12.017211722077
300000	0.000006266428	0.000064470326	-1	0.552866644453	12.721794935292

Electron Elastic Scattering Sampling Data
Solution for Z = 18

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.063268451748	0.916239528692	+1	0.221963254313	7.445770723202
52	0.062320555747	0.752127538781	+1	0.224209824750	5.752818433832
54	0.061371930011	0.628604401556	+1	0.226170743512	4.593533876402
56	0.060410015768	0.534234414021	+1	0.227977858179	3.778363382124
58	0.059432253952	0.460929387594	+1	0.229691489592	3.188955362267
60	0.058441214537	0.403063183699	+1	0.231334282206	2.751483225290
62	0.057442591985	0.356695957569	+1	0.232907448111	2.418942260979
64	0.056442691304	0.319026510696	+1	0.234404015345	2.160687908513
66	0.055447831160	0.288058167526	+1	0.235814821103	1.956441295288
68	0.054463820506	0.262323735706	+1	0.237129966125	1.792274121742
70	0.053495588507	0.240729971618	+1	0.238341347758	1.658424702394
72	0.052547294006	0.222461201220	+1	0.239443309094	1.547991249091
74	0.051621843318	0.206888211658	+1	0.240432577979	1.455917170183
76	0.050721901025	0.193525401584	+1	0.241306832898	1.378446083298
78	0.049849048383	0.181993546442	+1	0.242066376550	1.312776089747
80	0.049004368004	0.171989657801	+1	0.242712361549	1.256738878688
82	0.048188399270	0.163274881417	+1	0.243247734743	1.208690068018
84	0.047401312620	0.155652553857	+1	0.243675490712	1.167303337248
86	0.046642917016	0.148964609670	+1	0.243999783137	1.131548135020
88	0.045912752835	0.143080850021	+1	0.244225156107	1.100595246958
90	0.045210192858	0.137892367669	+1	0.244356069171	1.073760314969
92	0.044534419634	0.133310025209	+1	0.244397682357	1.050501774533
94	0.043884548221	0.129257341995	+1	0.244354648063	1.030354405038
96	0.043259594003	0.125670739246	+1	0.244231978207	1.012942365668
98	0.042658529821	0.122496204983	+1	0.244034595486	0.997950518862
100	0.042080314890	0.119687426383	+1	0.243767206705	0.985110462061
105	0.040727833823	0.114018762548	+1	0.242822353087	0.961017344304
110	0.039495873249	0.109909906024	+1	0.241532278263	0.946211340364

115	0.038369420360	0.107020236848	+1	0.239958165603	0.938820091691
120	0.037335320898	0.105097457466	+1	0.238149692249	0.937419778676
125	0.036381817954	0.103956322511	+1	0.236151380726	0.940983067179
130	0.035498854313	0.103456948171	+1	0.234000137821	0.948721011193
135	0.034677637625	0.103492010251	+1	0.231728303736	0.960031974899
140	0.033910739657	0.103978528636	+1	0.229362605992	0.974443181240
145	0.033191727989	0.104850076047	+1	0.226926107326	0.991573183057
150	0.032515160967	0.106054818318	+1	0.224438006073	1.011124407321
155	0.031876341097	0.107549741031	+1	0.221914706438	1.032845509608
160	0.031271275494	0.109301042264	+1	0.219369945169	1.056542730358
165	0.030696515885	0.111279741281	+1	0.216815338065	1.082045292567
170	0.030149104105	0.113463140396	+1	0.214260573436	1.109225541645
175	0.029626471928	0.115831327132	+1	0.211713914946	1.137969150133
180	0.029126389953	0.118368273595	+1	0.209182183652	1.168188763074
185	0.028646924942	0.121059805001	+1	0.206671085124	1.199805491548
190	0.028186403241	0.123896063023	+1	0.204185327239	1.232777579490
195	0.027743342760	0.126867290997	+1	0.201728825663	1.267057993021
200	0.027316369998	0.129961611902	+1	0.199304915947	1.302574081548
205	0.026904284478	0.133167853756	+1	0.196916236558	1.339253886290
210	0.026506117829	0.136483496334	+1	0.194564686400	1.377111033785
215	0.026121015994	0.139907849288	+1	0.192251809591	1.416177270398
220	0.025748177074	0.143440089648	+1	0.189978843207	1.456483598349
225	0.025386878301	0.147078777834	+1	0.187746738736	1.498052862309
230	0.025036448842	0.150822055818	+1	0.185556186678	1.540903017992
235	0.024696269863	0.154667462496	+1	0.183407651999	1.585044706267
240	0.024365771800	0.158611967975	+1	0.181301416684	1.630481560901
245	0.024044428480	0.162651796567	+1	0.179237554078	1.677207538463
250	0.023731752117	0.166782470973	+1	0.177215976630	1.725207530508
255	0.023427315043	0.170999811462	+1	0.175236391149	1.774466256854
260	0.023130749810	0.175304218566	+1	0.173298288060	1.825018407323
265	0.022841731957	0.179697149296	+1	0.171401072252	1.876909857328
270	0.022559947313	0.184180030811	+1	0.169544183577	1.930188748717
275	0.022285099959	0.188754124862	+1	0.167726958303	1.984901291497

280	0.022016907574	0.193420631300	+1	0.165948798082	2.041095554550
285	0.021755105256	0.198180695310	+1	0.164209098268	2.098820211235
290	0.021499438354	0.203035168381	+1	0.162507167556	2.158120888445
295	0.021249668150	0.207984952452	+1	0.160842416759	2.219046615550
300	0.021005564484	0.213030689303	+1	0.159214179304	2.281643871287
310	0.020533530535	0.223413727454	+1	0.156064278872	2.412050728008
320	0.020081884758	0.234196797656	+1	0.153050746059	2.549787120343
330	0.019649311920	0.245394600279	+1	0.150167003257	2.695347268922
340	0.019234604886	0.257021671363	+1	0.147406813477	2.849251456844
350	0.018836645758	0.269092866954	+1	0.144764446745	3.012060072101
360	0.018454413515	0.281623559128	+1	0.142234265839	3.184367368190
370	0.018087010745	0.294632458332	+1	0.139810400059	3.366826047821
380	0.017733611043	0.308140189429	+1	0.137487224235	3.560148756484
390	0.017393445417	0.322168804609	+1	0.135259574782	3.765113681897
400	0.017065791323	0.336742394595	+1	0.133122711127	3.982580548505
410	0.016749979192	0.351886203866	+1	0.131072097853	4.213475175695
420	0.016445401688	0.367626584986	+1	0.129103214405	4.458782324101
430	0.016151491720	0.383991406008	+1	0.127211694045	4.719564406796
440	0.015867714582	0.401011433662	+1	0.125393595834	4.997002885560
450	0.015593574275	0.418719722010	+1	0.123645244028	5.292390405870
460	0.015328597546	0.437152267849	+1	0.121963181747	5.607154180097
470	0.015072352336	0.456345906736	+1	0.120343993706	5.942814981449
480	0.014824430054	0.476340388029	+1	0.118784477003	6.301044389721
490	0.014584445895	0.497179530892	+1	0.117281682967	6.683701384117
500	0.014352038345	0.518910491011	+1	0.115832815739	7.092830182915
510	0.014126865433	0.541585345910	+1	0.114435333906	7.530715541152
520	0.013908604724	0.565257879408	+1	0.113086707832	7.999826116906
530	0.013696955492	0.589985880459	+1	0.111784517166	8.502879319957
540	0.013491631586	0.615833525964	+1	0.110526586242	9.042928298911
550	0.013292362472	0.642871109320	+1	0.109310868364	9.623380280863
560	0.013098893257	0.671174997167	+1	0.108135393514	10.248025343560
570	0.012910982583	0.700826425268	+1	0.106998300273	10.921052166007
580	0.012728401889	0.731914051325	+1	0.105897821595	11.647143458164

590	0.012550932764	0.764535372984	+1	0.104832277783	12.431561412598
600	0.012378371209	0.798798239915	+1	0.103800132994	13.280249290069
610	0.012210520222	0.834822007400	+1	0.102799922504	14.199933180341
620	0.012047198405	0.872734469905	+1	0.101830256724	15.198121835348
630	0.011888225002	0.912677580285	+1	0.100889791376	16.283354822033
640	0.011733430553	0.954810544286	+1	0.099977341158	17.465415063810
650	0.011582672594	0.999299030968	+1	0.099091487051	18.755071098171
660	0.011435782312	1.046348236315	+1	0.098231379780	20.165394386346
670	0.011292621715	1.096168326413	+1	0.097395835482	21.710750627395
680	0.011153054028	1.148999216289	+1	0.096583878470	23.407880435227
690	0.011016947490	1.205109167047	+1	0.095794502848	25.276108708356
700	0.010884178668	1.264802497629	+1	0.095026841545	27.337990266539
710	0.010754627674	1.328422461090	+1	0.094280026440	29.619834152164
720	0.010628181760	1.396354351938	+1	0.093553233803	32.152356138971
730	0.010504732528	1.469035622425	+1	0.092845678631	34.971708796760
740	0.010384176452	1.546967791033	+1	0.092156618393	38.120775544510
750	0.010266414101	1.630727375614	+1	0.091485364351	41.650690636279
760	0.010151351645	1.720978547068	+1	0.090831232089	45.622696455547
770	0.010038897086	1.818489784318	+1	0.090193607337	50.110646142929
780	0.009928968454	1.924144196344	+1	0.089571796540	55.203551860363
790	0.009821478182	2.038996685936	+1	0.088965312689	61.011412999853
800	0.009716348542	2.164281947223	+1	0.088373576347	67.669359037235
810	0.009613503753	2.301469078209	+1	0.087796057033	75.345721182798
820	0.009512871211	2.452310103812	+1	0.087232239359	84.251654553012
830	0.009414378965	2.618924560456	+1	0.086681657876	94.655615670494
840	0.009317962376	2.803892904455	+1	0.086143843452	106.902324993048
850	0.009223557007	3.010397267510	+1	0.085618365194	121.440858230415
860	0.009131100121	3.242401464659	+1	0.085104792504	138.864271448056
870	0.009040533081	3.504900791084	+1	0.084602738655	159.968002432655
880	0.008951798681	3.804281871615	+1	0.084111809354	185.838186220725
890	0.008864841476	4.148856104787	+1	0.083631633652	217.989541392674
900	0.008779610729	4.549650860006	+1	0.083161875321	258.585271991086
910	0.008696054171	5.021585736616	+1	0.082702183618	310.796282051697

920	0.008614123966	5.585371771511	+1	0.082252242668	379.420364460654
930	0.008533773082	6.270597534848	+1	0.081811726667	471.988386168107
940	0.008454957296	7.121149700331	+1	0.081380363287	600.874269932562
950	0.008377630740	8.204923736001	+1	0.080957850041	787.542251180207
960	0.008301755104	9.632951736537	+1	0.080543929735	1071.900853154288
970	0.008227287540	11.599922999883	+1	0.080138312311	1535.060636876372
980	0.008154189529	14.481566505826	+1	0.079740765853	2363.158783971015
990	0.008082426016	19.108534369223	+1	0.079351044418	4064.700926077405
1000	0.008011957133	27.754793643285	+1	0.078968935260	8472.780610925698
1025	0.007867433940	102.595669033498	+1	0.077494373107	112599.187142985830
1050	0.007706986995	36.381772271824	-1	0.076572060086	14520.854152310958
1075	0.007521442425	12.473974386376	-1	0.076323947385	1832.678443256052
1100	0.007371481070	8.365172640614	-1	0.075520197352	861.810891760756
1125	0.007227599678	6.271818320260	-1	0.074751178854	506.144226572931
1150	0.007089436163	5.003649063867	-1	0.074014609408	336.306855730015
1175	0.006956654355	4.153454318615	-1	0.073308381764	241.721379950041
1200	0.006828943692	3.544026596079	-1	0.072630612562	183.440643277424
1225	0.006706015191	3.085890901338	-1	0.071979630350	144.861254138873
1250	0.006587605309	2.729083369727	-1	0.071353775749	117.925142145137
1275	0.006473467089	2.443443785587	-1	0.070751566611	98.324171974779
1300	0.006363369320	2.209677231750	-1	0.070171622301	83.580886424248
1325	0.006257100259	2.014867568284	-1	0.069612764445	72.186803616573
1350	0.006154460878	1.850087853104	-1	0.069073767918	63.182063464294
1375	0.006055266756	1.708936830165	-1	0.068553565177	55.929627784696
1400	0.005959344715	1.586701721408	-1	0.068051141736	49.992636772286
1425	0.005866533262	1.479837099783	-1	0.067565629194	45.063271708855
1450	0.005776681920	1.385645407883	-1	0.067096118098	40.920268634570
1475	0.005689649024	1.302022023620	-1	0.066641790917	37.400435180889
1500	0.005605302465	1.227298171239	-1	0.066201898687	34.381062933605
1550	0.005444176292	1.099455526049	-1	0.065362725337	29.490440348559
1600	0.005292399786	0.994171786538	-1	0.064573410604	25.723080340471
1650	0.005149166634	0.906017383009	-1	0.063829576032	22.749034388176
1700	0.005013765442	0.831185041510	-1	0.063127199497	20.353065049712

1750	0.004885559747	0.766904484810	-1	0.062462840826	18.388938425279
1800	0.004763981213	0.711126283165	-1	0.061833368710	16.754737195432
1850	0.004648519339	0.662291738414	-1	0.061236077980	15.377253367389
1900	0.004538717567	0.619213075270	-1	0.060668369670	14.203247644019
1950	0.004434163457	0.580949205830	-1	0.060127986866	13.192613848192
2000	0.004334474728	0.546728725757	-1	0.059613342818	12.314257070380
2100	0.004148350058	0.488093208746	-1	0.058655473687	10.864745766320
2200	0.003978024758	0.439840920694	-1	0.057780125671	9.723993873902
2300	0.003821570478	0.399575314283	-1	0.056974435832	8.807508963141
2400	0.003677337443	0.365522582326	-1	0.056229285450	8.057152166392
2500	0.003543898849	0.336334299177	-1	0.055539363441	7.431656320593
2600	0.003420026111	0.310996175552	-1	0.054901597910	6.901639058750
2700	0.003304718095	0.288833409612	-1	0.054309888920	6.447732424973
2800	0.003197117768	0.269328904803	-1	0.053758136005	6.055559398382
2900	0.003096470662	0.252054626858	-1	0.053241804220	5.713759682574
3000	0.003002107497	0.236652115588	-1	0.052757889991	5.413227418616
3100	0.002913436727	0.222827319693	-1	0.052304347556	5.146754222510
3200	0.002829956684	0.210365985662	-1	0.051877998518	4.909125454578
3300	0.002751224070	0.199091769342	-1	0.051475803220	4.696142674828
3400	0.002676840417	0.188850236632	-1	0.051095580404	4.504245822888
3500	0.002606445236	0.179505304702	-1	0.050735941963	4.330387690599
3600	0.002539714955	0.170940505567	-1	0.050395996321	4.172023537306
3700	0.002476369949	0.163069491190	-1	0.050073896755	4.027265651882
3800	0.002416158898	0.155818682011	-1	0.049767885623	3.894531060044
3900	0.002358853355	0.149121474802	-1	0.049476615786	3.772412180126
4000	0.002304243224	0.142917219558	-1	0.049199222375	3.659655092223
4100	0.002252137603	0.137152383723	-1	0.048935091169	3.555169871801
4200	0.002202368140	0.131785885331	-1	0.048683027955	3.458120871401
4300	0.002154781189	0.126781309833	-1	0.048442042965	3.367782965459
4400	0.002109235424	0.122105387030	-1	0.048211243628	3.283493153162
4500	0.002065600024	0.117726872095	-1	0.047990132631	3.204641220508
4600	0.002023754293	0.113617805183	-1	0.047778311349	3.130685837296
4700	0.001983590379	0.109756211137	-1	0.047575048345	3.061206044948

4800	0.001945009232	0.106122441797	-1	0.047379644595	2.995827657459
4900	0.001907918715	0.102698147605	-1	0.047191541889	2.934202896464
5000	0.001872232844	0.099465819360	-1	0.047010427206	2.876003737663
5500	0.001712304384	0.085707048721	-1	0.046195863964	2.627538652313
6000	0.001577802877	0.075025014977	-1	0.045501996728	2.433003069798
6500	0.001463102531	0.066530573692	-1	0.044897197729	2.276428318466
7000	0.001364133332	0.059642060564	-1	0.044358326847	2.147548852458
7500	0.001277878336	0.053964239813	-1	0.043867881857	2.039466465017
8000	0.001202043142	0.049219173393	-1	0.043412841895	1.947387697129
8500	0.001134861659	0.045206799023	-1	0.042982843752	1.867866771921
9000	0.001074944975	0.041779301807	-1	0.042569940233	1.798374180869
9500	0.001021188469	0.038825493866	-1	0.042167693102	1.737003831276
10000	0.000972620760	0.036241312240	-1	0.041791019268	1.682371140387
10500	0.000928365783	0.033925970894	-1	0.041478469128	1.633504946840
11000	0.000888045449	0.031880709843	-1	0.041174772427	1.589382902192
11500	0.000851160689	0.030062185022	-1	0.040877937005	1.549237574016
12000	0.000817296326	0.028437464959	-1	0.040585544513	1.512514469992
12500	0.000786099717	0.026978506925	-1	0.040296076907	1.478719695019
13000	0.000757272786	0.025663141394	-1	0.040007904743	1.447476798466
13500	0.000730558424	0.024472130426	-1	0.039720072504	1.418443344380
14000	0.000705736910	0.023390099912	-1	0.039431428402	1.391355802583
14500	0.000682616743	0.022403507709	-1	0.039141399562	1.365972413225
15000	0.000661032777	0.021501402734	-1	0.038849238920	1.342105882315
16000	0.000621908064	0.019913276275	-1	0.038256770761	1.298251818393
17000	0.000587398243	0.018564250086	-1	0.037651160538	1.258705146306
18000	0.000556748353	0.017408277046	-1	0.037030787267	1.222646566517
19000	0.000529359033	0.016410300288	-1	0.036394831315	1.189449506144
20000	0.000504748062	0.015543158026	-1	0.035743164978	1.158628247971
21000	0.000459448729	0.011417601909	-1	0.047402317373	1.250140751546
22000	0.000438348308	0.010677972993	-1	0.047848291949	1.236665491632
23000	0.000418358609	0.009975646085	-1	0.048231151165	1.219881688150
24000	0.000399694947	0.009320013233	-1	0.048598616681	1.201720123702
25000	0.000382520534	0.008722815983	-1	0.048994316370	1.184596095417

26000	0.000366900279	0.008194037597	-1	0.049443173583	1.170746789010
27000	0.000352646685	0.007727834855	-1	0.049932677383	1.160215408498
28000	0.000339541045	0.007313848754	-1	0.050444670321	1.152301362983
29000	0.000327393603	0.006941386654	-1	0.050966358082	1.146146334391
30000	0.000316037727	0.006599587413	-1	0.051492265771	1.140771065737
31000	0.000305341088	0.006279200171	-1	0.052025021085	1.135325459825
32000	0.000295246848	0.005977813656	-1	0.052568699392	1.129787602153
33000	0.000285719019	0.005694908781	-1	0.053125698948	1.124351573033
34000	0.000276725279	0.005430143810	-1	0.053696828856	1.119212570138
35000	0.000268236657	0.005183320238	-1	0.054281097388	1.114564633623
36000	0.000260224239	0.004954072672	-1	0.054875893627	1.110556366310
37000	0.000252650003	0.004740978910	-1	0.055479141546	1.107162326771
38000	0.000245476473	0.004542368928	-1	0.056089817143	1.104301203349
39000	0.000238669387	0.004356602909	-1	0.056708014222	1.101878865559
40000	0.000232197233	0.004182073407	-1	0.057335170086	1.099790709065
41000	0.000226032181	0.004017372989	-1	0.057973445813	1.097945856346
42000	0.000220153838	0.003861803551	-1	0.058622286065	1.096329456133
43000	0.000214544435	0.003714842633	-1	0.059280542205	1.094945209936
44000	0.000209170474	0.003575231948	-1	0.059963023354	1.093960218667
45000	0.000204030883	0.003443134005	-1	0.060656498456	1.093238914699
46000	0.000199111189	0.003318065543	-1	0.061360496896	1.092776889414
47000	0.000194397663	0.003199554167	-1	0.062074774099	1.092567483144
48000	0.000189877507	0.003087144881	-1	0.062799198296	1.092599879857
49000	0.000185546580	0.002980705511	-1	0.063525371256	1.092771389790
50000	0.000181387361	0.002879539512	-1	0.064260121289	1.093131542482
55000	0.000162808867	0.002440042934	-1	0.068108990444	1.097858681396
60000	0.000147266499	0.002089595445	-1	0.072239408239	1.106978306978
65000	0.000134066627	0.001805556126	-1	0.076659761127	1.120008260411
70000	0.000122711275	0.001572171028	-1	0.081380782322	1.136660097629
75000	0.000112834126	0.001378163568	-1	0.086414823097	1.156774247134
80000	0.000104159842	0.001215274666	-1	0.091774671494	1.180281481685
85000	0.000096477504	0.001077325684	-1	0.097473347765	1.207181385660
90000	0.000089622698	0.000959606790	-1	0.103524352960	1.237533485823

95000	0.000083465271	0.000858467440	-1	0.109942220281	1.271454261159
100000	0.000077900268	0.000771030319	-1	0.116744606256	1.309133467476
105000	0.000072839491	0.000694939841	-1	0.123967610197	1.350947407028
110000	0.000068217949	0.000628497764	-1	0.131605214682	1.397025117969
115000	0.000064033852	0.000571190373	-1	0.139314797592	1.444589156402
120000	0.000060186790	0.000520712795	-1	0.147391497937	1.496303835528
125000	0.000056600099	0.000475515585	-1	0.156114952027	1.554857730708
130000	0.000053272076	0.000435368117	-1	0.165289295902	1.618943351744
135000	0.000050184509	0.000399720787	-1	0.174835142758	1.688211400741
140000	0.000047311437	0.000367959289	-1	0.184754694958	1.763112542603
145000	0.000044631280	0.000339570584	-1	0.195042630371	1.844061694902
150000	0.000042126618	0.000314139850	-1	0.205676198701	1.931394584977
155000	0.000039783237	0.000291315954	-1	0.216618927503	2.025334243653
160000	0.000037592071	0.000270830183	-1	0.227786140701	2.125650165534
165000	0.000035500237	0.000252012181	-1	0.239697456754	2.238521536055
170000	0.000033531101	0.000234998272	-1	0.251912926382	2.360492622883
175000	0.000031675409	0.000219582636	-1	0.264404299927	2.492221763350
180000	0.000029938388	0.000205689350	-1	0.276929092884	2.631766826508
185000	0.000028308895	0.000193114725	-1	0.289489239604	2.779878426557
190000	0.000026768068	0.000181630882	-1	0.302239360878	2.939574451184
195000	0.000025311366	0.000171132399	-1	0.315125229960	3.111372395784
200000	0.000023933256	0.000161513167	-1	0.328120089909	3.296150721350
205000	0.000022628332	0.000152677912	-1	0.341205463707	3.494991573835
210000	0.000021393079	0.000144555942	-1	0.354329744405	3.708625442772
215000	0.000020224539	0.000137085283	-1	0.367434247076	3.937648207938
220000	0.000019119773	0.000130207730	-1	0.380465583493	4.182656576051
225000	0.000018075766	0.000123868598	-1	0.393378490221	4.444298799480
230000	0.000017089446	0.000118016908	-1	0.406136723647	4.723303757359
235000	0.000016157627	0.000112605273	-1	0.418714708658	5.020557228022
240000	0.000015276933	0.000107589295	-1	0.431100789352	5.337236541842
245000	0.000014443721	0.000102927448	-1	0.443299372774	5.675001186882
250000	0.000013657319	0.000098593594	-1	0.455247217869	6.033481528980
255000	0.000012912440	0.000094546392	-1	0.467006354493	6.416125379486

260000	0.000012207066	0.000090763156	-1	0.478555698549	6.824282105390
265000	0.000011539787	0.000087225405	-1	0.489860551861	7.258746544019
270000	0.000010909188	0.000083915718	-1	0.500889865620	7.720197984259
275000	0.000010312532	0.000080813251	-1	0.511656024484	8.211077653732
280000	0.000009749719	0.000077907189	-1	0.522099239793	8.730324088025
285000	0.000009219519	0.000075183608	-1	0.532195492610	9.277913428605
290000	0.000008720377	0.000072628497	-1	0.541934652482	9.854147227578
295000	0.000008250763	0.000070228881	-1	0.551310061997	10.459192678188
300000	0.000007809115	0.000067972558	-1	0.560320634589	11.093241151640

Electron Elastic Scattering Sampling Data
Solution for Z = 19

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.032403832567	2.464371048017	+1	0.267480671712	93.187535785457
52	0.031286387661	1.813202022193	+1	0.261200570885	55.893329228858
54	0.030258678585	1.406816794357	+1	0.255379328283	37.250747270291
56	0.029302462683	1.133332630824	+1	0.250070708405	26.730762253541
58	0.028406394711	0.939169693502	+1	0.245272102649	20.259874457308
60	0.027563152577	0.795688640215	+1	0.240952056177	16.013940479818
62	0.026767706237	0.686326124188	+1	0.237066935349	13.084986779616
64	0.026016330519	0.600858623524	+1	0.233568826806	10.981626849881
66	0.025306068496	0.532712064927	+1	0.230411906723	9.421530964383
68	0.024634406119	0.477456828858	+1	0.227553227950	8.232890042272
70	0.023999055466	0.432011545346	+1	0.224954154260	7.306590909441
72	0.023397908941	0.394189828898	+1	0.222581169750	6.571115749644
74	0.022828981294	0.362381049606	+1	0.220404289136	5.977576131123
76	0.022290372016	0.335392866918	+1	0.218398126734	5.492051537707
78	0.021780278125	0.312317737885	+1	0.216540605760	5.090231887254
80	0.021296976302	0.292453208412	+1	0.214812543054	4.754310138314
82	0.020838826695	0.275254996459	+1	0.213197816878	4.471147521230
84	0.020404224852	0.260288545798	+1	0.211682498456	4.230741413192
86	0.019991855865	0.247204077210	+1	0.210253600886	4.025308063353
88	0.019600193516	0.235724566543	+1	0.208901574147	3.848995915392
90	0.019227937109	0.225620007167	+1	0.207617344281	3.697073707321
92	0.018873909110	0.216701818996	+1	0.206392943634	3.565773377033
94	0.018536950341	0.208812837309	+1	0.205221623078	3.452059381026
96	0.018215987859	0.201822675742	+1	0.204097568255	3.353479935273
98	0.017910015199	0.195621811801	+1	0.203015775762	3.268028433594
100	0.017618092854	0.190117440738	+1	0.201971853368	3.194042613655
105	0.016944189289	0.178912423623	+1	0.199503681114	3.050673320654
110	0.016340768018	0.170630810153	+1	0.197200508728	2.954381221870

115	0.015797658331	0.164612456210	+1	0.195028579594	2.894422983990
120	0.015306409472	0.160379270428	+1	0.192962218718	2.863229485134
125	0.014859895947	0.157585574267	+1	0.190982941212	2.855516037155
130	0.014452168958	0.155973632385	+1	0.189076783661	2.867431031339
135	0.014078186097	0.155349177676	+1	0.187233356429	2.896152503987
140	0.013733711530	0.155563407137	+1	0.185444769206	2.939567708504
145	0.013415137350	0.156499733018	+1	0.183704852783	2.996056792274
150	0.013119400635	0.158067658459	+1	0.182008965595	3.064407837678
155	0.012843883937	0.160193768484	+1	0.180353327075	3.143654014448
160	0.012586340429	0.162820557311	+1	0.178735027428	3.233082376151
165	0.012344836649	0.165900024751	+1	0.177151654546	3.332110194284
170	0.012117704400	0.169394645103	+1	0.175601354169	3.440329133778
175	0.011903490950	0.173272213741	+1	0.174082470107	3.557399385215
180	0.011700935613	0.177506964756	+1	0.172593690954	3.683089136215
185	0.011508932006	0.182076631619	+1	0.171133811013	3.817213872529
190	0.011326517075	0.186966239376	+1	0.169702074223	3.959742804691
195	0.011152842191	0.192161221446	+1	0.168297619597	4.110630179534
200	0.010987142622	0.197642463775	+1	0.166919160050	4.269687549469
205	0.010828759947	0.203392026780	+1	0.165565456273	4.436721754786
210	0.010677101872	0.209407847531	+1	0.164236352513	4.611962172957
215	0.010531649453	0.215691342562	+1	0.162931885984	4.795733135008
220	0.010391928201	0.222243526622	+1	0.161651927550	4.988355284665
225	0.010257514766	0.229064551882	+1	0.160396198539	5.190127348702
230	0.010128025833	0.236153794329	+1	0.159164307242	5.401330568786
235	0.010003114436	0.243509411898	+1	0.157955730835	5.622213597976
240	0.009882470318	0.251128293671	+1	0.156769852186	5.852987040387
245	0.009765813319	0.259005825590	+1	0.155605937595	6.093813866477
250	0.009652886378	0.267135701748	+1	0.154463151628	6.344802804344
255	0.009543463763	0.275512395804	+1	0.153340708237	6.606075952195
260	0.009437338012	0.284140359086	+1	0.152238358854	6.878074522843
265	0.009334323132	0.293026296907	+1	0.151155890923	7.161322294220
270	0.009234242110	0.302177191977	+1	0.150093112055	7.456378486551
275	0.009136936043	0.311599612056	+1	0.149049763509	7.763805172414

280	0.009042255007	0.321300072177	+1	0.148025566001	8.084186899990
285	0.008950060104	0.331284937331	+1	0.147020212271	8.418125406352
290	0.008860221315	0.341560212922	+1	0.146033360674	8.766233846422
295	0.008772622268	0.352131618249	+1	0.145064658844	9.129134902560
300	0.008687147224	0.363004630610	+1	0.144113722683	9.507473010059
310	0.008522186763	0.385681897837	+1	0.142263633207	10.313269498050
320	0.008364639919	0.409667940954	+1	0.140480513914	11.190366339010
330	0.008213896275	0.435050306150	+1	0.138761896292	12.146515286440
340	0.008069415175	0.461921605234	+1	0.137105272605	13.190346442571
350	0.007930709348	0.490380427696	+1	0.135508181628	14.331517742541
360	0.007797353077	0.520534161671	+1	0.133968151482	15.580905957767
370	0.007668981493	0.552513895420	+1	0.132482823416	16.951362584903
380	0.007545272058	0.586468086623	+1	0.131049966309	18.457733060569
390	0.007425927537	0.622561861988	+1	0.129667483877	20.117120607869
400	0.007310672968	0.660979480465	+1	0.128333385033	21.949300753124
410	0.007199260106	0.701927766876	+1	0.127045755535	23.977227446978
420	0.007091476619	0.745641133788	+1	0.125802599543	26.227647249861
430	0.006987127432	0.792385504949	+1	0.124602024625	28.731938214201
440	0.006886030535	0.842464082266	+1	0.123442298291	31.527145699274
450	0.006788015142	0.896223053666	+1	0.122321743974	34.657163817759
460	0.006692922559	0.954059629756	+1	0.121238813735	38.174321642277
470	0.006600616108	1.016428739038	+1	0.120191909119	42.141057508489
480	0.006510966918	1.083857297760	+1	0.119179500705	46.632664352074
490	0.006423850270	1.156960576333	+1	0.118200174575	51.740729497014
500	0.006339153206	1.236459903467	+1	0.117252607480	57.577340608475
510	0.006256765720	1.323207084641	+1	0.116335573270	64.280936621046
520	0.006176593116	1.418204535737	+1	0.115447791082	72.022941539701
530	0.006098542795	1.522652996093	+1	0.114588035679	81.018789343783
540	0.006022525985	1.638000406820	+1	0.113755190656	91.541915108114
550	0.005948461973	1.766011234283	+1	0.112948211328	103.943506346650
560	0.005876273454	1.908854934429	+1	0.112166090614	118.680203367360
570	0.005805884926	2.069219502627	+1	0.111407841573	136.353157726042
580	0.005737232342	2.250481442686	+1	0.110672486775	157.766249463707

590	0.005670248130	2.456956261203	+1	0.109959150896	184.015786390493
600	0.005604872729	2.694236480477	+1	0.109266977756	216.625041110258
610	0.005541044401	2.969719165163	+1	0.108595199841	257.762297194281
620	0.005478709412	3.293343687666	+1	0.107943022673	310.587194957411
630	0.005417817365	3.678825618392	+1	0.107309672937	379.850905075655
640	0.005358315786	4.145667466884	+1	0.106694448445	472.964768419502
650	0.005300157238	4.722545855356	+1	0.106096690044	601.994121620493
660	0.005243295821	5.453407498372	+1	0.105515765371	787.637086605080
670	0.005187688751	6.409158151029	+1	0.104951041083	1067.797107754582
680	0.005133295479	7.712116109103	+1	0.104401903572	1518.002709494531
690	0.005080076413	9.593021483992	+1	0.103867797484	2306.817300017470
700	0.005027993354	12.545401113682	+1	0.103348197134	3875.989992906395
710	0.004977009133	17.848346550536	+1	0.102842610200	7709.942441055118
720	0.004927089484	30.161120966675	+1	0.102350508069	21643.064853318974
730	0.004881070470	81.232910176306	+1	0.101802301855	154359.580370733830
740	0.004830317959	96.069807842911	-1	0.101404816142	216818.900443610910
750	0.004783398505	31.302727045897	-1	0.100950471425	23623.110496554367
760	0.004737420701	18.631725153759	-1	0.100507809815	8586.564086288050
770	0.004692356798	13.230044687540	-1	0.100076460595	4440.887530832761
780	0.004648178513	10.236895356840	-1	0.099656036768	2726.546790990241
790	0.004604858868	8.335267605056	-1	0.099246190436	1853.286058264539
800	0.004562376034	7.020347015897	-1	0.098846554138	1347.555124057438
810	0.004520701516	6.056973731539	-1	0.098456803877	1027.942115893012
820	0.004479815887	5.320908299282	-1	0.098076632361	812.755262582913
830	0.004439697191	4.740272330550	-1	0.097705692738	660.739426198685
840	0.004400322238	4.270587158896	-1	0.097343708878	549.212914201802
850	0.004361669833	3.882865337538	-1	0.096990399301	464.858244895717
860	0.004323723276	3.557414113902	-1	0.096645491382	399.433684822946
870	0.004286460405	3.280376779904	-1	0.096308730791	347.612093735306
880	0.004249864969	3.041733762724	-1	0.095979828148	305.825598275266
890	0.004213918059	2.834041865398	-1	0.095658557826	271.607767332058
900	0.004178602390	2.651664306810	-1	0.095344697200	243.209642083785
910	0.004143902694	2.490256503504	-1	0.095038009977	219.362768780109

920	0.004109802256	2.346414658776	-1	0.094738272258	199.128620273022
930	0.004076284834	2.217433449674	-1	0.094445280992	181.800259713991
940	0.004043337418	2.101136645556	-1	0.094158848184	166.836798539653
950	0.004010944260	1.995751233017	-1	0.093878753978	153.818326727186
960	0.003979091654	1.899816847432	-1	0.093604856236	142.414596139938
970	0.003947765820	1.812127878158	-1	0.093336930967	132.363730270349
980	0.003916954595	1.731671607615	-1	0.093074829069	123.454945102946
990	0.003886643854	1.657594722206	-1	0.092818390070	115.517419455193
1000	0.003856823336	1.589174830325	-1	0.092567437369	108.411515198745
1025	0.003784333595	1.439016764603	-1	0.091963142738	93.575281033418
1050	0.003714655527	1.313028480868	-1	0.091389857924	81.930713524765
1075	0.003647629779	1.205870521823	-1	0.090845432835	72.602914276139
1100	0.003583105521	1.113651635457	-1	0.090328044848	64.999143437624
1125	0.003520943158	1.033477266062	-1	0.089836088384	58.706476722614
1150	0.003461014716	0.963170096418	-1	0.089367859038	53.431251837275
1175	0.003403202734	0.901046022893	-1	0.088921780772	48.958577163047
1200	0.003347395159	0.845775490546	-1	0.088496508145	45.127726790580
1225	0.003293486642	0.796297867147	-1	0.088090875776	41.816663119808
1250	0.003241382867	0.751768250880	-1	0.087703658101	38.931992900005
1275	0.003190994325	0.711497249084	-1	0.087333685124	36.400683488935
1300	0.003142236370	0.674912629086	-1	0.086980010949	34.164692543722
1325	0.003095029651	0.641538725107	-1	0.086641775830	32.177575521920
1350	0.003049300602	0.610982491232	-1	0.086318060923	30.402108307183
1375	0.003004981595	0.582912081386	-1	0.086007999753	28.807886483000
1400	0.002962006352	0.557042798494	-1	0.085710876610	27.369762606321
1425	0.002920313276	0.533130335736	-1	0.085426050370	26.066822950029
1450	0.002879846549	0.510968634599	-1	0.085152823509	24.881808365094
1475	0.002840551415	0.490378493098	-1	0.084890542916	23.800151175810
1500	0.002802377418	0.471202846165	-1	0.084638667163	22.809445873253
1550	0.002729202455	0.436563862626	-1	0.084164129933	21.060209793576
1600	0.002659970108	0.406150775604	-1	0.083725213484	19.566775958291
1650	0.002594322271	0.379232183349	-1	0.083321227557	18.278135367312
1700	0.002531967411	0.355250101149	-1	0.082950000734	17.156184053092

1750	0.002472702521	0.333785914669	-1	0.082605812367	16.172022168449
1800	0.002416301226	0.314477090885	-1	0.082286231813	15.302513367337
1850	0.002362555657	0.297024742968	-1	0.081989238087	14.529246261273
1900	0.002311283446	0.281186991857	-1	0.081712628573	13.837654646019
1950	0.002262314221	0.266758390068	-1	0.081454695490	13.215788927495
2000	0.002215485607	0.253558023436	-1	0.081214683070	12.653546472790
2100	0.002127684907	0.230267893850	-1	0.080785099287	11.676613719857
2200	0.002046938361	0.210438556708	-1	0.080410071608	10.859041074250
2300	0.001972453174	0.193412360320	-1	0.080077244786	10.166466482134
2400	0.001903525873	0.178662562008	-1	0.079779407629	9.572761026962
2500	0.001839522786	0.165760608725	-1	0.079514719051	9.057702607483
2600	0.001779888487	0.154367468885	-1	0.079283927285	8.605858285484
2700	0.001724195727	0.144253722929	-1	0.079081205218	8.206662608798
2800	0.001672080863	0.135237047536	-1	0.078900367475	7.851846624792
2900	0.001623212763	0.127160419160	-1	0.078737441224	7.534522375617
3000	0.001577288692	0.119887299553	-1	0.078591014196	7.248903015214
3100	0.001534035730	0.113302815389	-1	0.078460763583	6.990230882306
3200	0.001493233648	0.107322447465	-1	0.078343586375	6.754967815493
3300	0.001454685835	0.101875059636	-1	0.078236491371	6.540178036009
3400	0.001418211675	0.096896846965	-1	0.078137823743	6.343284742739
3500	0.001383642619	0.092330484433	-1	0.078047227977	6.162026371707
3600	0.001350825733	0.088126071655	-1	0.077965045929	5.994467304042
3700	0.001319634342	0.084246384596	-1	0.077889487959	5.839138678918
3800	0.001289955531	0.080659290832	-1	0.077818751065	5.694774888605
3900	0.001261682892	0.077335156118	-1	0.077751907609	5.560236644029
4000	0.001234717146	0.074246794507	-1	0.077688672467	5.434486989676
4100	0.001208966616	0.071369890807	-1	0.077629210128	5.316613094645
4200	0.001184353227	0.068685631125	-1	0.077572462350	5.205900695712
4300	0.001160807055	0.066177433798	-1	0.077517334855	5.101714468781
4400	0.001138260247	0.063829652546	-1	0.077463387242	5.003475949554
4500	0.001116650387	0.061627782961	-1	0.077410479364	4.910640646537
4600	0.001095925382	0.059560030770	-1	0.077357364898	4.822718906930
4700	0.001076032473	0.057615426890	-1	0.077303826317	4.739323899418

4800	0.001056920665	0.055783723188	-1	0.077250054049	4.660108853469
4900	0.001038545922	0.054056055213	-1	0.077195731952	4.584745644301
5000	0.001020866152	0.052424032678	-1	0.077140886268	4.512928639165
5500	0.000941649334	0.045466859261	-1	0.076853081792	4.198534484894
6000	0.000875105038	0.040059220713	-1	0.076527969918	3.942002911947
6500	0.000818476748	0.035759801819	-1	0.076154143071	3.727232761041
7000	0.000769751191	0.032276586247	-1	0.075725946312	3.543586839906
7500	0.000727423131	0.029409456984	-1	0.075241315495	3.383765150554
8000	0.000690344188	0.027017167312	-1	0.074700566440	3.242602642307
8500	0.000657622537	0.024997492866	-1	0.074105579910	3.116351978174
9000	0.000628554335	0.023274796350	-1	0.073459280540	3.002234486526
9500	0.000602577763	0.021792092705	-1	0.072765085649	2.898144433480
10000	0.000579238873	0.020505726956	-1	0.072026755236	2.802462597277
10500	0.000558164958	0.019381445521	-1	0.071248764359	2.713912953061
11000	0.000539053173	0.018393324991	-1	0.070433371540	2.631528577838
11500	0.000521645326	0.017519108196	-1	0.069586275042	2.554466667656
12000	0.000505729397	0.016742109031	-1	0.068710176041	2.482100722913
12500	0.000491124551	0.016048021886	-1	0.067809261696	2.413876736399
13000	0.000477678427	0.015425659757	-1	0.066886245040	2.349368138556
13500	0.000465259390	0.014865236370	-1	0.065944860191	2.288186787886
14000	0.000453755497	0.014359027360	-1	0.064987585404	2.230030626346
14500	0.000443069253	0.013900201073	-1	0.064017529413	2.174620577685
15000	0.000433116945	0.013483275656	-1	0.063036944021	2.121736507553
16000	0.000415127851	0.012756386247	-1	0.061053876876	2.022754160827
17000	0.000399303416	0.012147708779	-1	0.059054793144	1.931757824304
18000	0.000385266226	0.011634413063	-1	0.057053505907	1.847715637806
19000	0.000372720288	0.011199221321	-1	0.055061385056	1.769796027481
20000	0.000361429620	0.010828848665	-1	0.053087647884	1.697316896032
21000	0.000241970557	0.005554349324	-1	0.106501411645	2.750632905188
22000	0.000230622072	0.005207419145	-1	0.107731267434	2.739827995962
23000	0.000219759979	0.004868354971	-1	0.109125665571	2.726200726706
24000	0.000209539308	0.004547403371	-1	0.110662164925	2.712125677258
25000	0.000200107218	0.004255464874	-1	0.112258705096	2.700070905103

26000	0.000191563135	0.004000936327	-1	0.113785870923	2.691846580649
27000	0.000183818714	0.003780339602	-1	0.115192517265	2.687048066542
28000	0.000176745350	0.003587105746	-1	0.116478275271	2.684739801672
29000	0.000170221191	0.003414669504	-1	0.117673317481	2.684047273676
30000	0.000164129779	0.003256551367	-1	0.118839564825	2.684215261767
31000	0.000158374599	0.003107464658	-1	0.120050406575	2.684758317215
32000	0.000152925141	0.002966451768	-1	0.121315392552	2.685723429303
33000	0.000147768789	0.002833637726	-1	0.122622207274	2.687254659322
34000	0.000142895130	0.002709167772	-1	0.123953913825	2.689457552685
35000	0.000138295571	0.002593189253	-1	0.125289094429	2.692398645134
36000	0.000133960360	0.002485683916	-1	0.126605884738	2.696082842189
37000	0.000129869506	0.002385943361	-1	0.127899312233	2.700431047802
38000	0.000126001257	0.002293101160	-1	0.129172134610	2.705358848715
39000	0.000122334863	0.002206307408	-1	0.130431250136	2.710800286804
40000	0.000118850334	0.002124732017	-1	0.131687993972	2.716716358201
41000	0.000115529870	0.002047657298	-1	0.132954565316	2.723093743879
42000	0.000112362259	0.001974751585	-1	0.134230892590	2.729922919665
43000	0.000109338443	0.001905781003	-1	0.135513695669	2.737187692680
44000	0.000106449989	0.001840515233	-1	0.136800148370	2.744867401863
45000	0.000103688909	0.001778727981	-1	0.138087957957	2.752940774528
46000	0.000101047670	0.001720196605	-1	0.139375546723	2.761386731940
47000	0.000098518974	0.001664701906	-1	0.140662108084	2.770188637948
48000	0.000096095830	0.001612028257	-1	0.141947767632	2.779334062931
49000	0.000093771532	0.001561963469	-1	0.143233722750	2.788816113513
50000	0.000091539662	0.001514300282	-1	0.144522179350	2.798632338420
55000	0.000081588037	0.001306697602	-1	0.151020047661	2.852446223569
60000	0.000073293314	0.001140260252	-1	0.157571684233	2.913050029714
65000	0.000066273800	0.001004359305	-1	0.164209510950	2.980267919925
70000	0.000060259074	0.000891764359	-1	0.170930388876	3.053633334584
75000	0.000055051296	0.000797318917	-1	0.177729997394	3.132802634730
80000	0.000050500350	0.000717235094	-1	0.184609796155	3.217702194098
85000	0.000046492055	0.000648694967	-1	0.191564819739	3.308215371781
90000	0.000042936667	0.000589550515	-1	0.198592297339	3.404386838908

95000	0.000039763910	0.000538143236	-1	0.205685162646	3.506190202220
100000	0.000036916539	0.000493165089	-1	0.212841899509	3.613804044168
105000	0.000034347672	0.000453566105	-1	0.220064456626	3.727490105643
110000	0.000032018462	0.000418513269	-1	0.227356593237	3.847733886296
115000	0.000029917367	0.000387538971	-1	0.234539334025	3.970453346045
120000	0.000028001738	0.000359894275	-1	0.241736025503	4.098783789187
125000	0.000026241989	0.000335039663	-1	0.249018539612	4.234830461973
130000	0.000024622942	0.000312640756	-1	0.256354158781	4.378294095315
135000	0.000023134442	0.000292431941	-1	0.263678257892	4.527822719904
140000	0.000021762368	0.000274139135	-1	0.270985489368	4.683649061710
145000	0.000020494528	0.000257525923	-1	0.278272721354	4.846000800393
150000	0.000019320829	0.000242398288	-1	0.285528696768	5.014938643099
155000	0.000018232208	0.000228584698	-1	0.292747464892	5.190603718754
160000	0.000017220945	0.000215941456	-1	0.299919088634	5.373053936640
165000	0.000016280064	0.000204341116	-1	0.307037317971	5.562405294679
170000	0.000015403687	0.000193677297	-1	0.314089118105	5.758596404825
175000	0.000014586861	0.000183857936	-1	0.321056879066	5.961322636272
180000	0.000013826220	0.000174809897	-1	0.327902883518	6.169438861095
185000	0.000013104877	0.000166355923	-1	0.334881644424	6.392404869577
190000	0.000012429440	0.000158522066	-1	0.341780761820	6.623364589922
195000	0.000011796217	0.000151249807	-1	0.348597249103	6.862573264786
200000	0.000011201953	0.000144484635	-1	0.355330871466	7.110200544396
205000	0.000010649925	0.000138222695	-1	0.361829825877	7.359631511301
210000	0.000010129755	0.000132367945	-1	0.368269155967	7.618513030036
215000	0.000009640090	0.000126894432	-1	0.374619519503	7.886030977508
220000	0.000009179242	0.000121774489	-1	0.380863710623	8.161720931942
225000	0.000008745448	0.000116980891	-1	0.386991250135	8.445285130071
230000	0.000008336950	0.000112487471	-1	0.392996855555	8.736557336476
235000	0.000007951997	0.000108269216	-1	0.398880370276	9.035540374943
240000	0.000007588864	0.000104302361	-1	0.404646705458	9.342446005892
245000	0.000007245852	0.000100564421	-1	0.410305725580	9.657753066734
250000	0.000006921299	0.000097034185	-1	0.415872084052	9.982241482789
255000	0.000006613703	0.000093693112	-1	0.421359762999	10.316804417453

260000	0.000006322162	0.000090529608	-1	0.426762200483	10.661363008250
265000	0.000006045914	0.000087533801	-1	0.432069119521	11.015569215991
270000	0.000005784225	0.000084696256	-1	0.437271044430	11.379017400106
275000	0.000005536343	0.000082007612	-1	0.442361342709	11.751374372502
280000	0.000005301597	0.000079459302	-1	0.447332136851	12.132103474337
285000	0.000005080015	0.000077047261	-1	0.452147765169	12.518156867063
290000	0.000004870260	0.000074759163	-1	0.456831582137	12.911129645192
295000	0.000004671681	0.000072587271	-1	0.461381324926	13.310532055349
300000	0.000004483653	0.000070524265	-1	0.465795545585	13.715860236330

Electron Elastic Scattering Sampling Data
Solution for Z = 20

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.029511143445	4.777522978859	+1	0.320059817043	427.649355703763
52	0.028888339777	2.992406987364	+1	0.305368616113	176.699222277206
54	0.028266750785	2.120406719992	+1	0.292214646816	93.982956484848
56	0.027643593523	1.610834577998	+1	0.280503392510	57.716853833108
58	0.027020376925	1.280540119101	+1	0.270101576423	38.942617227955
60	0.026400382133	1.051388834660	+1	0.260864212886	28.091478885952
62	0.025787311192	0.884569004739	+1	0.252650170995	21.304730011893
64	0.025184597291	0.758649802602	+1	0.245327898907	16.798568616130
66	0.024595132233	0.660920758539	+1	0.238781267624	13.664307977709
68	0.024021181789	0.583355780854	+1	0.232907809866	11.401059136500
70	0.023464388467	0.520651272260	+1	0.227618244688	9.715600552421
72	0.022925876314	0.469190414086	+1	0.222836580655	8.428130317229
74	0.022406299915	0.426404213217	+1	0.218496732015	7.423087601274
76	0.021905956944	0.390440464344	+1	0.214542691906	6.624074355831
78	0.021424853359	0.359924292469	+1	0.210926332533	5.978811526663
80	0.020962772344	0.333814310177	+1	0.207606137381	5.450555718169
82	0.020519334976	0.311316412033	+1	0.204546965882	5.013066822521
84	0.020094029678	0.291806336406	+1	0.201718079344	4.647007937164
86	0.019686272022	0.274794557219	+1	0.199093291458	4.338034163524
88	0.019295415786	0.259889170667	+1	0.196649871333	4.075258039584
90	0.018920780562	0.246772860939	+1	0.194368042896	3.850290026943
92	0.018561676015	0.235188992893	+1	0.192230795761	3.656634543150
94	0.018217399109	0.224924278950	+1	0.190223073139	3.489124675849
96	0.017887258587	0.215803257308	+1	0.188331794095	3.343666421489
98	0.017570581518	0.207679694141	+1	0.186545563918	3.216968554315
100	0.017266700707	0.200430762763	+1	0.184854368767	3.106360245073
105	0.016558895785	0.185489403493	+1	0.180986624899	2.886744519659
110	0.015917934533	0.174145717775	+1	0.177546653489	2.729547620614

115	0.015335642813	0.165548242302	+1	0.174451122941	2.618630303242
120	0.014804848471	0.159087610520	+1	0.171636123909	2.543042796523
125	0.014319328871	0.154328256786	+1	0.169053109566	2.495326099504
130	0.013873693989	0.150947372506	+1	0.166664174609	2.470172376193
135	0.013463296494	0.148704495535	+1	0.164439687428	2.463779416433
140	0.013084116576	0.147415859060	+1	0.162356015824	2.473341337407
145	0.012732684063	0.146939590212	+1	0.160394161876	2.496765104478
150	0.012405982265	0.147165255052	+1	0.158538742088	2.532483918612
155	0.012101406406	0.148004823633	+1	0.156777016829	2.579286999055
160	0.011816676715	0.149388944219	+1	0.155098627880	2.636272057472
165	0.011549817501	0.151260689287	+1	0.153494706746	2.702720140520
170	0.011299085699	0.153575094221	+1	0.151957958927	2.778112401626
175	0.011062963713	0.156294202598	+1	0.150482022977	2.862025999565
180	0.010840106641	0.159387513830	+1	0.149061607971	2.954163849129
185	0.010629332651	0.162829078683	+1	0.147692061645	3.054292112929
190	0.010429591979	0.166600226284	+1	0.146369606793	3.162316285534
195	0.010239950673	0.170683516136	+1	0.145090646489	3.278144004947
200	0.010059590926	0.175057864025	+1	0.143851492478	3.401565431531
205	0.009887788048	0.179703766859	+1	0.142648774005	3.532377811277
210	0.009723868162	0.184616896315	+1	0.141480729849	3.670751016877
215	0.009567220424	0.189796249854	+1	0.140345867794	3.816937747173
220	0.009417304659	0.195240355549	+1	0.139242715072	3.971177028973
225	0.009273630356	0.200947418985	+1	0.138169791625	4.133701457499
230	0.009135757668	0.206914794346	+1	0.137125590117	4.304720003794
235	0.009003291422	0.213138913568	+1	0.136108586185	4.484414580641
240	0.008875881679	0.219614681082	+1	0.135117180922	4.672917074969
245	0.008753188201	0.226337187107	+1	0.134150009599	4.870378090992
250	0.008634938906	0.233297708536	+1	0.133205284010	5.076803080290
255	0.008520861752	0.240489925223	+1	0.132281656058	5.292277008901
260	0.008410705127	0.247916680283	+1	0.131378390616	5.517149990986
265	0.008304238004	0.255583313323	+1	0.130494976405	5.751860553063
270	0.008201244808	0.263494773811	+1	0.129630824746	5.996850648876
275	0.008101527840	0.271655939570	+1	0.128785365936	6.252576038913

280	0.008004906040	0.280071284238	+1	0.127958032710	6.519495980542
285	0.007911209497	0.288744864315	+1	0.127148200296	6.798072021037
290	0.007820285738	0.297680191178	+1	0.126355247676	7.088760516435
295	0.007731989439	0.306880487437	+1	0.125578574792	7.392028140064
300	0.007646187171	0.316348183638	+1	0.124817495726	7.708324174885
310	0.007481589531	0.336101560812	+1	0.123340063816	8.382084096487
320	0.007325611072	0.356997000434	+1	0.121919662804	9.115263382878
330	0.007177480982	0.379101050281	+1	0.120553378758	9.913863193256
340	0.007036521177	0.402481988889	+1	0.119238350519	10.784452116437
350	0.006902134381	0.427208941361	+1	0.117971670923	11.734171094365
360	0.006773791720	0.453356658770	+1	0.116750581306	12.770977936871
370	0.006651033651	0.481022693734	+1	0.115572916215	13.904431237313
380	0.006533446682	0.510318012378	+1	0.114436683723	15.145526782169
390	0.006420660360	0.541363592563	+1	0.113340002969	16.506728415705
400	0.006312335821	0.574291890446	+1	0.112281018139	18.002212569116
410	0.006208170350	0.609249717370	+1	0.111258011322	19.648206195160
420	0.006107896997	0.646406152911	+1	0.110269369661	21.463599188545
430	0.006011272920	0.685951954939	+1	0.109313610972	23.470320712519
440	0.005918076915	0.728100824543	+1	0.108389312817	25.693814228070
450	0.005828101477	0.773094164228	+1	0.107495168182	28.163828620129
460	0.005741157855	0.821204735190	+1	0.106629901364	30.915202787459
470	0.005657081199	0.872742669051	+1	0.105792294936	33.988939743905
480	0.005575714113	0.928064684070	+1	0.104981213164	37.433807984869
490	0.005496914951	0.987577692210	+1	0.104195570269	41.307762880835
500	0.005420549014	1.051752893920	+1	0.103434369035	45.680465445456
510	0.005346491694	1.121135980398	+1	0.102696664033	50.635976791553
520	0.005274630322	1.196358994837	+1	0.101981499133	56.276127424478
530	0.005204860585	1.278162585357	+1	0.101287979960	62.725552332933
540	0.005137085050	1.367420170064	+1	0.100615259470	70.138037342995
550	0.005071202814	1.465181385223	+1	0.099962704826	78.706383180180
560	0.005007150040	1.572659321071	+1	0.099329156838	88.668185496781
570	0.004944824733	1.691377704373	+1	0.098714269637	100.332023783859
580	0.004884161715	1.823143210175	+1	0.098117215234	114.088737372551

590	0.004825090497	1.970191939701	+1	0.097537312807	130.448368173937
600	0.004767542342	2.135309105978	+1	0.096973959364	150.084489835693
610	0.004711456362	2.321998508762	+1	0.096426561283	173.899392852578
620	0.004656774201	2.534726757591	+1	0.095894515615	203.122842643721
630	0.004603442308	2.779282252875	+1	0.095377271968	239.464983863701
640	0.004551406182	3.063322806811	+1	0.094874287221	285.361876834466
650	0.004500617564	3.397175826775	+1	0.094385065394	344.373118367310
660	0.004451030062	3.795130600724	+1	0.093909146149	421.865504573621
670	0.004402598288	4.277493893931	+1	0.093446050645	526.220238311554
680	0.004355281788	4.874162412309	+1	0.092995330343	671.110351500097
690	0.004309040193	5.631058110906	+1	0.092556542661	880.060392786459
700	0.004263836931	6.622547614405	+1	0.092129309055	1196.329032767553
710	0.004219634011	7.977449215698	+1	0.091713236903	1706.563879867626
720	0.004176398008	9.939933548022	+1	0.091307947352	2605.422296466511
730	0.004134097532	13.036081693501	+1	0.090913077211	4407.998875134630
740	0.004092699399	18.645798057084	+1	0.090528265074	8872.826426232699
750	0.004052175992	31.918188873732	+1	0.090153194488	25588.359149143631
760	0.004016459832	82.788253316859	+1	0.089678441291	169457.509488534740
770	0.003973637688	89.249087739387	-1	0.089431066280	198294.930150652920
780	0.003935570524	30.996326792069	-1	0.089083393709	24547.934035086226
790	0.003898271406	18.693285820533	-1	0.088744264988	9160.982931366452
800	0.003861716686	13.350497527786	-1	0.088413397756	4793.251923847345
810	0.003825883212	10.364066605911	-1	0.088090580182	2962.454139932139
820	0.003790749853	8.457058285121	-1	0.087775520002	2022.454508664596
830	0.003756294715	7.133977854081	-1	0.087467985754	1475.189516139689
840	0.003722499526	6.162351173357	-1	0.087167751099	1128.024703990668
850	0.003689344243	5.418636207821	-1	0.086874590323	893.607086904659
860	0.003656810337	4.831116406764	-1	0.086588304730	727.619300464930
870	0.003624879847	4.355321396292	-1	0.086308673348	605.613646772944
880	0.003593536126	3.962194909293	-1	0.086035494952	513.189917912619
890	0.003562762843	3.631951123360	-1	0.085768578005	441.412448422275
900	0.003532543693	3.350645910581	-1	0.085507744295	384.493221863444
910	0.003502864256	3.108170707122	-1	0.085252839935	338.547184028738

920	0.003473709494	2.897034349289	-1	0.085003645914	300.889182216729
930	0.003445065177	2.711546950048	-1	0.084760034236	269.610741112853
940	0.003416918302	2.547321731933	-1	0.084521823919	243.326399824507
950	0.003389255677	2.400913496652	-1	0.084288882364	221.009086014111
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970	0.003335331427	2.151127475498	-1	0.083838171570	185.360257274051
980	0.003309046542	2.043752218896	-1	0.083620129754	170.976030259231
990	0.003283197981	1.945979377286	-1	0.083406794927	158.369710967442
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1025	0.003196005910	1.663396695800	-1	0.082695365562	124.567832202127
1050	0.003136674457	1.504412504806	-1	0.082218613840	107.268979165671
1075	0.003079635272	1.371358393201	-1	0.081766059065	93.741778906702
1100	0.003024756919	1.258415512969	-1	0.081336194540	82.937897876055
1125	0.002971914072	1.161374173171	-1	0.080927747337	74.152346497576
1150	0.002920994625	1.077141573960	-1	0.080539299863	66.898454516452
1175	0.002871895303	1.003375417857	-1	0.080169562506	60.829391286451
1200	0.002824517589	0.938261602890	-1	0.079817470206	55.691778169680
1225	0.002778771045	0.880380024922	-1	0.079482027202	51.297308163386
1250	0.002734571142	0.828611581137	-1	0.079162235717	47.504218702552
1275	0.002691840988	0.782056165547	-1	0.078857125042	44.203472893439
1300	0.002650506646	0.739976670354	-1	0.078565924726	41.309785098208
1325	0.002610498614	0.701766400755	-1	0.078287914147	38.755758508984
1350	0.002571753120	0.666928821024	-1	0.078022316056	36.488014360266
1375	0.002534211040	0.635047581675	-1	0.077768417073	34.463386470741
1400	0.002497816613	0.605769833063	-1	0.077525601651	32.646586224489
1425	0.002462515364	0.578794870208	-1	0.077293316167	31.008557459274
1450	0.002428259488	0.553869484959	-1	0.077070995879	29.525431778071
1475	0.002395002558	0.530775819151	-1	0.076858090528	28.177273721185
1500	0.002362699878	0.509323525570	-1	0.076654165919	26.947221374736
1550	0.002300794538	0.470705855877	-1	0.076271537906	24.786641673418
1600	0.002242243849	0.436941751490	-1	0.075919659513	22.953646264366
1650	0.002186777337	0.407194825963	-1	0.075595653143	21.381496205604
1700	0.002134153591	0.380811261767	-1	0.075296862022	20.020140216378

1750	0.002084153595	0.357266905916	-1	0.075021096138	18.831100876642
1800	0.002036583201	0.336142676974	-1	0.074766282580	17.784640569919
1850	0.001991267132	0.317095976460	-1	0.074530631294	16.857277789393
1900	0.001948046904	0.299849051535	-1	0.074312249308	16.030492991832
1950	0.001906778656	0.284168122607	-1	0.074109681625	15.289210180429
2000	0.001867325207	0.269849147751	-1	0.073922197719	14.620775395655
2100	0.001793357753	0.244640233889	-1	0.073591308352	13.463269509624
2200	0.001725221293	0.223177435411	-1	0.073318568061	12.497692610098
2300	0.001662373905	0.204790529704	-1	0.073082694565	11.682745122195
2400	0.001604217253	0.188892741945	-1	0.072877444084	10.986379714574
2500	0.001550217037	0.175011918833	-1	0.072700931011	10.384003173533
2600	0.001499905723	0.162776652476	-1	0.072553481610	9.856958395287
2700	0.001452920842	0.151932460437	-1	0.072430075487	9.392417202396
2800	0.001408952645	0.142277321811	-1	0.072325471695	8.980386170134
2900	0.001367720608	0.133638593928	-1	0.072236357399	8.612595105918
3000	0.001328968575	0.125867751639	-1	0.072161335220	8.282137875645
3100	0.001292467542	0.118840165756	-1	0.072100072221	7.983351699563
3200	0.001258030096	0.112463299290	-1	0.072049905536	7.712022089298
3300	0.001225490705	0.106659376741	-1	0.072008310522	7.464653011986
3400	0.001194696041	0.101359204707	-1	0.071973840092	7.238201541934
3500	0.001165505378	0.096500982808	-1	0.071946152877	7.029994782121
3600	0.001137789457	0.092031189136	-1	0.071925440904	6.837762011489
3700	0.001111441425	0.087909304603	-1	0.071910197806	6.659766679299
3800	0.001086365594	0.084100423546	-1	0.071898930073	6.494523641977
3900	0.001062472881	0.080572655957	-1	0.071890762638	6.340691357769
4000	0.001039679867	0.077296747291	-1	0.071885515780	6.197056894943
4100	0.001017908935	0.074246768402	-1	0.071883240226	6.062557457296
4200	0.000997094673	0.071402383161	-1	0.071883037732	5.936354314938
4300	0.000977178269	0.068745647867	-1	0.071884018809	5.817704929715
4400	0.000958102770	0.066259814534	-1	0.071885745411	5.705932105668
4500	0.000939815371	0.063929340658	-1	0.071888141357	5.600405016794
4600	0.000922266655	0.061740192816	-1	0.071891315703	5.500560903238
4700	0.000905414268	0.059681133750	-1	0.071894748835	5.405947645606

4800	0.000889219058	0.057742167611	-1	0.071897812205	5.316159552115
4900	0.000873644021	0.055913795405	-1	0.071900279493	5.230818025010
5000	0.000858654184	0.054187113895	-1	0.071902104783	5.149564475276
5500	0.000791463280	0.046837944293	-1	0.071889235157	4.794761088546
6000	0.000734985654	0.041139043265	-1	0.071827814618	4.506393154371
6500	0.000686875540	0.036613156466	-1	0.071715260518	4.265873791481
7000	0.000645444291	0.032950136337	-1	0.071546131272	4.060910443323
7500	0.000609428811	0.029937758327	-1	0.071318106656	3.883072614667
8000	0.000577865844	0.027426431360	-1	0.071031002437	3.726394610458
8500	0.000550006196	0.025308008969	-1	0.070685975780	3.586548557812
9000	0.000525259145	0.023502580204	-1	0.070285093675	3.460319810830
9500	0.000503151872	0.021949971215	-1	0.069831012960	3.345280376555
10000	0.000483301821	0.020604081657	-1	0.069326835381	3.239563313098
10500	0.000465395046	0.019428842321	-1	0.068776229046	3.141697163312
11000	0.000449175210	0.018396813831	-1	0.068181128140	3.050573661370
11500	0.000434424033	0.017484656888	-1	0.067546479033	2.965227611853
12000	0.000420962268	0.016674738004	-1	0.066874716481	2.884942052962
12500	0.000408635199	0.015952008842	-1	0.066169694561	2.809095708464
13000	0.000397313722	0.015304678662	-1	0.065433888444	2.737204355014
13500	0.000386885364	0.014722462741	-1	0.064670918832	2.668836952780
14000	0.000377254069	0.014197209824	-1	0.063883210964	2.603660616082
14500	0.000368336163	0.013721749481	-1	0.063073827133	2.541369224549
15000	0.000360059906	0.013290309322	-1	0.062245042615	2.481722797681
16000	0.000345184871	0.012539775934	-1	0.060539448229	2.369518698161
17000	0.000332209120	0.011913377354	-1	0.058784083710	2.265650532458
18000	0.000320804586	0.011387132597	-1	0.056994349539	2.169049375888
19000	0.000310711946	0.010942875823	-1	0.055183618344	2.078873082445
20000	0.000301723997	0.010566646034	-1	0.053363347182	1.994440097154
21000	0.000206727522	0.005715029121	-1	0.099459447201	3.070068634970
22000	0.000197101829	0.005358146039	-1	0.100573279856	3.055455257055
23000	0.000187878152	0.005009680288	-1	0.101838753933	3.037953721178
24000	0.000179194505	0.004680244264	-1	0.103228609184	3.020036618748
25000	0.000171181150	0.004380932582	-1	0.104663418699	3.004300298084

26000	0.000163925270	0.004120122181	-1	0.106025260101	2.992697161769
27000	0.000157350667	0.003894079641	-1	0.107271253822	2.984830264353
28000	0.000151346494	0.003696010635	-1	0.108404200618	2.979719746719
29000	0.000145808231	0.003519201192	-1	0.109452996275	2.976426974606
30000	0.000140636539	0.003357085106	-1	0.110473292561	2.974109374556
31000	0.000135749705	0.003204336443	-1	0.111529446494	2.972187286954
32000	0.000131122207	0.003059970098	-1	0.112629326648	2.970689810680
33000	0.000126743664	0.002924086357	-1	0.113761626592	2.969765799018
34000	0.000122605370	0.002796797711	-1	0.114911456496	2.969531024393
35000	0.000118700034	0.002678223742	-1	0.116060151903	2.970068523131
36000	0.000115019261	0.002568313597	-1	0.117189140250	2.971400591858
37000	0.000111545944	0.002466334431	-1	0.118294472709	2.973448544741
38000	0.000108261571	0.002371399659	-1	0.119378880742	2.976120319301
39000	0.000105148514	0.002282645669	-1	0.120448468876	2.979338884718
40000	0.000102189895	0.002199230707	-1	0.121513096075	2.983048530096
41000	0.000099370699	0.002120429903	-1	0.122583148952	2.987219540579
42000	0.000096681373	0.002045898760	-1	0.123658747017	2.991841226151
43000	0.000094114152	0.001975390519	-1	0.124737363334	2.996900916293
44000	0.000091661716	0.001908662759	-1	0.125816983650	3.002385454029
45000	0.000089316932	0.001845469726	-1	0.126896808489	3.008293467996
46000	0.000087075645	0.001785652253	-1	0.127969628413	3.014480472809
47000	0.000084932426	0.001729006228	-1	0.129032305443	3.020875322420
48000	0.000082878713	0.001675231902	-1	0.130091652423	3.027602193335
49000	0.000080908863	0.001624114602	-1	0.131148562155	3.034647265635
50000	0.000079017449	0.001575445118	-1	0.132204745131	3.042001315704
55000	0.000070576843	0.001363134311	-1	0.137524844356	3.083698706942
60000	0.000063542009	0.001192703070	-1	0.142849453427	3.131720182092
65000	0.000057592447	0.001053437435	-1	0.148185866402	3.185205113466
70000	0.000052497382	0.000937914304	-1	0.153542298841	3.243639892023
75000	0.000048087545	0.000840862293	-1	0.158922742799	3.306637412940
80000	0.000044235386	0.000758432774	-1	0.164329248158	3.373937122143
85000	0.000040841641	0.000687731688	-1	0.169774600468	3.445667686710
90000	0.000037835848	0.000626652753	-1	0.175222413001	3.520723532183

95000	0.000035152422	0.000573440096	-1	0.180704120349	3.599927794443
100000	0.000032744596	0.000526788965	-1	0.186209940134	3.683002501625
105000	0.000030574012	0.000485651779	-1	0.191732205987	3.769727322503
110000	0.000028609009	0.000449201597	-1	0.197262283435	3.860037132064
115000	0.000026822326	0.000416727003	-1	0.202805065308	3.954019085162
120000	0.000025192274	0.000387678353	-1	0.208351600722	4.051595441446
125000	0.000023700121	0.000361582642	-1	0.213900127132	4.152762006095
130000	0.000022330279	0.000338058817	-1	0.219443479398	4.257488943616
135000	0.000021069046	0.000316774646	-1	0.224980799797	4.365831109175
140000	0.000019905070	0.000297459701	-1	0.230504681463	4.477738299985
145000	0.000018828294	0.000279876339	-1	0.236012484839	4.593220471552
150000	0.000017830174	0.000263827435	-1	0.241498093698	4.712248851360
155000	0.000016903064	0.000249138349	-1	0.246959403196	4.834851854514
160000	0.000016040432	0.000235662917	-1	0.252390358236	4.960990865794
165000	0.000015236378	0.000223270656	-1	0.257788294523	5.090678330293
170000	0.000014485820	0.000211851306	-1	0.263147604365	5.223874070045
175000	0.000013784163	0.000201306049	-1	0.268465023196	5.360563726787
180000	0.000013127452	0.000191550218	-1	0.273734545324	5.500648927546
185000	0.000012512199	0.000182508968	-1	0.278949672316	5.643969759642
190000	0.000011935852	0.000174124485	-1	0.284089223510	5.789921749434
195000	0.000011391476	0.000166293989	-1	0.289241678946	5.941591080622
200000	0.000010877485	0.000158975476	-1	0.294387819414	6.098453565595
205000	0.000010392840	0.000152134544	-1	0.299498125888	6.259504251002
210000	0.000009935631	0.000145734884	-1	0.304563711602	6.424626095059
215000	0.000009506089	0.000139763396	-1	0.309520940079	6.591551782870
220000	0.000009102114	0.000134183938	-1	0.314369225540	6.760242856712
225000	0.000008720401	0.000128950465	-1	0.319149540293	6.932361080577
230000	0.000008359651	0.000124037569	-1	0.323853413186	7.107599818864
235000	0.000008018512	0.000119420133	-1	0.328477987310	7.285815037224
240000	0.000007695632	0.000115073921	-1	0.333024733415	7.466997564467
245000	0.000007389678	0.000110975812	-1	0.337498931033	7.651271669119
250000	0.000007099341	0.000107103776	-1	0.341909900554	7.838924238614
255000	0.000006823431	0.000103438279	-1	0.346266719179	8.030277992361

260000	0.000006561125	0.000099965770	-1	0.350566059359	8.225238131663
265000	0.000006311707	0.000096674466	-1	0.354802528310	8.423609976275
270000	0.000006074494	0.000093553109	-1	0.358971609195	8.625195850724
275000	0.000005848816	0.000090590861	-1	0.363070519205	8.829840247056
280000	0.000005634020	0.000087777312	-1	0.367098114572	9.037437493529
285000	0.000005429476	0.000085102555	-1	0.371054521117	9.247919545927
290000	0.000005234562	0.000082557030	-1	0.374941900487	9.461301907233
295000	0.000005048675	0.000080131657	-1	0.378763858940	9.677678032990
300000	0.000004871222	0.000077817749	-1	0.382525891085	9.897249038260

Electron Elastic Scattering Sampling Data
Solution for Z = 21

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.029390813084	22.364093066401	-1	0.400867903932	11555.454424053349
52	0.029131838705	23.532170959692	+1	0.381600618766	11882.261069337483
54	0.028864290691	7.163845596350	+1	0.363676874745	1125.537566763554
56	0.028567895079	4.032847962011	+1	0.347257623795	367.472153768452
58	0.028235541339	2.723886517238	+1	0.332364531049	173.928995087301
60	0.027867634022	2.013820794669	+1	0.318935976301	99.223953625759
62	0.027468485323	1.572876959563	+1	0.306866305297	63.480850912494
64	0.027044067387	1.275156057720	+1	0.296029509458	43.923202023361
66	0.026600747332	1.062368899803	+1	0.286297307248	32.184459000949
68	0.026144599202	0.903845219261	+1	0.277545341727	24.641009591390
70	0.025681014205	0.781951319781	+1	0.269658426264	19.531654688941
72	0.025214605004	0.685876918844	+1	0.262533695957	15.923846060710
74	0.024749202692	0.608606169158	+1	0.256078530009	13.287808296315
76	0.024287894267	0.545424975229	+1	0.250212451683	11.306852792870
78	0.023833127123	0.493040688485	+1	0.244864747584	9.782406778812
80	0.023386779783	0.449088541544	+1	0.239973733399	8.585226832056
82	0.022950264830	0.411838318922	+1	0.235486279490	7.628687435286
84	0.022524605740	0.379984576181	+1	0.231355659367	6.852734865884
86	0.022110503901	0.352536394951	+1	0.227541752613	6.215019734937
88	0.021708406386	0.328723311275	+1	0.224009489034	5.684864955315
90	0.021318553132	0.307938507488	+1	0.220728201478	5.239637529209
92	0.020941021617	0.289701952911	+1	0.217671475423	4.862444043987
94	0.020575766216	0.273623510688	+1	0.214815780261	4.540334273647
96	0.020222634779	0.259388602833	+1	0.212140836360	4.263376052883
98	0.019881406293	0.246739161200	+1	0.209628766280	4.023802569848
100	0.019551822010	0.235461331076	+1	0.207263755819	3.815459610363
105	0.018776509588	0.212170462804	+1	0.201908254697	3.401387338848
110	0.018066232030	0.194304201800	+1	0.197211378779	3.099447592352

115	0.017415090512	0.180473929149	+1	0.193042739211	2.876404110005
120	0.016817295056	0.169707944592	+1	0.189301802375	2.710666485935
125	0.016267428657	0.161326963242	+1	0.185912635933	2.588048707315
130	0.015760512945	0.154834404668	+1	0.182815726227	2.498728442041
135	0.015292078365	0.149867655227	+1	0.179964890592	2.435867144506
140	0.014858121667	0.146151591588	+1	0.177323115910	2.394486697571
145	0.014455096899	0.143477946718	+1	0.174860972377	2.370963512072
150	0.014079857197	0.141684757389	+1	0.172554459296	2.362575492691
155	0.013729627405	0.140645732822	+1	0.170384021003	2.367272234793
160	0.013401957093	0.140260719981	+1	0.168333477229	2.383480155656
165	0.013094682461	0.140449580917	+1	0.166389358761	2.409982164336
170	0.012805882387	0.141148160190	+1	0.164540370940	2.445842771277
175	0.012533869954	0.142303708629	+1	0.162776943661	2.490317791652
180	0.012277137646	0.143873259694	+1	0.161090861007	2.542830516843
185	0.012034355616	0.145820885839	+1	0.159475079831	2.602918703019
190	0.011804326114	0.148119340878	+1	0.157923754920	2.670281938343
195	0.011585990080	0.150744300879	+1	0.156431614383	2.744656557311
200	0.011378418425	0.153669465884	+1	0.154993352318	2.825701901102
205	0.011180788571	0.156871571884	+1	0.153604251010	2.913116909338
210	0.010992313592	0.160341031740	+1	0.152261307639	3.006913328022
215	0.010812288858	0.164071873868	+1	0.150961997110	3.107179080297
220	0.010640084659	0.168058439777	+1	0.149703933108	3.214003433393
225	0.010475129401	0.172295063351	+1	0.148484797750	3.327471395099
230	0.010316917814	0.176775827588	+1	0.147302314980	3.447652695163
235	0.010164990583	0.181494264912	+1	0.146154280517	3.574599285267
240	0.010018937843	0.186443272078	+1	0.145038541397	3.708338595776
245	0.009878394235	0.191614605344	+1	0.143952914229	3.848857212388
250	0.009743020761	0.196999114655	+1	0.142895305011	3.996112455085
255	0.009612516617	0.202588455607	+1	0.141863806365	4.150068672455
260	0.009486585213	0.208383292578	+1	0.140857355068	4.310934222910
265	0.009364948173	0.214386426839	+1	0.139875089923	4.478983333108
270	0.009247351646	0.220600370316	+1	0.138916152194	4.654489403462
275	0.009133565479	0.227027249270	+1	0.137979678859	4.837721042886

280	0.009023376993	0.233668728130	+1	0.137064800957	5.028941410043
285	0.008916589932	0.240525981614	+1	0.136170623541	5.228405463605
290	0.008813023633	0.247599743001	+1	0.135296260455	5.436361235702
295	0.008712514218	0.254889929220	+1	0.134440830904	5.653037008967
300	0.008614908886	0.262395731984	+1	0.133603414341	5.878642325685
310	0.008427848440	0.278057282219	+1	0.131979594081	6.357698062140
320	0.008250805197	0.294616095997	+1	0.130420476242	6.876525196332
330	0.008082865989	0.312111612746	+1	0.128922274317	7.438581831635
340	0.007923231216	0.330581422550	+1	0.127481239512	8.047511734803
350	0.007771207550	0.350059353039	+1	0.126093548057	8.707069538932
360	0.007626181077	0.370581143969	+1	0.124755650074	9.421334461996
370	0.007487607887	0.392202933221	+1	0.123464914047	10.195413148737
380	0.007354998236	0.414989567794	+1	0.122219023240	11.035142424588
390	0.007227914185	0.439009011376	+1	0.121015699372	11.946943348729
400	0.007105963546	0.464332537005	+1	0.119852724183	12.937883822943
410	0.006988790154	0.491037655617	+1	0.118728004080	14.015867067742
420	0.006876080073	0.519217491292	+1	0.117639751421	15.190094689531
430	0.006767547457	0.548976133428	+1	0.116586348594	16.471049296476
440	0.006662931401	0.580427357183	+1	0.115566239798	17.870580683369
450	0.006561989659	0.613696130211	+1	0.114577932521	19.402143575310
460	0.006464505473	0.648920557296	+1	0.113620032279	21.081061244934
470	0.006370280433	0.686257763419	+1	0.112691236821	22.925047973226
480	0.006279136095	0.725883569643	+1	0.111790343337	24.954501326319
490	0.006190902982	0.767995054522	+1	0.110916223236	27.193021871904
500	0.006105424407	0.812813851163	+1	0.110067823549	29.668010714491
510	0.006022557003	0.860588678290	+1	0.109244103817	32.411315988869
520	0.005942170929	0.911601590934	+1	0.108444117558	35.460244994217
530	0.005864144632	0.966171974781	+1	0.107666911880	38.858604190676
540	0.005788365494	1.024665397785	+1	0.106911633134	42.658276913189
550	0.005714725007	1.087500688527	+1	0.106177468894	46.920981961166
560	0.005643124410	1.155159175660	+1	0.105463647593	51.720470138378
570	0.005573473562	1.228194669480	+1	0.104769398215	57.145247147530
580	0.005505685412	1.307251319508	+1	0.104094013117	63.302575808640

590	0.005439682632	1.393080709193	+1	0.103436794003	70.323127864394
600	0.005375386834	1.486569739534	+1	0.102797102191	78.367891986832
610	0.005312725647	1.588768641857	+1	0.102174365059	87.636550672613
620	0.005251632491	1.700926562922	+1	0.101567966065	98.378626074321
630	0.005192050215	1.824534237318	+1	0.100977278701	110.908268678155
640	0.005133915714	1.961415175836	+1	0.100401817607	125.628788822418
650	0.005077172201	2.113797303242	+1	0.099841064986	143.061371156049
660	0.005021768252	2.284437627315	+1	0.099294513477	163.889312184700
670	0.004967653662	2.476785653571	+1	0.098761710305	189.021808662444
680	0.004914782196	2.695212896710	+1	0.098242158140	219.688334576911
690	0.004863107871	2.945361748284	+1	0.097735436686	257.586337420132
700	0.004812588371	3.234631551882	+1	0.097241121597	305.108884539716
710	0.004763182818	3.572927077266	+1	0.096758829067	365.716322171980
720	0.004714853978	3.973781542366	+1	0.096288167215	444.552007822991
730	0.004667564700	4.456220287086	+1	0.095828757721	549.529470050068
740	0.004621280610	5.047866775954	+1	0.095380233440	693.326331645288
750	0.004575968394	5.790420199011	+1	0.094942269984	897.272295931195
760	0.004531595035	6.749924318084	+1	0.094514536062	1199.495976871022
770	0.004488131998	8.037452119519	+1	0.094096710656	1673.580405644449
780	0.004445549534	9.855584391580	+1	0.093688488497	2476.808746754834
790	0.004403821509	12.616907477622	+1	0.093289578255	3996.297969136372
800	0.004362919778	17.311745183329	+1	0.092899697650	7409.035538140114
810	0.004322820303	27.062889123069	+1	0.092518573199	17834.346759201562
820	0.004283497199	59.561763278163	+1	0.092145964752	85108.225799368127
830	0.004258388453	186.011067574369	+1	0.091393914606	818195.317216499940
840	0.004224914809	88.962791634579	-1	0.090910417156	188638.071191276130
850	0.004169971414	23.967595345446	-1	0.091076599167	14319.913466246817
860	0.004133536318	16.280575924797	-1	0.090735542461	6763.974652894272
870	0.004097773097	12.305346499602	-1	0.090401814777	3954.792384101857
880	0.004062662174	9.876558508075	-1	0.090075210118	2606.906170480971
890	0.004028184356	8.238901662091	-1	0.089755506425	1855.826886628259
900	0.003994323375	7.060070956771	-1	0.089442544582	1393.831397996898
910	0.003961060913	6.171001438611	-1	0.089136117335	1088.948393059642

920	0.003928382390	5.476625271071	-1	0.088836052551	876.875695888476
930	0.003896271464	4.919359587435	-1	0.088542162655	723.200612231853
940	0.003864713188	4.462285584824	-1	0.088254277999	608.136875521759
950	0.003833692827	4.080641911168	-1	0.087972238896	519.643594938997
960	0.003803197287	3.757208033454	-1	0.087695884638	450.048725486154
970	0.003773212366	3.479631573357	-1	0.087425075807	394.272235934472
980	0.003743724866	3.238827141890	-1	0.087159654556	348.840887753452
990	0.003714723172	3.027958682180	-1	0.086899483443	311.312678831356
1000	0.003686192834	2.841778915110	-1	0.086644444435	279.928748531464
1025	0.003616861081	2.459603221020	-1	0.086028374261	220.648292546247
1050	0.003550241767	2.164180037280	-1	0.085441414556	179.561995429169
1075	0.003486175951	1.929101125397	-1	0.084881698131	149.818512813778
1100	0.003424517923	1.737661165689	-1	0.084347601900	127.527175585238
1125	0.003365127746	1.578783465108	-1	0.083837739665	110.342812868345
1150	0.003307882544	1.444878014229	-1	0.083350589080	96.785318413074
1175	0.003252667218	1.330539410927	-1	0.082884746454	85.878595955942
1200	0.003199373206	1.231803536824	-1	0.082439032834	76.956128348852
1225	0.003147898414	1.145702463612	-1	0.082012400046	69.550199004350
1250	0.003098151245	1.069990226211	-1	0.081603696086	63.325957160401
1275	0.003050045655	1.002918964293	-1	0.081211907576	58.036957027897
1300	0.003003499190	0.943105996755	-1	0.080836137453	53.498258297879
1325	0.002958436268	0.889445804835	-1	0.080475606819	49.568957163956
1350	0.002914785898	0.841053233148	-1	0.080129442280	46.140738178468
1375	0.002872482011	0.797203598406	-1	0.079796879551	43.128634126766
1400	0.002831462632	0.757296004096	-1	0.079477232723	40.465042811570
1425	0.002791667339	0.720828502373	-1	0.079169916347	38.095690185502
1450	0.002753042024	0.687385449859	-1	0.078874257984	35.976935976222
1475	0.002715535953	0.656614776563	-1	0.078589663687	34.073067384083
1500	0.002679098746	0.628214036425	-1	0.078315619506	32.354493615932
1550	0.002609253391	0.577526297888	-1	0.077797249339	29.379083009531
1600	0.002543168777	0.533661167309	-1	0.077315336451	26.898564661742
1650	0.002480544070	0.495356984460	-1	0.076866665811	24.803552330352
1700	0.002421111001	0.461646957664	-1	0.076448238722	23.014089770707

1750	0.002364624892	0.431770335588	-1	0.076057570266	21.470181163583
1800	0.002310870169	0.405127753560	-1	0.075692259035	20.126335027067
1850	0.002259650169	0.381235822053	-1	0.075350236534	18.947304593331
1900	0.002210788227	0.359706662186	-1	0.075029410782	17.905691697185
1950	0.002164120472	0.340217162782	-1	0.074728121513	16.979535782264
2000	0.002119494888	0.322490189005	-1	0.074445432308	16.150765413268
2100	0.002035830443	0.291453585586	-1	0.073932036438	14.730353115410
2200	0.001958889343	0.265263554923	-1	0.073476260831	13.560923745581
2300	0.001887908850	0.242942341095	-1	0.073066604564	12.584165864919
2400	0.001822217316	0.223727493757	-1	0.072695882122	11.757117799579
2500	0.001761141471	0.206982514853	-1	0.072367894971	11.047051582924
2600	0.001704162534	0.192242687147	-1	0.072082356179	10.429981676121
2700	0.001650936419	0.179213408058	-1	0.071828106342	9.889678234341
2800	0.001601112174	0.167639528499	-1	0.071599458090	9.413324105367
2900	0.001554374097	0.157304902047	-1	0.071392631015	8.990445826510
3000	0.001510434133	0.148024884345	-1	0.071205744721	8.612401639677
3100	0.001469034512	0.139645409369	-1	0.071038006872	8.272174868432
3200	0.001429963220	0.132052148426	-1	0.070886486016	7.964547872302
3300	0.001393033514	0.125149418588	-1	0.070748364411	7.685214186968
3400	0.001358072743	0.118852500511	-1	0.070621946271	7.430465004104
3500	0.001324921295	0.113086061789	-1	0.070506596146	7.197077105977
3600	0.001293434558	0.107785059321	-1	0.070402212925	6.982315502737
3700	0.001263492154	0.102900312644	-1	0.070307121418	6.784093676096
3800	0.001234985017	0.098389441674	-1	0.070219682592	6.600634035307
3900	0.001207813415	0.094213937392	-1	0.070138837409	6.430337550927
4000	0.001181882668	0.090338594236	-1	0.070064194619	6.271775897862
4100	0.001157106090	0.086732190634	-1	0.069995680248	6.123697181978
4200	0.001133409645	0.083370292750	-1	0.069932242493	5.985111643687
4300	0.001110726224	0.080231307290	-1	0.069872911410	5.855150126965
4400	0.001088992379	0.077295247246	-1	0.069817094524	5.733019585807
4500	0.001068148179	0.074543479441	-1	0.069764615483	5.617988620540
4600	0.001048138112	0.071959230748	-1	0.069715469772	5.509404564147
4700	0.001028914234	0.069529155949	-1	0.069668985582	5.406743615503

4800	0.001010432829	0.067241258697	-1	0.069624545315	5.309535352305
4900	0.000992651819	0.065084274560	-1	0.069581757813	5.217342985113
5000	0.000975531205	0.063047569773	-1	0.069540525871	5.129758627713
5500	0.000898663073	0.054374320210	-1	0.069350287040	4.749672551138
6000	0.000833867128	0.047641915442	-1	0.069167362008	4.443987644230
6500	0.000778562030	0.042299531209	-1	0.068967492145	4.191567580590
7000	0.000730848539	0.037980497556	-1	0.068736739285	3.978520765188
7500	0.000689276259	0.034428083710	-1	0.068475242513	3.795419324375
8000	0.000652758447	0.031465894119	-1	0.068178756844	3.635595216347
8500	0.000620450755	0.028966462549	-1	0.067845014359	3.494216425859
9000	0.000591686779	0.026835677380	-1	0.067473017776	3.367700679294
9500	0.000565933044	0.025002627666	-1	0.067062857462	3.253340636129
10000	0.000542757041	0.023413042868	-1	0.066615234844	3.149057168090
10500	0.000521803969	0.022024436114	-1	0.066131791415	3.053211139203
11000	0.000502784321	0.020804487815	-1	0.065612669657	2.964560647278
11500	0.000485450728	0.019725708398	-1	0.065061192879	2.882032528726
12000	0.000469599760	0.018767316834	-1	0.064478408253	2.804825966687
12500	0.000455056627	0.017911611834	-1	0.063866833848	2.732243904620
13000	0.000441674118	0.017144655683	-1	0.063227997388	2.663748929314
13500	0.000429324409	0.016454358399	-1	0.062564427098	2.598859991951
14000	0.000417898199	0.015831088528	-1	0.061877791597	2.537205904123
14500	0.000407300493	0.015266401304	-1	0.061170412633	2.478446466960
15000	0.000397448930	0.014753492096	-1	0.060443887715	2.422317926096
16000	0.000379702115	0.013859748062	-1	0.058941481648	2.317019818419
17000	0.000364176805	0.013111813549	-1	0.057384741767	2.219789013181
18000	0.000350496875	0.012481391271	-1	0.055786428152	2.129472433480
19000	0.000338363638	0.011947017382	-1	0.054158186801	2.045183432933
20000	0.000327537391	0.011492186433	-1	0.052510304404	1.966220075922
21000	0.000239995630	0.006605999160	-1	0.091495736470	2.789744085227
22000	0.000228912963	0.006187685167	-1	0.092501863449	2.771674045330
23000	0.000218307715	0.005780069470	-1	0.093638440686	2.750583890740
24000	0.000208330762	0.005395196711	-1	0.094887168180	2.729009095412
25000	0.000199122297	0.005045708911	-1	0.096182600149	2.709676580781

26000	0.000190773743	0.004741172332	-1	0.097422280486	2.694710891072
27000	0.000183197295	0.004477228549	-1	0.098565881414	2.683758088617
28000	0.000176268402	0.004245989195	-1	0.099613205348	2.675813094795
29000	0.000169870397	0.004039650230	-1	0.100588206195	2.669879396119
30000	0.000163893111	0.003850578064	-1	0.101539689476	2.665017513709
31000	0.000158246052	0.003672573460	-1	0.102525339359	2.660541055043
32000	0.000152899805	0.003504465915	-1	0.103552552178	2.656463125650
33000	0.000147841525	0.003346340769	-1	0.104611534926	2.652946425525
34000	0.000143060269	0.003198306810	-1	0.105688978068	2.650128083162
35000	0.000138546863	0.003060482608	-1	0.106767988697	2.648115709936
36000	0.000134290989	0.002932793695	-1	0.107831502026	2.646957246659
37000	0.000130273062	0.002814380313	-1	0.108875604685	2.646576121552
38000	0.000126472052	0.002704205390	-1	0.109902518717	2.646872949085
39000	0.000122868032	0.002601260005	-1	0.110917597626	2.647757389025
40000	0.000119442002	0.002504561092	-1	0.111929743974	2.649154134075
41000	0.000116176992	0.002413260994	-1	0.112948524180	2.651015435470
42000	0.000113062063	0.002326956793	-1	0.113973855734	2.653324873013
43000	0.000110088211	0.002245358005	-1	0.115003300894	2.656071020203
44000	0.000107247056	0.002168182449	-1	0.116034689030	2.659237341565
45000	0.000104530728	0.002095153084	-1	0.117066349174	2.662804957952
46000	0.000101931808	0.002026001241	-1	0.118097007466	2.666752931079
47000	0.000099443122	0.001960462191	-1	0.119126057355	2.671062956392
48000	0.000097057898	0.001898279788	-1	0.120153383552	2.675715028833
49000	0.000094769641	0.001839201498	-1	0.121179797112	2.680693308926
50000	0.000092572137	0.001782981554	-1	0.122206885880	2.685984600837
55000	0.000082770526	0.001538342286	-1	0.127373506772	2.716812142731
60000	0.000074597600	0.001342496319	-1	0.132563961299	2.753762690837
65000	0.000067684456	0.001182921324	-1	0.137776083756	2.795791165770
70000	0.000061750106	0.001050586202	-1	0.143071462264	2.843358390643
75000	0.000056610745	0.000939657459	-1	0.148411471202	2.895287351367
80000	0.000052117931	0.000845623929	-1	0.153801757282	2.951370543303
85000	0.000048158877	0.000765148000	-1	0.159242419583	3.011399191254
90000	0.000044645392	0.000695696793	-1	0.164731964184	3.075232915541

95000	0.000041506238	0.000635291884	-1	0.170280853581	3.143058301988
100000	0.000038691113	0.000582472099	-1	0.175850053564	3.213928917623
105000	0.000036149555	0.000535952027	-1	0.181469633636	3.288585428646
110000	0.000033845545	0.000494787594	-1	0.187127672440	3.366922290022
115000	0.000031749447	0.000458177299	-1	0.192815213012	3.448664028160
120000	0.000029835796	0.000425483462	-1	0.198524717677	3.533794511145
125000	0.000028082367	0.000396157975	-1	0.204257398636	3.622427460045
130000	0.000026471277	0.000369763259	-1	0.210004196501	3.714506433828
135000	0.000024986845	0.000345918217	-1	0.215762061233	3.810031738609
140000	0.000023615794	0.000324312303	-1	0.221523506269	3.909000760990
145000	0.000022346342	0.000304672770	-1	0.227285980014	4.011470849194
150000	0.000021168657	0.000286773039	-1	0.233042239487	4.117404518209
155000	0.000020073895	0.000270412229	-1	0.238789687373	4.226825203980
160000	0.000019054451	0.000255423905	-1	0.244521266420	4.339724231602
165000	0.000018103467	0.000241660307	-1	0.250232707313	4.456133960517
170000	0.000017215065	0.000228994912	-1	0.255917635606	4.576024378319
175000	0.000016383877	0.000217314000	-1	0.261573044716	4.699414273157
180000	0.000015605218	0.000206520419	-1	0.267193428826	4.826279604013
185000	0.000014874821	0.000196527188	-1	0.272775262095	4.956625600641
190000	0.000014189085	0.000187261847	-1	0.278309632049	5.090346983832
195000	0.000013544714	0.000178658023	-1	0.283789516317	5.227331778455
200000	0.000012938634	0.000170652498	-1	0.289211947433	5.367459854357
205000	0.000012366703	0.000163175516	-1	0.294606321082	5.511592039325
210000	0.000011823056	0.000156151295	-1	0.300050693528	5.662478506188
215000	0.000011309789	0.000149585003	-1	0.305442030439	5.817198871351
220000	0.000010825080	0.000143442808	-1	0.310768681915	5.975544799257
225000	0.000010367162	0.000137692258	-1	0.316022160245	6.137343668064
230000	0.000009937377	0.000132329184	-1	0.321113028432	6.299375150493
235000	0.000009531148	0.000127297579	-1	0.326113792449	6.464108730303
240000	0.000009146365	0.000122565618	-1	0.331039759619	6.632071823103
245000	0.000008781569	0.000118108200	-1	0.335893522356	6.803295159998
250000	0.000008435278	0.000113901114	-1	0.340682955640	6.977992185421
255000	0.000008106109	0.000109922589	-1	0.345416815743	7.156445691505

260000	0.000007793086	0.000106157358	-1	0.350091475466	7.338590674154
265000	0.000007495360	0.000102592070	-1	0.354701130067	7.524268298948
270000	0.000007212114	0.000099214040	-1	0.359241031807	7.713327055486
275000	0.000006942544	0.000096010973	-1	0.363708614787	7.905665895219
280000	0.000006685872	0.000092971174	-1	0.368102768433	8.101218329660
285000	0.000006441345	0.000090083521	-1	0.372423874602	8.299963606408
290000	0.000006208221	0.000087337330	-1	0.376674489732	8.501965054430
295000	0.000005985777	0.000084722417	-1	0.380858925431	8.707359898241
300000	0.000005773312	0.000082229134	-1	0.384983206786	8.916382680281

Electron Elastic Scattering Sampling Data
Solution for Z = 22

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.027209352785	3.487554836933	-1	0.482693623287	522.489258706264
52	0.027207439195	4.840723021664	-1	0.462068577709	868.981527694972
54	0.027274604331	8.175266852868	-1	0.441537762602	2116.653024291140
56	0.027348988066	26.302382958411	-1	0.421725408120	18639.405132866839
58	0.027394094083	21.968654254471	+1	0.403017381590	12103.391658478251
60	0.027390844915	7.291635559519	+1	0.385619444348	1348.483079385786
62	0.027331743238	4.202477970718	+1	0.369608941319	456.530797240626
64	0.027216393011	2.876358095968	+1	0.354978072365	219.483249812478
66	0.027048719190	2.146143699019	+1	0.341666424485	126.140892609424
68	0.026834796111	1.687777096912	+1	0.329583948921	80.934019648126
70	0.026581520577	1.375634196964	+1	0.318627179055	56.002482759313
72	0.026295882721	1.150906213412	+1	0.308690235034	40.959181371017
74	0.025984472548	0.982396564108	+1	0.299669014757	31.257999209671
76	0.025653240834	0.852079699752	+1	0.291466826120	24.673231754896
78	0.025307435684	0.748812585383	+1	0.283994612856	20.017413859996
80	0.024951548196	0.665347790164	+1	0.277171871116	16.613721997531
82	0.024589391014	0.596787535532	+1	0.270927297407	14.055657850076
84	0.024224142387	0.539690371653	+1	0.265196798155	12.087371808239
86	0.023858418167	0.491585551235	+1	0.259924310037	10.542327093367
88	0.023494347840	0.450649168037	+1	0.255060350126	9.308377441287
90	0.023133648279	0.415506634273	+1	0.250561105509	8.307891262221
92	0.022777678214	0.385109175762	+1	0.246388501024	7.486004730296
94	0.022427504331	0.358635736088	+1	0.242508460371	6.802870922209
96	0.022083938572	0.335442056801	+1	0.238891373122	6.229214554887
98	0.021747593514	0.315013943678	+1	0.235511115315	5.743088898747
100	0.021418904164	0.296936514925	+1	0.232344655794	5.327796101834
105	0.020632377281	0.259947890032	+1	0.225235335454	4.521546357432
110	0.019897227844	0.231794646221	+1	0.219077532707	3.947141103662

115	0.019212724003	0.210010016265	+1	0.213678559464	3.526436131310
120	0.018576602667	0.192928822443	+1	0.208889898798	3.211679258020
125	0.017985823516	0.179418506667	+1	0.204599861703	2.972917050268
130	0.017437026811	0.168669621924	+1	0.200720802974	2.790246222783
135	0.016926809116	0.160103293189	+1	0.197185198620	2.650275809844
140	0.016451867752	0.153286871598	+1	0.193938923221	2.543532614670
145	0.016009091956	0.147898837924	+1	0.190939336829	2.463306245917
150	0.015595599036	0.143691265151	+1	0.188151583284	2.404635369859
155	0.015208755878	0.140474141079	+1	0.185547696802	2.363865140722
160	0.014846164714	0.138097415349	+1	0.183104426291	2.338206147402
165	0.014505664239	0.136443012128	+1	0.180802681926	2.325536769140
170	0.014185301572	0.135416280145	+1	0.178626457859	2.324209052948
175	0.013883324250	0.134940924395	+1	0.176562329824	2.332935921372
180	0.013598158280	0.134954528583	+1	0.174598838513	2.350695058942
185	0.013328389245	0.135406074737	+1	0.172726245168	2.376679226445
190	0.013072738307	0.136255043307	+1	0.170936389752	2.410282168311
195	0.012830061598	0.137466779674	+1	0.169222012591	2.450998419440
200	0.012599356428	0.139007653196	+1	0.167576230011	2.498315527855
205	0.012379717684	0.140848933030	+1	0.165993056692	2.551806747463
210	0.012170287498	0.142973780240	+1	0.164468098823	2.611300680430
215	0.011970285488	0.145369560545	+1	0.162997638637	2.676710948819
220	0.011779010870	0.148024996890	+1	0.161578202743	2.747970898908
225	0.011595835520	0.150929687428	+1	0.160206575775	2.825024731390
230	0.011420196781	0.154073967355	+1	0.158879728929	2.907823833930
235	0.011251584700	0.157448321858	+1	0.157594811912	2.996316046258
240	0.011089542850	0.161043314676	+1	0.156349047843	3.090439888421
245	0.010933664469	0.164849129893	+1	0.155139825042	3.190115418905
250	0.010783575256	0.168855480142	+1	0.153964572744	3.295241736152
255	0.010638938896	0.173053268081	+1	0.152820994052	3.405736413089
260	0.010499415088	0.177441199886	+1	0.151707655643	3.521717141606
265	0.010364697317	0.182019718534	+1	0.150623337425	3.643345142548
270	0.010234495401	0.186789054879	+1	0.149566866674	3.770783095185
275	0.010108549539	0.191749230599	+1	0.148537037107	3.904187031384

280	0.009986618812	0.196899900910	+1	0.147532687905	4.043707704052
285	0.009868490243	0.202240079895	+1	0.146552633711	4.189476684306
290	0.009753958811	0.207768486079	+1	0.145595717092	4.341622607393
295	0.009642844806	0.213483066986	+1	0.144660778448	4.500249742198
300	0.009534986658	0.219380699593	+1	0.143746581926	4.665427855573
310	0.009328373032	0.231722665505	+1	0.141976908745	5.016049371100
320	0.009132960100	0.244809758355	+1	0.140280976047	5.395280143968
330	0.008947707596	0.258665300743	+1	0.138654096044	5.805279079568
340	0.008771719760	0.273308428223	+1	0.137091487718	6.248197196492
350	0.008604222559	0.288753012335	+1	0.135588339902	6.726134174937
360	0.008444536719	0.305012640081	+1	0.134140165761	7.241290231191
370	0.008292045724	0.322120924618	+1	0.132743774694	7.796664087800
380	0.008146195000	0.340117423132	+1	0.131396404786	8.395668383186
390	0.008006492465	0.359041380392	+1	0.130095281500	9.041935722600
400	0.007872498702	0.378931518842	+1	0.128837675910	9.739328929477
410	0.007743819622	0.399828781019	+1	0.127621009587	10.492055464873
420	0.007620100324	0.421787923175	+1	0.126443262644	11.305142111954
430	0.007501015493	0.444870242527	+1	0.125302591784	12.184251723716
440	0.007386271493	0.469140779029	+1	0.124197240418	13.135631014529
450	0.007275599401	0.494668574613	+1	0.123125474047	14.166174749118
460	0.007168753578	0.521528718848	+1	0.122085682286	15.283579825582
470	0.007065514391	0.549808478687	+1	0.121076442500	16.496678200025
480	0.006965676407	0.579605118281	+1	0.120096474285	17.815498604451
490	0.006869050002	0.611024868776	+1	0.119144539566	19.251339557795
500	0.006775463557	0.644183873283	+1	0.118219456872	20.816947369134
510	0.006684751202	0.679211144234	+1	0.117320140964	22.526863723713
520	0.006596770025	0.716250690590	+1	0.116445533235	24.397673175394
530	0.006511383925	0.755463701326	+1	0.115594692301	26.448437153553
540	0.006428465771	0.797029631759	+1	0.114766698928	28.701038125220
550	0.006347895514	0.841149498979	+1	0.113960708955	31.180745440799
560	0.006269562081	0.888048271418	+1	0.113175918780	33.916784716731
570	0.006193364233	0.937979092559	+1	0.112411529696	36.943103835173
580	0.006119207750	0.991227004160	+1	0.111666779625	40.299285712347

590	0.006047002298	1.048116664343	+1	0.110940986655	44.031891997726
600	0.005976662749	1.109017800867	+1	0.110233498479	48.195850234583
610	0.005908108902	1.174352780208	+1	0.109543684179	52.856269936577
620	0.005841268822	1.244602685424	+1	0.108870923834	58.090466207863
630	0.005776074896	1.320323569702	+1	0.108214619201	63.991221185611
640	0.005712459020	1.402160616787	+1	0.107574243145	70.670649424865
650	0.005650360989	1.490866343139	+1	0.106949280977	78.265014669799
660	0.005589721688	1.587322836718	+1	0.106339233322	86.941215664414
670	0.005530486254	1.692568694414	+1	0.105743604142	96.905090226233
680	0.005472602507	1.807835684898	+1	0.105161924771	108.412801943233
690	0.005416021480	1.934601673998	+1	0.104593752816	121.786785088800
700	0.005360697527	2.074650303490	+1	0.104038647343	137.436740245284
710	0.005306583804	2.230163185899	+1	0.103496235048	155.890620375238
720	0.005253639402	2.403812246779	+1	0.102966116301	177.834373675687
730	0.005201824175	2.598932497168	+1	0.102447889508	204.175255355178
740	0.005151102420	2.819725183439	+1	0.101941192523	236.130613772613
750	0.005101434785	3.071578555482	+1	0.101445682552	275.366716717077
760	0.005052788579	3.361499600546	+1	0.100961055052	324.208410273001
770	0.005005129185	3.698772734548	+1	0.100486970583	385.976455079607
780	0.004958425977	4.095956153336	+1	0.100023093004	465.541032865324
790	0.004912650170	4.570490342529	+1	0.099569141140	570.277792090528
800	0.004867772448	5.147337368836	+1	0.099124812150	711.784042592225
810	0.004823763667	5.863506599004	+1	0.098689879309	909.129864704239
820	0.004780598890	6.776243379243	+1	0.098264036017	1195.419953081782
830	0.004738253313	7.979145504862	+1	0.097847021314	1632.253481259381
840	0.004696702462	9.636477590028	+1	0.097438569475	2344.996768602941
850	0.004655924518	12.065349815374	+1	0.097038463935	3621.698907415890
860	0.004615893892	15.967847511559	+1	0.096646515098	6250.945924079929
870	0.004576591944	23.266919779212	+1	0.096262438025	13081.056588540179
880	0.004537997957	41.810512230692	+1	0.095886031765	41642.559411013666
890	0.004507106895	109.567382162465	+1	0.095330018140	281966.125069285100
900	0.004462855489	78.692876669147	-1	0.095155418386	147118.657351203090
910	0.004426270049	32.337545816741	-1	0.094800831252	25395.262819134878

920	0.004390316671	20.300026547937	-1	0.094453138069	10227.838180395198
930	0.004354980550	14.767124747751	-1	0.094112131883	5530.267746033708
940	0.004320245536	11.588338377185	-1	0.093777642698	3479.152520734543
950	0.004286094105	9.524909343467	-1	0.093449513954	2400.739924866609
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970	0.004219487440	7.006317948597	-1	0.092811639850	1354.376183838280
980	0.004187003205	6.181482911298	-1	0.092501581201	1076.198034133631
990	0.004155045354	5.526834686099	-1	0.092197269448	878.069957586515
1000	0.004123603031	4.994668444637	-1	0.091898546414	731.782597764085
1025	0.004047162437	4.017413056672	-1	0.091175359274	497.644242049930
1050	0.003973672735	3.351989293448	-1	0.090484124046	363.779416811725
1075	0.003902964395	2.869915787608	-1	0.089822837500	279.733949973518
1100	0.003834878296	2.504713381483	-1	0.089189826987	223.297635644468
1125	0.003769263938	2.218550290879	-1	0.088583584453	183.432184477054
1150	0.003705990492	1.988382641928	-1	0.088002489208	154.144010774901
1175	0.003644931372	1.799320884667	-1	0.087445070726	131.937476049861
1200	0.003585970021	1.641304623629	-1	0.086910046422	114.657605078348
1225	0.003528996421	1.507298049125	-1	0.086396313726	100.916301538409
1250	0.003473912188	1.392264341284	-1	0.085902629347	89.788339819278
1275	0.003420623491	1.292476869107	-1	0.085427890829	80.634551739379
1300	0.003369041630	1.205115788265	-1	0.084971150854	73.001168909829
1325	0.003319083738	1.128012285960	-1	0.084531550848	66.558899704930
1350	0.003270673355	1.059484177514	-1	0.084108158057	61.064889557754
1375	0.003223739785	0.998195779932	-1	0.083700132669	56.335805715034
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1450	0.003091135874	0.847966710491	-1	0.082561210365	45.479262282667
1475	0.003049468084	0.806686751727	-1	0.082207672859	42.678512271202
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1550	0.002931322755	0.702169464081	-1	0.081217101068	35.937220189718
1600	0.002857808966	0.645158594087	-1	0.080609906905	32.470599139329
1650	0.002788105155	0.595918224102	-1	0.080041147251	29.595377210833
1700	0.002721919153	0.552996358559	-1	0.079507397603	27.178420564385

1750	0.002658987273	0.515274267140	-1	0.079005770085	25.122455985002
1800	0.002599070707	0.481883096605	-1	0.078533674615	23.355366908413
1850	0.002541952474	0.452133312095	-1	0.078088895905	21.822437035692
1900	0.002487441056	0.425481319605	-1	0.077669070414	20.481965195911
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2000	0.002385539096	0.379753879611	-1	0.076897422968	18.253423680672
2100	0.002292087364	0.341944416176	-1	0.076209095535	16.477742074291
2200	0.002206086441	0.310263358562	-1	0.075589835458	15.035165466373
2300	0.002126698908	0.283421425980	-1	0.075026951369	13.843998522661
2400	0.002053183116	0.260429575631	-1	0.074512363155	12.845415243173
2500	0.001984878747	0.240514384807	-1	0.074042447512	11.996026029024
2600	0.001921206094	0.223079936058	-1	0.073615996389	11.263904931744
2700	0.001861713124	0.207719919388	-1	0.073226694582	10.627221909448
2800	0.001805971938	0.194100991727	-1	0.072871761130	10.069169589980
2900	0.001753581148	0.181938489846	-1	0.072552126053	9.576202542907
3000	0.001704306878	0.171040042260	-1	0.072257942214	9.137776833545
3100	0.001657864378	0.161217359750	-1	0.071988002368	8.745073222549
3200	0.001614018043	0.152330885975	-1	0.071739038259	8.391543589480
3300	0.001572558959	0.144264236300	-1	0.071507967922	8.071828138350
3400	0.001533295651	0.136915009661	-1	0.071292808402	7.781345166614
3500	0.001496051342	0.130192641728	-1	0.071092654923	7.516151257085
3600	0.001460664421	0.124019138013	-1	0.070907189790	7.272927229658
3700	0.001427001745	0.118335596462	-1	0.070734523073	7.049127695207
3800	0.001394941653	0.113091367049	-1	0.070572842384	6.842598905161
3900	0.001364372431	0.108240615952	-1	0.070420902292	6.651421688150
4000	0.001335188676	0.103741428592	-1	0.070278213185	6.473887562451
4100	0.001307294432	0.099556971678	-1	0.070144454176	6.308505374810
4200	0.001280607288	0.095658255129	-1	0.070018520762	6.154098282771
4300	0.001255051105	0.092019723440	-1	0.069899311043	6.009636513059
4400	0.001230556137	0.088617854226	-1	0.069786104557	5.874180548320
4500	0.001207056026	0.085430764728	-1	0.069678588543	5.746870603710
4600	0.001184488279	0.082438684692	-1	0.069576694491	5.626945269175
4700	0.001162799727	0.079625964478	-1	0.069479651597	5.513789200680

4800	0.001141941156	0.076978534920	-1	0.069386744922	5.406853316983
4900	0.001121865820	0.074483164445	-1	0.069297532404	5.305627747749
5000	0.001102529439	0.072127462958	-1	0.069211828068	5.209640898621
5500	0.001015621056	0.062100535259	-1	0.068825934220	4.795232437309
6000	0.000942228448	0.054321354200	-1	0.068486681331	4.464732253822
6500	0.000879442397	0.048143352231	-1	0.068170874086	4.194019302289
7000	0.000825139064	0.043141270684	-1	0.067862676243	3.967361658346
7500	0.000777758750	0.039031085735	-1	0.067542569218	3.774028580227
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8500	0.000699135520	0.032715423178	-1	0.066847334341	3.459391438291
9000	0.000666184903	0.030250053619	-1	0.066468566560	3.328680799019
9500	0.000636629451	0.028128277773	-1	0.066065743320	3.211347802482
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10500	0.000585856246	0.024678618550	-1	0.065184160263	3.008008839616
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13000	0.000493147208	0.019015392870	-1	0.062540187179	2.620003474743
13500	0.000478788558	0.018212412623	-1	0.061942908786	2.556327807819
14000	0.000465484448	0.017486752998	-1	0.061325373104	2.496064328189
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16000	0.000420865606	0.015185834865	-1	0.058680639415	2.282526832935
17000	0.000402661014	0.014309358125	-1	0.057271888859	2.188926674821
18000	0.000386584672	0.013568129783	-1	0.055819112002	2.102268407679
19000	0.000372297450	0.012937303691	-1	0.054331833970	2.021576662348
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22000	0.000263524222	0.007041615311	-1	0.087520459591	2.580305902027
23000	0.000251420756	0.006572603509	-1	0.088558195293	2.556065911330
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26000	0.000219994521	0.005378412916	-1	0.092048441169	2.491323125601
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30000	0.000189208404	0.004355509358	-1	0.095924076774	2.452599046049
31000	0.000182733861	0.004151322852	-1	0.096859606474	2.446102906144
32000	0.000176604498	0.003958587252	-1	0.097836752226	2.440026067672
33000	0.000170804978	0.003777384972	-1	0.098846455541	2.434536349457
34000	0.000165322222	0.003607824883	-1	0.099876295749	2.429778533070
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37000	0.000150649142	0.003168465115	-1	0.102937939944	2.420715221585
38000	0.000146284149	0.003042506334	-1	0.103929436138	2.419281446643
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41000	0.000134455152	0.002710185533	-1	0.106882509282	2.418447476064
42000	0.000130874678	0.002611695775	-1	0.107880215127	2.419142917751
43000	0.000127455691	0.002518616343	-1	0.108883682352	2.420294900791
44000	0.000124188613	0.002430622238	-1	0.109890692248	2.421885736419
45000	0.000121064405	0.002347391543	-1	0.110899674916	2.423897530784
46000	0.000118074608	0.002268615262	-1	0.111909270043	2.426307935184
47000	0.000115211019	0.002193987640	-1	0.112918871790	2.429098406582
48000	0.000112465889	0.002123213235	-1	0.113928318241	2.432248277596
49000	0.000109831802	0.002056001128	-1	0.114938346157	2.435740159639
50000	0.000107301752	0.001992069537	-1	0.115950359304	2.439556132017
55000	0.000096011892	0.001714233579	-1	0.121059115344	2.463116472818
60000	0.000086585918	0.001492149716	-1	0.126234826563	2.493213906574
65000	0.000078599152	0.001311375141	-1	0.131485255320	2.528971648678
70000	0.000071746572	0.001161962933	-1	0.136817281720	2.569818906278
75000	0.000065808579	0.001036976676	-1	0.142215750338	2.615035833332
80000	0.000060619251	0.000931333396	-1	0.147665084837	2.664036102478
85000	0.000056036236	0.000840929290	-1	0.153221064084	2.717563328221
90000	0.000051965538	0.000763029258	-1	0.158854664999	2.775002521897

95000	0.000048328371	0.000695425986	-1	0.164556493079	2.836139700294
100000	0.000045060508	0.000636365855	-1	0.170324067784	2.900915181941
105000	0.000042109731	0.000584450523	-1	0.176156823034	2.969310885370
110000	0.000039433991	0.000538595435	-1	0.182043731033	3.041265226056
115000	0.000036997266	0.000497871911	-1	0.187986057849	3.116809415970
120000	0.000034770765	0.000461559853	-1	0.193972989882	3.195882154304
125000	0.000032729595	0.000429041159	-1	0.200001185922	3.278488267264
130000	0.000030852979	0.000399817764	-1	0.206061786444	3.364619339552
135000	0.000029122649	0.000373456633	-1	0.212152444903	3.454336624880
140000	0.000027523422	0.000349605839	-1	0.218264399842	3.547636561509
145000	0.000026041871	0.000327957040	-1	0.224393515751	3.644556957765
150000	0.000024666642	0.000308255309	-1	0.230530956297	3.745085782119
155000	0.000023387556	0.000290275052	-1	0.236672235462	3.849257888932
160000	0.000022195803	0.000273826950	-1	0.242810091934	3.957095318829
165000	0.000021083432	0.000258742740	-1	0.248940724359	4.068663730092
170000	0.000020043682	0.000244880515	-1	0.255056330433	4.183955265997
175000	0.000019070403	0.000232113062	-1	0.261152255940	4.302997157536
180000	0.000018158171	0.000220330838	-1	0.267222304239	4.425796482808
185000	0.000017302052	0.000209436021	-1	0.273262245671	4.552386433260
190000	0.000016497831	0.000199346453	-1	0.279263273961	4.682720420911
195000	0.000015741576	0.000189986591	-1	0.285219792518	4.816788232383
200000	0.000015029307	0.000181281975	-1	0.291136979044	4.954763490884
205000	0.000014357395	0.000173166332	-1	0.297022104070	5.096873590250
210000	0.000013723418	0.000165594974	-1	0.302860322200	5.242921932201
215000	0.000013125479	0.000158530908	-1	0.308628495694	5.392454151466
220000	0.000012561940	0.000151940022	-1	0.314301244019	5.544836236824
225000	0.000012024245	0.000145731173	-1	0.320024293187	5.704824073890
230000	0.000011515949	0.000139918753	-1	0.325665448995	5.868515292861
235000	0.000011035113	0.000134470026	-1	0.331222164399	6.035869288524
240000	0.000010579872	0.000129354242	-1	0.336694912659	6.206904814326
245000	0.000010149533	0.000124550880	-1	0.342057346470	6.380596839981
250000	0.000009743756	0.000120042687	-1	0.347274577648	6.555407432154
255000	0.000009357720	0.000115780996	-1	0.352442012972	6.734765070124

260000	0.000008990491	0.000111750424	-1	0.357550416664	6.918447075227
265000	0.000008641160	0.000107936842	-1	0.362591053444	7.106237065873
270000	0.000008308808	0.000104326460	-1	0.367557736193	7.297971331248
275000	0.000007992514	0.000100905859	-1	0.372446926587	7.493544128025
280000	0.000007691381	0.000097662224	-1	0.377256915726	7.692891858551
285000	0.000007404528	0.000094583305	-1	0.381988000672	7.896011982967
290000	0.000007131084	0.000091657357	-1	0.386642874463	8.102985626111
295000	0.000006870207	0.000088873280	-1	0.391225812468	8.313966368217
300000	0.000006621060	0.000086220414	-1	0.395743818261	8.529237332272

Electron Elastic Scattering Sampling Data
Solution for Z = 23

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.024256575902	1.979999965021	-1	0.553798013378	294.756288584904
52	0.024133696182	2.216460392547	-1	0.536948928243	334.473544316192
54	0.024257883340	2.615385982275	-1	0.518074815600	409.110948424839
56	0.024518235964	3.286344433268	-1	0.498200952338	556.757341212526
58	0.024836223382	4.511978513117	-1	0.478122926883	895.170713677977
60	0.025158238769	7.247588880761	-1	0.458425962131	1961.827337110491
62	0.025449755251	17.875874127520	-1	0.439511831446	10138.658286120313
64	0.025690122723	43.089221204714	+1	0.421634847748	52559.726878849615
66	0.025869195616	9.332583641159	+1	0.404930512901	2472.570754278903
68	0.025983776828	5.032824460397	+1	0.389449585942	726.472897642483
70	0.026035175709	3.359484237604	+1	0.375185004418	329.214522135735
72	0.026027655671	2.476040100256	+1	0.362090468034	182.939013502847
74	0.025966932912	1.933832042361	+1	0.350096938739	114.720151158449
76	0.025859434822	1.569501114199	+1	0.339123806727	78.008463509626
78	0.025711687031	1.309360933373	+1	0.329085941625	56.239021311400
80	0.025529926818	1.115331375552	+1	0.319898792501	42.386101839264
82	0.025319958609	0.965781885219	+1	0.311481865295	33.083341240189
84	0.025087004486	0.847509878019	+1	0.303759311250	26.563922337520
86	0.024835711168	0.752027317268	+1	0.296661958731	21.834406491237
88	0.024570126793	0.673625821224	+1	0.290126758237	18.303535520403
90	0.024293762037	0.608329429262	+1	0.284096719402	15.602938648764
92	0.024009617925	0.553292852937	+1	0.278521027745	13.494395380125
94	0.023720240717	0.506419363442	+1	0.273353951283	11.818388165072
96	0.023427787850	0.466139206829	+1	0.268554890632	10.465348098593
98	0.023134054027	0.431253443010	+1	0.264087850582	9.358091414584
100	0.022840540365	0.400830809697	+1	0.259920732898	8.441024460516
105	0.022115288094	0.339836124042	+1	0.250634862612	6.737158031541
110	0.021412356676	0.294458568316	+1	0.242682440128	5.584793253408

115	0.020739614808	0.259871787802	+1	0.235789337189	4.771785329882
120	0.020101015692	0.232984724150	+1	0.229743958899	4.178620665751
125	0.019497979041	0.211772160330	+1	0.224386983845	3.734792185260
130	0.018930361190	0.194834337041	+1	0.219593369447	3.396002969900
135	0.018397053390	0.181195848177	+1	0.215267114688	3.133722879220
140	0.017896397873	0.170144603129	+1	0.211331326192	2.928584744338
145	0.017426455720	0.161161596579	+1	0.207725784036	2.767304926203
150	0.016985173737	0.153853079460	+1	0.204401391670	2.640352586027
155	0.016570498612	0.147921984187	+1	0.201318980320	2.540875446339
160	0.016180435835	0.143136295855	+1	0.198446093753	2.463749580041
165	0.015813088851	0.139316232293	+1	0.195756389575	2.405159141321
170	0.015466683539	0.136318132078	+1	0.193227740684	2.362159415743
175	0.015139572130	0.134028161476	+1	0.190841844591	2.332495048649
180	0.014830239590	0.132353506063	+1	0.188583129780	2.314380271604
185	0.014537296033	0.131219293177	+1	0.186438508621	2.306418339130
190	0.014259458412	0.130564752111	+1	0.184396837833	2.307511429058
195	0.013995566404	0.130339359847	+1	0.182448555664	2.316771694536
200	0.013744583992	0.130498201868	+1	0.180585016834	2.333415455299
205	0.013505568879	0.131003755829	+1	0.178798778360	2.356805445190
210	0.013277622670	0.131828646632	+1	0.177083753033	2.386518371712
215	0.013059923858	0.132950665510	+1	0.175434677805	2.422234088357
220	0.012851731383	0.134350719860	+1	0.173846808368	2.463689492062
225	0.012652372168	0.136012192238	+1	0.172315939280	2.510668365174
230	0.012461243509	0.137920221886	+1	0.170838144531	2.562981687989
235	0.012277795314	0.140061475957	+1	0.169409912676	2.620468506831
240	0.012101531270	0.142423584845	+1	0.168027959028	2.682980303609
245	0.011932004702	0.144994765836	+1	0.166689196365	2.750372513770
250	0.011768810279	0.147763614305	+1	0.165390729195	2.822500754228
255	0.011611574484	0.150720264240	+1	0.164129971092	2.899249864155
260	0.011459929567	0.153860858877	+1	0.162905049325	2.980648656356
265	0.011313531092	0.157183251523	+1	0.161714331646	3.066767723057
270	0.011172067145	0.160685239520	+1	0.160556248892	3.157675207992
275	0.011035251888	0.164364560365	+1	0.159429276045	3.253437181993

280	0.010902823821	0.168218913518	+1	0.158331919789	3.354117506084
285	0.010774545737	0.172245584054	+1	0.157262728264	3.459768498845
290	0.010650199463	0.176441641558	+1	0.156220273679	3.570435389875
295	0.010529586128	0.180803578988	+1	0.155203136616	3.686146152291
300	0.010412523704	0.185327470396	+1	0.154209922689	3.806914801748
310	0.010188374964	0.194851452080	+1	0.152290580548	4.063837272329
320	0.009976450039	0.205018677526	+1	0.150455513505	4.342320835732
330	0.009775604872	0.215840267095	+1	0.148698881115	4.643708771304
340	0.009584859848	0.227323063441	+1	0.147014861026	4.969281190984
350	0.009403375553	0.239468477336	+1	0.145397611205	5.320206306979
360	0.009230412567	0.252277250254	+1	0.143841702513	5.697677743081
370	0.009065292332	0.265769189899	+1	0.142343360706	6.103540521839
380	0.008907403583	0.279968362106	+1	0.140899238618	6.539887760161
390	0.008756208090	0.294896948924	+1	0.139505996801	7.008873487879
400	0.008611228654	0.310574485646	+1	0.138160295468	7.512687408801
410	0.008472042608	0.327020979877	+1	0.136859002688	8.053655269775
420	0.008338254784	0.344269640927	+1	0.135599781005	8.634711502815
430	0.008209508744	0.362357910353	+1	0.134380502791	9.259131182761
440	0.008085483921	0.381323717932	+1	0.133199100227	9.930425245705
450	0.007965883824	0.401206137294	+1	0.132053556350	10.652387864331
460	0.007850447362	0.422045841504	+1	0.130941912863	11.429114902959
470	0.007738928269	0.443894379333	+1	0.129862617817	12.265423313746
480	0.007631103692	0.466808360282	+1	0.128814230162	13.166676091617
490	0.007526764331	0.490848395285	+1	0.127795366508	14.138803743071
500	0.007425720809	0.516078835126	+1	0.126804668743	15.188329875839
510	0.007327798791	0.542569706644	+1	0.125840907090	16.322525137545
520	0.007232835464	0.570400839970	+1	0.124902919267	17.549654394360
530	0.007140682071	0.599660560569	+1	0.123989707336	18.879040304388
540	0.007051200004	0.630445073500	+1	0.123100268667	20.321132483987
550	0.006964259399	0.662859182652	+1	0.122233665612	21.887676972365
560	0.006879736979	0.697019105188	+1	0.121389024196	23.592000786492
570	0.006797522381	0.733053873666	+1	0.120565511442	25.449237319552
580	0.006717511982	0.771106550771	+1	0.119762338785	27.476621516455

590	0.006639608602	0.811336072796	+1	0.118978793084	29.693850996414
600	0.006563717024	0.853919469350	+1	0.118214166016	32.123515349999
610	0.006489753046	0.899053365972	+1	0.117467816039	34.791524099255
620	0.006417634961	0.946958586126	+1	0.116739092780	37.727823877745
630	0.006347289581	0.997881923548	+1	0.116027379312	40.967027037549
640	0.006278643710	1.052102581789	+1	0.115332128503	44.549528315962
650	0.006211630449	1.109936158578	+1	0.114652806459	48.522531017114
660	0.006146184722	1.171740191512	+1	0.113988902818	52.941460022115
670	0.006082249740	1.237919289599	+1	0.113339872546	57.871475535881
680	0.006019766055	1.308942241715	+1	0.112705330377	63.390475419449
690	0.005958681422	1.385338808646	+1	0.112084739670	69.590624265648
700	0.005898946076	1.467726839512	+1	0.111477711611	76.583156028415
710	0.005840511001	1.556822957379	+1	0.110883827435	84.502510802449
720	0.005783329949	1.653461138397	+1	0.110302699051	93.512181064767
730	0.005727360643	1.758618612884	+1	0.109733924288	103.812492290223
740	0.005672561601	1.873452600099	+1	0.109177144212	115.651509087597
750	0.005618894415	1.999342314759	+1	0.108632003002	129.339043880904
760	0.005566319866	2.137943597660	+1	0.108098174327	145.265942128730
770	0.005514803437	2.291256519900	+1	0.107575338588	163.929871492362
780	0.005464311988	2.461723051458	+1	0.107063147904	185.972455762751
790	0.005414813249	2.652361150447	+1	0.106561314113	212.232761155927
800	0.005366275391	2.866950665631	+1	0.106069572484	243.825251121007
810	0.005318669203	3.110272512839	+1	0.105587610902	282.252299236094
820	0.005271965902	3.388470523390	+1	0.105115191198	329.578658981919
830	0.005226139222	3.709567811192	+1	0.104652021411	388.700755484384
840	0.005181163297	4.084265711570	+1	0.104197856368	463.785635029887
850	0.005137014387	4.527151669852	+1	0.103752458000	560.997331194928
860	0.005093665962	5.058653824703	+1	0.103315609698	689.763859965197
870	0.005051096146	5.708223626167	+1	0.102887079706	865.064445960791
880	0.005009284877	6.519993650416	+1	0.102466624610	1111.861430169812
890	0.004968209540	7.563260557751	+1	0.102054051983	1474.266680955356
900	0.004927849634	8.953356346536	+1	0.101649142259	2036.201836016292
910	0.004888187671	10.897481003237	+1	0.101251715327	2973.581478935395

920	0.004849202780	13.808964218912	+1	0.100861600500	4707.755075378467
930	0.004810877682	18.647948323002	+1	0.100478548620	8466.451986924812
940	0.004773196799	28.274418221757	+1	0.100102417998	19198.002844870171
950	0.004736140226	56.744518866424	+1	0.099733031931	76282.657622976680
960	0.004710533397	166.859509652705	+1	0.099077205425	650836.713742153840
970	0.004675812336	91.491994427142	-1	0.098708964927	197285.772500025080
980	0.004628570084	29.555591570838	-1	0.098663730088	21259.285625838722
990	0.004593862884	19.572375041493	-1	0.098319717609	9513.656411560018
1000	0.004559705448	14.608490094626	-1	0.097981680147	5407.334115818535
1025	0.004476634563	8.904435025333	-1	0.097161821272	2110.718541077594
1050	0.004396727379	6.378320324103	-1	0.096376141217	1136.608369166641
1075	0.004319802758	4.953580519338	-1	0.095622596940	718.740879456186
1100	0.004245688965	4.039112174776	-1	0.094899464631	500.516881933304
1125	0.004174229928	3.402575214993	-1	0.094205196854	371.684213571549
1150	0.004105281850	2.934183151142	-1	0.093538124646	288.973938994545
1175	0.004038713610	2.575236584923	-1	0.092896688136	232.526193051988
1200	0.003974401701	2.291472106894	-1	0.092279583788	192.160392841233
1225	0.003912227171	2.061560797185	-1	0.091685620162	162.212479831246
1250	0.003852085513	1.871576735865	-1	0.091113520514	139.327102014338
1275	0.003793876685	1.712007230101	-1	0.090562117228	121.406576037471
1300	0.003737507226	1.576125866285	-1	0.090030381275	107.082370692786
1325	0.003682887784	1.459045383588	-1	0.089517403838	95.430273501883
1350	0.003629937500	1.357150943147	-1	0.089022223883	85.809120160863
1375	0.003578581653	1.267695690430	-1	0.088543948594	77.760783212489
1400	0.003528744905	1.188549639920	-1	0.088081803365	70.950255112058
1425	0.003480360847	1.118040114171	-1	0.087635109073	65.128036065100
1450	0.003433365622	1.054845651398	-1	0.087203087376	60.105917243382
1475	0.003387699956	0.997899266802	-1	0.086785044310	55.738907721554
1500	0.003343305979	0.946328107037	-1	0.086380363395	51.913667664889
1550	0.003258124492	0.856561454847	-1	0.085608828046	45.548494214166
1600	0.003177429637	0.781137526932	-1	0.084883982496	40.487489838138
1650	0.003100868449	0.716915903218	-1	0.084202049705	36.384154361957
1700	0.003028128452	0.661617289172	-1	0.083559369832	33.002076189473

1750	0.002958922626	0.613530905264	-1	0.082952937036	30.174294200140
1800	0.002892997202	0.571360096251	-1	0.082379850652	27.780564917856
1850	0.002830118538	0.534095147891	-1	0.081837703902	25.731962815825
1900	0.002770079828	0.500952921910	-1	0.081323918719	23.962174204494
1950	0.002712689267	0.471300657031	-1	0.080836428368	22.420083548285
2000	0.002657765101	0.444612860401	-1	0.080373959805	21.065330941496
2100	0.002554674801	0.398518350133	-1	0.079519196476	18.798796619908
2200	0.002459731397	0.360230963233	-1	0.078743966068	16.985409224721
2300	0.002372026769	0.328026892901	-1	0.078034457480	15.507418989584
2400	0.002290755296	0.300610207380	-1	0.077381738323	14.282192831733
2500	0.002215197425	0.276984632317	-1	0.076781644861	13.250153339253
2600	0.002144721028	0.256393078025	-1	0.076232463364	12.368238060778
2700	0.002078833009	0.238320736681	-1	0.075727291166	11.607154834578
2800	0.002017109206	0.222367529155	-1	0.075259257909	10.944818557687
2900	0.001959166990	0.208201033264	-1	0.074823566571	10.363690848335
3000	0.001904656124	0.195541870569	-1	0.074417594836	9.849680038698
3100	0.001853239006	0.184151211534	-1	0.074042110068	9.391473886444
3200	0.001804593778	0.173838178080	-1	0.073699772437	8.980598772373
3300	0.001758579424	0.164493724501	-1	0.073379460417	8.610611997704
3400	0.001714985214	0.155994278563	-1	0.073078912464	8.275783431389
3500	0.001673616451	0.148231042391	-1	0.072797055140	7.971228973847
3600	0.001634296825	0.141110939333	-1	0.072533346503	7.692860184076
3700	0.001596879368	0.134563640736	-1	0.072285693241	7.437545134913
3800	0.001561230757	0.128528852366	-1	0.072052078239	7.202638223445
3900	0.001527227731	0.122952142858	-1	0.071831153245	6.985807916415
4000	0.001494754990	0.117784176977	-1	0.071622199234	6.784988614409
4100	0.001463706016	0.112981392993	-1	0.071424831504	6.598388996623
4200	0.001433990566	0.108509750065	-1	0.071237771354	6.424590299295
4300	0.001405525835	0.104339266874	-1	0.071059813048	6.262356515199
4400	0.001378233096	0.100442268527	-1	0.070890143674	6.110570291352
4500	0.001352040032	0.096793213781	-1	0.070728357946	5.968211674959
4600	0.001326878754	0.093369157190	-1	0.070574232619	5.834378484167
4700	0.001302689134	0.090151673363	-1	0.070427002481	5.708345477917

4800	0.001279418098	0.087124496634	-1	0.070285794445	5.589460304987
4900	0.001257013244	0.084272228683	-1	0.070150112133	5.477128322065
5000	0.001235426063	0.081580434752	-1	0.070019725265	5.370794510361
5500	0.001138310039	0.070131592000	-1	0.069434684334	4.913894638062
6000	0.001056166184	0.061257271510	-1	0.068931870132	4.552251256863
6500	0.000985781934	0.054212992858	-1	0.068482753862	4.258074939423
7000	0.000924810715	0.048510872773	-1	0.068067092659	4.013379912621
7500	0.000871497181	0.043818821164	-1	0.067670399224	3.806017411220
8000	0.000824499396	0.039903699929	-1	0.067282062301	3.627496361379
8500	0.000782806244	0.036603867568	-1	0.066884600574	3.471654238847
9000	0.000745570641	0.033790446685	-1	0.066477731244	3.333999110835
9500	0.000712121207	0.031368222534	-1	0.066060149163	3.211154638117
10000	0.000681922419	0.029265850435	-1	0.065629015706	3.100517855221
10500	0.000654533390	0.027427509433	-1	0.065182835416	3.000047694740
11000	0.000629593840	0.025810724946	-1	0.064718884668	2.908188035339
11500	0.000606795810	0.024379416002	-1	0.064237999622	2.823610073816
12000	0.000585885788	0.023106266443	-1	0.063738950359	2.745308386723
12500	0.000566645124	0.021967999393	-1	0.063222322711	2.672418942937
13000	0.000548890094	0.020946332545	-1	0.062687677116	2.604264258323
13500	0.000532460275	0.020025341384	-1	0.062136076383	2.540250179339
14000	0.000517219048	0.019192380237	-1	0.061567600487	2.479905681697
14500	0.000503045908	0.018436319435	-1	0.060983367968	2.422814632818
15000	0.000489838122	0.017748190369	-1	0.060383803886	2.368640376795
16000	0.000465961636	0.016545162703	-1	0.059142534801	2.267886629920
17000	0.000444980660	0.015533133121	-1	0.057850989540	2.175755107291
18000	0.000426417749	0.014674779543	-1	0.056516307938	2.090823686737
19000	0.000409891794	0.013941742348	-1	0.055145830072	2.012012840672
20000	0.000395096519	0.013312202319	-1	0.053746476001	1.938478140640
21000	0.000314520416	0.008482229428	-1	0.083373961034	2.473039739430
22000	0.000300202566	0.007933731836	-1	0.084214127889	2.448813755892
23000	0.000286525041	0.007400391454	-1	0.085165211406	2.421527265521
24000	0.000273666601	0.006897406224	-1	0.086220630729	2.393868226681
25000	0.000261791015	0.006440898548	-1	0.087330485499	2.368746848832

26000	0.000251001872	0.006043159381	-1	0.088408003348	2.348474152272
27000	0.000241187218	0.005698542049	-1	0.089414089510	2.332693008231
28000	0.000232192597	0.005396813144	-1	0.090344174070	2.320324550687
29000	0.000223874098	0.005127804835	-1	0.091216447231	2.310278855517
30000	0.000216096320	0.004881541788	-1	0.092072879989	2.301502275821
31000	0.000208748023	0.004649906872	-1	0.092964860940	2.293193467612
32000	0.000201791231	0.004431334639	-1	0.093899521304	2.285345684596
33000	0.000195208091	0.004225910511	-1	0.094868264027	2.278128915644
34000	0.000188983269	0.004033751159	-1	0.095859187818	2.271693117025
35000	0.000183103839	0.003854991690	-1	0.096856828852	2.266162815425
36000	0.000177555672	0.003689520225	-1	0.097845292505	2.261603912476
37000	0.000172313692	0.003536206640	-1	0.098820455520	2.257935812024
38000	0.000167351186	0.003393688993	-1	0.099783944538	2.255048316821
39000	0.000162642987	0.003260642358	-1	0.100740399789	2.252835903034
40000	0.000158165035	0.003135775927	-1	0.101697929167	2.251206240120
41000	0.000153895923	0.003017974461	-1	0.102665439195	2.250091628030
42000	0.000149821466	0.002906706560	-1	0.103642798799	2.249472257929
43000	0.000145930024	0.002801590659	-1	0.104627543604	2.249334109860
44000	0.000142210684	0.002702253726	-1	0.105617561073	2.249660612442
45000	0.000138653246	0.002608330763	-1	0.106611150342	2.250431614614
46000	0.000135248135	0.002519466951	-1	0.107607034942	2.251624624965
47000	0.000131986119	0.002435316834	-1	0.108604417262	2.253218279559
48000	0.000128858389	0.002355541263	-1	0.109603210547	2.255192124251
49000	0.000125856603	0.002279811179	-1	0.110603994852	2.257526403803
50000	0.000122972831	0.002207803519	-1	0.111608221320	2.260202153697
55000	0.000110097862	0.001895204506	-1	0.116698050109	2.278274718694
60000	0.000099339114	0.001645783464	-1	0.121886891018	2.303191130226
65000	0.000090216571	0.001443131292	-1	0.127178231901	2.333962392826
70000	0.000082384873	0.001275957083	-1	0.132574827796	2.369930710465
75000	0.000075590010	0.001136266456	-1	0.138077151403	2.410624565876
80000	0.000069640515	0.001018242110	-1	0.143685180005	2.455722815256
85000	0.000064389174	0.000917555067	-1	0.149399026551	2.505021842172
90000	0.000059720156	0.000830908121	-1	0.155222926893	2.558471540755

95000	0.000055554543	0.000756001167	-1	0.161093993733	2.615007898524
100000	0.000051809379	0.000690651802	-1	0.167054006646	2.675273328382
105000	0.000048417189	0.000633157920	-1	0.173151972837	2.740110532082
110000	0.000045339986	0.000582469081	-1	0.179321632453	2.808564411865
115000	0.000042537939	0.000537546432	-1	0.185554333597	2.880470576220
120000	0.000039976467	0.000497553633	-1	0.191850341647	2.956003509208
125000	0.000037625702	0.000461780804	-1	0.198217319718	3.035430957681
130000	0.000035462672	0.000429676568	-1	0.204640564372	3.118671798609
135000	0.000033467444	0.000400761957	-1	0.211110056101	3.205648708491
140000	0.000031622589	0.000374640273	-1	0.217616638419	3.296389116706
145000	0.000029912501	0.000350963712	-1	0.224157676369	3.391009819829
150000	0.000028324214	0.000329446243	-1	0.230723511840	3.489529251390
155000	0.000026846155	0.000309835849	-1	0.237308331292	3.592000843780
160000	0.000025468429	0.000291921461	-1	0.243902343036	3.698432073444
165000	0.000024182047	0.000275515407	-1	0.250499835013	3.808883358661
170000	0.000022979207	0.000260458743	-1	0.257092407950	3.923389969563
175000	0.000021852777	0.000246609203	-1	0.263675128693	4.042033708834
180000	0.000020796591	0.000233844880	-1	0.270240211197	4.164839467066
185000	0.000019805015	0.000222056657	-1	0.276782335253	4.291862418678
190000	0.000018873268	0.000211153261	-1	0.283291044079	4.423073928783
195000	0.000017996825	0.000201050256	-1	0.289760520383	4.558506965125
200000	0.000017171152	0.000191665512	-1	0.296195226877	4.698358614039
205000	0.000016392029	0.000182925568	-1	0.302603055942	4.842919972894
210000	0.000015656534	0.000174779454	-1	0.308970417466	4.992109514521
215000	0.000014962180	0.000167183233	-1	0.315279203609	5.145715329706
220000	0.000014306579	0.000160095080	-1	0.321513828715	5.303519309387
225000	0.000013687458	0.000153475412	-1	0.327661335425	5.465297594657
230000	0.000013102708	0.000147287439	-1	0.333709818048	5.630778923282
235000	0.000012550488	0.000141497799	-1	0.339646103704	5.799558787595
240000	0.000012027468	0.000136063855	-1	0.345497695879	5.972503546466
245000	0.000011527233	0.000130923891	-1	0.351378965493	6.153616352066
250000	0.000011052370	0.000126081974	-1	0.357189426785	6.339618425717
255000	0.000010600949	0.000121511285	-1	0.362940003495	6.530922453538

260000	0.000010171698	0.000117193580	-1	0.368624732154	6.727500575751
265000	0.000009764330	0.000113118280	-1	0.374211632042	6.928273585082
270000	0.000009380287	0.000109285636	-1	0.379618519447	7.129826008506
275000	0.000009014660	0.000105656257	-1	0.384947381567	7.336297884278
280000	0.000008666692	0.000102218173	-1	0.390187657706	7.547318979481
285000	0.000008335526	0.000098959224	-1	0.395333726923	7.762662965675
290000	0.000008020245	0.000095867252	-1	0.400384389265	7.982243680100
295000	0.000007719951	0.000092930757	-1	0.405340051266	8.206023198278
300000	0.000007433728	0.000090138530	-1	0.410204547767	8.434100742449

Electron Elastic Scattering Sampling Data
Solution for Z = 24

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.045670820005	1.818804794379	-1	0.596377693477	158.622037726813
52	0.039690925922	1.658785266119	-1	0.606895474317	164.999946647764
54	0.035936623485	1.626493145772	-1	0.607208350298	177.391800399561
56	0.033653427869	1.682009082596	-1	0.600226103251	194.708436577538
58	0.032332523514	1.818152319455	-1	0.588184747279	219.253656794054
60	0.031631971603	2.048091386808	-1	0.572795626975	256.501709453410
62	0.031320587813	2.408726401081	-1	0.555369368126	317.496226863685
64	0.031240190330	2.980422440230	-1	0.536912675979	426.947282019659
66	0.031284442482	3.950922276016	-1	0.518168699388	652.009426709739
68	0.031381944584	5.856901935897	-1	0.499676227733	1239.179058177389
70	0.031486012306	11.053485492961	-1	0.481808661577	3814.304365082107
72	0.031568233160	73.201593436188	-1	0.464800544098	144856.002352056040
74	0.031611958859	15.999329454645	+1	0.448789577969	6790.334030475510
76	0.031609358933	6.902779014551	+1	0.433835530314	1281.903556204146
78	0.031558085840	4.282401749569	+1	0.419946415362	503.083714259658
80	0.031459265836	3.045848250324	+1	0.407095768561	260.752946832201
82	0.031316350596	2.330182372701	+1	0.395233695893	157.022272610286
84	0.031133756251	1.866095315167	+1	0.384298854466	103.986522430520
86	0.030916516820	1.542387187984	+1	0.374223200500	73.575342920660
88	0.030669694793	1.304824495456	+1	0.364937465468	54.671748116927
90	0.030398134714	1.123824643482	+1	0.356373990806	42.192729609456
92	0.030106398011	0.981890618625	+1	0.348468070794	33.560559804080
94	0.029798558348	0.868016687629	+1	0.341159395634	27.361397326232
96	0.029478285172	0.774943907208	+1	0.334392191271	22.770533889314
98	0.029148788551	0.697695542237	+1	0.328115795299	19.282342187768
100	0.028812867002	0.632745849735	+1	0.322283988941	16.573568069461
105	0.027959849145	0.508906316128	+1	0.309385824185	11.968895185842
110	0.027109176671	0.421950417420	+1	0.298469353556	9.167819066353

115	0.026279326406	0.358399907759	+1	0.289118933617	7.341677597964
120	0.025481321834	0.310501298645	+1	0.281014109989	6.086378099678
125	0.024721255296	0.273541874840	+1	0.273911920022	5.187790260202
130	0.024001900251	0.244473015114	+1	0.267622559258	4.523324915267
135	0.023323874504	0.221269421134	+1	0.262000424920	4.019434577323
140	0.022686429076	0.202517556247	+1	0.256929563676	3.629355964163
145	0.022087966905	0.187221339357	+1	0.252319751154	3.322602313189
150	0.021526435968	0.174648079125	+1	0.248097812745	3.078303468815
155	0.020999543948	0.164259120047	+1	0.244205945447	2.882016687448
160	0.020504924506	0.155642699509	+1	0.240596458388	2.723301136727
165	0.020040223194	0.148486212816	+1	0.237231125275	2.594602132515
170	0.019603200168	0.142543504909	+1	0.234077851750	2.490219957487
175	0.019191656943	0.137623601210	+1	0.231110862820	2.405912414880
180	0.018803637155	0.133571754059	+1	0.228307871690	2.338342436016
185	0.018437257107	0.130265599385	+1	0.225650762613	2.284965209238
190	0.018090807873	0.127604561371	+1	0.223123779621	2.243740231713
195	0.017762707485	0.125507346122	+1	0.220713884868	2.213066680638
200	0.017451505147	0.123906939975	+1	0.218410150369	2.191660515772
205	0.017155875541	0.122748146415	+1	0.216203286422	2.178490866270
210	0.016874625157	0.121983927295	+1	0.214084568078	2.172687415800
215	0.016606675892	0.121574882520	+1	0.212046368841	2.173535034844
220	0.016351031986	0.121488145072	+1	0.210082121299	2.180453543747
225	0.016106784965	0.121696112281	+1	0.208186222170	2.192969730308
230	0.015873108033	0.122175269206	+1	0.206353766876	2.210690799487
235	0.015649247193	0.122905483546	+1	0.204580449327	2.233290032658
240	0.015434513547	0.123869240843	+1	0.202862456239	2.260491143236
245	0.015228283867	0.125051086264	+1	0.201196353939	2.292055383019
250	0.015029988313	0.126437229763	+1	0.199579053157	2.327774808621
255	0.014839108568	0.128015857422	+1	0.198007820288	2.367479223214
260	0.014655160047	0.129778957642	+1	0.196480218330	2.411076490106
265	0.014477698576	0.131720019171	+1	0.194994112847	2.458505543633
270	0.014306317403	0.133833134289	+1	0.193547454775	2.509715277485
275	0.014140645385	0.136112829853	+1	0.192138320558	2.564661719300

280	0.013980346407	0.138553826681	+1	0.190764878306	2.623302172047
285	0.013825109153	0.141151163211	+1	0.189425408565	2.685599660649
290	0.013674652415	0.143899791822	+1	0.188118192429	2.751510983384
295	0.013528719989	0.146794562822	+1	0.186841620874	2.820988476310
300	0.013387078187	0.149830216529	+1	0.185594069093	2.893977353199
310	0.013115797059	0.156309159144	+1	0.183180631511	3.050409479145
320	0.012859156328	0.163328174395	+1	0.180869958816	3.221183052099
330	0.012615723131	0.170884589183	+1	0.178655118586	3.406827007906
340	0.012384282573	0.178972764949	+1	0.176529205720	3.607803202944
350	0.012163803022	0.187582693119	+1	0.174485323872	3.824463771212
360	0.011953394751	0.196704046790	+1	0.172516999933	4.057150308355
370	0.011752229548	0.206343716818	+1	0.170619758597	4.306689071432
380	0.011559569135	0.216511726327	+1	0.168789591888	4.574033103125
390	0.011374772599	0.227215234442	+1	0.167022419988	4.860095516298
400	0.011197283062	0.238457880290	+1	0.165314094195	5.165723666131
410	0.011026608771	0.250242846396	+1	0.163660658925	5.491781718617
420	0.010862282878	0.262585482089	+1	0.162059319182	5.839546699679
430	0.010703883429	0.275503721692	+1	0.160507504452	6.210440698384
440	0.010551036024	0.289014123494	+1	0.159002637919	6.605916512105
450	0.010403402666	0.303131613210	+1	0.157542134681	7.027451217413
460	0.010260680493	0.317871582136	+1	0.156123539231	7.476609479301
470	0.010122584571	0.333257685180	+1	0.154744927323	7.955315527700
480	0.009988853287	0.349316457561	+1	0.153404551764	8.465701798428
490	0.009859247114	0.366074600106	+1	0.152100663757	9.010029822896
500	0.009733546458	0.383558979757	+1	0.150831569520	9.590700990569
510	0.009611552218	0.401798119775	+1	0.149595643219	10.210311719268
520	0.009493076316	0.420827054620	+1	0.148391508005	10.871854175464
530	0.009377946293	0.440684239441	+1	0.147217901445	11.578633797789
540	0.009265999791	0.461410187739	+1	0.146073602377	12.334248141101
550	0.009157085661	0.483047727379	+1	0.144957439290	13.142618328268
560	0.009051066082	0.505642535811	+1	0.143868262018	14.008027795345
570	0.008947810216	0.529246785508	+1	0.142805079625	14.935315660496
580	0.008847198299	0.553917468397	+1	0.141766948120	15.929847224723

590	0.008749114925	0.579715598258	+1	0.140752948490	16.997539344738
600	0.008653452506	0.606707487664	+1	0.139762241769	18.144965033607
610	0.008560110214	0.634964825125	+1	0.138793997486	19.379411011553
620	0.008468995682	0.664566963860	+1	0.137847459334	20.709051631016
630	0.008380020352	0.695600508985	+1	0.136921880785	22.143021076713
640	0.008293101708	0.728160260924	+1	0.136016550942	23.691553296236
650	0.008208159106	0.762350285926	+1	0.135130848815	25.366171539691
660	0.008125118601	0.798284592598	+1	0.134264130068	27.179822485652
670	0.008043911425	0.836088025486	+1	0.133415792054	29.147092518008
680	0.007964469758	0.875899891258	+1	0.132585270913	31.284594296495
690	0.007886731794	0.917872290522	+1	0.131771989808	33.611079040037
700	0.007810637236	0.962175693126	+1	0.130975467182	36.148042714023
710	0.007736127590	1.008998423120	+1	0.130195195709	38.919996072763
720	0.007663151713	1.058550077184	+1	0.129430700166	41.955026120505
730	0.007591657535	1.111063615792	+1	0.128681478923	45.285396329588
740	0.007521596957	1.166801439927	+1	0.127947115897	48.948493217971
750	0.007452922356	1.226058660905	+1	0.127227174808	52.987711647213
760	0.007385590253	1.289168573359	+1	0.126521296729	57.453680474202
770	0.007319558181	1.356506284057	+1	0.125829052098	62.405495312041
780	0.007254786562	1.428496318332	+1	0.125150050757	67.912552559169
790	0.007191237090	1.505625515875	+1	0.124483940092	74.057115457848
800	0.007128873372	1.588451915301	+1	0.123830372836	80.937020580377
810	0.007067658206	1.677618480196	+1	0.123189042979	88.669411010620
820	0.007007559335	1.773866558937	+1	0.122559596065	97.395006085782
830	0.006948545185	1.878055154150	+1	0.121941688983	107.284044601840
840	0.006890584120	1.991197389063	+1	0.121335062764	118.545232114399
850	0.006833647283	2.114479380146	+1	0.120739391144	131.434688114738
860	0.006777703779	2.249316779803	+1	0.120154439219	146.271554551710
870	0.006722728967	2.397390975756	+1	0.119579890528	163.454588461206
880	0.006668695492	2.560731003326	+1	0.119015495320	183.489371734260
890	0.006615578412	2.741800459385	+1	0.118460983689	207.023094625777
900	0.006563353500	2.943635646334	+1	0.117916130297	234.896888634064
910	0.006511996817	3.170000209715	+1	0.117380701896	268.216515217206

920	0.006461485559	3.425622825011	+1	0.116854446569	308.458938601192
930	0.006411799349	3.716533088133	+1	0.116337157797	357.632601816194
940	0.006362917526	4.050534745525	+1	0.115828573253	418.521753672596
950	0.006314818848	4.437937465086	+1	0.115328511124	495.079879924608
960	0.006267483743	4.892620440475	+1	0.114836787130	593.063252267716
970	0.006220894641	5.433709754239	+1	0.114353170152	721.106416517090
980	0.006175032461	6.088376770259	+1	0.113877510163	892.646972896360
990	0.006129879723	6.896481663286	+1	0.113409575997	1129.488745158229
1000	0.006085419469	7.919079652862	+1	0.112949227813	1468.940371679457
1025	0.005977190342	12.251364361134	+1	0.111830431919	3399.569668990926
1050	0.005872950626	25.102040141674	+1	0.110755176454	13814.229961909916
1075	0.005792393478	113.424404087232	+1	0.109243469991	273209.146504012290
1100	0.005692372246	32.561774598207	-1	0.108333413600	23192.868669170650
1125	0.005582031188	13.149167053704	-1	0.107767138974	4003.386248847356
1150	0.005491682529	8.686431246424	-1	0.106843624576	1822.814150673267
1175	0.005404364578	6.466010845750	-1	0.105953114791	1052.914421776640
1200	0.005319923054	5.137563535629	-1	0.105093960843	692.379001283012
1225	0.005238212840	4.253669150450	-1	0.104264704743	494.005662968826
1250	0.005159103480	3.623396828541	-1	0.103463768874	372.810787743630
1275	0.005082472746	3.151450081127	-1	0.102689650946	293.101131747935
1300	0.005008203593	2.784916808109	-1	0.101941098548	237.717672693959
1325	0.004936185135	2.492082792725	-1	0.101216959907	197.567495413241
1350	0.004866316839	2.252826560898	-1	0.100516035005	167.464176421617
1375	0.004798503577	2.053735443872	-1	0.099837144196	144.265394286599
1400	0.004732653781	1.885509369697	-1	0.099179349639	125.973401100150
1425	0.004668680961	1.741508644054	-1	0.098541760087	111.268669566074
1450	0.004606505402	1.616887461404	-1	0.097923410775	99.252256323881
1475	0.004546053322	1.508008414203	-1	0.097323415138	89.292203396494
1500	0.004487251605	1.412081840593	-1	0.096741034384	80.932974464919
1550	0.004374332343	1.250876733047	-1	0.095626155430	67.762207767388
1600	0.004267252747	1.120793484410	-1	0.094573044491	57.934899820156
1650	0.004165564589	1.013678529744	-1	0.093576779929	50.378851752469
1700	0.004068867511	0.924007936467	-1	0.092632769396	44.424962296453

1750	0.003976796716	0.847883093743	-1	0.091737099461	39.635727147360
1800	0.003889025417	0.782488966911	-1	0.090886094595	35.715581584456
1850	0.003805252031	0.725731387932	-1	0.090076600625	32.458120602526
1900	0.003725211328	0.676042290916	-1	0.089305337780	29.716504052593
1950	0.003648656999	0.632201043947	-1	0.088569584070	27.382632726326
2000	0.003575352182	0.593225801876	-1	0.087867665966	25.374634092514
2100	0.003437655776	0.526954058658	-1	0.086558680339	22.104256741037
2200	0.003310722493	0.472889948472	-1	0.085358468270	19.568964428090
2300	0.003193369553	0.428089260495	-1	0.084249607195	17.556851010301
2400	0.003084544701	0.390419717476	-1	0.083220529479	15.926291058474
2500	0.002983304179	0.358293663014	-1	0.082265242078	14.579437253512
2600	0.002888817228	0.330534796698	-1	0.081380586091	13.447939996566
2700	0.002800432448	0.306353271290	-1	0.080557828015	12.486101882203
2800	0.002717590040	0.285146237913	-1	0.079788301789	11.660283006818
2900	0.002639784281	0.266421249345	-1	0.079065847667	10.944452237414
3000	0.002566553790	0.249770976655	-1	0.078386724621	10.318168601343
3100	0.002497485000	0.234864580521	-1	0.077748506805	9.765474949286
3200	0.002432234199	0.221459344052	-1	0.077146608373	9.274633062362
3300	0.002370498013	0.209356212684	-1	0.076576698788	8.836250769148
3400	0.002311996950	0.198382491583	-1	0.076035778735	8.442507484801
3500	0.002256472086	0.188387309051	-1	0.075522211018	8.086843297213
3600	0.002203689096	0.179242796904	-1	0.075034872772	7.763837116885
3700	0.002153396974	0.170836624246	-1	0.074575839106	7.469237922540
3800	0.002105428846	0.163091385851	-1	0.074141973728	7.199637426065
3900	0.002059661743	0.155946199380	-1	0.073727943858	6.952107742632
4000	0.002015942156	0.149334490768	-1	0.073332696342	6.723999636329
4100	0.001974129838	0.143198118247	-1	0.072955412839	6.513036134128
4200	0.001934101625	0.137491404220	-1	0.072594592746	6.317421762188
4300	0.001895747201	0.132174755694	-1	0.072248598939	6.135597156783
4400	0.001858962603	0.127211487726	-1	0.071916381215	5.966164391711
4500	0.001823649544	0.122567789295	-1	0.071597300746	5.807865129053
4600	0.001789718795	0.118213540279	-1	0.071290859412	5.659586886608
4700	0.001757089537	0.114124567059	-1	0.070996090584	5.520437147957

4800	0.001725689789	0.110279637991	-1	0.070711916533	5.389623227173
4900	0.001695450517	0.106658691316	-1	0.070437631799	5.266418184274
5000	0.001666306677	0.103242982418	-1	0.070172796773	5.150154448134
5500	0.001535082414	0.088727578044	-1	0.068972764585	4.654737946021
6000	0.001423919953	0.077484713123	-1	0.067938126065	4.267685727708
6500	0.001328519073	0.068560221971	-1	0.067027204373	3.956479905970
7000	0.001245739830	0.061332464635	-1	0.066209621180	3.700373331702
7500	0.001173230146	0.055380037494	-1	0.065462911042	3.485526993874
8000	0.001109194640	0.050407949667	-1	0.064770068683	3.302355171891
8500	0.001052236573	0.046203977381	-1	0.064118037865	3.144015966913
9000	0.001001252354	0.042611781886	-1	0.063496707608	3.005495286974
9500	0.000955356987	0.039513834680	-1	0.062898251473	2.883041434447
10000	0.000913834135	0.036820303468	-1	0.062316392557	2.773784832157
10500	0.000876093007	0.034460766999	-1	0.061746824268	2.675488059401
11000	0.000841658686	0.032383137967	-1	0.061182121155	2.586435346293
11500	0.000810135029	0.030544657956	-1	0.060615553368	2.505149717170
12000	0.000781159620	0.028906663961	-1	0.060050409980	2.430560643700
12500	0.000754440095	0.027439779327	-1	0.059485420828	2.361727084038
13000	0.000729729775	0.026120914743	-1	0.058918581648	2.297910646425
13500	0.000706814172	0.024929977939	-1	0.058349348664	2.238464368541
14000	0.000685509492	0.023850948111	-1	0.057776558755	2.182876007062
14500	0.000665654727	0.022869746914	-1	0.057200007721	2.130689645034
15000	0.000647112065	0.021975055772	-1	0.056618938813	2.081538318966
16000	0.000613482257	0.020406271145	-1	0.055443359585	1.991085676482
17000	0.000583802823	0.019080958874	-1	0.054249452268	1.909448633866
18000	0.000557430925	0.017951602724	-1	0.053038214468	1.835074583314
19000	0.000533853926	0.016982070891	-1	0.051811595859	1.766778258455
20000	0.000512658342	0.016144506122	-1	0.050571939617	1.703637411735
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22000	0.000413164720	0.010256004870	-1	0.073419446657	1.986254785192
23000	0.000394606618	0.009561287155	-1	0.074075098219	1.956184510869
24000	0.000377206935	0.008907126411	-1	0.074806627662	1.925541630075
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26000	0.000346507867	0.007793502864	-1	0.076396208578	1.874246863849
27000	0.000333160963	0.007342640707	-1	0.077164604620	1.855771977179
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29000	0.000309537608	0.006594695126	-1	0.078586205371	1.828492306873
30000	0.000298908081	0.006271861913	-1	0.079275754000	1.817419433225
31000	0.000288870527	0.005968285567	-1	0.079999668047	1.806780584919
32000	0.000279373015	0.005681874172	-1	0.080764449306	1.796552410749
33000	0.000270388025	0.005412698021	-1	0.081564270788	1.786917432877
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37000	0.000239112325	0.004508798701	-1	0.084909429549	1.757116832210
38000	0.000232320501	0.004322038334	-1	0.085744755659	1.751916063066
39000	0.000225872773	0.004147720875	-1	0.086580896293	1.747419381725
40000	0.000219737723	0.003984152589	-1	0.087424384612	1.743518275377
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42000	0.000208302041	0.003684163305	-1	0.089155690795	1.737228256794
43000	0.000202965931	0.003546549073	-1	0.090041184462	1.734809035310
44000	0.000197863936	0.003416534968	-1	0.090937251920	1.732856183001
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46000	0.000188307478	0.003177423808	-1	0.092754711657	1.730273730554
47000	0.000183827236	0.003067403320	-1	0.093674252411	1.729606197200
48000	0.000179529503	0.002963143021	-1	0.094600601618	1.729328481082
49000	0.000175403019	0.002864206818	-1	0.095534296232	1.729419996830
50000	0.000171437012	0.002770168567	-1	0.096476668643	1.729862141000
55000	0.000153710173	0.002362452813	-1	0.101329385115	1.736814507457
60000	0.000138871191	0.002038089250	-1	0.106388661960	1.750578685686
65000	0.000126262271	0.001775286311	-1	0.111666245997	1.770337387256
70000	0.000115416088	0.001559209730	-1	0.117158613293	1.795379375605
75000	0.000105986735	0.001379299610	-1	0.122865870054	1.825260824791
80000	0.000097713590	0.001227875276	-1	0.128787464029	1.859684443956
85000	0.000090396558	0.001099226017	-1	0.134922072863	1.898456918225
90000	0.000083879542	0.000989024430	-1	0.141267678095	1.941461819601

95000	0.000078039004	0.000893938793	-1	0.147820804689	1.988634043238
100000	0.000072774047	0.000811333930	-1	0.154587170752	2.040085347273
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120000	0.000056081216	0.000570447336	-1	0.183546324549	2.287892403757
125000	0.000052742604	0.000526368536	-1	0.191238388837	2.360959475396
130000	0.000049663135	0.000487002820	-1	0.199094091589	2.438732127159
135000	0.000046814865	0.000451716030	-1	0.207105512717	2.521353788952
140000	0.000044173231	0.000419979910	-1	0.215267525391	2.609092122474
145000	0.000041714862	0.000391319552	-1	0.223594989411	2.702503549162
150000	0.000039443974	0.000365578429	-1	0.231881464501	2.798847873672
155000	0.000037326753	0.000342235073	-1	0.240261790068	2.900396897888
160000	0.000035349725	0.000321016069	-1	0.248720251469	3.007282585871
165000	0.000033490306	0.000301593527	-1	0.257353931308	3.121535252303
170000	0.000031746972	0.000283846320	-1	0.266063279871	3.242027964983
175000	0.000030112767	0.000267612649	-1	0.274807697338	3.368486546364
180000	0.000028578833	0.000252730277	-1	0.283576395636	3.501146668122
185000	0.000027137273	0.000239056542	-1	0.292359532593	3.640248646203
190000	0.000025781365	0.000226472602	-1	0.301139752688	3.785948209893
195000	0.000024504804	0.000214869910	-1	0.309904533204	3.938454048656
200000	0.000023301294	0.000204143797	-1	0.318654806018	4.098151055845
205000	0.000022164978	0.000194201519	-1	0.327395474588	4.265529032283
210000	0.000021091854	0.000184977602	-1	0.336104556101	4.440688021784
215000	0.000020078557	0.000176415698	-1	0.344753542444	4.623561858809
220000	0.000019121830	0.000168462416	-1	0.353317550965	4.814071886632
225000	0.000018218458	0.000161067104	-1	0.361776745481	5.012164121398
230000	0.000017365284	0.000154181991	-1	0.370116510813	5.217823699357
235000	0.000016559198	0.000147762272	-1	0.378327809706	5.431103328935
240000	0.000015797120	0.000141765902	-1	0.386407710406	5.652160352942
245000	0.000015075986	0.000136153496	-1	0.394359881060	5.881305655703
250000	0.000014392830	0.000130888658	-1	0.402193088618	6.118994753694
255000	0.000013745106	0.000125940167	-1	0.409912507644	6.365604690337

260000	0.000013131791	0.000121289193	-1	0.417488715870	6.620419667628
265000	0.000012547064	0.000116896294	-1	0.425005755386	6.887082002886
270000	0.000011986358	0.000112730478	-1	0.432530937878	7.169235532793
275000	0.000011454326	0.000108803093	-1	0.439913388820	7.461496665990
280000	0.000010949518	0.000105097505	-1	0.447145586813	7.763837996012
285000	0.000010470497	0.000101597872	-1	0.454223033789	8.076270189367
290000	0.000010015839	0.000098289193	-1	0.461144298878	8.398875553245
295000	0.000009590510	0.000095182777	-1	0.467736777183	8.722257198524
300000	0.000009185947	0.000092235633	-1	0.474193217350	9.056074739465

Electron Elastic Scattering Sampling Data
Solution for Z = 25

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.021698089689	1.450795673140	-1	0.620092730485	261.787141724864
52	0.019984558306	1.349990952773	-1	0.624200341964	258.509506721402
54	0.018953099736	1.314605280784	-1	0.622415967528	259.719749099838
56	0.018438303195	1.327436153593	-1	0.615824320236	263.731927547892
58	0.018306966020	1.382529800010	-1	0.605425405282	271.112333135693
60	0.018453267851	1.480940816199	-1	0.592116867935	283.799354351327
62	0.018793245095	1.629988424492	-1	0.576691278152	305.025880317551
64	0.019259329142	1.844729297387	-1	0.559848918508	340.029667238628
66	0.019798589399	2.153049340684	-1	0.542180390792	398.185562731087
68	0.020369363244	2.607214404095	-1	0.524180246777	498.484918637359
70	0.020939586527	3.313858549673	-1	0.506249920744	685.629525886216
72	0.021486046565	4.526199212290	-1	0.488694253038	1089.250600001836
74	0.021992203827	7.019521145556	-1	0.471740714739	2236.638570589041
76	0.022447572993	14.859033099041	-1	0.455542764433	8590.574213797509
78	0.022853058214	242.930973679535	+1	0.440144431239	1993019.166890275400
80	0.022820381944	121.658736292703	+1	0.438330120604	498930.076303624660
82	0.023466064238	6.502235955636	+1	0.412217793553	1424.459289449473
84	0.023689520280	4.227270669534	+1	0.399587448812	606.418717308661
86	0.023859253175	3.082042637834	+1	0.387828592195	326.276546153470
88	0.023979252038	2.395702732656	+1	0.376899272007	200.402365199449
90	0.024053860508	1.940523638734	+1	0.366750882217	134.162950018989
92	0.024087598428	1.617901734571	+1	0.357331120161	95.468135890061
94	0.024084867520	1.378222238912	+1	0.348587085536	71.112575470708
96	0.024049922257	1.193809077897	+1	0.340466614333	54.895487734559
98	0.023986752687	1.048017160016	+1	0.332919839856	43.611180440030
100	0.023899041095	0.930239378089	+1	0.325899590576	35.475416470723
105	0.023593766770	0.717057659611	+1	0.310370147607	22.944464911598
110	0.023199414258	0.575744602118	+1	0.297260825830	16.166719988565

115	0.022749215307	0.476559171582	+1	0.286091128747	12.119751749344
120	0.022267328237	0.403975771219	+1	0.276479190297	9.521245474124
125	0.021770992289	0.349179326000	+1	0.268128300409	7.758791982990
130	0.021272283556	0.306777196783	+1	0.260803394555	6.510618365739
135	0.020779467050	0.273328061321	+1	0.254321614431	5.596157358066
140	0.020298049315	0.246516958874	+1	0.248536664221	4.907341736328
145	0.019831547819	0.224754167759	+1	0.243333652876	4.376927798581
150	0.019382081531	0.206900121992	+1	0.238619191052	3.960938593059
155	0.018950759437	0.192131715024	+1	0.234319057226	3.629971863014
160	0.018538004384	0.179831690020	+1	0.230372124859	3.363529205097
165	0.018143748239	0.169537410472	+1	0.226729103204	3.147162435814
170	0.017767612643	0.160889797824	+1	0.223348854140	2.970294682480
175	0.017408997006	0.153611987937	+1	0.220197759181	2.825165940340
180	0.017067176650	0.147483807619	+1	0.217247531273	2.705889072643
185	0.016741347630	0.142331278246	+1	0.214474679861	2.607998625244
190	0.016430678952	0.138012215681	+1	0.211858923392	2.527981989797
195	0.016134327426	0.134412858591	+1	0.209383444237	2.463124725554
200	0.015851460490	0.131441915729	+1	0.207034505802	2.411321378637
205	0.015581277317	0.129024566962	+1	0.204800391549	2.370896983673
210	0.015323011658	0.127094346759	+1	0.202669765971	2.340393466169
215	0.015075930035	0.125595486675	+1	0.200632718375	2.318617567935
220	0.014839342590	0.124481967935	+1	0.198680858940	2.304610288533
225	0.014612597662	0.123715568943	+1	0.196807010698	2.297596354546
230	0.014395087502	0.123264239615	+1	0.195005018620	2.296942920309
235	0.014186245527	0.123101062268	+1	0.193269561093	2.302133299972
240	0.013985543000	0.123203130823	+1	0.191596007934	2.312740789728
245	0.013792490839	0.123550897061	+1	0.189980289359	2.328412046152
250	0.013606640345	0.124127411733	+1	0.188418824121	2.348849599743
255	0.013427567362	0.124918248107	+1	0.186908389060	2.373810832071
260	0.013254872280	0.125911448320	+1	0.185445930045	2.403104158009
265	0.013088175657	0.127096770243	+1	0.184028646692	2.436575531506
270	0.012927132132	0.128465101350	+1	0.182653965963	2.474093175119
275	0.012771423209	0.130008257847	+1	0.181319529089	2.515544315803

280	0.012620753870	0.131718833527	+1	0.180023141732	2.560831710364
285	0.012474854530	0.133590022286	+1	0.178762772419	2.609869272473
290	0.012333473936	0.135615401360	+1	0.177536495470	2.662577614631
295	0.012196383373	0.137788879904	+1	0.176342480658	2.718881530257
300	0.012063372287	0.140104420936	+1	0.175179028583	2.778705048434
310	0.011808797097	0.145144182609	+1	0.172937861910	2.908758324529
320	0.011568227518	0.150717769783	+1	0.170803532488	3.052886667508
330	0.011340332362	0.156814774802	+1	0.168767843298	3.211404857006
340	0.011123977987	0.163423871890	+1	0.166823015886	3.384602259814
350	0.010918193099	0.170531392440	+1	0.164961518574	3.572701863782
360	0.010722131747	0.178124618522	+1	0.163176424752	3.775945961015
370	0.010534994691	0.186206510067	+1	0.161462734113	3.995024243482
380	0.010356070535	0.194782872454	+1	0.159815944952	4.230736439700
390	0.010184742320	0.203857104662	+1	0.158231569905	4.483843487326
400	0.010020468863	0.213429715176	+1	0.156705144005	4.755050070485
410	0.009862778575	0.223500685389	+1	0.155232412137	5.045062971558
420	0.009711210142	0.234082016339	+1	0.153810368021	5.354999749997
430	0.009565351365	0.245187682733	+1	0.152436242169	5.686092975983
440	0.009424833957	0.256830240051	+1	0.151107247268	6.039591352318
450	0.009289331676	0.269020262204	+1	0.149820634608	6.416740376826
460	0.009158549524	0.281768360786	+1	0.148573713492	6.818841486290
470	0.009032205647	0.295093749866	+1	0.147364524697	7.247561728272
480	0.008910041615	0.309017607462	+1	0.146191196063	7.704724738350
490	0.008791821932	0.323561018465	+1	0.145051931469	8.192255827881
500	0.008677334197	0.338744393459	+1	0.143944916866	8.712159499931
510	0.008566383790	0.354588969554	+1	0.142868385747	9.266577533465
520	0.008458785661	0.371122920563	+1	0.141820993364	9.858041235045
530	0.008354367392	0.388376858381	+1	0.140801433807	10.489323767768
540	0.008252971448	0.406382721033	+1	0.139808481273	11.163420000897
550	0.008154451110	0.425173316857	+1	0.138840907086	11.883542651646
560	0.008058671748	0.444783443026	+1	0.137897511028	12.653178095197
570	0.007965503727	0.465254367002	+1	0.136977338195	13.476313050100
580	0.007874829160	0.486630523309	+1	0.136079458415	14.357321423595

590	0.007786536290	0.508959401121	+1	0.135202973349	15.301002521424
600	0.007700519956	0.532291481245	+1	0.134347024198	16.312615306022
610	0.007616682489	0.556681136816	+1	0.133510787553	17.397953458204
620	0.007534932507	0.582189461003	+1	0.132693535861	18.563528587636
630	0.007455184271	0.608882745136	+1	0.131894571858	19.816565774222
640	0.007377355339	0.636833308013	+1	0.131113268979	21.165124039700
650	0.007301369127	0.666118688332	+1	0.130348968011	22.618114854578
660	0.007227152750	0.696824246793	+1	0.129601104547	24.185542215256
670	0.007154639438	0.729043507693	+1	0.128869088164	25.878600682590
680	0.007083763890	0.762879377105	+1	0.128152403731	27.709901531722
690	0.007014465080	0.798444641028	+1	0.127450540733	29.693626853932
700	0.006946685079	0.835863147804	+1	0.126763030970	31.845780401756
710	0.006880368455	0.875271610446	+1	0.126089410469	34.184486783191
720	0.006815463799	0.916820634040	+1	0.125429246338	36.730295707587
730	0.006751922694	0.960676943430	+1	0.124782106662	39.506595514835
740	0.006689697067	1.007027351844	+1	0.124147645593	42.540252954528
750	0.006628742494	1.056077368111	+1	0.123525447194	45.861878204006
760	0.006569016042	1.108058581771	+1	0.122915198043	49.506875332988
770	0.006510477941	1.163227769288	+1	0.122316519772	53.515924239566
780	0.006453089474	1.221875773566	+1	0.121729093109	57.936398310305
790	0.006396814974	1.284328274960	+1	0.121152589971	62.823299525127
800	0.006341617817	1.350956028243	+1	0.120586733740	68.241213324223
810	0.006287464979	1.422177772391	+1	0.120031205110	74.265849638951
820	0.006234325467	1.498471484168	+1	0.119485752706	80.986758503123
830	0.006182167724	1.580383874495	+1	0.118950072053	88.510276761776
840	0.006130962753	1.668544006627	+1	0.118423923630	96.963546686840
850	0.006080683074	1.763679733444	+1	0.117907057268	106.499535116780
860	0.006031300336	1.866639609648	+1	0.117399250508	117.303820994415
870	0.005982789200	1.978410489167	+1	0.116900261056	129.602217232542
880	0.005935125768	2.100155281370	+1	0.116409853926	143.672561581609
890	0.005888286044	2.233251423030	+1	0.115927823380	159.859483679783
900	0.005842247801	2.379344034197	+1	0.115453953126	178.594534598808
910	0.005796987941	2.540418305828	+1	0.114988060687	200.424451340928

920	0.005752486419	2.718876180379	+1	0.114529938224	226.047431286270
930	0.005708722559	2.917663944081	+1	0.114079397480	256.367938694180
940	0.005665677701	3.140437238597	+1	0.113636247136	292.573997411270
950	0.005623331882	3.391790566687	+1	0.113200332516	336.251146397867
960	0.005581668041	3.677567253739	+1	0.112771484003	389.549917109630
970	0.005540668482	4.005320872394	+1	0.112349517422	455.445745677562
980	0.005500316170	4.384994241172	+1	0.111934295352	538.148923080517
990	0.005460596205	4.829928151129	+1	0.111525647021	643.766851167062
1000	0.005421490919	5.358499877551	+1	0.111123448455	781.439309559728
1025	0.005326322668	7.247526588937	+1	0.110145224204	1381.737520841528
1050	0.005234691488	10.805786711903	+1	0.109204073125	2972.031301899654
1075	0.005146397121	19.987158622173	+1	0.108297889592	9848.549848489340
1100	0.005065380034	85.424104044817	+1	0.107333626692	174363.508490101060
1125	0.004979069417	35.736360422417	-1	0.106583669770	31299.545539590796
1150	0.004899702470	15.027553609597	-1	0.105772321861	5786.114555091586
1175	0.004823003938	9.470619408646	-1	0.104989288719	2400.271304609651
1200	0.004748833956	6.891131124827	-1	0.104233212463	1326.161590062233
1225	0.004677062704	5.402050552859	-1	0.103502901105	849.731460731894
1250	0.004607574776	4.432970230681	-1	0.102796988303	596.146458104327
1275	0.004540260228	3.752230121355	-1	0.102114250247	444.635474811156
1300	0.004475014731	3.247929421017	-1	0.101453667411	346.559287895761
1325	0.004411738804	2.859419801836	-1	0.100814278676	279.222887838887
1350	0.004350343830	2.551032569151	-1	0.100195056891	230.865886544096
1375	0.004290746497	2.300377294944	-1	0.099595026623	194.881274990096
1400	0.004232866541	2.092674146681	-1	0.099013382365	167.317868096973
1425	0.004176626600	1.917785090197	-1	0.098449382242	145.693561603661
1450	0.004121957594	1.768547826497	-1	0.097902191106	128.385991451106
1475	0.004068793461	1.639737805103	-1	0.097371073476	114.294885881991
1500	0.004017071454	1.527452172649	-1	0.096855350219	102.651716274381
1550	0.003917716971	1.341243117829	-1	0.095867705063	84.657062052827
1600	0.003823461833	1.193219651215	-1	0.094934339727	71.520685980115
1650	0.003733912313	1.072805820370	-1	0.094051139710	61.596694638035
1700	0.003648720973	0.973011670807	-1	0.093214180327	53.889304686550

1750	0.003567566732	0.889005530932	-1	0.092420186284	47.764032088486
1800	0.003490167394	0.817364223405	-1	0.091665747972	42.801561727757
1850	0.003416262137	0.755577930373	-1	0.090947945459	38.714280633374
1900	0.003345619117	0.701783232298	-1	0.090264062174	35.300405548466
1950	0.003278020418	0.654546002543	-1	0.089611973209	32.413473408172
2000	0.003213260426	0.612732138356	-1	0.088990263577	29.944232479128
2100	0.003091532788	0.542029471726	-1	0.087832018631	25.952499675300
2200	0.002979228292	0.484716300133	-1	0.086771134816	22.883951874627
2300	0.002875321480	0.437469260316	-1	0.085791765325	20.465069809505
2400	0.002778897113	0.397916063735	-1	0.084883620116	18.515799866593
2500	0.002689126635	0.364312350147	-1	0.084041807889	16.913359491109
2600	0.002605280757	0.335376842425	-1	0.083264128295	15.572778512592
2700	0.002526795653	0.310246813354	-1	0.082542425865	14.437286310186
2800	0.002453185193	0.288265907701	-1	0.081868685771	13.465341766737
2900	0.002384009600	0.268903119772	-1	0.081237230511	12.625072978285
3000	0.002318863960	0.251722411390	-1	0.080644825519	11.891644530012
3100	0.002257385393	0.236371763271	-1	0.080089465998	11.245777924851
3200	0.002199274486	0.222591909268	-1	0.079566855529	10.673265632130
3300	0.002144266292	0.210170673285	-1	0.079072963318	10.162780989890
3400	0.002092116270	0.198925356809	-1	0.078605062455	9.704954961332
3500	0.002042596460	0.188697322244	-1	0.078161714654	9.291965743294
3600	0.001995500209	0.179352422674	-1	0.077742089782	8.917376926212
3700	0.001950629274	0.170781530431	-1	0.077345998856	8.576195782922
3800	0.001907780535	0.162884736536	-1	0.076975803818	8.264223315924
3900	0.001866881151	0.155607608263	-1	0.076623414115	7.978057645075
4000	0.001827795366	0.148880796781	-1	0.076287912368	7.714576851468
4100	0.001790399109	0.142643736315	-1	0.075968696471	7.471104679262
4200	0.001754585770	0.136848958386	-1	0.075664227448	7.245513393897
4300	0.001720257094	0.131454899726	-1	0.075373073205	7.035968692729
4400	0.001687321991	0.126423595614	-1	0.075094194118	6.840826702299
4500	0.001655694221	0.121720071732	-1	0.074827066919	6.658614881113
4600	0.001625292728	0.117313097883	-1	0.074571330596	6.488039137870
4700	0.001596048642	0.113177806339	-1	0.074325976984	6.328046121651

4800	0.001567897679	0.109292035082	-1	0.074090043211	6.177708161382
4900	0.001540778905	0.105635071848	-1	0.073862887188	6.036177047893
5000	0.001514634282	0.102187600385	-1	0.073644142015	5.902676669883
5500	0.001396817768	0.087563094557	-1	0.072660179432	5.334419459186
6000	0.001296884453	0.076265979929	-1	0.071821265909	4.891113720158
6500	0.001211023776	0.067318986757	-1	0.071089287560	4.535066960924
7000	0.001136446478	0.060087339346	-1	0.070436612461	4.242304265421
7500	0.001071064320	0.054142131204	-1	0.069842691074	3.996857083842
8000	0.001013278510	0.049183747206	-1	0.069292085443	3.787692575952
8500	0.000961844493	0.044997161013	-1	0.068772879286	3.606944254138
9000	0.000915777733	0.041424202355	-1	0.068275982968	3.448854533833
9500	0.000874288454	0.038346301912	-1	0.067794184554	3.309116562373
10000	0.000836737694	0.035673213107	-1	0.067321361317	3.184441381146
10500	0.000802629276	0.033339854495	-1	0.066843883610	3.072209396907
11000	0.000771498062	0.031286177465	-1	0.066365980499	2.970508372042
11500	0.000742975176	0.029466598804	-1	0.065886602579	2.877682858515
12000	0.000716755983	0.027846594180	-1	0.065402701783	2.792473475395
12500	0.000692576856	0.026396747630	-1	0.064913404208	2.713810936295
13000	0.000670217492	0.025093971723	-1	0.064416764540	2.640844489555
13500	0.000649483511	0.023918145457	-1	0.063912639814	2.572841375763
14000	0.000630210902	0.022853335847	-1	0.063399805060	2.509210660179
14500	0.000612254137	0.021885490499	-1	0.062878338559	2.449435753129
15000	0.000595487851	0.021003251383	-1	0.062347705448	2.393100096891
16000	0.000565096949	0.019457069769	-1	0.061259157187	2.289303490300
17000	0.000538299199	0.018151439187	-1	0.060134893047	2.195467486531
18000	0.000514512890	0.017039125174	-1	0.058976929181	2.109828653446
19000	0.000493274045	0.016084294295	-1	0.057787986611	2.031038883326
20000	0.000474207200	0.015259290199	-1	0.056571381934	1.958055536721
21000	0.000397019156	0.010562387764	-1	0.079779378364	2.329914976576
22000	0.000379184458	0.009869909530	-1	0.080467982908	2.299427331393
23000	0.000362175103	0.009197320026	-1	0.081257471349	2.265849265568
24000	0.000346185454	0.008563015546	-1	0.082153062548	2.232153876319
25000	0.000331405213	0.007987302937	-1	0.083112917152	2.201428829632

26000	0.000317952793	0.007485777902	-1	0.084057219223	2.176114929540
27000	0.000305692230	0.007051431382	-1	0.084946018796	2.155798222303
28000	0.000294437727	0.006671393090	-1	0.085771637917	2.139301329671
29000	0.000284016382	0.006332814241	-1	0.086549011156	2.125438405339
30000	0.000274265467	0.006023045247	-1	0.087316825406	2.113059491496
31000	0.000265050711	0.005731762428	-1	0.088124025949	2.101284396999
32000	0.000256324925	0.005456979213	-1	0.088977563053	2.090090451594
33000	0.000248064981	0.005198810762	-1	0.089869266329	2.079649812347
34000	0.000240251049	0.004957407716	-1	0.090787736851	2.070115509177
35000	0.000232866347	0.004732950724	-1	0.091717864290	2.061616771209
36000	0.000225893008	0.004525306735	-1	0.092643910474	2.054220896894
37000	0.000219300048	0.004333044741	-1	0.093561510932	2.047839221027
38000	0.000213054741	0.004154441110	-1	0.094471826596	2.042348000748
39000	0.000207126195	0.003987813787	-1	0.095379131695	2.037628949256
40000	0.000201484937	0.003831523419	-1	0.096291168897	2.033574872086
41000	0.000196104564	0.003684150301	-1	0.097216705424	2.030107013052
42000	0.000190967415	0.003545021565	-1	0.098155552668	2.027200856379
43000	0.000186058959	0.003413656528	-1	0.099105145089	2.024839200852
44000	0.000181365577	0.003289582308	-1	0.100063339785	2.023002828504
45000	0.000176874617	0.003172340166	-1	0.101028278059	2.021668284313
46000	0.000172574097	0.003061478174	-1	0.101998689759	2.020811436344
47000	0.000168452586	0.002956560311	-1	0.102973618962	2.020406659453
48000	0.000164499154	0.002857159212	-1	0.103952815408	2.020429932426
49000	0.000160703498	0.002762856864	-1	0.104936758143	2.020856283411
50000	0.000157055741	0.002673245045	-1	0.105926803599	2.021663967669
55000	0.000140753064	0.002284873500	-1	0.110986187414	2.030929183556
60000	0.000127105035	0.001975866212	-1	0.116212001229	2.047857453757
65000	0.000115517964	0.001725627123	-1	0.121589358058	2.071066422265
70000	0.000105554466	0.001519771139	-1	0.127132463752	2.100019791008
75000	0.000096897772	0.001348260366	-1	0.132835736945	2.134109020220
80000	0.000089308058	0.001203777819	-1	0.138697006999	2.172953938053
85000	0.000082600865	0.001080889952	-1	0.144713680778	2.216298481674
90000	0.000076632266	0.000975486413	-1	0.150882153304	2.263964545591

95000	0.000071288111	0.000884404133	-1	0.157198301928	2.315842766307
100000	0.000066476922	0.000805174261	-1	0.163656794426	2.371860613562
105000	0.000062123977	0.000735828553	-1	0.170255213683	2.432012169350
110000	0.000058169365	0.000674843374	-1	0.176978676733	2.496239439329
115000	0.000054561334	0.000620911274	-1	0.183828561894	2.564614214238
120000	0.000051257255	0.000573006920	-1	0.190801203291	2.637284152910
125000	0.000048219387	0.000530246997	-1	0.197906332140	2.714566097580
130000	0.000045427817	0.000492062012	-1	0.205062196083	2.795402447826
135000	0.000042854657	0.000457813554	-1	0.212266959483	2.879878240390
140000	0.000040473144	0.000426952889	-1	0.219543225455	2.968602180555
145000	0.000038256377	0.000398978488	-1	0.226949061615	3.062827555298
150000	0.000036194362	0.000373611925	-1	0.234423953056	3.161840501092
155000	0.000034274567	0.000350561705	-1	0.241941220340	3.265403179208
160000	0.000032483930	0.000329562607	-1	0.249492133742	3.373649586532
165000	0.000030810673	0.000310380783	-1	0.257072018036	3.486768552726
170000	0.000029244971	0.000292821176	-1	0.264668932360	3.604838293700
175000	0.000027777928	0.000276710138	-1	0.272273794197	3.727959167502
180000	0.000026401654	0.000261898084	-1	0.279876464697	3.856228985463
185000	0.000025108985	0.000248251881	-1	0.287468955678	3.989766150456
190000	0.000023893849	0.000235659968	-1	0.295037198600	4.128594548308
195000	0.000022750530	0.000224019857	-1	0.302571621540	4.272784347335
200000	0.000021673132	0.000213231448	-1	0.310076737129	4.422635569810
205000	0.000020656155	0.000203205486	-1	0.317561237968	4.578561053752
210000	0.000019695924	0.000193880378	-1	0.325007546328	4.740538317850
215000	0.000018789283	0.000185202746	-1	0.332393410734	4.908414900907
220000	0.000017933197	0.000177121797	-1	0.339699802863	5.082030781071
225000	0.000017124699	0.000169589377	-1	0.346911647822	5.261248937456
230000	0.000016360891	0.000162559811	-1	0.354018413383	5.445972489510
235000	0.000015638899	0.000155989925	-1	0.361014815366	5.636189039907
240000	0.000014955898	0.000149839038	-1	0.367900867986	5.831988745684
245000	0.000014309084	0.000144068871	-1	0.374682256871	6.033607547226
250000	0.000013695675	0.000138643365	-1	0.381370972003	6.241475228466
255000	0.000013113149	0.000133530964	-1	0.387978358610	6.456066431383

260000	0.000012559894	0.000128710130	-1	0.394495925109	6.677327096401
265000	0.000012034553	0.000124162431	-1	0.400910883807	6.905026689284
270000	0.000011535887	0.000119870629	-1	0.407210366861	7.138830333190
275000	0.000011062801	0.000115818846	-1	0.413380515958	7.378246284332
280000	0.000010614688	0.000111994323	-1	0.419396764327	7.622166419920
285000	0.000010184200	0.000108351416	-1	0.425414104849	7.877840950075
290000	0.000009773196	0.000104892040	-1	0.431356967781	8.142247697707
295000	0.000009382108	0.000101610719	-1	0.437184180055	8.413511499774
300000	0.000009009688	0.000098494137	-1	0.442901018285	8.691881741466

Electron Elastic Scattering Sampling Data
Solution for Z = 26

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.023593871502	1.630887710975	-1	0.606629276397	273.981233750008
52	0.020735506981	1.380479991305	-1	0.623963725044	257.629963212792
54	0.018690398069	1.245031442679	-1	0.634530667796	254.884637901427
56	0.017317184467	1.175106068054	-1	0.639091604999	256.915303063314
58	0.016479917696	1.148641789066	-1	0.638518156796	260.244495554260
60	0.016061572489	1.155344852602	-1	0.633662933011	263.935465390880
62	0.015966145343	1.191024585375	-1	0.625309240295	268.479126216607
64	0.016114920718	1.255277065621	-1	0.614174229368	275.212942115934
66	0.016444520402	1.350957910570	-1	0.600890277309	286.078125187344
68	0.016902177096	1.484308260264	-1	0.586028331841	303.707667293662
70	0.017444998861	1.666237805538	-1	0.570090047934	331.909696447386
72	0.018036675342	1.915060512445	-1	0.553515797947	376.906899589109
74	0.018648122886	2.262295135885	-1	0.536679291013	450.035034088891
76	0.019256348158	2.765960663665	-1	0.519886309745	574.683483648523
78	0.019843612142	3.544163991169	-1	0.503380819763	806.652845029831
80	0.020396625650	4.878316308248	-1	0.487351256069	1309.838528856530
82	0.020906700162	7.643733989115	-1	0.471929304335	2766.433854581777
84	0.021367775967	16.606807748890	-1	0.457208400156	11285.125410881892
86	0.021777096305	152.364227308923	+1	0.443240743612	836032.533328096730
88	0.022133417514	13.447672628468	+1	0.430053835032	6480.043866493367
90	0.022437774716	6.822071247166	+1	0.417647997231	1668.192553258707
92	0.022691961728	4.480467497605	+1	0.406009570044	723.237398448007
94	0.022898590910	3.287945189675	+1	0.395113189855	393.169544183381
96	0.023060824629	2.568175750330	+1	0.384925222385	243.076593464899
98	0.023182097549	2.088340033828	+1	0.375407220530	163.427947238239
100	0.023265943226	1.746815437364	+1	0.366518526896	116.608264376288
105	0.023334607976	1.213395629921	+1	0.346777925864	59.708188638400
110	0.023241816115	0.909361387579	+1	0.330088915289	35.974111910486

115	0.023031017191	0.715744051958	+1	0.315900412905	24.067955180918
120	0.022736816330	0.583318609012	+1	0.303749803049	17.327315299141
125	0.022386077486	0.488138583686	+1	0.293261984740	13.170155454595
130	0.021999108492	0.417157842573	+1	0.284133315187	10.436455983640
135	0.021591037380	0.362718715062	+1	0.276122674236	8.547964282890
140	0.021172949187	0.320018671191	+1	0.269035607093	7.190983227712
145	0.020752862150	0.285925099722	+1	0.262717786409	6.184791539180
150	0.020336479072	0.258295610562	+1	0.257043662931	5.419062246055
155	0.019927776607	0.235635022717	+1	0.251912945708	4.823920384875
160	0.019529474219	0.216858348773	+1	0.247242886321	4.353061195231
165	0.019143223594	0.201173729805	+1	0.242967366464	3.975210633681
170	0.018770162109	0.187978935481	+1	0.239030292735	3.668252822542
175	0.018410794965	0.176819589628	+1	0.235386591281	3.416524519432
180	0.018065295374	0.167340729564	+1	0.231998122676	3.208490707368
185	0.017733569566	0.159265756682	+1	0.228833456867	3.035613641695
190	0.017415358414	0.152370980337	+1	0.225865318351	2.891324886619
195	0.017110261374	0.146480021301	+1	0.223071310056	2.770656999885
200	0.016817781152	0.141454956833	+1	0.220433573800	2.669867659965
205	0.016537380506	0.137183338322	+1	0.217936932825	2.586013812174
210	0.016268529898	0.133562985492	+1	0.215566103016	2.516512580891
215	0.016010681409	0.130508599316	+1	0.213307749892	2.459272604996
220	0.015763282614	0.127950753807	+1	0.211150754674	2.412639529811
225	0.015525784607	0.125832532051	+1	0.209085781322	2.375293798670
230	0.015297650343	0.124107015967	+1	0.207104984566	2.346176846952
235	0.015078371623	0.122735139319	+1	0.205201629525	2.324427770467
240	0.014867453750	0.121684463402	+1	0.203370014892	2.309352270992
245	0.014664431046	0.120927746601	+1	0.201605335892	2.300383914081
250	0.014468863097	0.120442122395	+1	0.199903359614	2.297060027055
255	0.014280333800	0.120207829483	+1	0.198260302481	2.298991532688
260	0.014098454706	0.120206222487	+1	0.196672227307	2.305810170548
265	0.013922858435	0.120420738271	+1	0.195135479778	2.317194878028
270	0.013753198723	0.120837067746	+1	0.193646777792	2.332876007765
275	0.013589156880	0.121442648040	+1	0.192203203556	2.352622919804

280	0.013430431081	0.122226423653	+1	0.190802109280	2.376239060463
285	0.013276742713	0.123178532583	+1	0.189441084927	2.403553491213
290	0.013127832569	0.124290191567	+1	0.188117935281	2.434418611388
295	0.012983460707	0.125553286513	+1	0.186830650872	2.468700754180
300	0.012843401549	0.126960487707	+1	0.185577350450	2.506282572518
310	0.012575383301	0.130183934299	+1	0.183166160909	2.591012135818
320	0.012322184056	0.133928905960	+1	0.180873216766	2.688294465529
330	0.012082401708	0.138172024459	+1	0.178688837670	2.798005616733
340	0.011854829724	0.142892288189	+1	0.176604220037	2.920068261296
350	0.011638433554	0.148069220299	+1	0.174611129125	3.054402898686
360	0.011432303183	0.153685122535	+1	0.172702173661	3.200991249677
370	0.011235585597	0.159735696262	+1	0.170871681872	3.360170331517
380	0.011047520544	0.166219589368	+1	0.169114596667	3.532369412948
390	0.010867449566	0.173133967139	+1	0.167425944803	3.717987536380
400	0.010694799691	0.180473931971	+1	0.165800825425	3.917374825591
410	0.010529065496	0.188234761695	+1	0.164234651999	4.130892365675
420	0.010369758280	0.196422179657	+1	0.162724049542	4.359223502606
430	0.010216438665	0.205043700739	+1	0.161265920017	4.603133535189
440	0.010068714626	0.214105526952	+1	0.159857220256	4.863383536480
450	0.009926249542	0.223611375005	+1	0.158494773241	5.140681242597
460	0.009788728488	0.233565465199	+1	0.157175698554	5.435786363989
470	0.009655854711	0.243979305386	+1	0.155897741940	5.749721622358
480	0.009527354815	0.254866066364	+1	0.154658889911	6.083616926047
490	0.009402982106	0.266237908139	+1	0.153457099314	6.438623393268
500	0.009282514186	0.278105880942	+1	0.152290299891	6.815908071202
510	0.009165750822	0.290481213946	+1	0.151156539542	7.216697840088
520	0.009052496668	0.303381211444	+1	0.150054277451	7.642495468001
530	0.008942569807	0.316824981550	+1	0.148982100719	8.094948478217
540	0.008835805877	0.330831376524	+1	0.147938584831	8.575779985700
550	0.008732053045	0.345419251968	+1	0.146922312419	9.086804050559
560	0.008631170487	0.360608223441	+1	0.145931959064	9.629962126352
570	0.008533026027	0.376422972257	+1	0.144966415244	10.207492352982
580	0.008437492163	0.392890190820	+1	0.144024665356	10.821845371189

590	0.008344454052	0.410037755385	+1	0.143105715721	11.475654951707
600	0.008253801595	0.427894198045	+1	0.142208568836	12.171738004115
610	0.008165435605	0.446489940369	+1	0.141332272526	12.913148215292
620	0.008079258977	0.465860154131	+1	0.140476039687	13.703331513981
630	0.007995179759	0.486043272088	+1	0.139639125208	14.546086665451
640	0.007913114902	0.507079189420	+1	0.138820769396	15.445507831163
650	0.007832983707	0.529010829888	+1	0.138020264511	16.406091641472
660	0.007754710794	0.551884322058	+1	0.137236962912	17.432775109880
670	0.007678225227	0.575750501096	+1	0.136470209473	18.531031347609
680	0.007603458748	0.600665157887	+1	0.135719468127	19.706954211454
690	0.007530347766	0.626687807627	+1	0.134984175330	20.967231606710
700	0.007458831306	0.653882985955	+1	0.134263808441	22.319276484195
710	0.007388852085	0.682320138825	+1	0.133557850551	23.771280149207
720	0.007320356133	0.712076226328	+1	0.132865841659	25.332427687462
730	0.007253291469	0.743234563128	+1	0.132187336165	27.012934672971
740	0.007187609375	0.775886147335	+1	0.131521904575	28.824215549492
750	0.007123262498	0.810130576397	+1	0.130869156092	30.779069869525
760	0.007060205380	0.846076213614	+1	0.130228675123	32.891818055510
770	0.006998397097	0.883843148694	+1	0.129600125518	35.178651019028
780	0.006937796666	0.923562208034	+1	0.128983132669	37.657764434904
790	0.006878365920	0.965378538704	+1	0.128377371268	40.349814779256
800	0.006820067278	1.009452396538	+1	0.127782534880	43.278257277607
810	0.006762865433	1.055960768682	+1	0.127198300944	46.469756834611
820	0.006706727081	1.105100006012	+1	0.126624377310	49.954770263819
830	0.006651620164	1.157088925971	+1	0.126060489389	53.768232832773
840	0.006597514121	1.212170696212	+1	0.125506345209	57.950242056015
850	0.006544379035	1.270619691177	+1	0.124961709257	62.547291477987
860	0.006492186349	1.332742438265	+1	0.124426340841	67.613166304469
870	0.006440909585	1.398884551093	+1	0.123899973068	73.210480211693
880	0.006390522125	1.469436949991	+1	0.123382402629	79.412534328308
890	0.006340999768	1.544841410879	+1	0.122873369220	86.305245362361
900	0.006292318822	1.625605936180	+1	0.122372678266	93.990568212254
910	0.006244454526	1.712310865851	+1	0.121880154828	102.589585304015

920	0.006197386332	1.805620302098	+1	0.121395574306	112.246559292769
930	0.006151092849	1.906303050322	+1	0.120918728869	123.135109306150
940	0.006105553744	2.015253645695	+1	0.120449443548	135.465577331448
950	0.006060748984	2.133518251428	+1	0.119987529343	149.494554231414
960	0.006016659418	2.262328360524	+1	0.119532818591	165.537616675797
970	0.005973266909	2.403143823112	+1	0.119085159301	183.986272653498
980	0.005930553691	2.557704552053	+1	0.118644391429	205.330306236449
990	0.005888503394	2.728107708944	+1	0.118210334858	230.189565311728
1000	0.005847098211	2.916903704378	+1	0.117782889953	259.357828003902
1025	0.005746308131	3.491762110376	+1	0.116742147530	358.694080134156
1050	0.005649229005	4.278041292062	+1	0.115739364228	520.214976085877
1075	0.005555650219	5.417740789999	+1	0.114772437579	806.941528922149
1100	0.005465372008	7.217097367817	+1	0.113839598238	1386.357276210015
1125	0.005378208519	10.480232168924	+1	0.112939269984	2832.996861702698
1150	0.005293995927	18.210455522892	+1	0.112069701486	8296.427466301799
1175	0.005213428733	58.324257096042	+1	0.111210183407	82612.409316719815
1200	0.005133823463	51.565322910708	-1	0.110416622456	65198.868596172055
1225	0.005057581774	17.927221695438	-1	0.109630557983	8219.158941779499
1250	0.004983735569	10.798937707018	-1	0.108869705632	3107.962431889497
1275	0.004912172087	7.701382458110	-1	0.108132842232	1645.935136464203
1300	0.004842781103	5.969715793242	-1	0.107418924679	1028.984646679918
1325	0.004775459328	4.863921161111	-1	0.106727001781	710.199860280864
1350	0.004710113959	4.096873505417	-1	0.106056029667	523.491080928083
1375	0.004646657514	3.533767722926	-1	0.105405015160	404.369205303456
1400	0.004585006271	3.102907108224	-1	0.104773150991	323.482461648736
1425	0.004525079193	2.762662888091	-1	0.104159689058	265.892023650994
1450	0.004466805319	2.487251527244	-1	0.103563792761	223.336097471204
1475	0.004410115668	2.259816487045	-1	0.102984679158	190.931694164532
1500	0.004354943712	2.068861231379	-1	0.102421717082	165.637459465124
1550	0.004248906597	1.766242251217	-1	0.101341738469	129.126597390543
1600	0.004148242864	1.537379749123	-1	0.100318826804	104.423544408379
1650	0.004052541092	1.358357855498	-1	0.099348729577	86.845173898883
1700	0.003961439259	1.214605736072	-1	0.098427370186	73.837481894908

1750	0.003874603750	1.096704298915	-1	0.097551322630	63.904378991848
1800	0.003791735724	0.998318886771	-1	0.096717295418	56.121963009804
1850	0.003712561669	0.915016230072	-1	0.095922471679	49.892228980044
1900	0.003636839824	0.843629360145	-1	0.095163847211	44.815328038752
1950	0.003564344412	0.781804571152	-1	0.094439013604	40.613192320962
2000	0.003494858774	0.727735803019	-1	0.093746547894	37.086162987702
2100	0.003364149349	0.637685805855	-1	0.092452934560	31.517737335503
2200	0.003243447498	0.565929116286	-1	0.091263957822	27.351583774865
2300	0.003131680811	0.507591499346	-1	0.090162919355	24.139424671918
2400	0.003027885003	0.459310466451	-1	0.089139002295	21.598188038481
2500	0.002931182943	0.418684041947	-1	0.088187141397	19.541485965446
2600	0.002840798703	0.383986057335	-1	0.087305020920	17.843838109836
2700	0.002756137694	0.354062925105	-1	0.086483945713	16.422617269787
2800	0.002676688636	0.328049179800	-1	0.085715388235	15.218495750887
2900	0.002601984151	0.305255811569	-1	0.084993340055	14.186883787368
3000	0.002531594403	0.285125823768	-1	0.084314348683	13.293675985458
3100	0.002465131794	0.267214376977	-1	0.083676278943	12.512783292940
3200	0.002402280467	0.251195338816	-1	0.083074487777	11.825092691652
3300	0.002342757615	0.236803461561	-1	0.082504705376	11.215535020291
3400	0.002286301977	0.223812715563	-1	0.081964003291	10.671802582986
3500	0.002232671966	0.212028900447	-1	0.081450789482	10.183743004659
3600	0.002181644744	0.201288572029	-1	0.080964159254	9.743081831305
3700	0.002133037383	0.191468401393	-1	0.080501417533	9.343471333648
3800	0.002086684199	0.182464151863	-1	0.080059976901	8.979651127218
3900	0.002042430687	0.174183093505	-1	0.079638050348	8.647097333752
4000	0.002000102839	0.166534636719	-1	0.079237099276	8.341859599701
4100	0.001959530497	0.159436804474	-1	0.078860154605	8.060565501508
4200	0.001920663155	0.152851857414	-1	0.078499907433	7.800697681560
4300	0.001883395349	0.146730411984	-1	0.078154839543	7.559980767416
4400	0.001847629628	0.141027700875	-1	0.077823819226	7.336394227840
4500	0.001813273862	0.135702601806	-1	0.077506223865	7.128132201263
4600	0.001780240386	0.130718493783	-1	0.077201676751	6.933625108762
4700	0.001748455464	0.126046245181	-1	0.076909073060	6.751588710539

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4900	0.001688358547	0.117535327626	-1	0.076355890277	6.420520784528
5000	0.001659918995	0.113650161138	-1	0.076094150726	6.269533206296
5500	0.001531661865	0.097200807421	-1	0.074914315834	5.630037215608
6000	0.001422735965	0.084527806184	-1	0.073907237361	5.134888411602
6500	0.001329035299	0.074510148421	-1	0.073030680011	4.739719153878
7000	0.001247553255	0.066424144804	-1	0.072253717282	4.416582549137
7500	0.001176036619	0.059783008709	-1	0.071553237512	4.147016007491
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8500	0.001056374387	0.049576554462	-1	0.070315453934	3.721596082668
9000	0.001005819922	0.045591026218	-1	0.069753822041	3.550213685878
9500	0.000960242143	0.042158254571	-1	0.069218358037	3.399321088838
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10500	0.000881360811	0.036567125547	-1	0.068201201188	3.145008286413
11000	0.000847023835	0.034270286789	-1	0.067707331860	3.036490205159
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12000	0.000786606031	0.030430392540	-1	0.066718254462	2.847471343981
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13000	0.000735146879	0.027355405765	-1	0.065730792675	2.687617346160
13500	0.000712189078	0.026041050208	-1	0.065233590651	2.616296252458
14000	0.000690831102	0.024850241466	-1	0.064732069990	2.549779767384
14500	0.000670914040	0.023767316378	-1	0.064225857628	2.487494465400
15000	0.000652302752	0.022779649542	-1	0.063713986132	2.428974455285
16000	0.000618526505	0.021047082807	-1	0.062672079472	2.321631968201
17000	0.000588699375	0.019582064473	-1	0.061604083753	2.225127433028
18000	0.000562186348	0.018331947502	-1	0.060509732781	2.137502062792
19000	0.000538481239	0.017256828483	-1	0.059389656857	2.057255769047
20000	0.000517173856	0.016325888942	-1	0.058245439765	1.983229220443
21000	0.000441081311	0.011701845421	-1	0.078875127945	2.297303071174
22000	0.000421395886	0.010930949734	-1	0.079487890509	2.263484852667
23000	0.000402617476	0.010181680378	-1	0.080204845597	2.226696344561
24000	0.000384974480	0.009475369491	-1	0.081026753282	2.189870075925
25000	0.000368669066	0.008834634141	-1	0.081913931369	2.156185617958

26000	0.000353814881	0.008276461269	-1	0.082792923435	2.128239059269
27000	0.000340264974	0.007793154844	-1	0.083622766590	2.105571305849
28000	0.000327817960	0.007370406532	-1	0.084394398417	2.086943650565
29000	0.000316285978	0.006993886575	-1	0.085121672120	2.071118493910
30000	0.000305492122	0.006649465119	-1	0.085842264937	2.056896031334
31000	0.000295290064	0.006325596117	-1	0.086604487835	2.043357916104
32000	0.000285627709	0.006020065696	-1	0.087415276306	2.030475005729
33000	0.000276479341	0.005733015564	-1	0.088266514946	2.018418230785
34000	0.000267822829	0.005464630535	-1	0.089146807829	2.007340848869
35000	0.000259639521	0.005215123899	-1	0.090041052519	1.997371568703
36000	0.000251909518	0.004984354305	-1	0.090933549434	1.988578563097
37000	0.000244598877	0.004770730866	-1	0.091819729790	1.980866313683
38000	0.000237671753	0.004572332307	-1	0.092700566122	1.974103730345
39000	0.000231094174	0.004387278896	-1	0.093580252894	1.968167035255
40000	0.000224833788	0.004213737949	-1	0.094466506559	1.962943541304
41000	0.000218861583	0.004050124802	-1	0.095367976154	1.958347835905
42000	0.000213158153	0.003895688731	-1	0.096284472093	1.954352216959
43000	0.000207707500	0.003749899218	-1	0.097213272608	1.950936491738
44000	0.000202494618	0.003612229388	-1	0.098152192506	1.948079153868
45000	0.000197505588	0.003482168629	-1	0.099099288128	1.945753896695
46000	0.000192727264	0.003359214149	-1	0.100053204380	1.943933720094
47000	0.000188146907	0.003242878090	-1	0.101013052369	1.942593942839
48000	0.000183752490	0.003132683473	-1	0.101978549713	1.941708313456
49000	0.000179532605	0.003028164324	-1	0.102950197164	1.941251917733
50000	0.000175476292	0.002928862899	-1	0.103929422351	1.941202388824
55000	0.000157338334	0.002498784569	-1	0.108953328996	1.946479563432
60000	0.000142143777	0.002157042494	-1	0.114168227025	1.959742039710
65000	0.000129229549	0.001880523293	-1	0.119572805921	1.979774272264
70000	0.000118118482	0.001653361578	-1	0.125165511908	2.005741347918
75000	0.000108458446	0.001464333109	-1	0.130944290240	2.037060087181
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85000	0.000092488546	0.001170172200	-1	0.143052002774	2.114311818529
90000	0.000085814896	0.001054424962	-1	0.149374232517	2.159785258032

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120000	0.000057388158	0.000614168245	-1	0.190735863101	2.523764690172
125000	0.000053980971	0.000567658880	-1	0.198144319315	2.599891199526
130000	0.000050840627	0.000526083782	-1	0.205674653327	2.680604283145
135000	0.000047938638	0.000488782468	-1	0.213316456290	2.765958318268
140000	0.000045250544	0.000455209592	-1	0.221057971308	2.856055519744
145000	0.000042752767	0.000424871428	-1	0.228908526864	2.951313077422
150000	0.000040440614	0.000397514797	-1	0.236744964339	3.050012907166
155000	0.000038285318	0.000372668357	-1	0.244652670863	3.153833129608
160000	0.000036273608	0.000350051928	-1	0.252612296729	3.262770354885
165000	0.000034387792	0.000329368287	-1	0.260663556552	3.377876550346
170000	0.000032620969	0.000310442030	-1	0.268759775862	3.498714329385
175000	0.000030965418	0.000293101362	-1	0.276869397440	3.625041051173
180000	0.000029412087	0.000277178839	-1	0.284982880957	3.757025506950
185000	0.000027952895	0.000262526817	-1	0.293091647310	3.894834978774
190000	0.000026581032	0.000249022305	-1	0.301180009706	4.038534715143
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200000	0.000024073385	0.000225007161	-1	0.317267686342	4.344320046111
205000	0.000022924886	0.000214289073	-1	0.325278519788	4.507199525952
210000	0.000021840452	0.000204330213	-1	0.333250765782	4.676908118559
215000	0.000020816605	0.000195072168	-1	0.341159385954	4.853310136321
220000	0.000019849957	0.000186459308	-1	0.348983125157	5.036270297052
225000	0.000018937198	0.000178438832	-1	0.356705229288	5.225674629135
230000	0.000018075091	0.000170960932	-1	0.364313443639	5.421443678318
235000	0.000017260390	0.000163978366	-1	0.371801852620	5.623601845123
240000	0.000016489901	0.000157446812	-1	0.379170016131	5.832279645794
245000	0.000015760436	0.000151324513	-1	0.386424043341	6.047776680621
250000	0.000015068834	0.000145572362	-1	0.393576413883	6.270597449474
255000	0.000014412199	0.000140155944	-1	0.400639730121	6.501325926875

260000	0.000013788666	0.000135051636	-1	0.407605796869	6.739998552342
265000	0.000013196673	0.000130239150	-1	0.414461915903	6.986463709682
270000	0.000012634690	0.000125699201	-1	0.421197415617	7.240561822630
275000	0.000012101201	0.000121413266	-1	0.427804521146	7.502155639877
280000	0.000011594750	0.000117363922	-1	0.434276990180	7.771093400726
285000	0.000011113903	0.000113534629	-1	0.440611031669	8.047253410478
290000	0.000010657289	0.000109909878	-1	0.446804418532	8.330514806880
295000	0.000010223637	0.000106475330	-1	0.452855381423	8.620704562187
300000	0.000009811925	0.000103218341	-1	0.458758603940	8.917362378850

Electron Elastic Scattering Sampling Data
Solution for Z = 27

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.027315059907	2.282908201890	-1	0.565846436537	348.094042518724
52	0.023529681428	1.675209010146	-1	0.594744101455	273.093289582494
54	0.020477898236	1.369741159835	-1	0.617538909473	250.799982589922
56	0.018138567710	1.198584086823	-1	0.634084366667	247.267927746513
58	0.016431452059	1.099766388652	-1	0.644758182912	250.951711937484
60	0.015256754785	1.045665509294	-1	0.650185426903	256.678022962219
62	0.014517206590	1.022654458468	-1	0.651062211448	262.049069839811
64	0.014126784427	1.023736403842	-1	0.648077157888	266.308959758494
66	0.014014335773	1.045663816941	-1	0.641854439968	269.765687051630
68	0.014120818569	1.087511018505	-1	0.632963989037	273.390360317311
70	0.014396966128	1.150131416580	-1	0.621925380165	278.544317659612
72	0.014801958238	1.236160190089	-1	0.609200936647	286.869411101809
74	0.015300487571	1.350177997938	-1	0.595216711689	300.361634965241
76	0.015862808459	1.499554013752	-1	0.580349184184	321.670182301524
78	0.016463458848	1.695823705641	-1	0.564932818989	354.731551265131
80	0.017080881560	1.957428657176	-1	0.549259523341	406.055580066845
82	0.017697557348	2.315386465438	-1	0.533572648888	487.567939117684
84	0.018299133054	2.825364045418	-1	0.518075648676	623.527489239675
86	0.018874639961	3.598090738856	-1	0.502927890724	870.435400368263
88	0.019415914538	4.888798155932	-1	0.488251136914	1387.732921834275
90	0.019917209961	7.445899898157	-1	0.474134092329	2791.231576473916
92	0.020375013433	14.815035779243	-1	0.460634915554	9624.744049865445
94	0.020906426296	425.111002736651	+1	0.446227038797	6838856.488875510200
96	0.020910195278	286.889478298642	+1	0.445876481650	3113169.495378704700
98	0.021770916673	9.859331891335	+1	0.426388011027	3577.726234093703
100	0.021752795085	5.129948868669	+1	0.413250925861	996.484178182520
105	0.022269007531	2.587952128895	+1	0.388848722593	259.518770413211
110	0.022563382705	1.665652472399	+1	0.367981737063	112.044389143052

115	0.022678535826	1.196241396011	+1	0.350144906904	61.034590307362
120	0.022653569645	0.915746275323	+1	0.334855567927	38.123216113681
125	0.022522309977	0.731489193285	+1	0.321685925262	26.082139109241
130	0.022312405584	0.602596549817	+1	0.310272295917	19.045226693805
135	0.022045989468	0.508315024419	+1	0.300314137635	14.604868412410
140	0.021740320101	0.436992477996	+1	0.291564174828	11.634711938307
145	0.021408719029	0.381622062354	+1	0.283822097017	9.555595955656
150	0.021061334634	0.337728543818	+1	0.276923693016	8.045888792483
155	0.020705823530	0.302344830301	+1	0.270736243647	6.916672386805
160	0.020347899144	0.273416693701	+1	0.265150348972	6.050920207253
165	0.019991769866	0.249492325567	+1	0.260077061886	5.373514587115
170	0.019640515537	0.229508689511	+1	0.255442231374	4.834205057346
175	0.019296253638	0.212681428928	+1	0.251185565498	4.398689845337
180	0.018960535260	0.198412367576	+1	0.247255994620	4.042654145387
185	0.018634332711	0.186244561541	+1	0.243611568002	3.748682923968
190	0.018318265629	0.175815317102	+1	0.240215856355	3.503800586642
195	0.018012645603	0.166842710343	+1	0.237039024388	3.298423397827
200	0.017717529941	0.159110416376	+1	0.234057623717	3.125501301200
205	0.017432836792	0.152443329197	+1	0.231251617913	2.979577965694
210	0.017158438500	0.146683213091	+1	0.228600600313	2.855982686959
215	0.016894108283	0.141699466508	+1	0.226086845227	2.751009396291
220	0.016639545798	0.137387022600	+1	0.223695658162	2.661773233470
225	0.016394402353	0.133660657073	+1	0.221414900894	2.586006248934
230	0.016158298446	0.130450788605	+1	0.219234342412	2.521908121130
235	0.015930842955	0.127700132924	+1	0.217145446255	2.468037324045
240	0.015711639083	0.125361382412	+1	0.215141018237	2.423234504990
245	0.015500297136	0.123395284949	+1	0.213214952492	2.386561574051
250	0.015296435746	0.121769120031	+1	0.211362090355	2.357257279893
255	0.015099683428	0.120454577315	+1	0.209577780657	2.334678723805
260	0.014909695886	0.119423376699	+1	0.207856849668	2.318185587405
265	0.014726141842	0.118650408327	+1	0.206194511300	2.307218883118
270	0.014548703747	0.118114127293	+1	0.204586593906	2.301309577926
275	0.014377075119	0.117796042699	+1	0.203029431830	2.300064510479

280	0.014210967593	0.117680132703	+1	0.201519782461	2.303150159097
285	0.014050105907	0.117752448286	+1	0.200054810434	2.310283787302
290	0.013894230491	0.118000794872	+1	0.198631917548	2.321223124793
295	0.013743096201	0.118414447617	+1	0.197248814611	2.335761051279
300	0.013596474278	0.118983855605	+1	0.195903469904	2.353717857698
310	0.013315902596	0.120558480783	+1	0.193318547861	2.399320574600
320	0.013050889349	0.122673813035	+1	0.190863714779	2.457173270761
330	0.012799996803	0.125290258837	+1	0.188527425691	2.526672795349
340	0.012561969053	0.128374804259	+1	0.186299619173	2.607361758939
350	0.012335707949	0.131898771755	+1	0.184171356526	2.698875451634
360	0.012120245183	0.135838521813	+1	0.182134785209	2.800961786779
370	0.011914675899	0.140181779041	+1	0.180183487334	2.913653228036
380	0.011718198370	0.144919702827	+1	0.178311717254	3.037070301030
390	0.011530111878	0.150043542522	+1	0.176514073514	3.171337129218
400	0.011349804940	0.155543692506	+1	0.174785279319	3.316552447139
410	0.011176737263	0.161411748189	+1	0.173120526780	3.472846582755
420	0.011010389233	0.167648198936	+1	0.171516093644	3.640603779795
430	0.010850291909	0.174255399823	+1	0.169968647744	3.820277141751
440	0.010696034048	0.181234438718	+1	0.168474809454	4.012296810453
450	0.010547253002	0.188584864752	+1	0.167031256644	4.217062951904
460	0.010403623130	0.196306357148	+1	0.165634842028	4.434991642254
470	0.010264829080	0.204405289445	+1	0.164283122288	4.666718482875
480	0.010130580398	0.212889328141	+1	0.162973881919	4.912948596885
490	0.010000618391	0.221765091086	+1	0.161704900531	5.174383987115
500	0.009874695001	0.231039007361	+1	0.160474119951	5.451761620703
510	0.009752655120	0.240712797006	+1	0.159278721214	5.745638410207
520	0.009634239143	0.250800708837	+1	0.158117685083	6.057095858410
530	0.009519275464	0.261313482454	+1	0.156989254141	6.387091844000
540	0.009407591781	0.272262377801	+1	0.155891857619	6.736660011774
550	0.009299032150	0.283657914855	+1	0.154823922455	7.106855302011
560	0.009193453440	0.295510958852	+1	0.153783946646	7.498792198691
570	0.009090714894	0.307836815376	+1	0.152770740752	7.913800668599
580	0.008990686424	0.320651985344	+1	0.151783157199	8.353317794334

590	0.008893246804	0.333973123795	+1	0.150820095015	8.818861865518
600	0.008798285043	0.347816744187	+1	0.149880434164	9.312020006403
610	0.008705698375	0.362200286719	+1	0.148963110878	9.834493884899
620	0.008615387133	0.377144766340	+1	0.148067226522	10.388214550296
630	0.008527255391	0.392673142822	+1	0.147191952774	10.975296619574
640	0.008441216811	0.408808938887	+1	0.146336472667	11.597989062385
650	0.008357188472	0.425576556820	+1	0.145499983281	12.258702743028
660	0.008275093860	0.443001851923	+1	0.144681694497	12.960038208660
670	0.008194858629	0.461114456886	+1	0.143880974977	13.704912145815
680	0.008116414210	0.479946009213	+1	0.143097160783	14.496488098751
690	0.008039691677	0.499530324987	+1	0.142329655971	15.338224510201
700	0.007964629815	0.519903034430	+1	0.141577880429	16.233862107689
710	0.007891171550	0.541101754885	+1	0.140841246958	17.187454995258
720	0.007819258566	0.563168612318	+1	0.140119249108	18.203530025814
730	0.007748838013	0.586148858403	+1	0.139411386605	19.287042142841
740	0.007679858996	0.610090957502	+1	0.138717204030	20.443428366291
750	0.007612272238	0.635046794866	+1	0.138036243253	21.678652357289
760	0.007546032276	0.661072462739	+1	0.137368082139	22.999288525538
770	0.007481094194	0.688229161195	+1	0.136712306011	24.412626042157
780	0.007417417000	0.716583270056	+1	0.136068530182	25.926732644322
790	0.007354959835	0.746207001270	+1	0.135436414044	27.550578135895
800	0.007293685283	0.777178363941	+1	0.134815610411	29.294095648727
810	0.007233555390	0.809582096207	+1	0.134205777618	31.168343283979
820	0.007174536282	0.843510689890	+1	0.133606582412	33.185654598278
830	0.007116594364	0.879065639820	+1	0.133017756404	35.359873890246
840	0.007059698391	0.916357269086	+1	0.132438964566	37.706453147441
850	0.007003816243	0.955507384322	+1	0.131869978931	40.242857453468
860	0.006948918819	0.996648152806	+1	0.131310476855	42.988621961388
870	0.006894978721	1.039927170928	+1	0.130760252006	45.965993835508
880	0.006841968662	1.085505058644	+1	0.130219039776	49.200022393148
890	0.006789862152	1.133561477705	+1	0.129686600468	52.719330327385
900	0.006738634356	1.184293697315	+1	0.129162704677	56.556422976960
910	0.006688260703	1.237922650121	+1	0.128647165180	60.748639474220

920	0.006638718928	1.294693216618	+1	0.128139753003	65.338716351985
930	0.006589986970	1.354879328183	+1	0.127640270717	70.375941786459
940	0.006542042895	1.418787661380	+1	0.127148511009	75.917301353243
950	0.006494867151	1.486763825591	+1	0.126664288461	82.029045631014
960	0.006448439108	1.559199082247	+1	0.126187450765	88.788638667386
970	0.006402740171	1.636534485684	+1	0.125717786505	96.286635508482
980	0.006357750717	1.719274779683	+1	0.125255166282	104.630128246082
990	0.006313453794	1.807993134402	+1	0.124799400324	113.945564737840
1000	0.006269830880	1.903352099214	+1	0.124350346226	124.384190061457
1025	0.006163617178	2.176103847837	+1	0.123256171230	156.677271567078
1050	0.006061283090	2.511190772789	+1	0.122200697787	201.290641457116
1075	0.005962611739	2.932398090283	+1	0.121181851071	265.094427715894
1100	0.005867395695	3.477455819260	+1	0.120197857824	360.428009912747
1125	0.005775442281	4.209988426536	+1	0.119247112074	511.240415819907
1150	0.005686571298	5.246016637725	+1	0.118327737121	768.951664769408
1175	0.005600614183	6.822295936535	+1	0.117437981711	1260.860258669817
1200	0.005517411966	9.508838886146	+1	0.116576361211	2376.833139685990
1225	0.005436823287	15.113092353817	+1	0.115741615304	5830.993816840605
1250	0.005358748591	34.016236050496	+1	0.114932786968	28710.381221800362
1275	0.005308526611	187.523712352505	+1	0.113505057449	848179.479000574090
1300	0.005209776537	25.226285866126	-1	0.113389853452	16156.816819679547
1325	0.005138685565	13.453203436513	-1	0.112654370032	4779.330030741376
1350	0.005069671210	9.139902495656	-1	0.111941037889	2292.698289830216
1375	0.005002614842	6.903263983301	-1	0.111247436710	1358.331766735862
1400	0.004937360325	5.534622245926	-1	0.110572430255	906.172595317445
1425	0.004873811468	4.611103931079	-1	0.109914558544	652.373772597992
1450	0.004811935065	3.946116031622	-1	0.109273614390	495.222763398067
1475	0.004751708666	3.444545764952	-1	0.108649675380	390.868604983074
1500	0.004693105233	3.052801166586	-1	0.108042925130	317.842875553751
1550	0.004580569700	2.480571489251	-1	0.106880122939	224.535609320047
1600	0.004473751224	2.083043471529	-1	0.105778382980	169.051612926906
1650	0.004372105835	1.791039528091	-1	0.104730937733	133.170265110478
1700	0.004275268600	1.567642864490	-1	0.103733815343	108.504790979247

1750	0.004182918876	1.391317065859	-1	0.102784150257	90.740301214976
1800	0.004094743324	1.248696513115	-1	0.101878534872	77.470076169340
1850	0.004010450697	1.131021576492	-1	0.101013983877	67.259848579826
1900	0.003929790032	1.032350894490	-1	0.100187412887	59.212642285065
1950	0.003852527578	0.948469827768	-1	0.099396360885	52.739780577920
2000	0.003778435057	0.876278707021	-1	0.098639442652	47.439690320922
2100	0.003638956655	0.758398677513	-1	0.097222073531	39.322803242096
2200	0.003510042524	0.666510981647	-1	0.095915477042	33.455000811250
2300	0.003390577106	0.593106863876	-1	0.094702233465	29.053803035178
2400	0.003279550448	0.533218040461	-1	0.093571192187	25.649620403919
2500	0.003176035765	0.483418132344	-1	0.092517171405	22.946048981178
2600	0.003079215018	0.441309339148	-1	0.091537812153	20.750030706869
2700	0.002988464629	0.405304822163	-1	0.090623977729	18.936855744100
2800	0.002903250160	0.374234691811	-1	0.089766671715	17.419025096641
2900	0.002823080096	0.347185372965	-1	0.088959583252	16.132302372247
3000	0.002747500451	0.323430832629	-1	0.088199122371	15.028566749907
3100	0.002676101021	0.302399209491	-1	0.087483012049	14.071629028896
3200	0.002608547474	0.283672526614	-1	0.086806392631	13.235191263992
3300	0.002544543642	0.266914689788	-1	0.086164665237	12.498777147373
3400	0.002483811575	0.251841883860	-1	0.085554774597	11.845897687426
3500	0.002426094939	0.238213127215	-1	0.084975033415	11.263136279329
3600	0.002371157473	0.225827273270	-1	0.084424424748	10.739662239198
3700	0.002318804500	0.214532321129	-1	0.083900127526	10.267189878493
3800	0.002268859853	0.204200581573	-1	0.083399403432	9.838903662760
3900	0.002221160809	0.194719609903	-1	0.082920292450	9.449000110628
4000	0.002175552066	0.185989481589	-1	0.082461708918	9.092515898354
4100	0.002131890580	0.177923685538	-1	0.082022922882	8.765254533977
4200	0.002090055368	0.170454509827	-1	0.081602188858	8.463879274540
4300	0.002049906892	0.163515628326	-1	0.081200338569	8.185496264679
4400	0.002011310718	0.157046285435	-1	0.080819168492	7.927568952233
4500	0.001974224643	0.151013581542	-1	0.080452990094	7.687968419172
4600	0.001938555949	0.145374345460	-1	0.080101377777	7.464759370621
4700	0.001904226176	0.140094283181	-1	0.079763110990	7.256361121413

4800	0.001871161310	0.135142782776	-1	0.079437132868	7.061392518702
4900	0.001839291802	0.130491609604	-1	0.079122654651	6.878603822187
5000	0.001808551902	0.126114696617	-1	0.078819158147	6.706864142520
5500	0.001669815700	0.107627568874	-1	0.077448045777	5.983341499858
6000	0.001551849685	0.093431868855	-1	0.076275181428	5.427555968159
6500	0.001450257404	0.082237954966	-1	0.075254501571	4.986902149851
7000	0.001361818589	0.073218946444	-1	0.074352102932	4.628592613642
7500	0.001284113361	0.065821431083	-1	0.073542628404	4.331165556737
8000	0.001215289861	0.059662195274	-1	0.072806491162	4.079989454067
8500	0.001153903548	0.054467845679	-1	0.072128519993	3.864758676794
9000	0.001098810295	0.050038419741	-1	0.071496803565	3.678005154560
9500	0.001049092348	0.046224717927	-1	0.070901608361	3.514184259551
10000	0.001004003494	0.042913072429	-1	0.070335316728	3.369099185606
10500	0.000962929062	0.040015033465	-1	0.069792173671	3.239494516483
11000	0.000925365283	0.037463434799	-1	0.069265529918	3.122891222464
11500	0.000890881377	0.035201545235	-1	0.068752916519	3.017214779671
12000	0.000859127088	0.033187368893	-1	0.068248200151	2.920871874438
12500	0.000829814194	0.031387546787	-1	0.067743177511	2.832488504609
13000	0.000802659617	0.029769262751	-1	0.067241676930	2.751044037575
13500	0.000777436494	0.028307660550	-1	0.066742472417	2.675626023092
14000	0.000753951309	0.026982945763	-1	0.066243497823	2.605503110584
14500	0.000732034056	0.025777797054	-1	0.065743855571	2.540032151745
15000	0.000711538097	0.024678190036	-1	0.065242196401	2.478695654901
16000	0.000674300649	0.022747883002	-1	0.064230345867	2.366652826760
17000	0.000641370528	0.021113848017	-1	0.063203142916	2.266456319596
18000	0.000612061166	0.019717765743	-1	0.062157927221	2.175925097888
19000	0.000585822755	0.018515316588	-1	0.061093628001	2.093397755061
20000	0.000562211026	0.017472386753	-1	0.060009949276	2.017583016493
21000	0.000486895037	0.012915469305	-1	0.078387755196	2.284213188353
22000	0.000465337387	0.012062810862	-1	0.078914399612	2.246685360741
23000	0.000444778140	0.011233712255	-1	0.079545510729	2.206234303645
24000	0.000425433479	0.010450791673	-1	0.080293155837	2.166092913274
25000	0.000407536826	0.009740058268	-1	0.081114782239	2.129443239368

26000	0.000391228030	0.009121264098	-1	0.081931476221	2.098815353286
27000	0.000376350501	0.008586000772	-1	0.082699965698	2.073680598288
28000	0.000362673490	0.008117893854	-1	0.083415100220	2.052831863159
29000	0.000349995020	0.007701068521	-1	0.084089439530	2.034966472956
30000	0.000338123870	0.007319812860	-1	0.084759929313	2.018832383435
31000	0.000326901328	0.006961272733	-1	0.085474452344	2.003471962062
32000	0.000316270502	0.006623002858	-1	0.086239818833	1.988847020148
33000	0.000306202895	0.006305179809	-1	0.087047941923	1.975128998608
34000	0.000296674173	0.006008028734	-1	0.087887377488	1.962469527703
35000	0.000287663662	0.005731802654	-1	0.088743030537	1.950998288497
36000	0.000279149627	0.005476361416	-1	0.089599046221	1.940780329295
37000	0.000271095058	0.005239943349	-1	0.090450717217	1.931713825306
38000	0.000263460866	0.005020415967	-1	0.091298870129	1.923660389191
39000	0.000256210016	0.004815690295	-1	0.092147586270	1.916488896509
40000	0.000249307238	0.004623727726	-1	0.093004527275	1.910079783391
41000	0.000242720844	0.004442767036	-1	0.093878282003	1.904341607283
42000	0.000236429579	0.004271977135	-1	0.094768611850	1.899243735439
43000	0.000230415807	0.004110766858	-1	0.095672878749	1.894765334408
44000	0.000224663206	0.003958559506	-1	0.096588682156	1.890880866724
45000	0.000219156455	0.003814785233	-1	0.097514162214	1.887563387698
46000	0.000213881113	0.003678888872	-1	0.098447884385	1.884784483031
47000	0.000208823351	0.003550330626	-1	0.099388850953	1.882515520085
48000	0.000203969951	0.003428580861	-1	0.100336763339	1.880728957230
49000	0.000199308416	0.003313121315	-1	0.101292111049	1.879397789362
50000	0.000194826798	0.003203446970	-1	0.102256198036	1.878496904263
55000	0.000174777017	0.002728680342	-1	0.107222396552	1.879827946247
60000	0.000157967190	0.002351783435	-1	0.112407565622	1.889574215486
65000	0.000143669402	0.002047116816	-1	0.117808766573	1.906421662725
70000	0.000131359111	0.001797081536	-1	0.123423795899	1.929476628136
75000	0.000120648899	0.001589230640	-1	0.129250296419	1.958118782130
80000	0.000111246501	0.001414532205	-1	0.135285539340	1.991914590445
85000	0.000102926502	0.001266281115	-1	0.141527162905	2.030584427755
90000	0.000095513255	0.001139413495	-1	0.147971438927	2.073932121584

95000	0.000088867347	0.001030036503	-1	0.154613925722	2.121839023413
100000	0.000082876839	0.000935112731	-1	0.161449338840	2.174241043339
105000	0.000077450305	0.000852225985	-1	0.168474245310	2.231134633661
110000	0.000072514465	0.000779502587	-1	0.175673913138	2.292493210013
115000	0.000068006033	0.000715339950	-1	0.183049731540	2.358411252411
120000	0.000063874269	0.000658503470	-1	0.190586100751	2.428906756041
125000	0.000060075104	0.000607935345	-1	0.198277096000	2.504084463459
130000	0.000056571468	0.000562778564	-1	0.206114304088	2.584104225444
135000	0.000053330906	0.000522295659	-1	0.214095333516	2.669183314239
140000	0.000050328132	0.000485906685	-1	0.222193794415	2.759254155044
145000	0.000047540525	0.000453099754	-1	0.230390330756	2.854300383441
150000	0.000044946620	0.000423431152	-1	0.238680561302	2.954610486003
155000	0.000042526783	0.000396511234	-1	0.247068459052	3.060613465783
160000	0.000040265105	0.000372021731	-1	0.255544167768	3.172565225481
165000	0.000038150202	0.000349705220	-1	0.264075554320	3.290300229717
170000	0.000036178861	0.000329392328	-1	0.272563414065	3.412387361536
175000	0.000034330857	0.000310795003	-1	0.281075276738	3.540370079903
180000	0.000032596504	0.000293733212	-1	0.289597618811	3.674396334859
185000	0.000030961666	0.000278011390	-1	0.298176288611	3.815844037998
190000	0.000029421431	0.000263516531	-1	0.306771823132	3.964468649456
195000	0.000027972431	0.000250150324	-1	0.315332347334	4.119609502372
200000	0.000026606923	0.000237789439	-1	0.323864896944	4.281737252173
205000	0.000025317943	0.000226326097	-1	0.332378164422	4.451388116989
210000	0.000024100871	0.000215685362	-1	0.340851630173	4.628639099484
215000	0.000022951876	0.000205803229	-1	0.349257577335	4.813379528494
220000	0.000021867192	0.000196618559	-1	0.357572904957	5.005507723016
225000	0.000020843160	0.000188073643	-1	0.365778771985	5.204927970656
230000	0.000019876130	0.000180113859	-1	0.373862113759	5.411608493654
235000	0.000018962523	0.000172687923	-1	0.381815304945	5.625584906479
240000	0.000018098731	0.000165747390	-1	0.389637900904	5.847043640134
245000	0.000017281184	0.000159246971	-1	0.397335659789	6.076330574443
250000	0.000016506287	0.000153144071	-1	0.404922092028	6.314046576977
255000	0.000015770783	0.000147401389	-1	0.412410271230	6.560859859883

260000	0.000015072594	0.000141993341	-1	0.419790924146	6.816848196252
265000	0.000014409969	0.000136897836	-1	0.427050583403	7.081899657171
270000	0.000013781194	0.000132093849	-1	0.434178085199	7.355890595461
275000	0.000013184561	0.000127561333	-1	0.441165099589	7.638721493312
280000	0.000012618409	0.000123281286	-1	0.448005684062	7.930298619304
285000	0.000012081064	0.000119235605	-1	0.454697329102	8.230611068004
290000	0.000011570894	0.000115407198	-1	0.461239914080	8.539698709777
295000	0.000011086265	0.000111779859	-1	0.467636657676	8.857729659914
300000	0.000010625603	0.000108338366	-1	0.473892880340	9.184957194856

Electron Elastic Scattering Sampling Data
Solution for Z = 28

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.031618928789	4.906386765638	-1	0.507906161400	916.965005267272
52	0.027593767721	2.592773076772	-1	0.543239082212	390.718432559515
54	0.023932435056	1.799475218465	-1	0.575184331459	278.336927304810
56	0.020792120390	1.415582443706	-1	0.602364471244	244.059158096035
58	0.018229637295	1.200481643344	-1	0.624131731362	236.314359220654
60	0.016229221627	1.071544479004	-1	0.640430123843	239.719601365077
62	0.014734630121	0.993115571182	-1	0.651577565663	247.571452779345
64	0.013673629168	0.947567644157	-1	0.658086258021	256.263700796722
66	0.012974839459	0.925561936291	-1	0.660515686324	263.830955972406
68	0.012573968158	0.921967763134	-1	0.659418676998	269.465479211705
70	0.012416057998	0.934064456216	-1	0.655311767781	273.228842696329
72	0.012455696413	0.960733708801	-1	0.648656631185	275.778688852555
74	0.012654281110	1.001955349249	-1	0.639880357015	278.135255258504
76	0.012979510591	1.058732995727	-1	0.629365054205	281.503471569674
78	0.013403386960	1.133070497293	-1	0.617461934395	287.210798820494
80	0.013901336165	1.228155411386	-1	0.604493886808	296.746275516458
82	0.014452067933	1.348811351506	-1	0.590749930741	311.926836778380
84	0.015036574632	1.502137485206	-1	0.576494669735	335.217484635364
86	0.015638575325	1.698861267255	-1	0.561959035522	370.332676129605
88	0.016244094988	1.955641964062	-1	0.547344036508	423.389185369134
90	0.016841371074	2.299596321153	-1	0.532820860618	505.335188294645
92	0.017420980122	2.777939128132	-1	0.518528516103	637.685411704054
94	0.017975325941	3.480317434138	-1	0.504580209059	867.901576636831
96	0.018498780145	4.600424977351	-1	0.491061499256	1319.428655204463
98	0.018987356501	6.647915056087	-1	0.478034757891	2406.650959749666
100	0.019438475244	11.535310100013	-1	0.465542346065	6356.045970623472
105	0.020395350124	16.229123259909	+1	0.436785119098	10419.630387573061
110	0.021112108981	4.487040315412	+1	0.411573827497	798.819845215742

115	0.021611097368	2.476607985524	+1	0.389674651460	248.995396735228
120	0.021923062830	1.655870071732	+1	0.370726945108	115.645481690332
125	0.022080859405	1.215627301473	+1	0.354332049364	65.493338936501
130	0.022114927599	0.944247823420	+1	0.340110622934	41.860211721702
135	0.022052081442	0.762129211237	+1	0.327723331664	29.047119127547
140	0.021914729864	0.632678526346	+1	0.316878229552	21.395738005621
145	0.021721318957	0.536770847192	+1	0.307329663026	16.491390510779
150	0.021486646971	0.463442772814	+1	0.298872181848	13.172215018269
155	0.021222505017	0.405988111796	+1	0.291336288700	10.827603220080
160	0.020938164234	0.360069397848	+1	0.284581011303	9.112859950968
165	0.020640857720	0.322775789787	+1	0.278490473434	7.822665747629
170	0.020336197641	0.292073499824	+1	0.272967747937	6.828479116125
175	0.020028488334	0.266512383385	+1	0.267933028615	6.047025506011
180	0.019720996576	0.245026351421	+1	0.263319561782	5.422319489945
185	0.019416185502	0.226819727960	+1	0.259071774374	4.915753522245
190	0.019115912958	0.211277721408	+1	0.255141454877	4.499725591908
195	0.018821506062	0.197931404898	+1	0.251489044545	4.154464877490
200	0.018533837231	0.186426487520	+1	0.248083593739	3.865771041599
205	0.018253522492	0.176479970729	+1	0.244898497436	3.622914964023
210	0.017981027410	0.167842000807	+1	0.241906838999	3.417087653074
215	0.017716619583	0.160309640907	+1	0.239085298416	3.241475265356
220	0.017460391599	0.153721448862	+1	0.236414698385	3.090870847488
225	0.017212313963	0.147947760115	+1	0.233879128692	2.961241482315
230	0.016972274842	0.142883514491	+1	0.231465336615	2.849426275212
235	0.016740098100	0.138442762094	+1	0.229162193743	2.752919231450
240	0.016515569459	0.134554978289	+1	0.226960357130	2.669721560454
245	0.016298443222	0.131161784359	+1	0.224851964796	2.598224614108
250	0.016088457533	0.128214840495	+1	0.222830392994	2.537130441363
255	0.015885344989	0.125672125424	+1	0.220889604761	2.485339973456
260	0.015688852370	0.123491449387	+1	0.219022823073	2.441776035859
265	0.015498728330	0.121635591212	+1	0.217223822858	2.405508272976
270	0.015314705914	0.120073032966	+1	0.215487278344	2.375768552093
275	0.015136529483	0.118776969938	+1	0.213808570173	2.351915945298

280	0.014963940409	0.117724447262	+1	0.212183656960	2.333413850537
285	0.014796690851	0.116895746970	+1	0.210609055483	2.319811011199
290	0.014634536583	0.116273924895	+1	0.209081695265	2.310728299160
295	0.014477244938	0.115844277380	+1	0.207598892263	2.305843887017
300	0.014324594170	0.115594071231	+1	0.206158275499	2.304885340199
310	0.014032367925	0.115588251804	+1	0.203394954383	2.313832775676
320	0.013756286794	0.116179534061	+1	0.200775092199	2.335983266071
330	0.013494932461	0.117307049945	+1	0.198284629067	2.370135604644
340	0.013247034208	0.118922349455	+1	0.195911903182	2.415386421968
350	0.013011459490	0.120985902511	+1	0.193646967768	2.471041417994
360	0.012787194471	0.123465864387	+1	0.191481290430	2.536585948411
370	0.012573302328	0.126340264920	+1	0.189407534601	2.611741865092
380	0.012368944438	0.129591779497	+1	0.187419167520	2.696341862523
390	0.012173381322	0.133204998505	+1	0.185510213397	2.790262405659
400	0.011985965468	0.137165525762	+1	0.183675127920	2.893399938924
410	0.011806117029	0.141461109600	+1	0.181908890770	3.005702882844
420	0.011633285358	0.146087220723	+1	0.180207423258	3.127325605106
430	0.011466975250	0.151041235020	+1	0.178567071364	3.258480265920
440	0.011306748114	0.156320008195	+1	0.176984234150	3.399369811759
450	0.011152221520	0.161919623261	+1	0.175455422948	3.550179398926
460	0.011003047719	0.167836544658	+1	0.173977326132	3.711109879211
470	0.010858891321	0.174073227059	+1	0.172547380460	3.882543931221
480	0.010719446354	0.180633133046	+1	0.171163184360	4.064908077195
490	0.010584439465	0.187518836965	+1	0.169822316172	4.258617582087
500	0.010453629357	0.194731830703	+1	0.168522410987	4.464070155265
510	0.010326795912	0.202273651312	+1	0.167261168976	4.681677448547
520	0.010203723452	0.210150537733	+1	0.166036765640	4.912014261981
530	0.010084211551	0.218369804232	+1	0.164847604525	5.155717235800
540	0.009968084927	0.226937621118	+1	0.163691906984	5.413404881719
550	0.009855178101	0.235859757926	+1	0.162568044078	5.685715396085
560	0.009745343994	0.245141807070	+1	0.161474366323	5.973301154681
570	0.009638436784	0.254793280013	+1	0.160409568498	6.276975953519
580	0.009534320666	0.264824603394	+1	0.159372459131	6.597622346861

590	0.009432869869	0.275245751114	+1	0.158361777553	6.936144636018
600	0.009333971888	0.286066273873	+1	0.157376324093	7.293472813548
610	0.009237521611	0.297296069649	+1	0.156414914187	7.670588445527
620	0.009143415004	0.308948268678	+1	0.155476569075	8.068636882548
630	0.009051555156	0.321037008068	+1	0.154560402546	8.488856277854
640	0.008961850818	0.333576501068	+1	0.153665493256	8.932545422182
650	0.008874219700	0.346581015244	+1	0.152790951044	9.401066060027
660	0.008788583244	0.360065454244	+1	0.151935907086	9.895870053972
670	0.008704865626	0.374047658785	+1	0.151099626689	10.418596457510
680	0.008622994131	0.388546775236	+1	0.150281446125	10.971023162333
690	0.008542901252	0.403582508197	+1	0.149480650325	11.555035904867
700	0.008464523876	0.419175303914	+1	0.148696599584	12.172653016984
710	0.008387801171	0.435346556791	+1	0.147928633473	12.826035848808
720	0.008312676511	0.452120715402	+1	0.147176192076	13.517589881612
730	0.008239094697	0.469523941059	+1	0.146438753218	14.249929426487
740	0.008167002752	0.487583732191	+1	0.145715807742	15.025874068078
750	0.008096352865	0.506328643173	+1	0.145006807790	15.848439070899
760	0.008027095271	0.525789873779	+1	0.144311322785	16.720949870439
770	0.007959186611	0.546001191297	+1	0.143628877532	17.647026268186
780	0.007892584286	0.566998771566	+1	0.142959073740	18.630626529252
790	0.007827246031	0.588821603548	+1	0.142301504236	19.676082480019
800	0.007763133433	0.611510639271	+1	0.141655788205	20.788086680663
810	0.007700209197	0.635110356374	+1	0.141021517192	21.971792492204
820	0.007638436484	0.659668850521	+1	0.140398373729	23.232881218787
830	0.007577781972	0.685238224996	+1	0.139786029987	24.577600145527
840	0.007518212053	0.711874529578	+1	0.139184177287	26.012825882871
850	0.007459695317	0.739637681119	+1	0.138592479683	27.546096871206
860	0.007402201842	0.768592848237	+1	0.138010677506	29.185772056051
870	0.007345701149	0.798810893638	+1	0.137438474440	30.941113441820
880	0.007290167756	0.830368431028	+1	0.136875617758	32.822370000083
890	0.007235572692	0.863348704233	+1	0.136321844159	34.840945149088
900	0.007181891069	0.897842331232	+1	0.135776908275	37.009526905189
910	0.007129098410	0.933947806414	+1	0.135240591523	39.342265750673

920	0.007077169772	0.971773024359	+1	0.134712648969	41.855006756021
930	0.007026083426	1.011435874355	+1	0.134192877567	44.565505286594
940	0.006975817295	1.053064661205	+1	0.133681045400	47.493649698779
950	0.006926349913	1.096802061985	+1	0.133176995692	50.662001635423
960	0.006877660467	1.142803714863	+1	0.132680504501	54.095931376966
970	0.006829729187	1.191241948324	+1	0.132191397754	57.824254373393
980	0.006782537403	1.242306849689	+1	0.131709501287	61.879687021020
990	0.006736066634	1.296209558775	+1	0.131234652557	66.299579516988
1000	0.006690297925	1.353185268796	+1	0.130766679996	71.126718654134
1025	0.006578838572	1.510860982941	+1	0.129625829245	85.317024628510
1050	0.006471419268	1.694477126977	+1	0.128524591889	103.380903849083
1075	0.006367809901	1.910812899283	+1	0.127460732202	126.787680408665
1100	0.006267794166	2.169274010064	+1	0.126432361022	157.763892808665
1125	0.006171170014	2.483279130030	+1	0.125437773083	199.807623915905
1150	0.006077761121	2.872586497291	+1	0.124475186454	258.650541588978
1175	0.005987400405	3.367613660756	+1	0.123542914202	344.209473895403
1200	0.005899931440	4.017810800773	+1	0.122639600816	474.848117419930
1225	0.005815184283	4.909465969394	+1	0.121764475954	687.718051855358
1250	0.005733090378	6.205800092330	+1	0.120914647196	1066.734478748590
1275	0.005653462650	8.263647475525	+1	0.120090376229	1837.642637555611
1300	0.005576203998	12.029800194258	+1	0.119290105180	3786.291747334999
1325	0.005501201221	21.135754850691	+1	0.118512872480	11371.598693451911
1350	0.005431584087	68.592333134083	+1	0.117683781286	116587.044451077980
1375	0.005357569609	52.503219268443	-1	0.117023349613	69119.530358710035
1400	0.005288754733	19.347520875801	-1	0.116309223470	9745.551239423765
1425	0.005221822586	11.809958380581	-1	0.115614504974	3767.756070710510
1450	0.005156695659	8.474282026720	-1	0.114938348608	2011.571067455238
1475	0.005093299772	6.593287309002	-1	0.114279965744	1261.827102699092
1500	0.005031563516	5.385995725078	-1	0.113638672708	872.021756852006
1550	0.004912802928	3.927050503990	-1	0.112404898574	496.324963522221
1600	0.004799924987	3.077891469719	-1	0.111231970726	325.698777800703
1650	0.004692485097	2.522688425212	-1	0.110115638622	233.247618532278
1700	0.004590090726	2.131638617105	-1	0.109051685822	177.196415704182

1750	0.004492381162	1.841501587495	-1	0.108036569476	140.449595376221
1800	0.004399034616	1.617830438636	-1	0.107066927546	114.933671604054
1850	0.004309754559	1.440228949007	-1	0.106139904593	96.416427544121
1900	0.004224280341	1.295907153289	-1	0.105252321098	82.504162509086
1950	0.004142367065	1.176378601481	-1	0.104401650345	71.751629922236
2000	0.004063776320	1.075754101759	-1	0.103586526008	63.240124076263
2100	0.003915724009	0.915750512815	-1	0.102057038937	50.722541231999
2200	0.003778768299	0.794593966981	-1	0.100643377038	42.070382617493
2300	0.003651754001	0.699970162180	-1	0.099327609687	35.804647232711
2400	0.003533626557	0.624151361715	-1	0.098098278433	31.093242441783
2500	0.003423414789	0.562030375458	-1	0.096950211951	27.437376158767
2600	0.003320254866	0.510148265161	-1	0.095881097772	24.525193874815
2700	0.003223500289	0.466249184255	-1	0.094881367694	22.160312951892
2800	0.003132593947	0.428704515007	-1	0.093941614537	20.208769218259
2900	0.003047022407	0.396270164804	-1	0.093055337169	18.574810443509
3000	0.002966307707	0.367978222652	-1	0.092218778969	17.188458505057
3100	0.002890018245	0.343077641904	-1	0.091429632285	15.998086735937
3200	0.002817803700	0.321022337671	-1	0.090682799537	14.966565697900
3300	0.002749352415	0.301378122834	-1	0.089973437454	14.065418780652
3400	0.002684374133	0.283783410265	-1	0.089298333883	13.272070966278
3500	0.002622595693	0.267934306976	-1	0.088655743006	12.568419255995
3600	0.002563768269	0.253579792582	-1	0.088044607817	11.940019033707
3700	0.002507686830	0.240530268756	-1	0.087461912115	11.375855297333
3800	0.002454166778	0.228627471967	-1	0.086904781939	10.866949372459
3900	0.002403034598	0.217732971606	-1	0.086371185101	10.405739727423
4000	0.002354126412	0.207725039717	-1	0.085859957018	9.985823655348
4100	0.002307291088	0.198498835016	-1	0.085370321209	9.601828089827
4200	0.002262399990	0.189972262699	-1	0.084900416749	9.249487507160
4300	0.002219336020	0.182074468732	-1	0.084448438724	8.925177596702
4400	0.002177988362	0.174741382218	-1	0.084013169740	8.625728033854
4500	0.002138251875	0.167915125739	-1	0.083593874740	8.348358175626
4600	0.002100000283	0.161537438792	-1	0.083192562854	8.090630468712
4700	0.002063123641	0.155561449807	-1	0.082810494733	7.850566445957

4800	0.002027596582	0.149964645848	-1	0.082441967733	7.626529416640
4900	0.001993345278	0.144713822168	-1	0.082086096292	7.416982028529
5000	0.001960299463	0.139778177313	-1	0.081742399266	7.220539110983
5500	0.001811054088	0.118991161442	-1	0.080185998699	6.397681947690
6000	0.001684009545	0.103093484439	-1	0.078851109200	5.770935516972
6500	0.001574483441	0.090595066833	-1	0.077688278091	5.277454488245
7000	0.001479041734	0.080547901074	-1	0.076660922785	4.878527809171
7500	0.001395102131	0.072321446402	-1	0.075741546198	4.549056860882
8000	0.001320686073	0.065481120840	-1	0.074908927203	4.272068074153
8500	0.001254251002	0.059718309340	-1	0.074146376021	4.035679890959
9000	0.001194573589	0.054808051584	-1	0.073440707185	3.831334212356
9500	0.001140671221	0.050582747100	-1	0.072781383860	3.652710502028
10000	0.001091745259	0.046915311075	-1	0.072159696879	3.495042198461
10500	0.001047137769	0.043706889885	-1	0.071569211155	3.354646774011
11000	0.001006309528	0.040882576593	-1	0.071002490040	3.228721814709
11500	0.000968798361	0.038379214029	-1	0.070456528936	3.114939856966
12000	0.000934222962	0.036149065629	-1	0.069926212263	3.011520605940
12500	0.000902254043	0.034151619393	-1	0.069408945867	2.916967492264
13000	0.000872618427	0.032355794272	-1	0.068899792546	2.830086880133
13500	0.000845091233	0.030736970108	-1	0.068391197338	2.749825102013
14000	0.000819441939	0.029269435186	-1	0.067887246731	2.675403205127
14500	0.000795487701	0.027934006660	-1	0.067386693043	2.606106711778
15000	0.000773070876	0.026715147537	-1	0.066887819514	2.541357736483
16000	0.000732302963	0.024574393566	-1	0.065891359988	2.423531557708
17000	0.000696202822	0.022760662426	-1	0.064890888318	2.318687990341
18000	0.000664031759	0.021209498851	-1	0.063881681246	2.224404196478
19000	0.000635198008	0.019871967390	-1	0.062860764546	2.138834374953
20000	0.000609221808	0.018710304981	-1	0.061826496250	2.060549710172
21000	0.000534470475	0.014213418336	-1	0.078208998338	2.287159093946
22000	0.000510968668	0.013272876782	-1	0.078655417007	2.245855999158
23000	0.000488561883	0.012357995859	-1	0.079207277988	2.201677300468
24000	0.000467499725	0.011494714129	-1	0.079871702558	2.157853727177
25000	0.000448001531	0.010710720328	-1	0.080615722819	2.117845195910

26000	0.000430199424	0.010027410401	-1	0.081367300711	2.084362932273
27000	0.000413936465	0.009436062750	-1	0.082079480348	2.056770033787
28000	0.000398981996	0.008919248851	-1	0.082740036720	2.033674392854
29000	0.000385125430	0.008459619667	-1	0.083357728581	2.013658967468
30000	0.000372145389	0.008039183852	-1	0.083974766493	1.995521950481
31000	0.000359871485	0.007643719286	-1	0.084638444483	1.978258491871
32000	0.000348242151	0.007270548173	-1	0.085355356551	1.961819863408
33000	0.000337226292	0.006919896291	-1	0.086117309671	1.946375602303
34000	0.000326797313	0.006592039916	-1	0.086912771363	1.932076285576
35000	0.000316932670	0.006287281317	-1	0.087726561691	1.919050152707
36000	0.000307608764	0.006005486713	-1	0.088542669939	1.907359489176
37000	0.000298785336	0.005744709847	-1	0.089356318863	1.896896457972
38000	0.000290420155	0.005502598309	-1	0.090168119080	1.887513229672
39000	0.000282473013	0.005276837162	-1	0.090982121977	1.879071838853
40000	0.000274905601	0.005065171309	-1	0.091805860519	1.871445180181
41000	0.000267683472	0.004865646042	-1	0.092647999112	1.864536804015
42000	0.000260783454	0.004677345995	-1	0.093508225992	1.858312642734
43000	0.000254186477	0.004499624864	-1	0.094383760211	1.852747945232
44000	0.000247874678	0.004331844275	-1	0.095272222410	1.847815647287
45000	0.000241831317	0.004173376201	-1	0.096171732882	1.843487532384
46000	0.000236040731	0.004023607258	-1	0.097080821880	1.839732257377
47000	0.000230487878	0.003881944229	-1	0.097998372782	1.836518469086
48000	0.000225158424	0.003747801603	-1	0.098924066281	1.833816160553
49000	0.000220038701	0.003620606558	-1	0.099858334790	1.831596207430
50000	0.000215115762	0.003499800906	-1	0.100802432212	1.829830537328
55000	0.000193081100	0.002977052640	-1	0.105684736815	1.827155574552
60000	0.000174591803	0.002562356089	-1	0.110812403517	1.833353402456
65000	0.000158854019	0.002227394486	-1	0.116180186971	1.846990059032
70000	0.000145294514	0.001952719513	-1	0.121785240386	1.867104847559
75000	0.000133489644	0.001724577865	-1	0.127624872414	1.893030620933
80000	0.000123119516	0.001532991551	-1	0.133696317469	1.924305135125
85000	0.000113937550	0.001370554373	-1	0.139997103761	1.960621982521
90000	0.000105751276	0.001231673875	-1	0.146523719521	2.001774938068

95000	0.000098407952	0.001112051214	-1	0.153271900240	2.047637705863
100000	0.000091784821	0.001008332732	-1	0.160236785185	2.098148430277
105000	0.000085781732	0.000917852729	-1	0.167414927514	2.153301949819
110000	0.000080318189	0.000838543746	-1	0.174791576629	2.213083518704
115000	0.000075324748	0.000768638860	-1	0.182368095668	2.277595826330
120000	0.000070745865	0.000706776359	-1	0.190128846218	2.346870635099
125000	0.000066533291	0.000651791206	-1	0.198067545716	2.421024070646
130000	0.000062646556	0.000602741854	-1	0.206173215070	2.500202156678
135000	0.000059050019	0.000558816103	-1	0.214442360030	2.584629926271
140000	0.000055715029	0.000519366854	-1	0.222854067828	2.674367940833
145000	0.000052616307	0.000483828423	-1	0.231392161725	2.769504471760
150000	0.000049732157	0.000451728981	-1	0.240037361357	2.870131520035
155000	0.000047042690	0.000422650066	-1	0.248778949969	2.976444322085
160000	0.000044529931	0.000396237039	-1	0.257608518996	3.088751712637
165000	0.000042177708	0.000372178775	-1	0.266521217686	3.207422310114
170000	0.000039973350	0.000350220619	-1	0.275496013407	3.332578706730
175000	0.000037905084	0.000330132862	-1	0.284517921675	3.464408135068
180000	0.000035960910	0.000311709140	-1	0.293585327524	3.603406343362
185000	0.000034138178	0.000294820968	-1	0.302617824286	3.748477279890
190000	0.000032429533	0.000279321718	-1	0.311580409888	3.899313436750
195000	0.000030821213	0.000265036031	-1	0.320516222909	4.057213141807
200000	0.000029305163	0.000251833285	-1	0.329427281896	4.222593717296
205000	0.000027869147	0.000239571835	-1	0.338375133669	4.397345896509
210000	0.000026509373	0.000228180183	-1	0.347327824932	4.581529837998
215000	0.000025226271	0.000217613791	-1	0.356202684189	4.773807858699
220000	0.000024015348	0.000207803545	-1	0.364978064350	4.974184739237
225000	0.000022872396	0.000198685340	-1	0.373635113256	5.182636892751
230000	0.000021793348	0.000190199249	-1	0.382159610999	5.399163444373
235000	0.000020774160	0.000182288998	-1	0.390543643506	5.623854520015
240000	0.000019810799	0.000174901651	-1	0.398786561660	5.856944427174
245000	0.000018899257	0.000167987898	-1	0.406894320713	6.098844529714
250000	0.000018035502	0.000161501446	-1	0.414880911245	6.350233102861
255000	0.000017215875	0.000155401829	-1	0.422760016510	6.611873645238

260000	0.000016438067	0.000149661301	-1	0.430521554705	6.883894760408
265000	0.000015700151	0.000144255951	-1	0.438150883309	7.166213396801
270000	0.000015000221	0.000139163018	-1	0.445635944294	7.458736277673
275000	0.000014336392	0.000134360905	-1	0.452967436011	7.761380285485
280000	0.000013706793	0.000129828989	-1	0.460139333610	8.074096491527
285000	0.000013109564	0.000125547793	-1	0.467148537499	8.396890764174
290000	0.000012542858	0.000121498805	-1	0.473995315028	8.729859709569
295000	0.000012004836	0.000117664564	-1	0.480683033774	9.073224200010
300000	0.000011493706	0.000114028644	-1	0.487217727841	9.427325153969

Electron Elastic Scattering Sampling Data
Solution for Z = 29

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.139031675852	1.033940207352	+1	0.345826188406	7.020188448854
52	0.122998122625	2.043000581734	+1	0.389323381836	28.694073611908
54	0.104716184019	6.816440819585	+1	0.446120388735	370.970078335845
56	0.085756055161	9.993030966145	-1	0.511725095185	1236.488099646392
58	0.067881141400	2.968692884313	-1	0.578519679359	223.090740908969
60	0.052501310405	1.779172118319	-1	0.638774275787	158.237483452924
62	0.040271854224	1.314872619026	-1	0.687812265238	160.072373570717
64	0.031123480249	1.081232379363	-1	0.724629583368	184.518351055505
66	0.024571775415	0.948893563476	-1	0.750494282901	220.949785240839
68	0.020023559273	0.869800938924	-1	0.767416383649	262.733658396163
70	0.016947901582	0.822453938855	-1	0.777305354845	303.553603635914
72	0.014933098656	0.796122121808	-1	0.781686367320	337.815743291055
74	0.013681264042	0.785059815278	-1	0.781708894601	361.856926835515
76	0.012985302944	0.786150475841	-1	0.778213311208	374.568863070752
78	0.012701817525	0.797764125388	-1	0.771827833159	377.152961904688
80	0.012730279442	0.819214819992	-1	0.763038832811	372.236978223325
82	0.012998525463	0.850513532716	-1	0.752236819953	362.901206203822
84	0.013451659965	0.892213311437	-1	0.739761388615	352.030100640921
86	0.014046638994	0.945423862601	-1	0.725913159828	341.984901859012
88	0.014747790945	1.011848613403	-1	0.710971534957	334.608792339423
90	0.015524649048	1.093920907692	-1	0.695199959365	331.381800538084
92	0.016351160832	1.195075556522	-1	0.678842217710	333.659006823380
94	0.017204360331	1.320112284545	-1	0.662128543532	342.976164440608
96	0.018064796289	1.475916773461	-1	0.645265504225	361.430207540642
98	0.018916125991	1.672604987812	-1	0.628436192349	392.270195886709
100	0.019744933433	1.925591481027	-1	0.611798420137	440.942196501379
105	0.021654098988	3.012248809067	-1	0.571849784755	729.659924475507
110	0.023256955957	6.155275705750	-1	0.535276104903	2131.666009168636

115	0.024523886425	75.222292983585	-1	0.502650355907	230632.961495489640
120	0.025467101625	7.651043424851	+1	0.474024998062	2284.146981180554
125	0.026123588767	3.428828079098	+1	0.449124398132	461.865084651967
130	0.026537549989	2.130070049921	+1	0.427543825066	182.789258712521
135	0.026754038808	1.506414378206	+1	0.408836589446	95.056925527767
140	0.026813284720	1.143886236411	+1	0.392581961919	57.568607983177
145	0.026750210592	0.909100597872	+1	0.378401193119	38.467244329761
150	0.026593525585	0.746061310022	+1	0.365969330344	27.541906198029
155	0.026366710896	0.627177435168	+1	0.355010978361	20.756603225356
160	0.026088416903	0.537299146968	+1	0.345296425638	16.273815834933
165	0.025773479561	0.467435214804	+1	0.336634624330	13.166241785525
170	0.025433478525	0.411913443371	+1	0.328866785928	10.927279862884
175	0.025077459236	0.366994017024	+1	0.321861558302	9.262668611410
180	0.024712363999	0.330110849783	+1	0.315509825070	7.992396760968
185	0.024343555790	0.299449861303	+1	0.309720620942	7.001630868084
190	0.023975134589	0.273681536858	+1	0.304416132669	6.214040111141
195	0.023610145444	0.251829125746	+1	0.299532547289	5.577939825214
200	0.023250744550	0.233174801078	+1	0.295019736589	5.057797469855
205	0.022898568146	0.217160853926	+1	0.290834469499	4.627931039279
210	0.022554878968	0.203318437557	+1	0.286934189142	4.268574774105
215	0.022220513379	0.191277156377	+1	0.283282579924	3.965054388339
220	0.021895954438	0.180747936753	+1	0.279849788673	3.706481818815
225	0.021581452172	0.171502225402	+1	0.276611143839	3.484633221273
230	0.021277065467	0.163357132282	+1	0.273546058299	3.293200897317
235	0.020982727163	0.156164926335	+1	0.270637343639	3.127282836259
240	0.020698284394	0.149805220531	+1	0.267870511014	2.983022273175
245	0.020423508917	0.144179204298	+1	0.265233319912	2.857356884027
250	0.020158132086	0.139205246123	+1	0.262715427500	2.747832314571
255	0.019901865941	0.134812855314	+1	0.260307424558	2.652397848323
260	0.019654450979	0.130932568618	+1	0.257998747562	2.569114274171
265	0.019415529869	0.127504714244	+1	0.255780239005	2.496375474645
270	0.019184820121	0.124478590191	+1	0.253643653763	2.432836620687
275	0.018961973791	0.121812000660	+1	0.251582262835	2.377412743170

280	0.018746638124	0.119469323466	+1	0.249590250234	2.329207422452
285	0.018538464563	0.117420254510	+1	0.247662642892	2.287474370791
290	0.018337115531	0.115639014788	+1	0.245795149607	2.251590822193
295	0.018142256162	0.114103573363	+1	0.243984130370	2.221036637570
300	0.017953564533	0.112795125897	+1	0.242226401162	2.195375939110
310	0.017593499103	0.110792778189	+1	0.238858916998	2.157219056768
320	0.017254785033	0.109509118590	+1	0.235668612808	2.134331706807
330	0.016935481125	0.108847309630	+1	0.232635590028	2.124579615942
340	0.016633799721	0.108732685235	+1	0.229744169156	2.126377924124
350	0.016348110795	0.109107039351	+1	0.226981769487	2.138540194832
360	0.016076952866	0.109924255804	+1	0.224338004408	2.160164757646
370	0.015819042311	0.111147020719	+1	0.221803226410	2.190540303198
380	0.015573224585	0.112744803339	+1	0.219368999958	2.229111440714
390	0.015338476249	0.114692238505	+1	0.217028035968	2.275440966638
400	0.015113884773	0.116967597579	+1	0.214773942732	2.329175195919
410	0.014898635346	0.119552900304	+1	0.212601024710	2.390045037226
420	0.014691990743	0.122436460853	+1	0.210504456772	2.457928623265
430	0.014493289051	0.125608951761	+1	0.208479795058	2.532759560275
440	0.014301944173	0.129061871245	+1	0.206522909485	2.614491324854
450	0.014117442707	0.132786825086	+1	0.204629879083	2.703078544700
460	0.013939324184	0.136776591593	+1	0.202797062019	2.798504323519
470	0.013767151364	0.141028829983	+1	0.201021468327	2.900878566511
480	0.013600534714	0.145542249071	+1	0.199300381511	3.010342341729
490	0.013439126474	0.150315172173	+1	0.197631076417	3.127030336651
500	0.013282621030	0.155345179132	+1	0.196010870306	3.251061169111
510	0.013130742021	0.160630086430	+1	0.194437182619	3.382562753179
520	0.012983222837	0.166171782307	+1	0.192908000269	3.521780135999
530	0.012839819120	0.171972728151	+1	0.191421389085	3.668982400502
540	0.012700313550	0.178034796142	+1	0.189975443586	3.824431660947
550	0.012564512982	0.184359024958	+1	0.188568218765	3.988374209363
560	0.012432241383	0.190946433193	+1	0.187197822833	4.161063207324
570	0.012303326344	0.197801349020	+1	0.185862778434	4.342858244409
580	0.012177605585	0.204928599584	+1	0.184561647292	4.534146839741

590	0.012054931458	0.212332717563	+1	0.183293077666	4.735324439790
600	0.011935187465	0.220016648641	+1	0.182055459211	4.946741408147
610	0.011818239980	0.227984647986	+1	0.180847512781	5.168815355309
620	0.011703975173	0.236242891358	+1	0.179668090462	5.402030790107
630	0.011592280884	0.244798262266	+1	0.178516106841	5.646915069488
640	0.011483055843	0.253657338872	+1	0.177390508513	5.904006853747
650	0.011376206277	0.262826178131	+1	0.176290208404	6.173848501430
660	0.011271646648	0.272311036268	+1	0.175214124115	6.457006703609
670	0.011169291634	0.282120483542	+1	0.174161414983	6.754150441285
680	0.011069058681	0.292263691918	+1	0.173131247024	7.065995805247
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700	0.010874667271	0.313587211931	+1	0.171135164364	7.736766784961
710	0.010780373696	0.324785670581	+1	0.170167618822	8.097266066329
720	0.010687928970	0.336356324291	+1	0.169219464002	8.475693348093
730	0.010597271017	0.348311046821	+1	0.168290038358	8.873024590010
740	0.010508342277	0.360662060009	+1	0.167378710397	9.290291200512
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770	0.010251410035	0.400220815649	+1	0.164747092229	10.672911153439
780	0.010168882807	0.414290728876	+1	0.163902142439	11.181606388903
790	0.010087835041	0.428829266435	+1	0.163072508205	11.716571813373
800	0.010008229399	0.443852851877	+1	0.162257634937	12.279323724217
810	0.009930018090	0.459379811422	+1	0.161457073040	12.871545426398
820	0.009853163535	0.475429713245	+1	0.160670400668	13.495042681040
830	0.009777627501	0.492023610015	+1	0.159897210613	14.151773444739
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850	0.009630366264	0.526932588351	+1	0.158389669494	15.573474234025
860	0.009558571575	0.545295454894	+1	0.157654580536	16.343131036867
870	0.009487957725	0.564298781032	+1	0.156931451950	17.155447091888
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890	0.009350146205	0.604341450105	+1	0.155519747173	18.919731874589
900	0.009282890729	0.625442909098	+1	0.154830537391	19.878154791549
910	0.009216697030	0.647308920425	+1	0.154152002576	20.892179520165

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1025	0.008523863223	0.968204147676	+1	0.147034886517	38.212332880248
1050	0.008388021702	1.060145636239	+1	0.145635467143	44.014945768702
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1150	0.007888658421	1.558042130921	+1	0.140477606354	81.925873951623
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1225	0.007554323165	2.161074535421	+1	0.137011161590	142.492242545102
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1325	0.007153217380	3.709457422242	+1	0.132837391348	371.453190571246
1350	0.007059975960	4.388991484385	+1	0.131864971803	505.307615790380
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1550	0.006398169031	25.682240941761	-1	0.124938520353	15194.536685069626
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1650	0.006114380840	6.345246491520	-1	0.121955202273	1052.297858378225
1700	0.005982303418	4.578298135744	-1	0.120563853763	581.781389127805

1750	0.005856162604	3.568794113606	-1	0.119233365470	374.723579368778
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1850	0.005620125262	2.459619708114	-1	0.116739194305	198.995890388924
1900	0.005509536608	2.122754561200	-1	0.115568154691	156.354424123947
1950	0.005403489045	1.864070556520	-1	0.114443350477	127.000552810530
2000	0.005301681509	1.659160673824	-1	0.113363110823	105.839782738641
2100	0.005109732163	1.355160546890	-1	0.111328810332	77.851344986413
2200	0.004931997634	1.141115959867	-1	0.109440510288	60.579489271887
2300	0.004767030920	0.982749876290	-1	0.107676549588	49.090381606239
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2600	0.004335908850	0.686101985701	-1	0.103022423530	30.511499905420
2700	0.004209927251	0.621176726447	-1	0.101660408620	26.956142615354
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2900	0.003979989717	0.520342120447	-1	0.099159148391	21.792548383703
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3100	0.003775276689	0.445789961552	-1	0.096916033132	18.252304535545
3200	0.003681074612	0.415387079382	-1	0.095879700625	16.875564299876
3300	0.003591757610	0.388553796914	-1	0.094892282079	15.692075324178
3400	0.003506951484	0.364713369194	-1	0.093949779079	14.665148974377
3500	0.003426303934	0.343391475488	-1	0.093049809840	13.766159126528
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3700	0.003276252817	0.306857624037	-1	0.091369149615	12.268157941367
3800	0.003206345222	0.291118825003	-1	0.090581333249	11.638869448763
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4000	0.003075640487	0.263665396976	-1	0.089098038525	10.563613035455
4100	0.003014435065	0.251620422156	-1	0.088399911751	10.100732831353
4200	0.002955761992	0.240527717826	-1	0.087728144998	9.679101296026
4300	0.002899468965	0.230285952392	-1	0.087080572830	9.293653447067
4400	0.002845411836	0.220804438901	-1	0.086455640838	8.940019539039
4500	0.002793453736	0.212001861833	-1	0.085852367420	8.614417682389
4600	0.002743467613	0.203806802214	-1	0.085270033983	8.313603697134
4700	0.002695343364	0.196162485982	-1	0.084707144017	8.034946785902

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5000	0.002561152720	0.176056242193	-1	0.083122657184	7.310403485732
5500	0.002366262812	0.149726327444	-1	0.080791188620	6.379006548374
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6500	0.002056805811	0.113951369922	-1	0.077018947506	5.139311524141
7000	0.001931865465	0.101352151318	-1	0.075450112320	4.706235423029
7500	0.001821921703	0.091052224840	-1	0.074041083409	4.352080384271
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8500	0.001637264055	0.075288261096	-1	0.071597205779	3.806997617478
9000	0.001558941274	0.069147162100	-1	0.070522769582	3.592495103049
9500	0.001488142816	0.063860743742	-1	0.069526637178	3.406242876683
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10500	0.001365138936	0.055249586970	-1	0.067725115598	3.098280084945
11000	0.001311372571	0.051707763707	-1	0.066901023834	2.969344879739
11500	0.001261928226	0.048565106992	-1	0.066119814669	2.853499894696
12000	0.001216308519	0.045762262745	-1	0.065374807219	2.748791066006
12500	0.001174085145	0.043248884840	-1	0.064661738115	2.653580847225
13000	0.001134896045	0.040985444370	-1	0.063975866407	2.566579687333
13500	0.001098425360	0.038937729315	-1	0.063314189833	2.486680125522
14000	0.001064402588	0.037078526260	-1	0.062673226545	2.412999307586
14500	0.001032590440	0.035384016358	-1	0.062050671063	2.344765267172
15000	0.001002783591	0.033834954255	-1	0.061443919706	2.281355610327
16000	0.000948475686	0.031107602955	-1	0.060270788540	2.166889464002
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18000	0.000857188295	0.026799470515	-1	0.058043836037	1.976464049839
19000	0.000818512763	0.025083511058	-1	0.056960775186	1.895889068076
20000	0.000783581363	0.023588338593	-1	0.055896608932	1.822906177471
21000	0.000706442473	0.018575463301	-1	0.067579839602	1.939790679857
22000	0.000675702745	0.017361275610	-1	0.067674364992	1.896113629747
23000	0.000646502716	0.016182630690	-1	0.067820875938	1.849412875881
24000	0.000619116440	0.015069606706	-1	0.068048979877	1.802956054614
25000	0.000593779893	0.014056183230	-1	0.068356520696	1.760258060726

26000	0.000570621702	0.013169870386	-1	0.068705043819	1.724126414336
27000	0.000549412051	0.012399914401	-1	0.069059204528	1.694078668321
28000	0.000529859118	0.011724883833	-1	0.069401875721	1.668743356224
29000	0.000511696472	0.011122761517	-1	0.069733992890	1.646718260527
30000	0.000494677383	0.010571368667	-1	0.070075931195	1.626607462327
31000	0.000478598287	0.010052308790	-1	0.070458859329	1.607302926794
32000	0.000463377941	0.009562058301	-1	0.070888023598	1.588739400142
33000	0.000448970839	0.009100941585	-1	0.071358071496	1.571095839954
34000	0.000435332015	0.008669155518	-1	0.071863109295	1.554568542671
35000	0.000422419473	0.008266877543	-1	0.072395605099	1.539355981366
36000	0.000410207406	0.007894422115	-1	0.072940084870	1.525500082687
37000	0.000398643211	0.007549345981	-1	0.073492164686	1.512899679833
38000	0.000387672912	0.007228633039	-1	0.074051510156	1.501403921668
39000	0.000377255356	0.006929657940	-1	0.074615800236	1.490803583072
40000	0.000367331688	0.006649057118	-1	0.075195367404	1.481021450838
41000	0.000357859499	0.006384293948	-1	0.075796382006	1.471938274425
42000	0.000348808674	0.006134205881	-1	0.076418338100	1.463517145252
43000	0.000340153693	0.005897971970	-1	0.077059019348	1.455738247595
44000	0.000331870940	0.005674785484	-1	0.077716364886	1.448577235916
45000	0.000323938387	0.005463843558	-1	0.078388753721	1.442007873056
46000	0.000316335371	0.005264359741	-1	0.079074862102	1.436001336095
47000	0.000309042118	0.005075562505	-1	0.079773784661	1.430528857629
48000	0.000302039992	0.004896696662	-1	0.080485042978	1.425559659398
49000	0.000295311355	0.004727015335	-1	0.081208879094	1.421063347551
50000	0.000288839492	0.004565786246	-1	0.081946238094	1.417009850814
55000	0.000259849418	0.003867384558	-1	0.085845258703	1.402670669709
60000	0.000235488590	0.003312728397	-1	0.090074736864	1.396842057344
65000	0.000214720787	0.002864580124	-1	0.094629327098	1.398090431858
70000	0.000196796399	0.002497184009	-1	0.099511471473	1.405484513254
75000	0.000181165046	0.002192383511	-1	0.104716276718	1.418299820318
80000	0.000167408034	0.001936842618	-1	0.110246773642	1.436091138512
85000	0.000155200806	0.001720584034	-1	0.116113525398	1.458637720324
90000	0.000144293015	0.001536139888	-1	0.122317108787	1.485726934788

95000	0.000134484839	0.001377719970	-1	0.128861495564	1.517270821218
100000	0.000125615852	0.001240800164	-1	0.135749731922	1.553248131339
105000	0.000117555132	0.001121775387	-1	0.142986299252	1.593700955157
110000	0.000110197386	0.001017840796	-1	0.150565476183	1.638694582988
115000	0.000103451993	0.000926595705	-1	0.158497108850	1.688396551351
120000	0.000097246151	0.000846192093	-1	0.166772827762	1.742944338049
125000	0.000091517077	0.000775050446	-1	0.175391333992	1.802539510816
130000	0.000086213231	0.000711901569	-1	0.184340370811	1.867364700634
135000	0.000081289210	0.000655643362	-1	0.193615674558	1.937682190677
140000	0.000076707174	0.000605380296	-1	0.203203205834	2.013746487793
145000	0.000072433444	0.000560331820	-1	0.213094230015	2.095882509183
150000	0.000068439899	0.000519858906	-1	0.223267649105	2.184371633846
155000	0.000064701262	0.000483398073	-1	0.233707341306	2.279563209853
160000	0.000061195347	0.000450470770	-1	0.244396497688	2.381871045084
165000	0.000057902048	0.000420655242	-1	0.255322580072	2.491787047705
170000	0.000054805387	0.000393606420	-1	0.266454308275	2.609646030558
175000	0.000051890786	0.000369016036	-1	0.277763352694	2.735823699143
180000	0.000049144836	0.000346615051	-1	0.289223636892	2.870777243310
185000	0.000046555139	0.000326164405	-1	0.300812512348	3.015036646785
190000	0.000044111598	0.000307465293	-1	0.312494759535	3.169015664811
195000	0.000041804605	0.000290336117	-1	0.324240946141	3.333195926907
200000	0.000039623738	0.000274601226	-1	0.336043690435	3.508369359022
205000	0.000037559144	0.000260105268	-1	0.347902365382	3.695514032176
210000	0.000035604650	0.000246738508	-1	0.359777427076	3.895155682916
215000	0.000033754941	0.000234405215	-1	0.371623118206	4.107708098911
220000	0.000032004304	0.000223013206	-1	0.383404466998	4.333730832390
225000	0.000030345302	0.000212469586	-1	0.395113780369	4.574386777102
230000	0.000028791704	0.000202767021	-1	0.406502258244	4.824467590390
235000	0.000027330648	0.000193797162	-1	0.417629126935	5.085818999792
240000	0.000025949813	0.000185464628	-1	0.428565698214	5.361017630542
245000	0.000024643778	0.000177706073	-1	0.439312751707	5.650860490723
250000	0.000023406954	0.000170462653	-1	0.449882554522	5.956510779601
255000	0.000022221129	0.000163643565	-1	0.460463708668	6.285921682779

260000	0.000021096330	0.000157255566	-1	0.470870223404	6.634333053634
265000	0.000020031769	0.000151272593	-1	0.481053982796	7.001153107841
270000	0.000019024366	0.000145663358	-1	0.491001828449	7.386896391555
275000	0.000018071271	0.000140399177	-1	0.500702017567	7.791992373675
280000	0.000017169721	0.000135453392	-1	0.510146056604	8.216860837683
285000	0.000016316975	0.000130801065	-1	0.519329887634	8.661987396323
290000	0.000015510321	0.000126419003	-1	0.528253113313	9.127939941335
295000	0.000014747003	0.000122285328	-1	0.536920961442	9.615514605228
300000	0.000014024317	0.000118379704	-1	0.545342137581	10.125703423705

Electron Elastic Scattering Sampling Data
Solution for Z = 30

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.036572208826	2.916466973122	+1	0.390034355454	192.662977372726
52	0.034276835391	8.732257857438	+1	0.420312148968	1738.122520343753
54	0.031527127914	15.796620015683	-1	0.453093992969	6759.220543015140
56	0.028515332648	4.213928539254	-1	0.487083405957	711.409422247254
58	0.025442282700	2.424397736317	-1	0.520766163920	345.792891616728
60	0.022487669928	1.718955379630	-1	0.552662806052	251.124667572095
62	0.019787861031	1.353507816498	-1	0.581562614890	219.398535649808
64	0.017426573268	1.137840702961	-1	0.606662605216	211.603926744772
66	0.015438609481	1.001279454332	-1	0.627572269769	215.388703718060
68	0.013821266773	0.911646969659	-1	0.644245112091	225.229563456904
70	0.012548224786	0.852328413276	-1	0.656868343237	237.872640441325
72	0.011581918579	0.814031621714	-1	0.665753744376	251.045031430626
74	0.010881375062	0.791234719477	-1	0.671273411556	263.110677284900
76	0.010407943980	0.780594228356	-1	0.673800461555	273.008746548968
78	0.010127112013	0.780066541062	-1	0.673691529518	280.245717869053
80	0.010009174691	0.788455055833	-1	0.671276010269	284.840088927554
82	0.010029172562	0.805176274541	-1	0.666849505746	287.209589702444
84	0.010165626389	0.830082272636	-1	0.660685144590	288.042579005523
86	0.010400255290	0.863424741332	-1	0.653029171344	288.163199942687
88	0.010716958003	0.905813459893	-1	0.644109619549	288.444069535964
90	0.011101272988	0.958233187443	-1	0.634139092101	289.758839694109
92	0.011540240923	1.022124051269	-1	0.623312755183	292.980328696415
94	0.012021755146	1.099451894037	-1	0.611815641745	299.024640737304
96	0.012534862552	1.192917850040	-1	0.599816563461	308.931848634875
98	0.013069551702	1.306221653860	-1	0.587470012815	324.002342875600
100	0.013616765052	1.444500007398	-1	0.574915811005	346.010408323229
105	0.014988512058	1.955901327747	-1	0.543406319375	452.284822104098
110	0.016288660378	2.940939301683	-1	0.512893423144	737.201984666042

115	0.017454372934	5.451460861962	-1	0.484334184625	1860.066849203958
120	0.018452007405	22.902409330770	-1	0.458243760521	24639.466584278878
125	0.019272263502	11.637362690071	+1	0.434781590445	5758.945074642809
130	0.019920470548	4.379910331763	+1	0.413896191435	819.013842566937
135	0.020411309484	2.595749739109	+1	0.395405826014	293.079371635415
140	0.020763475185	1.796917257512	+1	0.379074409850	144.766289145928
145	0.020996588529	1.348119000775	+1	0.364650739146	84.750032501451
150	0.021129634900	1.063160967028	+1	0.351891939749	55.197722609596
155	0.021179975071	0.867759227555	+1	0.340575021222	38.702569135084
160	0.021162819704	0.726479497774	+1	0.330502492435	28.651148552528
165	0.021091310066	0.620300919603	+1	0.321502185884	22.113905234212
170	0.020976544133	0.538105156657	+1	0.313425684738	17.642109289615
175	0.020827818979	0.472977639411	+1	0.306146468253	14.457790353041
180	0.020652815825	0.420394354034	+1	0.299556886056	12.114763464781
185	0.020457885601	0.377277359087	+1	0.293565426514	10.343303803965
190	0.020248257772	0.341447815222	+1	0.288092641743	8.972496178467
195	0.020028149526	0.311344108123	+1	0.283072371991	7.890899384039
200	0.019800904215	0.285836369345	+1	0.278451555958	7.024039274154
205	0.019569275824	0.264065306278	+1	0.274184026777	6.319824122014
210	0.019335578163	0.245333305943	+1	0.270224925711	5.739897661418
215	0.019101624882	0.229098124177	+1	0.266535805778	5.256503098194
220	0.018868814211	0.214940366921	+1	0.263084615432	4.849398781985
225	0.018638223271	0.202530961228	+1	0.259844733117	4.503542823782
230	0.018410675718	0.191608325701	+1	0.256793652280	4.207557958187
235	0.018186796219	0.181962281811	+1	0.253912401670	3.952714281204
240	0.017967055128	0.173422222330	+1	0.251184831269	3.732219766136
245	0.017751794850	0.165848548995	+1	0.248597212349	3.540732504896
250	0.017541260253	0.159126232352	+1	0.246137787805	3.374007258114
255	0.017335620994	0.153156637057	+1	0.243795868558	3.228551853351
260	0.017135001541	0.147845849772	+1	0.241560021360	3.101228745669
265	0.016939456598	0.143113248279	+1	0.239420013152	2.989441653249
270	0.016748987477	0.138891534252	+1	0.237367106303	2.891084835944
275	0.016563546770	0.135124312557	+1	0.235393784931	2.804440439041

280	0.016383051617	0.131764166842	+1	0.233493748228	2.728101982436
285	0.016207403439	0.128770749275	+1	0.231661402171	2.660897845904
290	0.016036481968	0.126109841204	+1	0.229892045148	2.601858443611
295	0.015870150061	0.123752252075	+1	0.228181591431	2.550174657479
300	0.015708273127	0.121672905945	+1	0.226526481373	2.505164253733
310	0.015397317341	0.118260846850	+1	0.223368959745	2.432826338135
320	0.015102553161	0.115710330727	+1	0.220392875200	2.380592424354
330	0.014822908386	0.113893242880	+1	0.217576266949	2.345240293917
340	0.014557311352	0.112711700370	+1	0.214902003144	2.324398010235
350	0.014304729349	0.112090159040	+1	0.212356574694	2.316303411257
360	0.014064186985	0.111968971975	+1	0.209928881064	2.319617023179
370	0.013834789794	0.112297714036	+1	0.207608363301	2.333227933022
380	0.013615710457	0.113035105291	+1	0.205385952654	2.356259199834
390	0.013406188320	0.114147535322	+1	0.203253981672	2.388028661830
400	0.013205527803	0.115607275639	+1	0.201205895845	2.428002011327
410	0.013013095164	0.117391574028	+1	0.199236025018	2.475768280503
420	0.012828298302	0.119483435111	+1	0.197339256602	2.531057196209
430	0.012650603605	0.121868865879	+1	0.195511011316	2.593672334372
440	0.012479526677	0.124535772994	+1	0.193747117759	2.663465052365
450	0.012314635984	0.127473156326	+1	0.192043733565	2.740312819025
460	0.012155534089	0.130671841921	+1	0.190397375660	2.824140771465
470	0.012001850415	0.134126822083	+1	0.188805080013	2.914984120261
480	0.011853241861	0.137834442391	+1	0.187264083771	3.012917177804
490	0.011709400165	0.141791102897	+1	0.185771726347	3.118018156657
500	0.011570056893	0.145992984079	+1	0.184325497454	3.230360657149
510	0.011434959899	0.150436834152	+1	0.182922925040	3.350035959710
520	0.011303868542	0.155122929333	+1	0.181562076001	3.477241306907
530	0.011176560582	0.160052233508	+1	0.180241094398	3.612199976139
540	0.011052836952	0.165225294911	+1	0.178958111846	3.755129322371
550	0.010932518221	0.170642125026	+1	0.177711328090	3.906239142264
560	0.010815443302	0.176302851886	+1	0.176498983774	4.065747127299
570	0.010701449202	0.182210542246	+1	0.175319621914	4.233969348822
580	0.010590387624	0.188368836460	+1	0.174171924502	4.411251281135

590	0.010482121356	0.194780834478	+1	0.173054513933	4.597933684690
600	0.010376531306	0.201449087131	+1	0.171966025302	4.794349848131
610	0.010273503514	0.208376247169	+1	0.170905129355	5.000848805350
620	0.010172925523	0.215567416209	+1	0.169870746524	5.217872392269
630	0.010074692162	0.223028238226	+1	0.168861882166	5.445897822648
640	0.009978712519	0.230763743782	+1	0.167877469574	5.685395382169
650	0.009884893983	0.238778941759	+1	0.166916513256	5.936858848027
660	0.009793156673	0.247078663528	+1	0.165977980733	6.200788618072
670	0.009703486148	0.255666611726	+1	0.165060444447	6.477608410964
680	0.009615610345	0.264560410842	+1	0.164164967951	6.768484542130
690	0.009529654326	0.273757365279	+1	0.163288894317	7.073549669475
700	0.009445482405	0.283268309950	+1	0.162432097537	7.393673620965
710	0.009363048827	0.293099825229	+1	0.161593679371	7.729523970599
720	0.009282278212	0.303261965255	+1	0.160773094886	8.081954676127
730	0.009203118648	0.313764444101	+1	0.159969717892	8.451824361018
740	0.009125515672	0.324617156424	+1	0.159182909759	8.840038382858
750	0.009049419824	0.335830068762	+1	0.158412047834	9.247542123768
760	0.008974783307	0.347413611708	+1	0.157656574929	9.675343079232
770	0.008901558887	0.359379950646	+1	0.156915923503	10.124555678592
780	0.008829703126	0.371742008298	+1	0.156189641343	10.596379214090
790	0.008759173193	0.384512979817	+1	0.155477249553	11.092078165503
800	0.008689929604	0.397706563188	+1	0.154778265685	11.612992327450
810	0.008621934995	0.411336879414	+1	0.154092213248	12.160539885455
820	0.008555151409	0.425419944949	+1	0.153418674862	12.736287955050
830	0.008489544227	0.439972868863	+1	0.152757288862	13.341926117250
840	0.008425079414	0.455013240777	+1	0.152107638114	13.979242502461
850	0.008361725268	0.470559520778	+1	0.151469375763	14.650155678965
860	0.008299450744	0.486631117119	+1	0.150842111154	15.356716466953
870	0.008238226036	0.503249354742	+1	0.150225520573	16.101169556330
880	0.008178022352	0.520436954093	+1	0.149619287621	16.885938578790
890	0.008118812638	0.538217629595	+1	0.149023115939	17.713620750315
900	0.008060568269	0.556616851989	+1	0.148436740109	18.587042123540
910	0.008003265695	0.575661139158	+1	0.147859819984	19.509210390325

920	0.007946879724	0.595379285119	+1	0.147292134050	20.483429409208
930	0.007891387868	0.615802196249	+1	0.146733373523	21.513270918403
940	0.007836766753	0.636962605159	+1	0.146183334137	22.602621456860
950	0.007782994140	0.658895496308	+1	0.145641750744	23.755693423028
960	0.007730049643	0.681637907621	+1	0.145108428607	24.977061036427
970	0.007677912702	0.705229772275	+1	0.144583091445	26.271708198853
980	0.007626562538	0.729714336901	+1	0.144065559200	27.645120563844
990	0.007575980560	0.755137227729	+1	0.143555640074	29.103244508531
1000	0.007526148359	0.781547764480	+1	0.143053137221	30.652604927096
1025	0.007404730909	0.852252276743	+1	0.141828085867	34.973813131289
1050	0.007287629528	0.930417894142	+1	0.140645464092	40.044507660401
1075	0.007174601388	1.017192037309	+1	0.139502765380	46.034241547667
1100	0.007065421400	1.113975774831	+1	0.138397752239	53.162110323823
1125	0.006959880076	1.222499000780	+1	0.137328334082	61.715006764095
1150	0.006857787355	1.344923199417	+1	0.136292628130	72.074178383387
1175	0.006758969908	1.483980409965	+1	0.135288784873	84.754158852425
1200	0.006663258717	1.643187270411	+1	0.134315253688	100.463816708961
1225	0.006570498690	1.827137488943	+1	0.133370628594	120.199433696030
1250	0.006480547738	2.041927741025	+1	0.132453434088	145.392696311411
1275	0.006393275038	2.295852972904	+1	0.131562343981	178.161452128479
1300	0.006308553359	2.600502165895	+1	0.130696209624	221.743435005216
1325	0.006226263109	2.972565155371	+1	0.129853973758	281.282295167240
1350	0.006146297142	3.436924272332	+1	0.129034541176	365.327482432470
1375	0.006068554418	4.032454147679	+1	0.128236872323	488.934699163567
1400	0.005992936641	4.823497785154	+1	0.127460091219	680.613102223305
1425	0.005919350873	5.924784450263	+1	0.126703440719	999.696628355693
1450	0.005847713900	7.562448087920	+1	0.125966001262	1586.598447071139
1475	0.005777946180	10.253127934943	+1	0.125247004628	2842.732154094284
1500	0.005709971280	15.491208651382	+1	0.124545747680	6328.875577899309
1550	0.005595630715	113.852195021762	+1	0.122824186045	325390.995706074990
1600	0.005454614880	18.118843615244	-1	0.121905244335	8768.928695833425
1650	0.005336001229	8.710511655659	-1	0.120675435679	2163.855691244645
1700	0.005222850749	5.697837581754	-1	0.119500232562	986.538899989523

1750	0.005114776377	4.214594811807	-1	0.118376048218	574.003506296297
1800	0.005011431795	3.332513339338	-1	0.117299502844	380.944562896896
1850	0.004912498935	2.748046833281	-1	0.116267707133	274.496495740914
1900	0.004817699900	2.332652659392	-1	0.115277426723	209.242679404712
1950	0.004726772611	2.022428565324	-1	0.114326044833	166.145221874834
2000	0.004639456357	1.781927009081	-1	0.113412278344	136.049415353859
2100	0.004474752684	1.433421756897	-1	0.111691672455	97.575408193861
2200	0.004322152928	1.193797022350	-1	0.110094370197	74.640565247206
2300	0.004180429600	1.019477560915	-1	0.108601657094	59.751479787218
2400	0.004048446956	0.887200704119	-1	0.107201855794	49.459061394775
2500	0.003925142223	0.783397394761	-1	0.105889823281	41.989113724245
2600	0.003809569140	0.699695906060	-1	0.104663424384	36.354818718768
2700	0.003701036250	0.630905870660	-1	0.103512473477	31.982631063201
2800	0.003598948429	0.573494926961	-1	0.102426953573	28.510416377113
2900	0.003502750611	0.524920534943	-1	0.101400050587	25.697138937917
3000	0.003411921100	0.483303382682	-1	0.100427858071	23.377054452419
3100	0.003325983925	0.447242688882	-1	0.099508124702	21.433897599964
3200	0.003244561337	0.415738259109	-1	0.098635250989	19.786625935551
3300	0.003167315664	0.388016348212	-1	0.097804095610	18.375369174579
3400	0.003093928721	0.363453367692	-1	0.097011215554	17.154444947113
3500	0.003024100328	0.341540570269	-1	0.096254739390	16.088465974312
3600	0.002957554938	0.321866674193	-1	0.095533552460	15.149969491278
3700	0.002894068570	0.304122158845	-1	0.094844402698	14.318282403129
3800	0.002833439243	0.288052664970	-1	0.094184146157	13.576902335264
3900	0.002775476488	0.273440282216	-1	0.093550612189	12.912278777528
4000	0.002719999052	0.260097098893	-1	0.092942530535	12.313195615098
4100	0.002666837933	0.247863579512	-1	0.092359077138	11.770422914392
4200	0.002615852865	0.236614883817	-1	0.091798203584	11.276659712943
4300	0.002566914559	0.226244180385	-1	0.091257974408	10.825795183011
4400	0.002519899918	0.216656583700	-1	0.090737016039	10.412585693731
4500	0.002474691621	0.207767350676	-1	0.090234556729	10.032508463912
4600	0.002431180737	0.199502392943	-1	0.089750037809	9.681694742339
4700	0.002389274027	0.191802364157	-1	0.089282125318	9.356996886794

4800	0.002348884727	0.184615274261	-1	0.088829516684	9.055699420651
4900	0.002309931013	0.177893694667	-1	0.088391307415	8.775395702133
5000	0.002272333693	0.171594382656	-1	0.087966919194	8.513953776352
5500	0.002102117416	0.145209495222	-1	0.086051839330	7.432751280029
6000	0.001956816146	0.125212921928	-1	0.084408765273	6.624769237846
6500	0.001831309273	0.109613132985	-1	0.082972278521	5.998303506284
7000	0.001721741259	0.097147482420	-1	0.081701349260	5.498280058534
7500	0.001625210099	0.086988457009	-1	0.080564861703	5.089749040945
8000	0.001539487781	0.078572435240	-1	0.079538599369	4.749496427758
8500	0.001462833109	0.071502929001	-1	0.078603543152	4.461523267505
9000	0.001393865810	0.065493365772	-1	0.077744421414	4.214442301218
9500	0.001331475668	0.060331819651	-1	0.076948898987	3.999942808745
10000	0.001274759504	0.055858329221	-1	0.076206868562	3.811811815354
10500	0.001222971609	0.051949292031	-1	0.075510578373	3.645298603276
11000	0.001175502278	0.048511378665	-1	0.074851214128	3.496796361728
11500	0.001131826706	0.045466223661	-1	0.074224933042	3.363349659545
12000	0.001091512513	0.042754737189	-1	0.073625638146	3.242697669782
12500	0.001054185776	0.040327015740	-1	0.073049847065	3.132954977944
13000	0.001019530708	0.038143870143	-1	0.072493225803	3.032632411192
13500	0.000987271121	0.036171502661	-1	0.071953419032	2.940457228375
14000	0.000957170803	0.034383036163	-1	0.071427203476	2.855409277645
14500	0.000929021316	0.032754976812	-1	0.070912841674	2.776604763149
15000	0.000902643349	0.031268376530	-1	0.070407899849	2.703323231172
16000	0.000854625758	0.028662120263	-1	0.069405722858	2.570804117921
17000	0.000812005608	0.026451905146	-1	0.068422287652	2.453932020373
18000	0.000773937502	0.024559230001	-1	0.067449747579	2.349730331881
19000	0.000739744181	0.022924669410	-1	0.066482149233	2.255934324096
20000	0.000708876265	0.021502472420	-1	0.065514982950	2.170790557828
21000	0.000634730164	0.017094201670	-1	0.078535599064	2.333099664211
22000	0.000607216332	0.015960839934	-1	0.078815439967	2.283443603352
23000	0.000580990441	0.014857115671	-1	0.079205589470	2.231060395932
24000	0.000556327001	0.013814673218	-1	0.079716375198	2.179482345926
25000	0.000533479342	0.012867889121	-1	0.080314071465	2.132372053001

26000	0.000512607790	0.012043617933	-1	0.080923055397	2.092516219324
27000	0.000493517264	0.011330721442	-1	0.081499496193	2.059252773871
28000	0.000475942620	0.010707995024	-1	0.082030553870	2.031047277490
29000	0.000459623785	0.010153632845	-1	0.082530870912	2.006465942895
30000	0.000444318890	0.009646234639	-1	0.083038487792	1.984118816429
31000	0.000429841224	0.009168831705	-1	0.083597122202	1.962854061670
32000	0.000416118474	0.008718191783	-1	0.084213285976	1.942606643772
33000	0.000403125201	0.008295042153	-1	0.084873963608	1.923467326066
34000	0.000390819186	0.007899381137	-1	0.085571481130	1.905653603419
35000	0.000379171782	0.007531557389	-1	0.086291351222	1.889306114620
36000	0.000368155952	0.007191466095	-1	0.087017265529	1.874479333914
37000	0.000357725454	0.006876782938	-1	0.087743990239	1.861046035045
38000	0.000347831303	0.006584656099	-1	0.088472012742	1.848841178621
39000	0.000338426947	0.006312287004	-1	0.089205119995	1.837709353031
40000	0.000329467810	0.006056933218	-1	0.089950815151	1.827509022500
41000	0.000320913803	0.005816221096	-1	0.090717678056	1.818130173801
42000	0.000312737991	0.005589055943	-1	0.091505169239	1.809529728339
43000	0.000304917942	0.005374658159	-1	0.092310534526	1.801678800614
44000	0.000297432910	0.005172265373	-1	0.093131234584	1.794543697356
45000	0.000290263479	0.004981124819	-1	0.093965217868	1.788089061930
46000	0.000283391314	0.004800500000	-1	0.094810903029	1.782279007869
47000	0.000276798756	0.004629668994	-1	0.095667253024	1.777078686144
48000	0.000270469054	0.004467928178	-1	0.096533806455	1.772453103836
49000	0.000264386287	0.004314586235	-1	0.097410923523	1.768368535650
50000	0.000258535245	0.004168964247	-1	0.098299900699	1.764793535876
55000	0.000232320786	0.003539073745	-1	0.102935007116	1.753776058516
60000	0.000210291431	0.003039810223	-1	0.107857516067	1.752540000653
65000	0.000191513401	0.002636916740	-1	0.113061062894	1.759450759364
70000	0.000175313250	0.002306884636	-1	0.118540315463	1.773369940604
75000	0.000161191846	0.002033074807	-1	0.124292083532	1.793521301311
80000	0.000148771588	0.001803412668	-1	0.130313745028	1.819368364427
85000	0.000137761686	0.001608942032	-1	0.136602834978	1.850543981853
90000	0.000127934782	0.001442897222	-1	0.143156049587	1.886797820814

95000	0.000119109612	0.001300070733	-1	0.149970711047	1.927992114702
100000	0.000111141092	0.001176408934	-1	0.157042327161	1.974044555990
105000	0.000103910420	0.001068685638	-1	0.164368842255	2.024950894217
110000	0.000097322398	0.000974405040	-1	0.171935056806	2.080690419367
115000	0.000091294629	0.000891429544	-1	0.179743381365	2.141372797297
120000	0.000085760939	0.000818111514	-1	0.187779451943	2.207064290565
125000	0.000080663952	0.000753042725	-1	0.196037920735	2.277909845952
130000	0.000075956638	0.000695099108	-1	0.204501542636	2.354003087129
135000	0.000071597343	0.000643304422	-1	0.213162316194	2.435527902659
140000	0.000067550747	0.000596860339	-1	0.222007636444	2.522696160461
145000	0.000063785383	0.000555073657	-1	0.231030444902	2.615789639087
150000	0.000060276139	0.000517386375	-1	0.240205132450	2.714900710871
155000	0.000057000331	0.000483304194	-1	0.249511991650	2.820174262376
160000	0.000053937415	0.000452404186	-1	0.258935611350	2.931874208902
165000	0.000051068712	0.000424313127	-1	0.268465717108	3.050336665317
170000	0.000048379413	0.000398725169	-1	0.278075536877	3.175676106511
175000	0.000045855777	0.000375365667	-1	0.287743946459	3.308061790142
180000	0.000043484148	0.000353991034	-1	0.297461126844	3.447910487353
185000	0.000041252003	0.000334385996	-1	0.307220676288	3.595719825320
190000	0.000039150406	0.000316378420	-1	0.316992686458	3.751585531771
195000	0.000037170929	0.000299809892	-1	0.326752407924	3.915620345359
200000	0.000035303707	0.000284522633	-1	0.336501859096	4.088391551475
205000	0.000033539231	0.000270375850	-1	0.346251173596	4.270689265077
210000	0.000031871359	0.000257271567	-1	0.355975870041	4.462800880069
215000	0.000030294472	0.000245123106	-1	0.365649743880	4.664985496641
220000	0.000028804238	0.000233853866	-1	0.375239082470	4.877209602854
225000	0.000027408777	0.000223445416	-1	0.384572630120	5.095285050656
230000	0.000026091407	0.000213771217	-1	0.393760858431	5.322575096781
235000	0.000024847349	0.000204765177	-1	0.402793138161	5.559189009315
240000	0.000023671750	0.000196365159	-1	0.411667176825	5.805401013381
245000	0.000022556320	0.000188500184	-1	0.420432485416	6.063282850136
250000	0.000021494370	0.000181110849	-1	0.429130024806	6.334914475724
255000	0.000020487797	0.000174174023	-1	0.437693236056	6.618375266203

260000	0.000019533348	0.000167654913	-1	0.446115819133	6.914051194943
265000	0.000018628510	0.000161524467	-1	0.454383344494	7.221992368385
270000	0.000017770863	0.000155755412	-1	0.462483443616	7.542214786250
275000	0.000016958050	0.000150321949	-1	0.470406596694	7.874722013228
280000	0.000016187754	0.000145199790	-1	0.478146181852	8.219534977609
285000	0.000015457658	0.000140365939	-1	0.485699295057	8.576747995595
290000	0.000014765470	0.000135798739	-1	0.493066187266	8.946537271019
295000	0.000014108887	0.000131477630	-1	0.500251353676	9.329249637388
300000	0.000013485639	0.000127383374	-1	0.507262114387	9.725393138141

Electron Elastic Scattering Sampling Data
Solution for Z = 31

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.022219425871	1.679542139293	+1	0.179568604258	43.367328405914
52	0.021411394326	3.249211014576	+1	0.201338500495	159.149268877364
54	0.020505434340	10.519096828122	+1	0.224533245746	1676.602301639242
56	0.019525294726	14.606208457555	-1	0.248735931697	3791.274273456532
58	0.018500539499	4.426180408600	-1	0.273428407164	479.670381363055
60	0.017463153825	2.626194143765	-1	0.298034134628	227.555074179351
62	0.016444181957	1.892482058763	-1	0.321971049191	155.516051676547
64	0.015470944883	1.504193865720	-1	0.344707808840	126.125688247983
66	0.014565268215	1.270985518399	-1	0.365798811723	112.660514075312
68	0.013742651179	1.120889018990	-1	0.384913361956	106.784694813115
70	0.013012435365	1.020772793875	-1	0.401840992227	105.126160024176
72	0.012378741063	0.953398505040	-1	0.416476471570	106.066422683477
74	0.011841251491	0.908944090794	-1	0.428812493827	108.719920085670
76	0.011396720222	0.881542640063	-1	0.438908093566	112.562970667009
78	0.011039779563	0.867539849392	-1	0.446874657536	117.271595701773
80	0.010763806330	0.864631513929	-1	0.452857906138	122.650789855510
82	0.010561725447	0.871423922909	-1	0.457018739987	128.603593355405
84	0.010426150526	0.887112793259	-1	0.459530938438	135.111417600578
86	0.010349947223	0.911380838304	-1	0.460566026853	142.229855210135
88	0.010326231618	0.944288325216	-1	0.460292778290	150.085152026786
90	0.010348470351	0.986238489563	-1	0.458873617501	158.876759674143
92	0.010410633093	1.038005169790	-1	0.456459625609	168.888589951214
94	0.010506998862	1.100726575171	-1	0.453194698094	180.502438700676
96	0.010632345270	1.176022784547	-1	0.449209891508	194.231689546366
98	0.010781868432	1.266107569167	-1	0.444625139819	210.769348721362
100	0.010951155644	1.373984286784	-1	0.439549552325	231.068158517579
105	0.011435149839	1.752431200400	-1	0.425336177529	308.671131088280
110	0.011964320656	2.398617238726	-1	0.409926287105	467.745333116172

115	0.012498783426	3.677755766595	-1	0.394222896253	884.681946513282
120	0.013009364661	7.213437961744	-1	0.378854095078	2742.054574517134
125	0.013477220025	54.683164084771	-1	0.364206027248	127700.898544779530
130	0.013891071563	10.234312624153	+1	0.350499705354	4405.411099245614
135	0.014245900083	4.438171996826	+1	0.337830066950	852.222027982187
140	0.014540807153	2.741118047408	+1	0.326215027104	336.553226570547
145	0.014777907175	1.937708289862	+1	0.315620291561	175.057579990204
150	0.014961025847	1.473051978332	+1	0.305984014073	105.771786722130
155	0.015095020763	1.172528411189	+1	0.297229620390	70.311613709409
160	0.015185124993	0.963724521157	+1	0.289275853390	49.966734610784
165	0.015236625428	0.811228539202	+1	0.282042414389	37.314363749362
170	0.015254587644	0.695680169723	+1	0.275452896539	28.957352390769
175	0.015243727286	0.605623579001	+1	0.269437145730	23.173141302018
180	0.015208322508	0.533850209467	+1	0.263931714839	19.016884036341
185	0.015152218885	0.475603954423	+1	0.258879728171	15.937390537611
190	0.015078852653	0.427606755407	+1	0.254229299461	13.595818498832
195	0.014991198348	0.387553739147	+1	0.249935774536	11.776414627157
200	0.014891769627	0.353798625172	+1	0.245962827557	10.337627780230
205	0.014782778587	0.325109307190	+1	0.242277739245	9.182383193418
210	0.014666244096	0.300508294241	+1	0.238847054966	8.240914852963
215	0.014543875046	0.279244487030	+1	0.235641426148	7.463485526683
220	0.014417093737	0.260740690592	+1	0.232636155109	6.814220438442
225	0.014287084762	0.244546480474	+1	0.229810298176	6.266712917542
230	0.014154840977	0.230305475363	+1	0.227146124341	5.801174098387
235	0.014021190942	0.217732462317	+1	0.224628466360	5.402541012057
240	0.013886827768	0.206596665772	+1	0.222244249868	5.059180819626
245	0.013752331411	0.196709695243	+1	0.219982327472	4.762003712535
250	0.013618183894	0.187916488975	+1	0.217833020259	4.503824386157
255	0.013484796666	0.180085023856	+1	0.215787420605	4.278795944302
260	0.013352534400	0.173092320283	+1	0.213835769661	4.081810156140
265	0.013221691929	0.166833321091	+1	0.211969203503	3.908676097548
270	0.013092497823	0.161220679025	+1	0.210180162132	3.756017287255
275	0.012965131542	0.156181048472	+1	0.208462154532	3.621081455529

280	0.012839723125	0.151652771531	+1	0.206809620208	3.501618459107
285	0.012716374113	0.147583501455	+1	0.205217728514	3.395765429081
290	0.012595151743	0.143928761312	+1	0.203682358565	3.301979689368
295	0.012476101347	0.140650515371	+1	0.202199912346	3.218971542704
300	0.012359249936	0.137716146845	+1	0.200767258058	3.145658951435
310	0.012132186952	0.132764335511	+1	0.198039553909	3.024430810785
320	0.011913985486	0.128861989537	+1	0.195475022751	2.931681307067
330	0.011704506202	0.125844090064	+1	0.193053744225	2.862450037616
340	0.011503491261	0.123584771745	+1	0.190760283817	2.813095798452
350	0.011310616228	0.121987159751	+1	0.188582478965	2.780917674992
360	0.011125512683	0.120974717505	+1	0.186510378268	2.763861769636
370	0.010947804231	0.120481478479	+1	0.184534167714	2.760197993021
380	0.010777112533	0.120453514214	+1	0.182645446739	2.768559519281
390	0.010613060329	0.120847371483	+1	0.180837210949	2.787890623878
400	0.010455283991	0.121627695746	+1	0.179103582327	2.817371924603
410	0.010303431763	0.122765710570	+1	0.177439574506	2.856374658768
420	0.010157171653	0.124237934321	+1	0.175840308775	2.904409051650
430	0.010016173229	0.126025315195	+1	0.174301644464	2.961118968983
440	0.009880140375	0.128111515451	+1	0.172819795379	3.026220773194
450	0.009748798251	0.130482393762	+1	0.171391359303	3.099493686154
460	0.009621892670	0.133126115517	+1	0.170013260324	3.180781842013
470	0.009499170007	0.136034889354	+1	0.168682788662	3.270049679865
480	0.009380399211	0.139202453192	+1	0.167397417614	3.367306218790
490	0.009265366065	0.142623228104	+1	0.166154796736	3.472584371213
500	0.009153878106	0.146291884583	+1	0.164952686773	3.585925352266
510	0.009045756617	0.150203994884	+1	0.163788975702	3.707399391585
520	0.008940825350	0.154358331418	+1	0.162661889565	3.837181703720
530	0.008838918933	0.158754491457	+1	0.161569759394	3.975480403162
540	0.008739890611	0.163391958214	+1	0.160510940362	4.122504526924
550	0.008643603064	0.168269889811	+1	0.159483845922	4.278461970195
560	0.008549932832	0.173387778856	+1	0.158486922038	4.443574822972
570	0.008458755350	0.178747855198	+1	0.157518915342	4.618167744535
580	0.008369953284	0.184352858316	+1	0.156578603085	4.802593816303

590	0.008283421363	0.190205268110	+1	0.155664815405	4.997210032361
600	0.008199063008	0.196307039624	+1	0.154776328797	5.202366072002
610	0.008116790370	0.202660291571	+1	0.153911971341	5.418428013552
620	0.008036511420	0.209269651656	+1	0.153070817978	5.645870103631
630	0.007958149366	0.216139707471	+1	0.152251891362	5.885174007831
640	0.007881608273	0.223276104380	+1	0.151454463405	6.136903515395
650	0.007806838078	0.230682107729	+1	0.150677417384	6.401515790648
660	0.007733764538	0.238362569351	+1	0.149919937556	6.679572706335
670	0.007662322956	0.246323989265	+1	0.149181293652	6.971713467538
680	0.007592450557	0.254573350257	+1	0.148460771869	7.278622126843
690	0.007524089545	0.263117495648	+1	0.147757673437	7.601005168959
700	0.007457186792	0.271963028359	+1	0.147071296081	7.939587239885
710	0.007391692293	0.281116776078	+1	0.146400929816	8.295128899995
720	0.007327556529	0.290587490674	+1	0.145746009782	8.668503546236
730	0.007264731125	0.300384388789	+1	0.145105984711	9.060642195854
740	0.007203172240	0.310516827845	+1	0.144480313876	9.472519921634
750	0.007142839336	0.320993998353	+1	0.143868417340	9.905143087365
760	0.007083692887	0.331825635100	+1	0.143269766768	10.359587842180
770	0.007025693956	0.343023186586	+1	0.142683923877	10.837055185886
780	0.006968806129	0.354598652861	+1	0.142110424574	11.338820161439
790	0.006912994022	0.366564481100	+1	0.141548845593	11.866239939883
800	0.006858225252	0.378933335383	+1	0.140998766489	12.420742027735
810	0.006804468998	0.391718391392	+1	0.140459733022	13.003838468989
820	0.006751694268	0.404934740526	+1	0.139931405468	13.617210737655
830	0.006699871935	0.418598284940	+1	0.139413432273	14.262656290210
840	0.006648973562	0.432725533724	+1	0.138905462485	14.942090157354
850	0.006598973509	0.447333600189	+1	0.138407148524	15.657547247111
860	0.006549846271	0.462440650638	+1	0.137918156701	16.411217674860
870	0.006501566613	0.478066583638	+1	0.137438202993	17.205494678695
880	0.006454111070	0.494232452084	+1	0.136967000585	18.042950304708
890	0.006407457408	0.510960650027	+1	0.136504287035	18.926361926976
900	0.006361583204	0.528274328121	+1	0.136049769372	19.858692352981
910	0.006316468601	0.546198140566	+1	0.135603198792	20.843143840002

920	0.006272092729	0.564759161851	+1	0.135164326806	21.883227712833
930	0.006228436186	0.583985967921	+1	0.134732932795	22.982735834991
940	0.006185479809	0.603909276339	+1	0.134308798314	24.145795618467
950	0.006143206335	0.624561136657	+1	0.133891699785	25.376841625428
960	0.006101598345	0.645975997883	+1	0.133481423892	26.680709743416
970	0.006060638209	0.668191067751	+1	0.133077785252	28.062694780065
980	0.006020310335	0.691245794792	+1	0.132680579936	29.528534591658
990	0.005980598778	0.715182992288	+1	0.132289645197	31.084539529565
1000	0.005941488302	0.740047615658	+1	0.131904793688	32.737540655250
1025	0.005846248944	0.806595429452	+1	0.130968207200	37.345474027821
1050	0.005754463413	0.880129021276	+1	0.130066222229	42.747972899175
1075	0.005665933408	0.961703167443	+1	0.129196645698	49.122479497466
1100	0.005580475442	1.052600548789	+1	0.128357490463	56.697356995095
1125	0.005497920044	1.154396335622	+1	0.127546873468	65.770123747036
1150	0.005418112926	1.269056644742	+1	0.126763112441	76.734807625169
1175	0.005340909335	1.399061429131	+1	0.126004739816	90.121289200278
1200	0.005266174206	1.547578864247	+1	0.125270368399	106.654369353483
1225	0.005193779875	1.718728365819	+1	0.124558778588	127.346519584835
1250	0.005123612297	1.917945196233	+1	0.123868741301	153.642066031421
1275	0.005055564450	2.152573726273	+1	0.123199135510	187.659370108917
1300	0.004989533298	2.432783088646	+1	0.122548972839	232.602873203751
1325	0.004925422489	2.773071160418	+1	0.121917370388	293.500529570220
1350	0.004863145346	3.194800875431	+1	0.121303407822	378.586424330737
1375	0.004802619971	3.730849586343	+1	0.120706257940	502.092464357259
1400	0.004743767272	4.434605973526	+1	0.120125202718	690.331450415671
1425	0.004686512190	5.398881162068	+1	0.119559609005	996.350212766675
1450	0.004630788098	6.800374192868	+1	0.119008770058	1540.260709610309
1475	0.004576530678	9.022350967742	+1	0.118472037453	2643.319640388168
1500	0.004523678377	13.081415895773	+1	0.117948893328	5420.624227245397
1550	0.004429939821	62.282208425924	+1	0.116732840711	117065.554140690090
1600	0.004325215069	21.127424104864	-1	0.115981744643	14119.643778799827
1650	0.004233061937	9.222928711304	-1	0.115066948283	2883.999793321420
1700	0.004145167242	5.856438777777	-1	0.114193564634	1243.645060120070

1750	0.004061224260	4.268305258993	-1	0.113358843768	705.044869285575
1800	0.003980955846	3.344462807467	-1	0.112560269608	461.100799590773
1850	0.003904108704	2.740585100411	-1	0.111795660091	329.215862523369
1900	0.003830469701	2.315420289546	-1	0.111062351791	249.431665186240
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2000	0.003692004508	1.757019247573	-1	0.109682450074	161.044478306604
2100	0.003564010616	1.406730797808	-1	0.108412542573	115.098595267607
2200	0.003445368908	1.167239304176	-1	0.107236094624	87.890447158278
2300	0.003335130181	0.993714511773	-1	0.106138245323	70.301945048940
2400	0.003232411777	0.862452650428	-1	0.105110068673	58.179095441346
2500	0.003136391083	0.759729042903	-1	0.104148219076	49.400349449011
2600	0.003046332068	0.677114263311	-1	0.103251881137	42.791141989755
2700	0.002961705533	0.609366445518	-1	0.102412892583	37.669102881182
2800	0.002882057739	0.552928377469	-1	0.101623164885	33.604848201685
2900	0.002806960085	0.505252826057	-1	0.100877376365	30.313737047140
3000	0.002736008556	0.464465296632	-1	0.100172959249	27.600678390879
3100	0.002668835250	0.429174343687	-1	0.099508544396	25.329140807068
3200	0.002605150252	0.398381676395	-1	0.098879674721	23.403812786635
3300	0.002544698051	0.371317611127	-1	0.098282085273	21.754407723163
3400	0.002487233097	0.347363668018	-1	0.097713105894	20.327410358251
3500	0.002432524127	0.326017762151	-1	0.097171483168	19.081471424325
3600	0.002380357527	0.306874557728	-1	0.096656654325	17.984524304948
3700	0.002330562455	0.289626998130	-1	0.096165937455	17.012338132673
3800	0.002282985726	0.274022852200	-1	0.095696729099	16.145572100914
3900	0.002237479482	0.259846853883	-1	0.095247332398	15.368393315604
4000	0.002193855725	0.246898425569	-1	0.094820437278	14.667524137415
4100	0.002151996019	0.235026222367	-1	0.094415027576	14.032316013922
4200	0.002111826511	0.224118664481	-1	0.094026845307	13.454378986838
4300	0.002073249468	0.214070275502	-1	0.093654270308	12.926556668422
4400	0.002036169564	0.204787577375	-1	0.093296226485	12.442722194776
4500	0.002000497145	0.196187471712	-1	0.092952221093	11.997596576753
4600	0.001966145489	0.188197395955	-1	0.092621916886	11.586679311213
4700	0.001933044498	0.180758801693	-1	0.092304240309	11.206279214767

4800	0.001901127791	0.173820502166	-1	0.091998066575	10.853215890682
4900	0.001870331259	0.167335890364	-1	0.091702696205	10.524681663234
5000	0.001840593907	0.161262627467	-1	0.091417754479	10.218187774290
5500	0.001705983481	0.135921915238	-1	0.090132366408	8.950049384476
6000	0.001590992694	0.116804805481	-1	0.089036858315	8.001076279351
6500	0.001491548337	0.101939663761	-1	0.088088568343	7.264124570169
7000	0.001404647824	0.090097469194	-1	0.087255909783	6.674929625399
7500	0.001328025692	0.080474531334	-1	0.086514969865	6.192698950590
8000	0.001259939008	0.072524530382	-1	0.085847230055	5.790329850877
8500	0.001199024985	0.065863904346	-1	0.085238192325	5.449125151589
9000	0.001144198644	0.060215919345	-1	0.084676355775	5.155788059546
9500	0.001094587132	0.055376323831	-1	0.084152427182	4.900602364700
10000	0.001049479496	0.051191253868	-1	0.083658872943	4.676305057209
10500	0.001008287315	0.047542056009	-1	0.083190201557	4.477343152178
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11500	0.000935810326	0.041510335705	-1	0.082299543027	4.139255602797
12000	0.000903778136	0.038997908437	-1	0.081867565129	3.994002876950
12500	0.000874126099	0.036752609989	-1	0.081443780472	3.861552611012
13000	0.000846604358	0.034737079483	-1	0.081024860751	3.740156937450
13500	0.000820993564	0.032919248133	-1	0.080609581554	3.628330269725
14000	0.000797105486	0.031273559051	-1	0.080195582643	3.524879772620
14500	0.000774774033	0.029777795582	-1	0.079781984503	3.428773239868
15000	0.000753857144	0.028414002966	-1	0.079367115147	3.339167359552
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17000	0.000681988086	0.023996940697	-1	0.077680331396	3.032573014693
18000	0.000651842499	0.022266455748	-1	0.076811986302	2.903543730854
19000	0.000624789593	0.020774398506	-1	0.075923217392	2.786889360117
20000	0.000600389832	0.019477958281	-1	0.075012775274	2.680567662595
21000	0.000519839857	0.015118587523	-1	0.092206711148	2.997148647322
22000	0.000497359061	0.014102530165	-1	0.092785824065	2.939440840944
23000	0.000475800983	0.013110509457	-1	0.093552692783	2.879772597313
24000	0.000455448878	0.012174358212	-1	0.094485697484	2.821855528023
25000	0.000436575501	0.011326967214	-1	0.095505741927	2.769363591148

26000	0.000419362067	0.010592528946	-1	0.096491256867	2.724959891874
27000	0.000403649850	0.009959599284	-1	0.097392648520	2.687776261247
28000	0.000389212055	0.009408124469	-1	0.098205478161	2.656089407358
29000	0.000375828495	0.008918320563	-1	0.098955146521	2.628319566683
30000	0.000363284512	0.008470919089	-1	0.099697388859	2.603062289930
31000	0.000351399561	0.008050363406	-1	0.100499064837	2.579314611581
32000	0.000340115443	0.007653805670	-1	0.101367854624	2.557013667896
33000	0.000329408235	0.007281548500	-1	0.102290941070	2.536288793257
34000	0.000319258189	0.006933903200	-1	0.103251664829	2.517239548224
35000	0.000309649487	0.006611183158	-1	0.104229010358	2.499929366914
36000	0.000300564295	0.006313200050	-1	0.105201716772	2.484348419228
37000	0.000291965055	0.006037805758	-1	0.106164147253	2.470335209726
38000	0.000283810509	0.005782419756	-1	0.107118017799	2.457708725933
39000	0.000276060929	0.005544534116	-1	0.108069032853	2.446310457476
40000	0.000268677732	0.005321713006	-1	0.109027294849	2.436009655812
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42000	0.000254884656	0.004913997959	-1	0.110997993641	2.418365190760
43000	0.000248435379	0.004727409742	-1	0.112006337870	2.410920580155
44000	0.000242261901	0.004551404445	-1	0.113025827698	2.404329557798
45000	0.000236348680	0.004385303497	-1	0.114053992933	2.398542566597
46000	0.000230680818	0.004228441254	-1	0.115089103575	2.393513207988
47000	0.000225243995	0.004080174350	-1	0.116129936066	2.389196345836
48000	0.000220024505	0.003939876613	-1	0.117175992451	2.385548411916
49000	0.000215009088	0.003806932469	-1	0.118227925617	2.382532914364
50000	0.000210185022	0.003680742600	-1	0.119287435099	2.380118118139
55000	0.000188575677	0.003135576970	-1	0.124714141529	2.376158046668
60000	0.000170427140	0.002704086205	-1	0.130325183956	2.383702240579
65000	0.000154971366	0.002356137055	-1	0.136113236135	2.400752470391
70000	0.000141652183	0.002071122862	-1	0.142072707091	2.425938545231
75000	0.000130057537	0.001834538399	-1	0.148197744472	2.458292800180
80000	0.000119875298	0.001635894070	-1	0.154482727996	2.497127656346
85000	0.000110864903	0.001467438662	-1	0.160921525375	2.541944848646
90000	0.000102837733	0.001323332222	-1	0.167507648267	2.592390724071

95000	0.000095643924	0.001199098993	-1	0.174234109758	2.648212365475
100000	0.000089163148	0.001091260905	-1	0.181092856009	2.709223345791
105000	0.000083296262	0.000997050701	-1	0.188079944790	2.775348808606
110000	0.000077964170	0.000914335931	-1	0.195177467902	2.846448511200
115000	0.000073098092	0.000841294141	-1	0.202385854831	2.922554401430
120000	0.000068642962	0.000776520934	-1	0.209689864772	3.003615528450
125000	0.000064550738	0.000718816909	-1	0.217084382097	3.089688746391
130000	0.000060782066	0.000667226104	-1	0.224553353415	3.180742209119
135000	0.000057301943	0.000620918644	-1	0.232090446169	3.276855119750
140000	0.000054080665	0.000579217710	-1	0.239685329722	3.378126329635
145000	0.000051091820	0.000541534817	-1	0.247333493003	3.484723169982
150000	0.000048314264	0.000507394765	-1	0.255015476185	3.596575817150
155000	0.000045728852	0.000476377044	-1	0.262717948508	3.713672377241
160000	0.000043318134	0.000448122598	-1	0.270431740820	3.836141302720
165000	0.000041066200	0.000422314140	-1	0.278152844649	3.964193969717
170000	0.000038960250	0.000398689815	-1	0.285865593238	4.097807311081
175000	0.000036988356	0.000377014189	-1	0.293560096692	4.237035580202
180000	0.000035138647	0.000357077826	-1	0.301236538235	4.382229296166
185000	0.000033403326	0.000338716204	-1	0.308871126168	4.533118857091
190000	0.000031776601	0.000321793153	-1	0.316426331920	4.689025351714
195000	0.000030247288	0.000306145626	-1	0.323922563093	4.850719637147
200000	0.000028807276	0.000291638475	-1	0.331366295690	5.018533402635
205000	0.000027447603	0.000278143397	-1	0.338782481737	5.193376162150
210000	0.000026161829	0.000265570277	-1	0.346171121129	5.375787157078
215000	0.000024949194	0.000253868365	-1	0.353474772044	5.564477881162
220000	0.000023805334	0.000242967920	-1	0.360677199652	5.759281680349
225000	0.000022726117	0.000232803659	-1	0.367765051637	5.960020333880
230000	0.000021707490	0.000223313822	-1	0.374729822454	6.166575839500
235000	0.000020745492	0.000214440380	-1	0.381567624475	6.378906523471
240000	0.000019836158	0.000206128271	-1	0.388281110845	6.597133410541
245000	0.000018975590	0.000198325985	-1	0.394878108484	6.821539523529
250000	0.000018159897	0.000190984961	-1	0.401372924566	7.052653747788
255000	0.000017385542	0.000184062541	-1	0.407779580467	7.291076536466

260000	0.000016650304	0.000177529927	-1	0.414091120907	7.536767501780
265000	0.000015952291	0.000171362196	-1	0.420297084666	7.789513498404
270000	0.000015289658	0.000165535666	-1	0.426388592300	8.049091019002
275000	0.000014660585	0.000160027596	-1	0.432359453536	8.315306651851
280000	0.000014063283	0.000154816350	-1	0.438205481338	8.587990274750
285000	0.000013495974	0.000149881281	-1	0.443925339635	8.867050967500
290000	0.000012956907	0.000145202750	-1	0.449520051528	9.152473708962
295000	0.000012444359	0.000140762082	-1	0.454993167799	9.444344490934
300000	0.000011956623	0.000136541565	-1	0.460350845492	9.742891663396

Electron Elastic Scattering Sampling Data
Solution for Z = 32

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.024939883916	0.653276153334	+1	0.085682283459	3.959526763796
52	0.024242142716	1.037094078480	+1	0.100236752635	9.478821284772
54	0.023482970303	1.752282402197	+1	0.116398010112	26.433356527085
56	0.022665788001	3.446439078034	+1	0.134028838364	102.322991004533
58	0.021800322664	11.638674295306	+1	0.152898932075	1191.915047264889
60	0.020901231499	14.305929221108	-1	0.172691002708	2142.013153027245
62	0.019986335122	4.590523246014	-1	0.193019274458	301.109631150441
64	0.019074734178	2.773894930036	-1	0.213461155353	146.155096006158
66	0.018184984692	2.023844478764	-1	0.233587076089	100.735593655412
68	0.017333595280	1.624524417938	-1	0.252998163508	81.888048598756
70	0.016534073581	1.383899540832	-1	0.271352090494	73.098111522902
72	0.015796543294	1.228920109915	-1	0.288374883219	69.176012496442
74	0.015127474938	1.125737932437	-1	0.303876224435	68.025266652092
76	0.014530297694	1.056708426512	-1	0.317737167635	68.660137950595
78	0.014005698725	1.011786941811	-1	0.329907472510	70.564010639359
80	0.013552219932	0.984924307187	-1	0.340393789447	73.449209684914
82	0.013166988818	0.972399178625	-1	0.349241779576	77.157549860666
84	0.012845946322	0.971849767679	-1	0.356532359508	81.608557885483
86	0.012584486798	0.981863923515	-1	0.362364266428	86.782283457931
88	0.012377649718	1.001669580377	-1	0.366849634231	92.708032763236
90	0.012220359917	1.030982799976	-1	0.370107337196	99.462585669994
92	0.012107661423	1.069957030735	-1	0.372255643816	107.176398923381
94	0.012034665904	1.119103208474	-1	0.373413584705	116.038461266838
96	0.011996793002	1.179352558995	-1	0.373693725308	126.315279615470
98	0.011989741654	1.252090730916	-1	0.373202435540	138.373497178702
100	0.012009493338	1.339253991797	-1	0.372039366948	152.717052989093
105	0.012152308827	1.640037943778	-1	0.366781602640	203.898211539813
110	0.012388982205	2.126724958814	-1	0.359136299617	297.106121158921

115	0.012680010340	2.990320119870	-1	0.350048079244	500.472297682335
120	0.012994358003	4.845211835321	-1	0.340235972031	1109.539493640921
125	0.013309452225	11.329845606755	-1	0.330203201902	5106.432174043767
130	0.013609102183	51.485974851004	+1	0.320298529715	92314.297083529615
135	0.013882750096	7.657145258371	+1	0.310742363249	2123.230909825199
140	0.014123913551	3.961377690167	+1	0.301668763321	592.749696979425
145	0.014329406495	2.597981927578	+1	0.293145641321	266.711280761588
150	0.014498307573	1.894250117200	+1	0.285198690447	148.719163571549
155	0.014631356602	1.467884824603	+1	0.277824077851	93.875198834974
160	0.014730347500	1.183896065139	+1	0.271000469888	64.302031988641
165	0.014797737749	0.982488798809	+1	0.264696063863	46.692177269453
170	0.014836340250	0.833117261275	+1	0.258873608547	35.429831202833
175	0.014849084883	0.718573339175	+1	0.253494324897	27.827432820325
180	0.014838890089	0.628427087229	+1	0.248519766067	22.473363096327
185	0.014808553254	0.555996554715	+1	0.243913161015	18.571523707953
190	0.014760755789	0.496788007955	+1	0.239638620251	15.645732504574
195	0.014697919225	0.447699287316	+1	0.235664321107	13.399291688952
200	0.014622148617	0.406544380978	+1	0.231964210821	11.640868860720
205	0.014535384230	0.371710139823	+1	0.228513889544	10.241357655943
210	0.014439502374	0.341940066083	+1	0.225286585148	9.109593297625
215	0.014336153935	0.316278435450	+1	0.222258382279	8.181361770469
220	0.014226747221	0.293995996271	+1	0.219408956444	7.410789234006
225	0.014112491010	0.274526705550	+1	0.216720949673	6.764381793719
230	0.013994420072	0.257425123373	+1	0.214179555963	6.217234986349
235	0.013873426192	0.242335946087	+1	0.211771978002	5.750505781984
240	0.013750272626	0.228972875975	+1	0.209487185102	5.349738951623
245	0.013625616874	0.217102684402	+1	0.207315641492	5.003690558361
250	0.013500019995	0.206533948465	+1	0.205249035299	4.703518770818
255	0.013373978077	0.197104416527	+1	0.203279648550	4.442076401760
260	0.013247948786	0.188665294464	+1	0.201398564636	4.213213929489
265	0.013122322784	0.181090225947	+1	0.199597720084	4.011924434608
270	0.012997416427	0.174274164344	+1	0.197870189516	3.834183169002
275	0.012873493503	0.168129121625	+1	0.196210055042	3.676722574071

280	0.012750762384	0.162581028715	+1	0.194612178680	3.536871846595
285	0.012629395948	0.157567164195	+1	0.193072185805	3.412430665210
290	0.012509529245	0.153034086787	+1	0.191586278306	3.301573433186
295	0.012391270720	0.148936115493	+1	0.190151168471	3.202777029415
300	0.012274702462	0.145234073765	+1	0.188764015099	3.114765979357
310	0.012046892348	0.138879997399	+1	0.186122527139	2.966756569302
320	0.011826499129	0.133719724701	+1	0.183638720202	2.849842000958
330	0.011613700013	0.129556937124	+1	0.181293544541	2.758275352120
340	0.011408499207	0.126242130076	+1	0.179072257654	2.687845764908
350	0.011210781896	0.123660229983	+1	0.176963478699	2.635433152027
360	0.011020361606	0.121720008738	+1	0.174957726919	2.598648984529
370	0.010837008474	0.120342263467	+1	0.173045412475	2.575471675937
380	0.010660463743	0.119462155112	+1	0.171218280814	2.564297188609
390	0.010490447302	0.119027699723	+1	0.169469532209	2.563886056712
400	0.010326672888	0.118996886439	+1	0.167793587009	2.573276995214
410	0.010168852425	0.119335344143	+1	0.166185638168	2.591716579836
420	0.010016692091	0.120014140881	+1	0.164640986505	2.618592067990
430	0.009869911567	0.121009067508	+1	0.163155391052	2.653413603072
440	0.009728241132	0.122299811300	+1	0.161725206049	2.695796793168
450	0.009591426630	0.123869162537	+1	0.160347184881	2.745438279367
460	0.009459227608	0.125702683372	+1	0.159018411453	2.802106998251
470	0.009331403899	0.127789457758	+1	0.157736214004	2.865665985382
480	0.009207729296	0.130120436087	+1	0.156498070734	2.936026935703
490	0.009087995772	0.132687605015	+1	0.155301703494	3.013130546862
500	0.008972012207	0.135483836775	+1	0.154144965600	3.096940594736
510	0.008859596419	0.138503043409	+1	0.153025877020	3.187451456658
520	0.008750571275	0.141741884244	+1	0.151942685865	3.284736449358
530	0.008644768992	0.145197928705	+1	0.150893741961	3.388898244246
540	0.008542036501	0.148868825681	+1	0.149877453677	3.500044386449
550	0.008442232647	0.152752260442	+1	0.148892293534	3.618286766518
560	0.008345226886	0.156846342462	+1	0.147936811210	3.743752486977
570	0.008250888609	0.161151451274	+1	0.147009742582	3.876642915497
580	0.008159094488	0.165668514861	+1	0.146109915832	4.017184059177

590	0.008069734209	0.170398256053	+1	0.145236172321	4.165600957633
600	0.007982701854	0.175341178247	+1	0.144387367417	4.322120734309
610	0.007897904471	0.180497845002	+1	0.143562370332	4.486975317698
620	0.007815244804	0.185870931553	+1	0.142760265042	4.660477778679
630	0.007734632477	0.191463420984	+1	0.141980157325	4.842961127912
640	0.007655984167	0.197278079328	+1	0.141221160308	5.034762487910
650	0.007579224335	0.203317324291	+1	0.140482379972	5.236217299677
660	0.007504280178	0.209583731175	+1	0.139762950256	5.447678642617
670	0.007431081494	0.216081613790	+1	0.139062168340	5.669573266414
680	0.007359559181	0.222815653039	+1	0.138379338937	5.902357622946
690	0.007289651327	0.229790232086	+1	0.137713769087	6.146492955962
700	0.007221300346	0.237009567045	+1	0.137064749111	6.402449929445
710	0.007154450847	0.244478046928	+1	0.136431624879	6.670725174634
720	0.007089048205	0.252201558040	+1	0.135813825345	6.951889652532
730	0.007025040960	0.260186347125	+1	0.135210799416	7.246549552444
740	0.006962381093	0.268438647151	+1	0.134622011454	7.555334569233
750	0.006901023457	0.276964429640	+1	0.134046891748	7.878887207985
760	0.006840925356	0.285770005183	+1	0.133484928345	8.217890170806
770	0.006782045137	0.294863098311	+1	0.132935658375	8.573108221399
780	0.006724341785	0.304251863935	+1	0.132398663615	8.945358565394
790	0.006667777270	0.313944479087	+1	0.131873487157	9.335489256749
800	0.006612316067	0.323949213547	+1	0.131359722492	9.744390300976
810	0.006557925083	0.334274659476	+1	0.130856931715	10.172997352945
820	0.006504570298	0.344930648565	+1	0.130364733985	10.622342297220
830	0.006452219421	0.355927764766	+1	0.129882803423	11.093536919330
840	0.006400842799	0.367276739143	+1	0.129410787812	11.587744102983
850	0.006350411365	0.378988518492	+1	0.128948334481	12.106188664381
860	0.006300898307	0.391074574700	+1	0.128495116256	12.650172866336
870	0.006252276367	0.403547855268	+1	0.128050832980	13.221126685054
880	0.006204519977	0.416421831700	+1	0.127615187049	13.820568758678
890	0.006157604407	0.429710827965	+1	0.127187928015	14.450133299392
900	0.006111507320	0.443429293607	+1	0.126768766677	15.111530303208
910	0.006066205157	0.457592727752	+1	0.126357425784	15.806606135413

920	0.006021676390	0.472217981350	+1	0.125953693878	16.537366612223
930	0.005977900283	0.487322810935	+1	0.125557321602	17.305954988647
940	0.005934855209	0.502926104097	+1	0.125168087860	18.114686486488
950	0.005892523203	0.519047172993	+1	0.124785759656	18.966005026851
960	0.005850885191	0.535706825352	+1	0.124410135039	19.862565893798
970	0.005809922970	0.552927369927	+1	0.124041001104	20.807237586034
980	0.005769618964	0.570732401438	+1	0.123678170011	21.803113029406
990	0.005729956794	0.589146828141	+1	0.123321471455	22.853523276265
1000	0.005690920095	0.608197190185	+1	0.122970697398	23.962063989396
1025	0.005595964368	0.658794565066	+1	0.122118609647	27.014078495117
1050	0.005504591086	0.714047715232	+1	0.121300165038	30.525435450435
1075	0.005416588614	0.774544820712	+1	0.120513160589	34.583326087863
1100	0.005331762145	0.840976583135	+1	0.119755514217	39.295625272828
1125	0.005249932513	0.914164046116	+1	0.119025280393	44.797242833915
1150	0.005170935300	0.995101362131	+1	0.118320771413	51.259414675306
1175	0.005094616189	1.084994883200	+1	0.117640483315	58.901382921527
1200	0.005020831970	1.185318845652	+1	0.116983007723	68.006898897454
1225	0.004949449830	1.297894766598	+1	0.116347023678	78.948159059302
1250	0.004880347495	1.425002584655	+1	0.115731368039	92.220957373281
1275	0.004813411359	1.569531957471	+1	0.115134913691	108.496509086056
1300	0.004748534127	1.735202168607	+1	0.114556665009	128.701070057887
1325	0.004685615085	1.926884382267	+1	0.113995731333	154.140656908949
1350	0.004624561738	2.151068584900	+1	0.113451208027	186.699958893072
1375	0.004565288271	2.416616069910	+1	0.112922283153	229.179329985942
1400	0.004507712112	2.735949112934	+1	0.112408254670	285.880458899697
1425	0.004451755784	3.127033919635	+1	0.111908442375	363.676572962089
1450	0.004397348037	3.616832744913	+1	0.111422187857	474.080822136159
1475	0.004344421996	4.247771665529	+1	0.110948876820	637.554907840105
1500	0.004292914229	5.090705406660	+1	0.110487959753	893.297405935160
1550	0.004193914191	8.052689541981	+1	0.109601325463	2130.653160460216
1600	0.004099912064	17.025804808784	+1	0.108758417876	9097.420800731392
1650	0.004028329030	126.183701503120	+1	0.107463262020	477746.746953407240
1700	0.003925371115	17.188354316691	-1	0.107190845001	9524.553176526835

1750	0.003844169796	8.562852551820	-1	0.106460423227	2528.200177093635
1800	0.003766625674	5.664534289680	-1	0.105762329056	1180.937321322225
1850	0.003692483903	4.211975846768	-1	0.105094573516	695.620119072299
1900	0.003621517787	3.340102557007	-1	0.104454833895	465.200589217704
1950	0.003553517521	2.759127200192	-1	0.103841268359	337.011552921464
2000	0.003488276601	2.344374339966	-1	0.103253041798	257.900133197876
2100	0.003365358373	1.791978263403	-1	0.102148828410	168.571202627442
2200	0.003251621802	1.441868427931	-1	0.101127365591	121.425116788612
2300	0.003146099850	1.200886979981	-1	0.100175590987	93.232500003848
2400	0.003047907797	1.025233408959	-1	0.099285582536	74.864065112892
2500	0.002956229155	0.891582578782	-1	0.098454306216	62.117472510716
2600	0.002870341778	0.786452636576	-1	0.097680937581	52.836661165784
2700	0.002789718349	0.701766530252	-1	0.096958260701	45.835227340794
2800	0.002713905022	0.632241267226	-1	0.096279176932	40.401137297388
2900	0.002642479815	0.574223513714	-1	0.095639009341	36.081354773049
3000	0.002575048383	0.525102642967	-1	0.095035399880	32.575778837398
3100	0.002511251103	0.482982821857	-1	0.094467184549	29.680088251428
3200	0.002450806713	0.446518799688	-1	0.093930338559	27.254360671704
3300	0.002393460924	0.414687672481	-1	0.093421181692	25.197468826977
3400	0.002338977639	0.386684065940	-1	0.092937282858	23.433964490838
3500	0.002287133058	0.361863641904	-1	0.092477569395	21.906552038830
3600	0.002237720101	0.339712707885	-1	0.092041557106	20.571452108718
3700	0.002190572939	0.319842480666	-1	0.091626864940	19.395847534877
3800	0.002145543131	0.301936455080	-1	0.091231174820	18.353848304039
3900	0.002102488251	0.285727672734	-1	0.090852982841	17.424513026146
4000	0.002061273212	0.270989224844	-1	0.090491548045	16.590723768583
4100	0.002021772942	0.257530589857	-1	0.090146458952	15.838535583506
4200	0.001983883685	0.245201220392	-1	0.089816208821	15.156916047701
4300	0.001947510371	0.233873261347	-1	0.089499336111	14.536703165963
4400	0.001912561065	0.223434299175	-1	0.089194940741	13.970120396433
4500	0.001878950383	0.213785480996	-1	0.088902521152	13.450511917199
4600	0.001846542707	0.204823551151	-1	0.088626434239	12.972080288887
4700	0.001815299982	0.196489787846	-1	0.088363345775	12.530352527617

4800	0.001785180655	0.188730791999	-1	0.088110404520	12.121446098656
4900	0.001756123834	0.181491673261	-1	0.087866991171	11.741884642664
5000	0.001728070723	0.174722827241	-1	0.087632769740	11.388605793169
5500	0.001601140229	0.146597231902	-1	0.086584441051	9.935367406417
6000	0.001492770614	0.125506715697	-1	0.085703192023	8.856945122760
6500	0.001399088247	0.109185114277	-1	0.084951254957	8.024920427076
7000	0.001317242648	0.096233008677	-1	0.084300626607	7.363212710025
7500	0.001245088104	0.085742094973	-1	0.083730081176	6.823989777598
8000	0.001180974542	0.077098547764	-1	0.083223299674	6.375729424474
8500	0.001123612853	0.069873686277	-1	0.082767444594	5.996831473160
9000	0.001071980991	0.063759697521	-1	0.082352220800	5.672006075133
9500	0.001025253923	0.058529968245	-1	0.081969561296	5.390145668923
10000	0.000982762738	0.054014603733	-1	0.081612638124	5.142970816407
10500	0.000943953219	0.050082884142	-1	0.081276672231	4.924179188795
11000	0.000908372493	0.046636045521	-1	0.080955302745	4.728983252989
11500	0.000875629749	0.043592326744	-1	0.080646751300	4.553493981858
12000	0.000845404457	0.040889704220	-1	0.080346731144	4.394720334261
12500	0.000817443912	0.038480789910	-1	0.080045730563	4.250123492091
13000	0.000791488946	0.036320443392	-1	0.079747101732	4.117792561009
13500	0.000767331204	0.034373510236	-1	0.079450234369	3.996071096050
14000	0.000744794451	0.032612157774	-1	0.079152953796	3.883619058541
14500	0.000723723014	0.031012302679	-1	0.078854512430	3.779284660982
15000	0.000703983169	0.029554451042	-1	0.078553309472	3.682125488862
16000	0.000668031865	0.026999051988	-1	0.077939945604	3.506164142465
17000	0.000636141232	0.024838469892	-1	0.077307438122	3.350539864355
18000	0.000607679692	0.022993211584	-1	0.076651839666	3.211374294831
19000	0.000582138806	0.021403220146	-1	0.075970784142	3.085730196483
20000	0.000559106194	0.020022418213	-1	0.075262922620	2.971337612924
21000	0.000489888611	0.015880473565	-1	0.090208803395	3.263647213938
22000	0.000468804471	0.014807845066	-1	0.090797904769	3.199600679121
23000	0.000448587327	0.013762658007	-1	0.091566179208	3.133564444096
24000	0.000429478218	0.012777176346	-1	0.092496122647	3.069701951425
25000	0.000411735954	0.011885494682	-1	0.093509733852	3.011929057272

26000	0.000395551852	0.011113009294	-1	0.094484228267	2.962917112024
27000	0.000380795042	0.010447884473	-1	0.095367713540	2.921560852147
28000	0.000367242319	0.009868539846	-1	0.096160267927	2.886089497430
29000	0.000354678024	0.009353938859	-1	0.096890041923	2.854882473028
30000	0.000342899900	0.008884019231	-1	0.097610809945	2.826431809786
31000	0.000331737963	0.008442645179	-1	0.098386208780	2.799652948720
32000	0.000321138294	0.008026809064	-1	0.099223133665	2.774464601225
33000	0.000311079153	0.007636739531	-1	0.100109120442	2.750994875694
34000	0.000301542634	0.007272677438	-1	0.101028109082	2.729341189740
35000	0.000292514332	0.006934858852	-1	0.101960157140	2.709565939851
36000	0.000283977564	0.006623003378	-1	0.102885383228	2.691660196287
37000	0.000275897086	0.006334833479	-1	0.103798627929	2.675449759486
38000	0.000268234151	0.006067639085	-1	0.104701680084	2.660738870349
39000	0.000260951420	0.005818796079	-1	0.105600038370	2.647355162125
40000	0.000254012652	0.005585767475	-1	0.106503234225	2.635154787654
41000	0.000247385474	0.005366379032	-1	0.107421446838	2.624029012264
42000	0.000241049488	0.005159585235	-1	0.108354125336	2.613918059566
43000	0.000234988110	0.004964627504	-1	0.109298048011	2.604770804936
44000	0.000229185908	0.004780768130	-1	0.110250388440	2.596533218764
45000	0.000223628234	0.004607285722	-1	0.111208904835	2.589152286209
46000	0.000218301194	0.004443477741	-1	0.112171986266	2.582576352839
47000	0.000213191267	0.004288664625	-1	0.113138549871	2.576757143855
48000	0.000208285585	0.004142185849	-1	0.114108249445	2.571647959662
49000	0.000203571758	0.004003400012	-1	0.115081588739	2.567206832329
50000	0.000199037783	0.003871678623	-1	0.116060201420	2.563398796381
55000	0.000178729582	0.003302765428	-1	0.121046608473	2.552833353742
60000	0.000161676843	0.002852564617	-1	0.126161157107	2.554164522520
65000	0.000147157543	0.002489500723	-1	0.131398496199	2.565165998772
70000	0.000134649627	0.002192027629	-1	0.136753465232	2.584263749960
75000	0.000123764632	0.001944983547	-1	0.142222441260	2.610375317387
80000	0.000114209410	0.001737424897	-1	0.147800474836	2.642670368138
85000	0.000105757425	0.001561275097	-1	0.153482667885	2.680548361253
90000	0.000098230564	0.001410445139	-1	0.159264847636	2.723577521958

95000	0.000091487845	0.001280280868	-1	0.165141451967	2.771411343940
100000	0.000085415447	0.001167161074	-1	0.171107278851	2.823800659696
105000	0.000079920081	0.001068213258	-1	0.177159797182	2.880584937917
110000	0.000074926450	0.000981211143	-1	0.183287633769	2.941607584449
115000	0.000070369736	0.000904265381	-1	0.189493476446	3.006835779631
120000	0.000066208736	0.000836073341	-1	0.195717620213	3.075279880141
125000	0.000062387568	0.000775227577	-1	0.201999077931	3.147651205812
130000	0.000058865114	0.000720688141	-1	0.208346463303	3.224242357177
135000	0.000055609264	0.000671614057	-1	0.214755428012	3.305059409299
140000	0.000052596929	0.000627367792	-1	0.221192806119	3.389630898401
145000	0.000049803009	0.000587333657	-1	0.227656026521	3.478011917078
150000	0.000047206573	0.000551007583	-1	0.234136364197	3.570189374903
155000	0.000044788802	0.000517946754	-1	0.240629717742	3.666205136921
160000	0.000042533863	0.000487783969	-1	0.247125787205	3.766011634707
165000	0.000040427263	0.000460192922	-1	0.253619116293	3.869628995366
170000	0.000038455947	0.000434894866	-1	0.260105562084	3.977157347033
175000	0.000036608167	0.000411642923	-1	0.266583094992	4.088718350528
180000	0.000034874641	0.000390231809	-1	0.273038716729	4.204169102431
185000	0.000033246896	0.000370477036	-1	0.279462037151	4.323371649443
190000	0.000031717159	0.000352221000	-1	0.285842624438	4.446243035183
195000	0.000030277894	0.000335317874	-1	0.292176276484	4.572811848038
200000	0.000028921249	0.000319624424	-1	0.298472655081	4.703369390613
205000	0.000027640015	0.000305013916	-1	0.304743909375	4.838291696632
210000	0.000026429525	0.000291400322	-1	0.310976374449	4.977474055500
215000	0.000025285807	0.000278709302	-1	0.317151922798	5.120683673452
220000	0.000024205043	0.000266870145	-1	0.323255078747	5.267685786472
225000	0.000023183503	0.000255815352	-1	0.329274072314	5.418274454314
230000	0.000022217530	0.000245480790	-1	0.335201221970	5.572294535365
235000	0.000021303501	0.000235805504	-1	0.341033591151	5.729675020278
240000	0.000020437858	0.000226731960	-1	0.346772666108	5.890436168761
245000	0.000019617063	0.000218205601	-1	0.352425412115	6.054740883731
250000	0.000018837627	0.000210175132	-1	0.358003771215	6.222907453610
255000	0.000018096358	0.000202595368	-1	0.363519569311	6.395303902149

260000	0.000017391194	0.000195435733	-1	0.368967194497	6.571850906036
265000	0.000016720373	0.000188669958	-1	0.374337547553	6.752346929254
270000	0.000016082176	0.000182272905	-1	0.379623128577	6.936598250949
275000	0.000015474929	0.000176220474	-1	0.384818360769	7.124426645333
280000	0.000014896996	0.000170489692	-1	0.389919346676	7.315676806888
285000	0.000014346742	0.000165058517	-1	0.394924744159	7.510261356181
290000	0.000013822587	0.000159906003	-1	0.399834965632	7.708128787161
295000	0.000013322968	0.000155012246	-1	0.404652533708	7.909304902402
300000	0.000012846345	0.000150358255	-1	0.409382355332	8.113908601140

Electron Elastic Scattering Sampling Data
Solution for Z = 33

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.028722800918	0.255330012259	+1	0.041073523974	0.464634314050
52	0.028057172937	0.400400379642	+1	0.050033200748	1.023847757087
54	0.027361217385	0.622637107726	+1	0.060404583970	2.310610954683
56	0.026625371438	0.982394669522	+1	0.072222223686	5.546197632619
58	0.025845957238	1.626955497312	+1	0.085461962253	15.063458775868
60	0.025024866593	3.034618167054	+1	0.100029928157	53.052054908179
62	0.024168852062	8.133280584856	+1	0.115757920725	392.866055986907
64	0.023288632192	32.695291345277	-1	0.132407975262	7055.225339874295
66	0.023611388271	216.658434286316	+1	0.134857645632	304146.251654141990
68	0.024245277090	230.003853377445	+1	0.138089497107	342784.905598566520
70	0.024876011051	258.618606592549	+1	0.141319629774	433425.510451432490
72	0.025504867436	298.477784159263	+1	0.144529295462	577386.426798814330
74	0.026131225409	343.417638989357	+1	0.147700612996	764425.956547166450
76	0.026755753528	366.340189069904	+1	0.150807853490	869934.727493561110
78	0.027373797116	405.956601641080	+1	0.153880267851	1068354.263574068200
80	0.027983374578	504.997797546240	+1	0.156926322746	1653416.251251346400
82	0.028589161067	540.013959477889	+1	0.159884239594	1890760.959604675400
84	0.029177914487	619.330717864473	+1	0.162826099292	2488338.972148080400
86	0.029766600663	679.239372291926	+1	0.165674220795	2993200.769372150300
88	0.030346240234	743.058176584820	+1	0.168461803664	3582291.082319018400
90	0.030915515585	871.376750500187	+1	0.171197015435	4926691.451182114900
92	0.031475855317	955.681597627085	+1	0.173860194998	5926395.777702858700
94	0.032025552705	1088.070060478350	+1	0.176464380337	7682459.203125309200
96	0.032565786916	1131.141502920288	+1	0.178995233622	8302982.623505141600
98	0.033095422467	1171.230241366933	+1	0.181462315716	8902143.739351233500
100	0.033604276135	1253.686099665382	+1	0.183900296172	10205029.476638485000
105	0.034851602416	1389.600385696183	+1	0.189638375934	12538304.283100534000
110	0.036027751142	1543.584195029691	+1	0.194991281725	15472054.162340568000

115	0.037132670331	1685.724843728727	+1	0.199965790618	18453875.188246828000
120	0.024719696778	1323.224553598810	+1	0.247366057264	22735435.121665366000
125	0.025332219884	1486.739321838646	+1	0.252115221810	28707025.130654402000
130	0.025901653228	1557.565453914129	+1	0.256472412150	31512416.410521906000
135	0.026416762893	1698.049662897609	+1	0.260504220696	37482814.327202968000
140	0.026897353898	1675.068771340478	+1	0.264157862692	36489404.247878946000
145	0.027344142563	1669.342471447857	+1	0.267461170409	36241052.228047498000
150	0.027741366265	1137.702471306633	+1	0.270451946216	16844708.081430141000
155	0.028097457393	763.703415325534	+1	0.273142396984	7597246.801006706400
160	0.028415782253	544.901536260476	+1	0.275545391858	3871559.811398546200
165	0.028701921522	131.727340223748	+1	0.277057427067	226935.159401762880
170	0.015302858906	1.008356572078	+1	0.253889399982	44.353523969930
175	0.015335180862	0.859927825883	+1	0.248917655125	34.043006276173
180	0.015346014873	0.745044672315	+1	0.244260930237	26.968780671350
185	0.015337203085	0.653937606752	+1	0.239899978130	21.920902546350
190	0.015310708671	0.580238389554	+1	0.235813093383	18.201330286178
195	0.015268415026	0.519653459339	+1	0.231979877640	15.387259216252
200	0.015212019142	0.469210565960	+1	0.228383461188	13.212084267098
205	0.015143174575	0.426754088032	+1	0.225006914516	11.499544130510
210	0.015063626944	0.390638577272	+1	0.221829297344	10.127694964544
215	0.014974975464	0.359628079340	+1	0.218831257342	9.011908278977
220	0.014878613307	0.332787714787	+1	0.215996276996	8.092446735307
225	0.014775768554	0.309397726149	+1	0.213310093402	7.326159333557
230	0.014667514921	0.288895279213	+1	0.210760385828	6.681252613094
235	0.014554799362	0.270834198743	+1	0.208336431221	6.133879274011
240	0.014438448714	0.254856526735	+1	0.206028943754	5.665877276730
245	0.014319190611	0.240672139828	+1	0.203829823611	5.263220439942
250	0.014197662880	0.228043407692	+1	0.201731936920	4.914933872063
255	0.014074440802	0.216770293000	+1	0.199728456240	4.612219292314
260	0.013950090811	0.206671827442	+1	0.197811144909	4.347613936841
265	0.013825104521	0.197595197375	+1	0.195972405514	4.115086184677
270	0.013699898575	0.189413484869	+1	0.194205743619	3.909803219494
275	0.013574823900	0.182020786432	+1	0.192505612164	3.727863174318

280	0.013450173010	0.175327919614	+1	0.190867188432	3.566081988605
285	0.013326191794	0.169259440629	+1	0.189286378189	3.421845132000
290	0.013203086260	0.163751092321	+1	0.187759629252	3.292986803211
295	0.013081027429	0.158748024331	+1	0.186283848991	3.177704901504
300	0.012960154516	0.154203090783	+1	0.184856381582	3.074489998985
310	0.012722443286	0.146322399462	+1	0.182135794217	2.899150341554
320	0.012490766146	0.139808753052	+1	0.179575064782	2.757994410830
330	0.012265646580	0.134429242796	+1	0.177155300061	2.644371658813
340	0.012047365331	0.130006554978	+1	0.174861971620	2.553418859945
350	0.011836033691	0.126404252620	+1	0.172683898400	2.481532686009
360	0.011631644627	0.123513938424	+1	0.170611761375	2.425950850845
370	0.011434131948	0.121241227861	+1	0.168635736363	2.384332620443
380	0.011243363229	0.119509096684	+1	0.166747359447	2.354826593224
390	0.011059160259	0.118255807645	+1	0.164939739798	2.335997693921
400	0.010881315692	0.117431692358	+1	0.163207296918	2.326732263184
410	0.010709600504	0.116995951012	+1	0.161545208179	2.326147224543
420	0.010543773460	0.116913354102	+1	0.159948538883	2.333494558658
430	0.010383592730	0.117154362578	+1	0.158412914735	2.348168419183
440	0.010228815834	0.117694292327	+1	0.156934540197	2.369684708536
450	0.010079208015	0.118512444300	+1	0.155510195469	2.397658865736
460	0.009934543210	0.119591309470	+1	0.154136883872	2.431781201457
470	0.009794588778	0.120916786894	+1	0.152811809924	2.471825179359
480	0.009659125408	0.122476838734	+1	0.151532358323	2.517612436978
490	0.009527944731	0.124261048899	+1	0.150296154177	2.569004642845
500	0.009400854933	0.126260192599	+1	0.149101032244	2.625891732750
510	0.009277668812	0.128466538013	+1	0.147945022661	2.688202110792
520	0.009158203867	0.130874561620	+1	0.146826258599	2.755918465597
530	0.009042287255	0.133479805479	+1	0.145743012706	2.829051727187
540	0.008929757243	0.136278238218	+1	0.144693673916	2.907625543671
550	0.008820465491	0.139266008264	+1	0.143676669128	2.991667701240
560	0.008714270534	0.142439935984	+1	0.142690551555	3.081225966751
570	0.008611034256	0.145798668550	+1	0.141734013612	3.176398800689
580	0.008510624526	0.149341435065	+1	0.140805819500	3.277304191139

590	0.008412920027	0.153067414241	+1	0.139904758876	3.384061332772
600	0.008317808202	0.156975712903	+1	0.139029690509	3.496791582590
610	0.008225184956	0.161065654369	+1	0.138179501616	3.615624394026
620	0.008134942788	0.165338180144	+1	0.137353202242	3.740741795966
630	0.008046985455	0.169794588125	+1	0.136549855907	3.872339622636
640	0.007961217763	0.174436133557	+1	0.135768585236	4.010622391355
650	0.007877558311	0.179263595518	+1	0.135008453622	4.155781378935
660	0.007795924747	0.184278105318	+1	0.134268607003	4.308028022062
670	0.007716238420	0.189482104487	+1	0.133548280857	4.467619224438
680	0.007638423982	0.194878345620	+1	0.132846775639	4.634831699585
690	0.007562411271	0.200469376513	+1	0.132163362014	4.809943479184
700	0.007488134967	0.206257518759	+1	0.131497328805	4.993234825306
710	0.007415534410	0.212245225583	+1	0.130847999953	5.184998903718
720	0.007344548129	0.218436194526	+1	0.130214770107	5.385580131004
730	0.007275117425	0.224834395825	+1	0.129597083589	5.595345430477
740	0.007207189178	0.231443617098	+1	0.128994373211	5.814666452478
750	0.007140712070	0.238267499357	+1	0.128406057684	6.043922915924
760	0.007075638138	0.245309902365	+1	0.127831608648	6.283516036221
770	0.007011919394	0.252575624745	+1	0.127270536833	6.533894291072
780	0.006949512132	0.260069845060	+1	0.126722393228	6.795534890860
790	0.006888370313	0.267797982312	+1	0.126186747681	7.068946027455
800	0.006828457205	0.275764773339	+1	0.125663112935	7.354621598559
810	0.006769733372	0.283975572439	+1	0.125151066297	7.653102277479
820	0.006712160779	0.292436671812	+1	0.124650229293	7.964983834780
830	0.006655703451	0.301154691638	+1	0.124160227657	8.290896255139
840	0.006600327600	0.310136245287	+1	0.123680683236	8.631492905333
850	0.006546001189	0.319388100402	+1	0.123211266569	8.987461603108
860	0.006492692498	0.328917204097	+1	0.122751592632	9.359520506594
870	0.006440371674	0.338731538047	+1	0.122301365507	9.748460391063
880	0.006389009983	0.348839532212	+1	0.121860283355	10.155120774070
890	0.006338579510	0.359249734630	+1	0.121428053565	10.580382047770
900	0.006289053879	0.369970918062	+1	0.121004377832	11.025168666487
910	0.006240408700	0.381012264338	+1	0.120588980308	11.490460198920

920	0.006192618861	0.392383958496	+1	0.120181605939	11.977322478492
930	0.006145659856	0.404096600743	+1	0.119782001829	12.486885506295
940	0.006099509798	0.416161400868	+1	0.119389942513	13.020353665598
950	0.006054146154	0.428589699544	+1	0.119005178605	13.578990742859
960	0.006009548727	0.441393452198	+1	0.118627477402	14.164141468492
970	0.005965696636	0.454585746131	+1	0.118256633963	14.777266888616
980	0.005922570624	0.468180061981	+1	0.117892452298	15.419912142344
990	0.005880151881	0.482190641507	+1	0.117534709811	16.093724721423
1000	0.005838422806	0.496632252622	+1	0.117183222321	16.800457734154
1025	0.005737002510	0.534728305596	+1	0.116330643739	18.724039335442
1050	0.005639522969	0.575898674844	+1	0.115513453587	20.899264548893
1075	0.005545746156	0.620462381910	+1	0.114729283048	23.366344221630
1100	0.005455455812	0.668782492495	+1	0.113975873087	26.173278870042
1125	0.005368453189	0.721277220048	+1	0.113251070851	29.377866816076
1150	0.005284552338	0.778442544251	+1	0.112553115113	33.050979903611
1175	0.005203582230	0.840860589043	+1	0.111880358066	37.279563668755
1200	0.005125383090	0.909216127734	+1	0.111231300410	42.171001588142
1225	0.005049808349	0.984319616839	+1	0.110604469872	47.858934010996
1250	0.004976721039	1.067145247801	+1	0.109998606479	54.511950877774
1275	0.004905994740	1.158869642310	+1	0.109412548923	62.344630409042
1300	0.004837512382	1.260920384807	+1	0.108845140222	71.632625523765
1325	0.004771155841	1.375064425540	+1	0.108295511299	82.736507251025
1350	0.004706829546	1.503483725436	+1	0.107762613280	96.130981375421
1375	0.004644435616	1.648937743954	+1	0.107245630866	112.454879512176
1400	0.004583882983	1.814950134538	+1	0.106743764615	132.581257345321
1425	0.004525086265	2.006096112636	+1	0.106256303334	157.727950185350
1450	0.004467965960	2.228418796798	+1	0.105782555277	189.632010404321
1475	0.004412447986	2.490073946419	+1	0.105321830356	230.837703496907
1500	0.004358461053	2.802355059817	+1	0.104873564029	285.190831851179
1550	0.004254819251	3.650739374680	+1	0.104012247604	461.275300393583
1600	0.004156568716	5.029233810367	+1	0.103194787289	835.963259275779
1650	0.004063277441	7.654857011864	+1	0.102417772995	1852.936358125921
1700	0.003974531234	14.599427140104	+1	0.101677147159	6459.914341581449

1750	0.003898147300	61.841098936436	+1	0.100737451880	111244.238075779360
1800	0.003809418094	23.791062385164	-1	0.100296948519	17194.422512849604
1850	0.003732600382	10.340366786936	-1	0.099657737413	3464.470803189170
1900	0.003659106983	6.561801697151	-1	0.099044419252	1485.298281923407
1950	0.003588588577	4.783627599700	-1	0.098450086946	838.889247487556
2000	0.003520934817	3.749890712042	-1	0.097877263880	546.932836276994
2100	0.003393797039	2.597777763712	-1	0.096805747018	294.170436627221
2200	0.003276519395	1.972510140737	-1	0.095820745781	189.022806366953
2300	0.003167959544	1.581166652188	-1	0.094907579888	134.663030463349
2400	0.003067111078	1.313706697767	-1	0.094056395825	102.573315140045
2500	0.002973073532	1.119488665763	-1	0.093261860525	81.842345396283
2600	0.002885072430	0.972059922953	-1	0.092521128396	67.547558498871
2700	0.002802551091	0.856565889714	-1	0.091827607954	57.214637424562
2800	0.002725031374	0.763842526345	-1	0.091175245128	49.466031678176
2900	0.002652071525	0.687867038074	-1	0.090560086539	43.478050357061
3000	0.002583259511	0.624513764400	-1	0.089980297509	38.732323808642
3100	0.002518221662	0.570886458036	-1	0.089434925558	34.890281051197
3200	0.002456656014	0.524969389862	-1	0.088920208763	31.727014995357
3300	0.002398294558	0.485268133332	-1	0.088432492888	29.084849882779
3400	0.002342886321	0.450631165357	-1	0.087969402008	26.849297631624
3500	0.002290197107	0.420157729909	-1	0.087529696661	24.935568833570
3600	0.002240013365	0.393141349554	-1	0.087112707029	23.280157142653
3700	0.002192160770	0.369049295988	-1	0.086716214427	21.836077543576
3800	0.002146482806	0.347453305086	-1	0.086338080669	20.566880100305
3900	0.002102832109	0.327997333119	-1	0.085976898003	19.443534966895
4000	0.002061067697	0.310382603421	-1	0.085631999754	18.442683436876
4100	0.002021061611	0.294361110030	-1	0.085302911601	17.545511881478
4200	0.001982704122	0.279736860950	-1	0.084988229597	16.737259279491
4300	0.001945897237	0.266344759702	-1	0.084686596697	16.005778397825
4400	0.001910546314	0.254041317520	-1	0.084397103652	15.340872800213
4500	0.001876562048	0.242701119859	-1	0.084119288787	14.733909695728
4600	0.001843860529	0.232216068151	-1	0.083852844606	14.177628395312
4700	0.001812370733	0.222498543719	-1	0.083596839929	13.666124577813

4800	0.001782027037	0.213472389229	-1	0.083350370008	13.194357585522
4900	0.001752767214	0.205069605719	-1	0.083112807184	12.757943721774
5000	0.001724530223	0.197228868394	-1	0.082883865586	12.353050259435
5500	0.001596810583	0.164785555225	-1	0.081864363266	10.700567834193
6000	0.001487717797	0.140572425990	-1	0.081027137690	9.488217531480
6500	0.001393500756	0.121935079944	-1	0.080316375471	8.561504028163
7000	0.001311249501	0.107207878983	-1	0.079705194177	7.829987946567
7500	0.001238777882	0.095319746248	-1	0.079173221919	7.237574867775
8000	0.001174409523	0.085552237944	-1	0.078704796447	6.747691007527
8500	0.001116837586	0.077406795663	-1	0.078287497879	6.335500765416
9000	0.001065025285	0.070527021994	-1	0.077911557344	5.983568677225
9500	0.001018140096	0.064651959611	-1	0.077569046056	5.679295216762
10000	0.000975505490	0.059586449838	-1	0.077253512650	5.413355814980
10500	0.000936563260	0.055181044494	-1	0.076960180160	5.178677489857
11000	0.000900856933	0.051322878815	-1	0.076683072292	4.969914813929
11500	0.000867993851	0.047919015338	-1	0.076420306064	4.782737585905
12000	0.000837650343	0.044898927595	-1	0.076167778185	4.613834669959
12500	0.000809547249	0.042203914713	-1	0.075923525684	4.460466164686
13000	0.000783448697	0.039787709967	-1	0.075684693256	4.320468634222
13500	0.000759147483	0.037610960823	-1	0.075450104441	4.192014203215
14000	0.000736484488	0.035645228524	-1	0.075212447705	4.073585362165
14500	0.000715297937	0.033862179319	-1	0.074972163717	3.963923686547
15000	0.000695442854	0.032237941612	-1	0.074730791711	3.862026284562
16000	0.000659262488	0.029392123027	-1	0.074241819547	3.678055357260
17000	0.000627145819	0.026987176347	-1	0.073739337585	3.515990294865
18000	0.000598460446	0.024933884956	-1	0.073219083526	3.371613052865
19000	0.000572699814	0.023165056853	-1	0.072677997648	3.241721998413
20000	0.000549452665	0.021629169648	-1	0.072114053017	3.123845858268
21000	0.000489468203	0.017519205543	-1	0.084326146077	3.352289031505
22000	0.000468512175	0.016332512372	-1	0.084837448359	3.282871369655
23000	0.000448424180	0.015177886719	-1	0.085508229256	3.211425420336
24000	0.000429459745	0.014091146540	-1	0.086318826180	3.142137876194
25000	0.000411867318	0.013108927156	-1	0.087200564588	3.079151514829

26000	0.000395820894	0.012258049209	-1	0.088047102919	3.025413070499
27000	0.000381167828	0.011524476538	-1	0.088818527805	2.979988230542
28000	0.000367685053	0.010884450923	-1	0.089516376980	2.941052452940
29000	0.000355181138	0.010315762550	-1	0.090159290663	2.906695020701
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31000	0.000332365825	0.009309676588	-1	0.091472440661	2.845447063442
32000	0.000321833568	0.008851261707	-1	0.092204745927	2.817257886159
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34000	0.000302364931	0.008020394574	-1	0.093784970684	2.766332154519
35000	0.000293394983	0.007648313782	-1	0.094601011259	2.743786846245
36000	0.000284912083	0.007304821431	-1	0.095411015576	2.723222677134
37000	0.000276881040	0.006987391352	-1	0.096210549891	2.704463230788
38000	0.000269263619	0.006693051440	-1	0.097001091574	2.687299227559
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41000	0.000248535031	0.005920614187	-1	0.099381361745	2.643619498950
42000	0.000242235495	0.005692895536	-1	0.100197240897	2.631261844797
43000	0.000236208990	0.005478237714	-1	0.101022663224	2.619899452486
44000	0.000230439966	0.005275813706	-1	0.101855235802	2.609479159110
45000	0.000224913865	0.005084826233	-1	0.102692923956	2.599946216139
46000	0.000219616750	0.004904494060	-1	0.103534380867	2.591248874208
47000	0.000214535252	0.004734067578	-1	0.104378610233	2.583335481104
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49000	0.000204968345	0.004420039915	-1	0.106074902053	2.569669481431
50000	0.000200458884	0.004275042555	-1	0.106928792142	2.563830609421
55000	0.000180258837	0.003648832568	-1	0.111275065946	2.543263573912
60000	0.000163294288	0.003153288164	-1	0.115725034568	2.534714481157
65000	0.000148848279	0.002753616083	-1	0.120273605403	2.535781780433
70000	0.000136401587	0.002426084600	-1	0.124916643548	2.544781660756
75000	0.000125568908	0.002154005050	-1	0.129650569366	2.560503154454
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125000	0.000064445560	0.000863245561	-1	0.181052410754	2.963714102839
130000	0.000060928990	0.000802794822	-1	0.186507257391	3.023045528645
135000	0.000057680732	0.000748418981	-1	0.191998888008	3.085323081908
140000	0.000054673204	0.000699350716	-1	0.197519477357	3.150473269428
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150000	0.000049286233	0.000614578181	-1	0.208631470140	3.289258256121
155000	0.000046867560	0.000577837887	-1	0.214212104703	3.362814184278
160000	0.000044609918	0.000544295295	-1	0.219800933013	3.439095252063
165000	0.000042498872	0.000513592012	-1	0.225394200778	3.518093543347
170000	0.000040522017	0.000485424980	-1	0.230985940426	3.599776243780
175000	0.000038668041	0.000459524162	-1	0.236572946781	3.684142722376
180000	0.000036927024	0.000435659222	-1	0.242148795855	3.771152497256
185000	0.000035289918	0.000413624341	-1	0.247709204142	3.860789344172
190000	0.000033749040	0.000393246991	-1	0.253245919799	3.952982852178
195000	0.000032297124	0.000374367704	-1	0.258754920879	4.047714308100
200000	0.000030926820	0.000356830578	-1	0.264242324009	4.145108390386
205000	0.000029631348	0.000340497148	-1	0.269716565995	4.245347338304
210000	0.000028405997	0.000325271777	-1	0.275166613666	4.348333049000
215000	0.000027246754	0.000311072590	-1	0.280576905573	4.453872252311
220000	0.000026149755	0.000297821118	-1	0.285934619906	4.561782750936
225000	0.000025111246	0.000285442575	-1	0.291230058712	4.671909582855
230000	0.000024127603	0.000273866132	-1	0.296456506402	4.784126162476
235000	0.000023195257	0.000263024371	-1	0.301611353156	4.898368518137
240000	0.000022310709	0.000252853406	-1	0.306696106448	5.014644615473
245000	0.000021470520	0.000243292984	-1	0.311716542881	5.133054286881
250000	0.000020671305	0.000234286159	-1	0.316683000658	5.253805804146
255000	0.000019909969	0.000225782725	-1	0.321605858005	5.377140427284

260000	0.000019184456	0.000217748730	-1	0.326480158667	5.502990527540
265000	0.000018493020	0.000210155096	-1	0.331297645815	5.631198051123
270000	0.000017833982	0.000202974056	-1	0.336051145458	5.761603285836
275000	0.000017205670	0.000196178710	-1	0.340735720764	5.894081295608
280000	0.000016606492	0.000189743636	-1	0.345347358381	6.028506201827
285000	0.000016034860	0.000183644362	-1	0.349884220065	6.164798241236
290000	0.000015489223	0.000177857518	-1	0.354346467006	6.302918152291
295000	0.000014968063	0.000172360926	-1	0.358735867355	6.442870905451
300000	0.000014469891	0.000167133391	-1	0.363056331355	6.584718931636

Electron Elastic Scattering Sampling Data
Solution for Z = 34

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.032613672575	0.096405831943	+1	0.020486303538	0.065643262253
52	0.031917999837	0.159220153670	+1	0.025605053942	0.147256264017
54	0.031236276151	0.250976544980	+1	0.031746230520	0.319571349691
56	0.030549105547	0.385234372721	+1	0.039012916311	0.688132335126
58	0.029841747092	0.585826527921	+1	0.047487767726	1.507096868210
60	0.029104303524	0.899069801936	+1	0.057220643413	3.459874976875
62	0.028331744692	1.428610086312	+1	0.068216645272	8.718471539197
64	0.027523945463	2.463191064031	+1	0.080424521471	26.379892177930
66	0.026684907715	5.224490048357	+1	0.093733475195	122.767547585083
68	0.025822193420	31.396988355664	+1	0.107973977236	4648.030680257655
70	0.024946132468	10.295186719857	-1	0.122923135950	637.410705270492
72	0.024068518189	4.544484405353	-1	0.138319974427	164.099134118727
74	0.023201572485	2.985019809273	-1	0.153886759316	91.132198142600
76	0.022357066176	2.274553729670	-1	0.169343901260	66.432287695746
78	0.021545424039	1.878826406675	-1	0.184431913124	55.573180463980
80	0.020775250140	1.634706200199	-1	0.198925128758	50.432680252260
82	0.020053237934	1.475865584275	-1	0.212636085031	48.242297602792
84	0.019383832691	1.370235386617	-1	0.225427282771	47.835855260606
86	0.018769703771	1.300663076800	-1	0.237201997529	48.662362460911
88	0.018211796360	1.257204524566	-1	0.247905510096	50.442860988123
90	0.017709618123	1.233814264928	-1	0.257519134040	53.038106219157
92	0.017261741099	1.226792781097	-1	0.266049274079	56.393478097729
94	0.016865744953	1.233808036258	-1	0.273528864659	60.507484345574
96	0.016518801959	1.253555010520	-1	0.280003538490	65.426058282154
98	0.016217733315	1.285444529300	-1	0.285529964607	71.238501168729
100	0.015959187918	1.329468819048	-1	0.290171438071	78.081688888220
105	0.015476305040	1.497197747588	-1	0.298349813338	101.157980310016
110	0.015184984323	1.768452464521	-1	0.302494131360	137.733636969927

115	0.015039927205	2.200979468808	-1	0.303542162939	201.138040366710
120	0.015001598666	2.928645968947	-1	0.302317816129	327.424828502880
125	0.015038417876	4.324090493276	-1	0.299470852450	644.738972704456
130	0.015124747220	7.898757634187	-1	0.295520248599	1920.433861066787
135	0.015240881638	34.468760342592	-1	0.290854387408	32406.541559834368
140	0.015371483833	15.454126521433	+1	0.285769141072	6518.613925606300
145	0.015505207984	6.011780995693	+1	0.280477626093	1043.579797152317
150	0.015633704688	3.614310172481	+1	0.275134580710	398.676826454828
155	0.015751168294	2.527319678983	+1	0.269846379722	205.924135330071
160	0.015853711539	1.911159894981	+1	0.264685661504	124.353593601820
165	0.015938973990	1.516888507521	+1	0.259698631065	82.708617854395
170	0.016005752494	1.244546061174	+1	0.254912802048	58.769470588387
175	0.016053689037	1.046245252056	+1	0.250342401203	43.829967387566
180	0.016083039327	0.896182063643	+1	0.245992439424	33.925402927793
185	0.016094501232	0.779231007487	+1	0.241861304661	27.046101189387
190	0.016089145052	0.685921667316	+1	0.237941627247	22.086623266707
195	0.016068142906	0.610063324420	+1	0.234224765947	18.401823068293
200	0.016032606591	0.547471663641	+1	0.230703715739	15.596728918665
205	0.015983742880	0.495177788427	+1	0.227369472803	13.416802922926
210	0.015923045349	0.450966792451	+1	0.224207335359	11.690127303772
215	0.015851940591	0.413200649749	+1	0.221203005954	10.299561409786
220	0.015771715567	0.380654984890	+1	0.218344141865	9.163630988373
225	0.015683527905	0.352396604740	+1	0.215619929338	8.224243602663
230	0.015588420372	0.327701868659	+1	0.213020842403	7.439067548341
235	0.015487329374	0.306001849947	+1	0.210538615179	6.776690798852
240	0.015381097554	0.286842896793	+1	0.208165871414	6.213388955503
245	0.015270479109	0.269859345509	+1	0.205896150566	5.730989152383
250	0.015156150939	0.254753302453	+1	0.203723733896	5.315379217237
255	0.015038745772	0.241275560923	+1	0.201642859394	4.955334020704
260	0.014918918668	0.229203683874	+1	0.199646028340	4.641467596084
265	0.014797280477	0.218350398930	+1	0.197726084664	4.366226826775
270	0.014674287371	0.208562476809	+1	0.195877400000	4.123667781405
275	0.014550425414	0.199709819691	+1	0.194094488420	3.908907397196

280	0.014426051121	0.191684692876	+1	0.192373034530	3.718042231971
285	0.014301486020	0.184395669754	+1	0.190709306376	3.547861369134
290	0.014177004938	0.177765079594	+1	0.189100000644	3.395714001925
295	0.014052839584	0.171726578343	+1	0.187542321431	3.259400017244
300	0.013929193360	0.166223207132	+1	0.186033837295	3.137078129855
310	0.013684161678	0.156622857435	+1	0.183154351477	2.928217268895
320	0.013443199239	0.148605005910	+1	0.180439115298	2.758363913873
330	0.013207233867	0.141892276184	+1	0.177869359860	2.619594372096
340	0.012976879505	0.136273755265	+1	0.175430791527	2.506132937489
350	0.012752513354	0.131587150697	+1	0.173112459755	2.413705350943
360	0.012534356105	0.127703391275	+1	0.170905192493	2.339034256899
370	0.012322546661	0.124510387506	+1	0.168798871973	2.279360885657
380	0.012117128730	0.121916667061	+1	0.166784742301	2.232504222725
390	0.011918062845	0.119849160183	+1	0.164855767772	2.196777969940
400	0.011725247887	0.118249017017	+1	0.163006301016	2.170869150195
410	0.011538545187	0.117067933132	+1	0.161231389909	2.153731068362
420	0.011357792103	0.116263575377	+1	0.159525892012	2.144462869251
430	0.011182809314	0.115800352342	+1	0.157885121118	2.142326409793
440	0.011013405707	0.115648661815	+1	0.156305151262	2.146729884757
450	0.010849381995	0.115783768508	+1	0.154782585277	2.157197604679
460	0.010690537978	0.116184837655	+1	0.153314414325	2.173344816678
470	0.010536668201	0.116834170819	+1	0.151897593638	2.194854780413
480	0.010387571568	0.117716621946	+1	0.150529327530	2.221468747168
490	0.010243051639	0.118819207501	+1	0.149207114617	2.252978323220
500	0.010102920749	0.120130617584	+1	0.147928727005	2.289214042802
510	0.009967002563	0.121641049489	+1	0.146692053295	2.330038495367
520	0.009835111780	0.123343066548	+1	0.145495161810	2.375370777736
530	0.009707077022	0.125230149295	+1	0.144336150118	2.425148379456
540	0.009582735484	0.127296609961	+1	0.143213316927	2.479329907920
550	0.009461934145	0.129537235295	+1	0.142125053444	2.537885147398
560	0.009344529231	0.131947485300	+1	0.141069815578	2.600798883266
570	0.009230374209	0.134524538936	+1	0.140046236251	2.668100137132
580	0.009119332878	0.137266098822	+1	0.139052963651	2.739829913437

590	0.009011277478	0.140170045781	+1	0.138088731676	2.816035603681
600	0.008906088956	0.143234299385	+1	0.137152333173	2.896767057714
610	0.008803653244	0.146457093399	+1	0.136242608184	2.982083597419
620	0.008703858806	0.149838061044	+1	0.135358511338	3.072082001037
630	0.008606599595	0.153377167761	+1	0.134499046491	3.166870571276
640	0.008511775961	0.157074299859	+1	0.133663252780	3.266559038976
650	0.008419296284	0.160929221082	+1	0.132850176659	3.371255808998
660	0.008329071608	0.164941866237	+1	0.132058911506	3.481077865094
670	0.008241017227	0.169113313362	+1	0.131288651745	3.596175804948
680	0.008155049427	0.173444969944	+1	0.130538649319	3.716715707837
690	0.008071092735	0.177937950091	+1	0.129808109688	3.842857606849
700	0.007989073032	0.182593431120	+1	0.129096322237	3.974771268390
710	0.007908923704	0.187412444577	+1	0.128402551456	4.112624409026
720	0.007830577967	0.192397146683	+1	0.127726148662	4.256622826909
730	0.007753970363	0.197549957207	+1	0.127066524025	4.406988590414
740	0.007679041554	0.202873103065	+1	0.126423083146	4.563943611960
750	0.007605735287	0.208368604193	+1	0.125795207444	4.727709590291
760	0.007533997373	0.214038614013	+1	0.125182320186	4.898520181566
770	0.007463775114	0.219886294587	+1	0.124583939953	5.076648324615
780	0.007395017235	0.225914851957	+1	0.123999551694	5.262376142213
790	0.007327677858	0.232127475841	+1	0.123428692614	5.455994623199
800	0.007261709806	0.238527192294	+1	0.122870860000	5.657799935213
810	0.007197072337	0.245117243930	+1	0.122325604840	5.868103069366
820	0.007133722031	0.251901541597	+1	0.121792512174	6.087249908935
830	0.007071618933	0.258884350379	+1	0.121271191459	6.315608573381
840	0.007010724304	0.266069806190	+1	0.120761246239	6.553556147817
850	0.006951003612	0.273461894250	+1	0.120262263953	6.801474475223
860	0.006892419108	0.281065257541	+1	0.119773932079	7.059789492438
870	0.006834939788	0.288884567603	+1	0.119295843093	7.328931442063
880	0.006778532039	0.296925189960	+1	0.118827722748	7.609380797669
890	0.006723164877	0.305192445845	+1	0.118369219895	7.901627435249
900	0.006668808273	0.313691695580	+1	0.117920032964	8.206184280158
910	0.006615434464	0.322428466127	+1	0.117479864455	8.523587494347

920	0.006563015470	0.331409051288	+1	0.117048424802	8.854420878131
930	0.006511524443	0.340640096042	+1	0.116625456672	9.199305068035
940	0.006460936758	0.350128318488	+1	0.116210694738	9.558884779220
950	0.006411226896	0.359880616546	+1	0.115803890986	9.933840254471
960	0.006362372054	0.369904115580	+1	0.115404787293	10.324882594887
970	0.006314349204	0.380206615493	+1	0.115013156945	10.732779883242
980	0.006267136690	0.390796277374	+1	0.114628778690	11.158343975870
990	0.006220713338	0.401681373913	+1	0.114251421231	11.602423172046
1000	0.006175058066	0.412870618819	+1	0.113880881112	12.065921362754
1025	0.006064157394	0.442235650522	+1	0.112983014664	13.316038970705
1050	0.005957647264	0.473723014229	+1	0.112123701602	14.710615055075
1075	0.005855261175	0.507515176001	+1	0.111300356752	16.269361651220
1100	0.005756756627	0.543813708397	+1	0.110510475798	18.015106203882
1125	0.005661911054	0.582844697178	+1	0.109751694161	19.974512463179
1150	0.005570516199	0.624874479566	+1	0.109022057029	22.179515363156
1175	0.005482378136	0.670207715255	+1	0.108319783444	24.668066465147
1200	0.005397319311	0.719191451201	+1	0.107643138881	27.485314480770
1225	0.005315174980	0.772224764312	+1	0.106990541975	30.685418447267
1250	0.005235792077	0.829774014036	+1	0.106360560533	34.334066215448
1275	0.005159027610	0.892383909543	+1	0.105751938750	38.511344317653
1300	0.005084748605	0.960690954775	+1	0.105163446194	43.315344324140
1325	0.005012831507	1.035445892677	+1	0.104593937351	48.867344471559
1350	0.004943160683	1.117542841656	+1	0.104042409946	55.318845800586
1375	0.004875628162	1.208053517435	+1	0.103507910387	62.860807965282
1400	0.004810133065	1.308271962619	+1	0.102989554385	71.736402350491
1425	0.004746579208	1.419776222579	+1	0.102486534274	82.259046037704
1450	0.004684878502	1.544507908904	+1	0.101998083936	94.837586604769
1475	0.004624947735	1.684886481883	+1	0.101523484054	110.013395556068
1500	0.004566708036	1.843967142984	+1	0.101062108234	128.515168950903
1550	0.004455009770	2.235045759267	+1	0.100176575794	179.885677146385
1600	0.004349244179	2.766238568658	+1	0.099337039188	263.055762058474
1650	0.004248928204	3.527798854431	+1	0.098539690211	409.199178477691
1700	0.004153633506	4.708793895964	+1	0.097781058638	698.503363843663

1750	0.004062974822	6.783651344650	+1	0.097058169542	1391.278688567262
1800	0.003976605990	11.376118126133	+1	0.096368356781	3760.844755083684
1850	0.003894214313	30.086292220323	+1	0.095709280826	25320.703850885384
1900	0.003815523761	57.494090402169	-1	0.095078588442	92256.928283061396
1950	0.003740278778	14.735703685544	-1	0.094474359585	6443.842666119064
2000	0.003668235449	8.386303465148	-1	0.093895426178	2215.561942280850
2100	0.003532904265	4.449893798422	-1	0.092808609137	699.783251011385
2200	0.003408126478	2.997671531950	-1	0.091804037783	354.225686002679
2300	0.003292722347	2.244251112595	-1	0.090869527163	220.290207284552
2400	0.003185639356	1.783953868897	-1	0.089997061349	153.692711897511
2500	0.003085934158	1.473804748346	-1	0.089182610145	115.326586869162
2600	0.002992781863	1.250660189817	-1	0.088423948763	90.960613847331
2700	0.002905554631	1.082749430638	-1	0.087714450342	74.407421805554
2800	0.002823712833	0.952101411151	-1	0.087047679320	62.582017883644
2900	0.002746764752	0.847699916348	-1	0.086419262257	53.792838912829
3000	0.002674258295	0.762412482281	-1	0.085826712831	47.046605489001
3100	0.002605786198	0.691446494983	-1	0.085268506340	41.729471206688
3200	0.002541021249	0.631557901349	-1	0.084740997059	37.450254662933
3300	0.002479672538	0.580412362464	-1	0.084240778232	33.945189258904
3400	0.002421470986	0.536265143741	-1	0.083765565880	31.029518301712
3500	0.002366163637	0.497784575196	-1	0.083314162045	28.570505441499
3600	0.002313522342	0.463948446649	-1	0.082885783839	26.471274048247
3700	0.002263359019	0.433993304307	-1	0.082478309328	24.661430304461
3800	0.002215503883	0.407314924394	-1	0.082089616703	23.087447962957
3900	0.002169797767	0.383419050891	-1	0.081718302160	21.707523398551
4000	0.002126090657	0.361897893503	-1	0.081363554653	20.488619536054
4100	0.002084245849	0.342416331738	-1	0.081024847892	19.404523094553
4200	0.002044145513	0.324710478759	-1	0.080700828685	18.434855533481
4300	0.002005683511	0.308560167360	-1	0.080390172252	17.563065622935
4400	0.001968759443	0.293776081155	-1	0.080091974391	16.775416364404
4500	0.001933277572	0.280194618884	-1	0.079805753483	16.060440867148
4600	0.001899148809	0.267675726973	-1	0.079531155246	15.408570854411
4700	0.001866298281	0.256106117173	-1	0.079267259558	14.812068645140

4800	0.001834654141	0.245387707646	-1	0.079013200356	14.264395442215
4900	0.001804150426	0.235433661400	-1	0.078768365384	13.759904039452
5000	0.001774723712	0.226166577342	-1	0.078532403036	13.293700711502
5500	0.001641855277	0.188075775599	-1	0.077470512754	11.410005111435
6000	0.001528772801	0.159949433464	-1	0.076569086812	10.047648738103
6500	0.001431123272	0.138392429150	-1	0.075809026423	9.017069132029
7000	0.001345840140	0.121401442878	-1	0.075166506673	8.210473454840
7500	0.001270754837	0.107735609181	-1	0.074607072034	7.561986639390
8000	0.001204105938	0.096540239274	-1	0.074114927264	7.029011088215
8500	0.001144522183	0.087226139743	-1	0.073677603511	6.582924516095
9000	0.001090919351	0.079374734255	-1	0.073285155868	6.203806752123
9500	0.001042426408	0.072680810564	-1	0.072929621413	5.877378211388
10000	0.000998338105	0.066917190376	-1	0.072604391741	5.593134497519
10500	0.000958071535	0.061910385350	-1	0.072304628384	5.343161002291
11000	0.000921152289	0.057529770620	-1	0.072024391505	5.121497657041
11500	0.000887171823	0.053668199453	-1	0.071761531061	4.923343848284
12000	0.000855794288	0.050244419600	-1	0.071511970422	4.745038721096
12500	0.000826729653	0.047190992036	-1	0.071273654845	4.583569895113
13000	0.000799733042	0.044454833927	-1	0.071043674163	4.436561981653
13500	0.000774591097	0.041990949665	-1	0.070820675295	4.302009825961
14000	0.000751120590	0.039763340424	-1	0.070602534603	4.178307698172
14500	0.000729160892	0.037741093451	-1	0.070388195118	4.064075523653
15000	0.000708573169	0.035899091769	-1	0.070176085615	3.958193472401
16000	0.000671050725	0.032675031726	-1	0.069749317129	3.767670990346
17000	0.000637746897	0.029956555244	-1	0.069308349742	3.600520455005
18000	0.000607977909	0.027635982267	-1	0.068858256577	3.452253459021
19000	0.000581222485	0.025637056889	-1	0.068395225792	3.319412290780
20000	0.000557056968	0.023901348281	-1	0.067916593087	3.199338266629
21000	0.000503568287	0.019706204822	-1	0.077752593884	3.362547937682
22000	0.000482115813	0.018369740285	-1	0.078158953003	3.288292846751
23000	0.000461573677	0.017071584083	-1	0.078700792270	3.211902125115
24000	0.000442196873	0.015851078663	-1	0.079363339566	3.137710483809
25000	0.000424227859	0.014748306750	-1	0.080089789373	3.070073853424

26000	0.000407829286	0.013792387851	-1	0.080790848146	3.012179333346
27000	0.000392849672	0.012967803317	-1	0.081429864945	2.963032918043
28000	0.000379071088	0.012248408637	-1	0.082004664790	2.920650523832
29000	0.000366287669	0.011608923877	-1	0.082533794459	2.883135179071
30000	0.000354304574	0.011025154606	-1	0.083056376210	2.848697855659
31000	0.000342944609	0.010477057672	-1	0.083624284804	2.816123805280
32000	0.000332156476	0.009960989687	-1	0.084241814097	2.785268300049
33000	0.000321923174	0.009477330365	-1	0.084897075384	2.756216624756
34000	0.000312223947	0.009026170140	-1	0.085578011104	2.729101499143
35000	0.000303051283	0.008607995445	-1	0.086265649524	2.703925116206
36000	0.000294377612	0.008221986048	-1	0.086948049551	2.680801448458
37000	0.000286163269	0.007865168668	-1	0.087622728360	2.659589691644
38000	0.000278369980	0.007534237951	-1	0.088290704829	2.640064098302
39000	0.000270960929	0.007225993683	-1	0.088955907201	2.622017374275
40000	0.000263900748	0.006937352689	-1	0.089625254243	2.605260818611
41000	0.000257157750	0.006665666290	-1	0.090306258229	2.589644683858
42000	0.000250711187	0.006409625828	-1	0.090998446847	2.575100792848
43000	0.000244543963	0.006168276151	-1	0.091699249650	2.561576919760
44000	0.000238640061	0.005940683653	-1	0.092406568246	2.549020443474
45000	0.000232984416	0.005725942679	-1	0.093118714857	2.537377816296
46000	0.000227562755	0.005523174704	-1	0.093834481323	2.526595912867
47000	0.000222361373	0.005331537981	-1	0.094552960292	2.516621973624
48000	0.000217367160	0.005150213251	-1	0.095273868058	2.507405200957
49000	0.000212567616	0.004978404553	-1	0.095997614985	2.498897095999
50000	0.000207950780	0.004815342559	-1	0.096725297694	2.491052137660
55000	0.000187267016	0.004111071467	-1	0.100433045433	2.460578979505
60000	0.000169891689	0.003553668100	-1	0.104234008546	2.442229236339
65000	0.000155092039	0.003104024631	-1	0.108122522870	2.433465820223
70000	0.000142337396	0.002735466601	-1	0.112094293850	2.432504333442
75000	0.000131233848	0.002429237119	-1	0.116145761979	2.438055005979
80000	0.000121482842	0.002171802352	-1	0.120273573169	2.449161111712
85000	0.000112853752	0.001953169909	-1	0.124474987401	2.465108101349
90000	0.000105165607	0.001765818762	-1	0.128747641922	2.485353955240

95000	0.000098273635	0.001603974439	-1	0.133091236344	2.509515319314
100000	0.000092058082	0.001463070019	-1	0.137515630348	2.537458683900
105000	0.000086450215	0.001340197293	-1	0.141939525965	2.567628676881
110000	0.000081356700	0.001232164811	-1	0.146397818502	2.600483048904
115000	0.000076697260	0.001136322244	-1	0.150943628713	2.636694593263
120000	0.000072421680	0.001050969059	-1	0.155565191372	2.676038620527
125000	0.000068493913	0.000974788086	-1	0.160225232885	2.717813915801
130000	0.000064874505	0.000906522189	-1	0.164920941838	2.761963552807
135000	0.000061529493	0.000845099051	-1	0.169652392864	2.808435608420
140000	0.000058430563	0.000789654726	-1	0.174413648357	2.857146843227
145000	0.000055552649	0.000739436431	-1	0.179202780995	2.908049710656
150000	0.000052874515	0.000693824590	-1	0.184013822874	2.961073543376
155000	0.000050377139	0.000652273323	-1	0.188844471373	3.016182186116
160000	0.000048044220	0.000614327915	-1	0.193689007090	3.073316907698
165000	0.000045861052	0.000579585091	-1	0.198544677373	3.132447794650
170000	0.000043814918	0.000547704810	-1	0.203406105308	3.193525090989
175000	0.000041894227	0.000518382914	-1	0.208270675621	3.256527657406
180000	0.000040088894	0.000491359953	-1	0.213133493510	3.321408276532
185000	0.000038389669	0.000466403221	-1	0.217991927323	3.388146573212
190000	0.000036788615	0.000443318620	-1	0.222838994296	3.456680447539
195000	0.000035278290	0.000421926587	-1	0.227671245461	3.526981901353
200000	0.000033851310	0.000402051937	-1	0.232493844688	3.599118501128
205000	0.000032500874	0.000383538670	-1	0.237314192815	3.673200044220
210000	0.000031222124	0.000366279057	-1	0.242122838414	3.749143498846
215000	0.000030010867	0.000350180449	-1	0.246906628790	3.826804755790
220000	0.000028863106	0.000335154374	-1	0.251654534753	3.906046951568
225000	0.000027775005	0.000321116704	-1	0.256357776682	3.986746065521
230000	0.000026742849	0.000307987327	-1	0.261010679544	4.068809956462
235000	0.000025763032	0.000295690213	-1	0.265610693624	4.152182120456
240000	0.000024832027	0.000284153478	-1	0.270158785684	4.236859992881
245000	0.000023946393	0.000273309007	-1	0.274659764792	4.322902036359
250000	0.000023102734	0.000263092393	-1	0.279122629684	4.410448776848
255000	0.000022297967	0.000253446995	-1	0.283556178281	4.499655023777

260000	0.000021529978	0.000244334303	-1	0.287956033336	4.590468142239
265000	0.000020796983	0.000235721555	-1	0.292314482250	4.682764547839
270000	0.000020097231	0.000227577044	-1	0.296625430518	4.776436789148
275000	0.000019429062	0.000219870738	-1	0.300883418473	4.871371868733
280000	0.000018790819	0.000212573544	-1	0.305085166690	4.967491816141
285000	0.000018180915	0.000205657856	-1	0.309228465703	5.064726668052
290000	0.000017597781	0.000199097232	-1	0.313312999726	5.163042706108
295000	0.000017039898	0.000192866560	-1	0.317339902934	5.262431448915
300000	0.000016505759	0.000186941714	-1	0.321312520621	5.362935153541

Electron Elastic Scattering Sampling Data
Solution for Z = 35

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.036545950758	0.052438676796	+1	0.012633377922	0.018640679801
52	0.035724914311	0.079308752049	+1	0.015391418085	0.036163146798
54	0.034972913396	0.118926034606	+1	0.018796081868	0.070424792342
56	0.034265175386	0.175998949067	+1	0.022942674259	0.137137472489
58	0.033579783834	0.257378318622	+1	0.027930572080	0.267915950976
60	0.032898088152	0.373647079708	+1	0.033856227979	0.529304319016
62	0.032204993707	0.542385844575	+1	0.040805420074	1.070590388280
64	0.031489579772	0.795073019233	+1	0.048839462568	2.256183807086
66	0.030744793810	1.195313383938	+1	0.057990601641	5.097508416530
68	0.029967754748	1.893304747906	+1	0.068249888273	12.999880517044
70	0.029159727859	3.348247684842	+1	0.079557324807	41.932333072493
72	0.028325290205	7.971253904211	+1	0.091803572109	248.173094914488
74	0.027471982790	146.091112220452	-1	0.104830728998	89152.530295169112
76	0.028036591293	174.880817965824	+1	0.106943178801	127791.175790416440
78	0.028702863123	207.551975354500	+1	0.109386406272	180052.868678168280
80	0.029379036997	279.766835253416	+1	0.111891823629	327236.428955858860
82	0.030072391816	318.273667610864	+1	0.114360140688	423589.921250482850
84	0.030774141242	366.114501150865	+1	0.116846264747	560592.826946214070
86	0.031479898002	443.734950474673	+1	0.119356840642	823717.250519747150
88	0.032191673204	565.701952689214	+1	0.121869623967	1338982.669911902200
90	0.032910193625	621.706725784241	+1	0.124352701382	1617343.000211024200
92	0.033628733843	688.153139911284	+1	0.126836246804	1981862.082527904300
94	0.034348132771	769.514268524945	+1	0.129308297999	2478503.204029914000
96	0.035068668317	805.936954437339	+1	0.131754112631	2718777.599706040200
98	0.035786082945	889.314749250290	+1	0.134188991161	3310614.492265422800
100	0.036498520216	973.246818522777	+1	0.136607274909	3965641.845525770000
105	0.038266559242	1044.157612544375	+1	0.142506115061	4564802.958513795400
110	0.039993619190	1116.155103334533	+1	0.148217703238	5216606.893951364800

115	0.041634449329	1314.716691896427	+1	0.153819671532	7250623.536868913100
120	0.043249785972	1443.787696544616	+1	0.159064456772	8744712.626991612800
125	0.044795628371	1624.091386949867	+1	0.164056256304	11067181.108309833000
130	0.046272134861	1746.976809353197	+1	0.168765193989	12806126.080405343000
135	0.047672449886	1876.783816108286	+1	0.173195266149	14780867.027308110000
140	0.048993575917	2016.140417829959	+1	0.177346436235	17058876.406832788000
145	0.050233732282	2119.158937435243	+1	0.181216502543	18848604.537655558000
150	0.051390325523	2290.852041700058	+1	0.184818098453	22030697.168763500000
155	0.052464804172	2415.676175531188	+1	0.188148919955	24502302.435629707000
160	0.053447386628	2671.064748335016	+1	0.191247158304	29975831.554178577000
165	0.054325918660	3004.500614216055	+1	0.194151738273	37983516.223986015000
170	0.055030407295	3072.674476111000	+1	0.197059150950	39922687.942095302000
175	0.055065405534	3415.866782327012	+1	0.201257600402	50619319.003421605000
180	0.051029471341	110.015448974556	+1	0.214557275599	62205.653484476032
185	0.016900890253	0.940425977744	+1	0.247092281501	34.845838409528
190	0.016912967229	0.819903763191	+1	0.243396656305	27.909628878483
195	0.016910972856	0.723360419879	+1	0.239845326476	22.872235846420
200	0.016895252865	0.644647365438	+1	0.236441558771	19.108897061557
205	0.016866404881	0.579523612500	+1	0.233184810981	16.230069857129
210	0.016825503044	0.524910064098	+1	0.230067162736	13.980298254011
215	0.016773657373	0.478573803168	+1	0.227080036898	12.189455527727
220	0.016711909857	0.438871212805	+1	0.224215715607	10.741380355593
225	0.016641230170	0.404565768110	+1	0.221467372834	9.554566820197
230	0.016562521120	0.374709814173	+1	0.218828850258	8.570456306040
235	0.016476616333	0.348565302315	+1	0.216294632571	7.746109548370
240	0.016384289526	0.325548784886	+1	0.213859747619	7.049450308362
245	0.016286250905	0.305193645876	+1	0.211519747948	6.456146348977
250	0.016183155352	0.287122224989	+1	0.209270570555	5.947461797142
255	0.016075636584	0.271020922283	+1	0.207107903168	5.508633557128
260	0.015964409068	0.256613627403	+1	0.205025152189	5.127479042013
265	0.015850128543	0.243669905157	+1	0.203016150327	4.794304991332
270	0.015733367136	0.231999847304	+1	0.201075564363	4.501430492065
275	0.015614623450	0.221445791645	+1	0.199198897128	4.242710851779

280	0.015494334324	0.211875643645	+1	0.197382323830	4.013175962744
285	0.015372879408	0.203178076144	+1	0.195622522365	3.808771566534
290	0.015250587272	0.195258707829	+1	0.193916687380	3.626166680989
295	0.015127751495	0.188036906590	+1	0.192262362231	3.462596629249
300	0.015004618868	0.181443678311	+1	0.190657486301	3.315762276725
310	0.014758397270	0.169902764610	+1	0.187586912306	3.064601333828
320	0.014513692801	0.160205678959	+1	0.184683403096	2.859424537754
330	0.014271859872	0.152021562607	+1	0.181928888051	2.690552426862
340	0.014033866501	0.145099193032	+1	0.179309657598	2.550954212746
350	0.013800384902	0.139245460847	+1	0.176815333263	2.435439548839
360	0.013571890494	0.134306825209	+1	0.174437147471	2.340036098604
370	0.013348772250	0.130150327947	+1	0.172164874967	2.261423573533
380	0.013131288433	0.126667888239	+1	0.169989638404	2.196991183095
390	0.012919569581	0.123773139711	+1	0.167904361687	2.144720883379
400	0.012713661287	0.121396629542	+1	0.165903367096	2.103039367347
410	0.012513539260	0.119481252596	+1	0.163981791018	2.070691882389
420	0.012319152758	0.117976648079	+1	0.162134170214	2.046588667899
430	0.012130414207	0.116840455964	+1	0.160355620307	2.029836581915
440	0.011947206630	0.116037543292	+1	0.158642064282	2.019717628077
450	0.011769393374	0.115538592580	+1	0.156990025626	2.015651301432
460	0.011596817569	0.115318925957	+1	0.155396402893	2.017164961912
470	0.011429319870	0.115357011544	+1	0.153857941613	2.023851333171
480	0.011266732889	0.115634416785	+1	0.152371669722	2.035373247353
490	0.011108892022	0.116135287138	+1	0.150934919544	2.051450816349
500	0.010955629517	0.116845993082	+1	0.149545362171	2.071855568969
510	0.010806781796	0.117754801688	+1	0.148200837890	2.096399707766
520	0.010662180797	0.118852028683	+1	0.146899215118	2.124938325109
530	0.010521665410	0.120129256471	+1	0.145638483205	2.157353345737
540	0.010385079925	0.121579080839	+1	0.144416793566	2.193549479258
550	0.010252276356	0.123194868538	+1	0.143232470561	2.233449160717
560	0.010123111627	0.124970839184	+1	0.142083890573	2.276992684155
570	0.009997443282	0.126902699603	+1	0.140969563378	2.324153777421
580	0.009875133539	0.128986846741	+1	0.139888045738	2.374921568543

590	0.009756053255	0.131219923176	+1	0.138837968001	2.429291171325
600	0.009640081782	0.133598835581	+1	0.137818071937	2.487264760633
610	0.009527102288	0.136120863773	+1	0.136827119504	2.548853169698
620	0.009417000375	0.138784430823	+1	0.135863956463	2.614094024880
630	0.009309664188	0.141588488328	+1	0.134927550537	2.683040533580
640	0.009204991214	0.144531869985	+1	0.134016847441	2.755742908263
650	0.009102883928	0.147613415327	+1	0.133130827843	2.832253136998
660	0.009003250345	0.150832201693	+1	0.132268564930	2.912631185589
670	0.008905999218	0.154188267474	+1	0.131429154776	2.996961018605
680	0.008811042567	0.157681923903	+1	0.130611785483	3.085337327583
690	0.008718298562	0.161313412343	+1	0.129815645367	3.177854795771
700	0.008627690513	0.165082769643	+1	0.129039917772	3.274604903917
710	0.008539145050	0.168990225674	+1	0.128283854715	3.375687434860
720	0.008452589325	0.173036889110	+1	0.127546764180	3.481227467740
730	0.008367954904	0.177223999954	+1	0.126827985738	3.591356866802
740	0.008285175557	0.181552720087	+1	0.126126884385	3.706210280071
750	0.008204191271	0.186024041718	+1	0.125442816010	3.825919926610
760	0.008124943095	0.190639065181	+1	0.124775163383	3.950625414258
770	0.008047374389	0.195399605434	+1	0.124123367209	4.080489359833
780	0.007971426806	0.200307797296	+1	0.123486922932	4.215690970737
790	0.007897051523	0.205365393697	+1	0.122865270934	4.356399208170
800	0.007824198020	0.210574245532	+1	0.122257930229	4.502795188451
810	0.007752819731	0.215936218809	+1	0.121664390289	4.655063107583
820	0.007682870098	0.221453793913	+1	0.121084194561	4.813411424892
830	0.007614304830	0.227129743346	+1	0.120516937488	4.978064463537
840	0.007547082429	0.232966642630	+1	0.119962173811	5.149245667295
850	0.007481162057	0.238967010127	+1	0.119419486707	5.327185565465
860	0.007416506106	0.245133466653	+1	0.118888466351	5.512123391597
870	0.007353077581	0.251469294043	+1	0.118368766286	5.704327461897
880	0.007290839714	0.257977819030	+1	0.117860017765	5.904075616608
890	0.007229757862	0.264662440137	+1	0.117361878756	6.111657451195
900	0.007169800230	0.271526461035	+1	0.116873995244	6.327367047414
910	0.007110935165	0.278573397463	+1	0.116396059391	6.551517537341

920	0.007053131808	0.285807179103	+1	0.115927752257	6.784443858893
930	0.006996360247	0.293232132189	+1	0.115468788611	7.026506112997
940	0.006940592590	0.300852466666	+1	0.115018885870	7.278072442479
950	0.006885801922	0.308672488574	+1	0.114577760243	7.539526215758
960	0.006831962111	0.316696629679	+1	0.114145146734	7.811269184664
970	0.006779047695	0.324929789561	+1	0.113720793864	8.093732721762
980	0.006727034561	0.333376967018	+1	0.113304449959	8.387365861986
990	0.006675898868	0.342043336087	+1	0.112895874442	8.692640643994
1000	0.006625618829	0.350934133860	+1	0.112494820463	9.010045652984
1025	0.006503519023	0.374180590464	+1	0.111523712716	9.860132049492
1050	0.006386304220	0.398966085925	+1	0.110595231382	10.798558704992
1075	0.006273676187	0.425401349742	+1	0.109706515694	11.835784397437
1100	0.006165365797	0.453605268566	+1	0.108854798676	12.983610304962
1125	0.006061126706	0.483708398197	+1	0.108037479387	14.255494543130
1150	0.005960725608	0.515864756446	+1	0.107252374466	15.667307607369
1175	0.005863946537	0.550247784802	+1	0.106497502031	17.237482112721
1200	0.005770590851	0.587049827200	+1	0.105770987685	18.987339469272
1225	0.005680476503	0.626486169920	+1	0.105070994324	20.941671071241
1250	0.005593432541	0.668805780853	+1	0.104395968954	23.129842242292
1275	0.005509298812	0.714292251560	+1	0.103744476590	25.586537596725
1300	0.005427927610	0.763267102280	+1	0.103115131927	28.352761360302
1325	0.005349181402	0.816098509287	+1	0.102506640877	31.477373706400
1350	0.005272931202	0.873213585005	+1	0.101917871137	35.019180440552
1375	0.005199055850	0.935108221067	+1	0.101347790234	39.049296628434
1400	0.005127442922	1.002357523697	+1	0.100795403148	43.654047942548
1425	0.005057985297	1.075636457062	+1	0.100259778752	48.939297313494
1450	0.004990584713	1.155741195041	+1	0.099740070250	55.035832325606
1475	0.004925147843	1.243617472707	+1	0.099235480184	62.106684675179
1500	0.004861586632	1.340398281018	+1	0.098745289781	70.357143724534
1550	0.004739765194	1.566434364052	+1	0.097805382381	91.515460392996
1600	0.004624517849	1.848890840746	+1	0.096915354945	121.669291638402
1650	0.004515307807	2.211186279385	+1	0.096070899040	166.381255184156
1700	0.004411655597	2.691848414966	+1	0.095268181998	236.161516776257

1750	0.004313130326	3.359086600725	+1	0.094503869522	352.791382720553
1800	0.004219346425	4.346112600579	+1	0.093774996175	567.435264033364
1850	0.004129954582	5.952848938626	+1	0.093078954490	1024.317219562382
1900	0.004044645795	9.024566896287	+1	0.092413227499	2268.320658055392
1950	0.003963135831	17.228347907660	+1	0.091775662894	7975.696388406012
2000	0.003895081443	65.158640647648	+1	0.090876954754	110200.817998011570
2100	0.003738836224	11.798849594969	-1	0.090017918406	3980.609325344798
2200	0.003604115476	5.503386288090	-1	0.088957841057	966.171399078580
2300	0.003479668160	3.552578382563	-1	0.087972135506	446.777939873796
2400	0.003364326533	2.604432784750	-1	0.087052273448	265.171896192526
2500	0.003257053284	2.044434910666	-1	0.086193334192	179.664492708416
2600	0.003156945770	1.674820693558	-1	0.085392231483	132.071911481388
2700	0.003063305100	1.413122763140	-1	0.084642227319	102.621160380975
2800	0.002975529780	1.218501642318	-1	0.083936946807	82.996357973527
2900	0.002893075605	1.068309915072	-1	0.083271885429	69.176136721034
3000	0.002815445004	0.948970525623	-1	0.082644313647	59.015372463295
3100	0.002742195137	0.851888521574	-1	0.082052427505	51.284191850368
3200	0.002672963287	0.771479266667	-1	0.081492575633	45.242167950970
3300	0.002607429933	0.703881191861	-1	0.080961332074	40.414663291487
3400	0.002545298311	0.646309834047	-1	0.080456345994	36.483592451728
3500	0.002486294985	0.596705919456	-1	0.079976242020	33.228912982523
3600	0.002430172339	0.553527657834	-1	0.079520073781	30.495065083662
3700	0.002376722658	0.515639446693	-1	0.079085686617	28.171581014817
3800	0.002325760231	0.482158630125	-1	0.078671023119	26.176457186928
3900	0.002277111830	0.452378011141	-1	0.078274610527	24.447156029607
4000	0.002230614943	0.425723570119	-1	0.077895588118	22.935251852982
4100	0.002186120722	0.401730558122	-1	0.077533298387	21.603018924486
4200	0.002143501312	0.380035028037	-1	0.077186404134	20.421464974146
4300	0.002102641727	0.360336607212	-1	0.076853569458	19.367373712602
4400	0.002063431619	0.342379927917	-1	0.076533914070	18.421772928715
4500	0.002025768255	0.325947147871	-1	0.076226864682	17.569017535272
4600	0.001989556053	0.310853586655	-1	0.075931999270	16.796221712391
4700	0.001954712953	0.296949779313	-1	0.075648416484	16.093026824023

4800	0.001921161703	0.284107386588	-1	0.075375269007	15.450757239590
4900	0.001888830847	0.272213970593	-1	0.075111877727	14.862004413397
5000	0.001857652112	0.261169842866	-1	0.074857900698	14.320408250424
5500	0.001716999481	0.216060991411	-1	0.073713085762	12.156696580288
6000	0.001597448335	0.183042311084	-1	0.072739748961	10.617001826317
6500	0.001494488236	0.157953971215	-1	0.071899669534	9.467008092480
7000	0.001404824635	0.138328981211	-1	0.071164542713	8.575788363787
7500	0.001325837037	0.122568054088	-1	0.070532155180	7.864609896262
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8500	0.001193004272	0.098964550401	-1	0.069496940661	6.800665528299
9000	0.001136641801	0.089959321163	-1	0.069059193890	6.392031642495
9500	0.001085671595	0.082294599632	-1	0.068662893783	6.041743779007
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10500	0.000997041020	0.069985787141	-1	0.067969090587	5.471711416938
11000	0.000958260394	0.064987382280	-1	0.067660406898	5.236420052554
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13000	0.000830729922	0.050092991075	-1	0.066600937704	4.514370742601
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15000	0.000734945613	0.040363198378	-1	0.065704417700	4.015194257331
16000	0.000695476608	0.036695418139	-1	0.065285404173	3.817821579550
17000	0.000660388550	0.033596031392	-1	0.064874933302	3.645522591080
18000	0.000629007970	0.030951207524	-1	0.064463904493	3.493353456616
19000	0.000600816444	0.028679464579	-1	0.064036722605	3.357520963561
20000	0.000575334668	0.026706676037	-1	0.063602044242	3.235240008884
21000	0.000526293331	0.022350635142	-1	0.071504748738	3.341862409208
22000	0.000503968766	0.020835068256	-1	0.071801906126	3.263047324405
23000	0.000482618507	0.019365406343	-1	0.072211768862	3.182014173512
24000	0.000462499195	0.017984996399	-1	0.072724885349	3.103232945394
25000	0.000443849647	0.016737956174	-1	0.073295927103	3.031249164434

26000	0.000426823418	0.015656193199	-1	0.073851358810	2.969457561680
27000	0.000411259271	0.014722126334	-1	0.074359393548	2.916868426891
28000	0.000396931887	0.013906434600	-1	0.074817096605	2.871432349329
29000	0.000383630642	0.013180809594	-1	0.075239315429	2.831161566576
30000	0.000371156837	0.012518136407	-1	0.075658919038	2.794163026290
31000	0.000359346876	0.011896701143	-1	0.076115237511	2.758967768902
32000	0.000348144373	0.011312173474	-1	0.076612341294	2.725432369267
33000	0.000337522839	0.010764541118	-1	0.077142054231	2.693718059203
34000	0.000327460476	0.010253877470	-1	0.077693621940	2.663960158303
35000	0.000317927938	0.009779794392	-1	0.078257821296	2.636379623440
36000	0.000308901647	0.009341609947	-1	0.078823102584	2.611055104211
37000	0.000300352484	0.008936500089	-1	0.079382968987	2.587724164366
38000	0.000292240321	0.008560714781	-1	0.079938302923	2.566155755967
39000	0.000284528255	0.008210687447	-1	0.080491919939	2.546118440403
40000	0.000277189837	0.007883339200	-1	0.081045236957	2.527296375845
41000	0.000270180060	0.007575160490	-1	0.081609888517	2.509656375704
42000	0.000263478035	0.007284700238	-1	0.082185116837	2.493119958626
43000	0.000257066120	0.007010880629	-1	0.082768569772	2.477631925306
44000	0.000250927651	0.006752645310	-1	0.083358370980	2.463138746843
45000	0.000245046910	0.006508968790	-1	0.083953002710	2.449585923009
46000	0.000239409027	0.006278853804	-1	0.084551437696	2.436920063898
47000	0.000233999744	0.006061348127	-1	0.085152829729	2.425086493308
48000	0.000228805455	0.005855524488	-1	0.085756924036	2.414032933994
49000	0.000223813294	0.005660487554	-1	0.086363949400	2.403706423360
50000	0.000219010893	0.005475363167	-1	0.086974894791	2.394058377709
55000	0.000197492911	0.004675653972	-1	0.090095530583	2.354715363087
60000	0.000179411838	0.004042498926	-1	0.093305274005	2.327652300899
65000	0.000164006825	0.003531584968	-1	0.096597458054	2.310212622872
70000	0.000150726839	0.003112682122	-1	0.099966943653	2.300522053308
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120000	0.000077832763	0.001196127747	-1	0.137077417786	2.443962602439
125000	0.000073723833	0.001109220679	-1	0.141093488417	2.474118927796
130000	0.000069937460	0.001031373223	-1	0.145137724197	2.506152368467
135000	0.000066436970	0.000961330267	-1	0.149215101421	2.540061624314
140000	0.000063192417	0.000898099536	-1	0.153322149119	2.575779170578
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150000	0.000057370315	0.000788788834	-1	0.161618545157	2.652409431801
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160000	0.000052302262	0.000698084011	-1	0.170002647238	2.735561928419
165000	0.000050009194	0.000658434977	-1	0.174219761604	2.779457966688
170000	0.000047858430	0.000622048278	-1	0.178448491666	2.824834498043
175000	0.000045837976	0.000588578672	-1	0.182686497816	2.871656540941
180000	0.000043937276	0.000557730022	-1	0.186930081603	2.919881755806
185000	0.000042146736	0.000529237627	-1	0.191177172604	2.969483267637
190000	0.000040458112	0.000502880387	-1	0.195421950010	3.020403923098
195000	0.000038863726	0.000478454429	-1	0.199661309588	3.072607665258
200000	0.000037356000	0.000455760572	-1	0.203899549616	3.126125744046
205000	0.000035927960	0.000434621141	-1	0.208143024739	3.181020852175
210000	0.000034574480	0.000414913209	-1	0.212383771306	3.237228950177
215000	0.000033291134	0.000396530967	-1	0.216610573247	3.294641661606
220000	0.000032073710	0.000379373424	-1	0.220813965914	3.353156923113
225000	0.000030918203	0.000363344643	-1	0.224986376461	3.412681378771
230000	0.000029820773	0.000348353694	-1	0.229122434176	3.473137983914
235000	0.000028777707	0.000334314164	-1	0.233219593301	3.534478022873
240000	0.000027785437	0.000321144587	-1	0.237277971052	3.596680738715
245000	0.000026840524	0.000308768333	-1	0.241300386281	3.659757694605
250000	0.000025939242	0.000297108520	-1	0.245297987589	3.723865990972
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265000	0.000023466215	0.000265831450	-1	0.257221779611	3.923892761451
270000	0.000022713893	0.000256528753	-1	0.261134014389	3.992489516529
275000	0.000021994616	0.000247728504	-1	0.265006172246	4.061906457802
280000	0.000021307860	0.000239409748	-1	0.268816401810	4.131673814592
285000	0.000020650571	0.000231525668	-1	0.272583553203	4.202185127549
290000	0.000020021200	0.000224046771	-1	0.276306251249	4.273395256793
295000	0.000019418238	0.000216944814	-1	0.279984589330	4.345277872860
300000	0.000018840182	0.000210192664	-1	0.283620611069	4.417842724645

Electron Elastic Scattering Sampling Data
Solution for Z = 36

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.040577929409	0.100209668143	+1	0.012579498124	0.033264558428
52	0.039563288122	0.097820096235	+1	0.013671886926	0.036192867701
54	0.038658313736	0.106166641178	+1	0.015252305589	0.045300558078
56	0.037842734195	0.124974765676	+1	0.017346483357	0.063191997924
58	0.037095733111	0.155673147453	+1	0.020002979436	0.095449983125
60	0.036396907406	0.201207532021	+1	0.023287177052	0.152764219066
62	0.035727009112	0.266337251207	+1	0.027276496981	0.255586857663
64	0.035068848618	0.358220254107	+1	0.032049335122	0.443808275758
66	0.034407405630	0.488398701382	+1	0.037686098263	0.799861237747
68	0.033730574354	0.676131194679	+1	0.044256528708	1.505025614078
70	0.033029660476	0.955965888276	+1	0.051808156181	2.994254372945
72	0.032299151728	1.397785006086	+1	0.060364200656	6.457639994275
74	0.031537335601	2.165939167064	+1	0.069909180147	15.843375686609
76	0.030745713933	3.762445304145	+1	0.080387481400	49.425107649167
78	0.029928802260	8.806923713353	+1	0.091700956112	282.882119874702
80	0.029093647259	183.536709385898	-1	0.103709919766	130895.391165571000
82	0.029650166520	208.853707024052	+1	0.105618003764	169534.039109691420
84	0.030292337018	258.543249192944	+1	0.107837523456	259881.666018410060
86	0.030952827513	304.860232438166	+1	0.110078234131	361438.402502343000
88	0.031627728113	373.288999864214	+1	0.112355296447	542020.405117876130
90	0.032316423458	439.196446904789	+1	0.114646369545	750434.441548629200
92	0.033014340660	579.362706043535	+1	0.116972035389	1306016.439379351700
94	0.033723996507	640.676636045338	+1	0.119283981596	1597194.151668166300
96	0.033830246724	706.958294726544	+1	0.123688250397	2019839.594077164500
98	0.034536783860	782.137973400233	+1	0.126048079987	2472535.403502756700
100	0.035248624398	819.245853628859	+1	0.128400021329	2712809.799074029500
105	0.037035497267	930.593599235655	+1	0.134261283637	3500569.541192522300
110	0.038818674705	1022.568530043173	+1	0.140047866114	4226988.953332763200

115	0.040581323043	1155.803246002022	+1	0.145715816392	5400643.471149947500
120	0.042311010081	1279.830824618489	+1	0.151221560440	6622363.175784976200
125	0.043996115064	1414.432330275298	+1	0.156535572266	8089177.179856533200
130	0.045627185065	1565.915201563172	+1	0.161634446526	9915478.717390654600
135	0.047197674705	1688.384840655233	+1	0.166496138899	11527823.423673527000
140	0.048699814335	1894.361131099049	+1	0.171115289293	14513459.143122012000
145	0.050130194854	2045.144989453817	+1	0.175476010784	16917353.531944420000
150	0.051484981204	2139.728723803286	+1	0.179575259940	18520148.996926598000
155	0.052761763299	2230.589409642819	+1	0.183414068344	20128679.008031107000
160	0.053954593750	2381.389981822369	+1	0.187001092645	22948126.258879632000
165	0.055061332925	2561.128382663944	+1	0.190348898712	26555853.658483583000
170	0.056074688662	2721.592399899820	+1	0.193470238163	30014974.231176313000
175	0.056936089394	3065.700515612290	+1	0.196543794218	38217463.313546851000
180	0.057157951172	3824.329398290684	+1	0.200798885392	60829299.226396680000
185	0.053627269140	1822.172805275770	+1	0.214239490504	16030757.309001146000
190	0.054020667887	461.136241326414	+1	0.216910799877	1036716.828635645800
195	0.017737450724	0.866309107502	+1	0.247302151227	29.426371736821
200	0.017737131265	0.765494058870	+1	0.244084990482	24.174482750765
205	0.017725132885	0.683185790590	+1	0.240969248657	20.237326295548
210	0.017701976207	0.614913386814	+1	0.237953991870	17.212050607879
215	0.017668328601	0.557516072752	+1	0.235036530772	14.838256523786
220	0.017624861478	0.508713752307	+1	0.232214215211	12.942424531149
225	0.017572245201	0.466821025367	+1	0.229484455842	11.405304812324
230	0.017511133576	0.430564858779	+1	0.226844725506	10.142725353734
235	0.017442162815	0.398966762690	+1	0.224292671167	9.093922206419
240	0.017365948646	0.371261992353	+1	0.221825948764	8.214115825707
245	0.017283078588	0.346844663025	+1	0.219442397474	7.469734780633
250	0.017194113138	0.325228926351	+1	0.217139940689	6.835212684007
255	0.017099627917	0.306014950059	+1	0.214915877468	6.290612644921
260	0.017000335292	0.288855772567	+1	0.212764863540	5.819721854024
265	0.016896910434	0.273463839739	+1	0.210681695421	5.409746635165
270	0.016789948229	0.259603588890	+1	0.208662027694	5.050628182252
275	0.016679973373	0.247080207629	+1	0.206702142815	4.734361541984

280	0.016567450364	0.235731262616	+1	0.204798976228	4.454512573870
285	0.016452790360	0.225420278592	+1	0.202949864506	4.205855953127
290	0.016336358728	0.216031767396	+1	0.201152586291	3.984112587015
295	0.016218474814	0.207467650432	+1	0.199405232903	3.785755831975
300	0.016099426203	0.199643789184	+1	0.197706207524	3.607849256996
310	0.015858923910	0.185926804851	+1	0.194445449454	3.303661973712
320	0.015617031754	0.174364116401	+1	0.191350536330	3.054926728079
330	0.015375492529	0.164560708423	+1	0.188404704896	2.849605833572
340	0.015135603331	0.156217530614	+1	0.185595482425	2.679000211929
350	0.014898319489	0.149104834297	+1	0.182913621006	2.536703078253
360	0.014664368047	0.143040375436	+1	0.180351164207	2.417828957861
370	0.014434408356	0.137867106504	+1	0.177898116486	2.318328379530
380	0.014208928859	0.133457767997	+1	0.175545800861	2.235035069879
390	0.013988260124	0.129710710993	+1	0.173287316694	2.165502233238
400	0.013772603687	0.126544375323	+1	0.171117277251	2.107828743932
410	0.013562074724	0.123891567732	+1	0.169030953932	2.060492663977
420	0.013356762022	0.121692855766	+1	0.167022816903	2.022172393473
430	0.013156693093	0.119898453074	+1	0.165087888505	1.991788931429
440	0.012961848261	0.118466990590	+1	0.163221999659	1.968470661424
450	0.012772168449	0.117364061651	+1	0.161421693068	1.951514166788
460	0.012587565553	0.116560676395	+1	0.159683877204	1.940342628177
470	0.012407940679	0.116031178598	+1	0.158005103114	1.934449667498
480	0.012233185362	0.115753484991	+1	0.156382269527	1.933410230893
490	0.012063173621	0.115708825513	+1	0.154812629337	1.936874764907
500	0.011897775305	0.115880997318	+1	0.153293752596	1.944551250282
510	0.011736854618	0.116256119228	+1	0.151823440990	1.956198597894
520	0.011580273995	0.116822194226	+1	0.150399402961	1.971612265992
530	0.011427891415	0.117568894063	+1	0.149019516956	1.990624105630
540	0.011279571054	0.118487056798	+1	0.147681825650	2.013090778285
550	0.011135178281	0.119568587209	+1	0.146384539930	2.038892589683
560	0.010994580022	0.120806448342	+1	0.145126026553	2.067933053629
570	0.010857644913	0.122194915331	+1	0.143904637526	2.100140946475
580	0.010724241572	0.123729120158	+1	0.142718837876	2.135464271371

590	0.010594247820	0.125404540835	+1	0.141567161961	2.173858035878
600	0.010467546113	0.127217093888	+1	0.140448269482	2.215287809609
610	0.010344020724	0.129163193329	+1	0.139360869692	2.259730196895
620	0.010223559089	0.131240284416	+1	0.138303738596	2.307183476705
630	0.010106050497	0.133446303135	+1	0.137275727203	2.357657944783
640	0.009991395293	0.135779123298	+1	0.136275699832	2.411161771311
650	0.009879491110	0.138236923570	+1	0.135302603335	2.467712744043
660	0.009770246757	0.140817990456	+1	0.134355423315	2.527330221031
670	0.009663567728	0.143521548252	+1	0.133433218927	2.590056328737
680	0.009559364188	0.146347053329	+1	0.132535086209	2.655939508792
690	0.009457553277	0.149293910316	+1	0.131660132511	2.725027486746
700	0.009358054095	0.152361520161	+1	0.130807534974	2.797370879757
710	0.009260790687	0.155549362827	+1	0.129976458045	2.873022073263
720	0.009165687675	0.158857754910	+1	0.129166160814	2.952055215536
730	0.009072672062	0.162287092058	+1	0.128375922872	3.034548586796
740	0.008981676371	0.165837742580	+1	0.127605048878	3.120581441547
750	0.008892635154	0.169510019018	+1	0.126852877425	3.210234729303
760	0.008805487140	0.173304207244	+1	0.126118734116	3.303589559418
770	0.008720171058	0.177221343156	+1	0.125402026421	3.400748609121
780	0.008636628041	0.181262528433	+1	0.124702168037	3.501818730871
790	0.008554802748	0.185428819326	+1	0.124018602817	3.606908815177
800	0.008474642984	0.189721121752	+1	0.123350764232	3.716126141590
810	0.008396098726	0.194140495016	+1	0.122698136764	3.829585599570
820	0.008319119788	0.198688423226	+1	0.122060210130	3.947415797743
830	0.008243658969	0.203366637455	+1	0.121436525516	4.069755766282
840	0.008169670244	0.208176797559	+1	0.120826625223	4.196746891357
850	0.008097112170	0.213120321625	+1	0.120230044287	4.328526641612
860	0.008025942081	0.218198949849	+1	0.119646371591	4.465247342080
870	0.007956119322	0.223414727570	+1	0.119075191876	4.607072415239
880	0.007887605888	0.228769756539	+1	0.118516110271	4.754171305084
890	0.007820364922	0.234266299226	+1	0.117968760298	4.906723520422
900	0.007754359520	0.239906422079	+1	0.117432770403	5.064909315595
910	0.007689557143	0.245692245158	+1	0.116907759334	5.228912702255

920	0.007625924152	0.251626454722	+1	0.116393421486	5.398942634676
930	0.007563427624	0.257711895833	+1	0.115889439840	5.575218203941
940	0.007502035967	0.263951263707	+1	0.115395498230	5.757961027893
950	0.007441721600	0.270347322022	+1	0.114911286127	5.947399057011
960	0.007382455544	0.276902873437	+1	0.114436510696	6.143770831501
970	0.007324209115	0.283621083450	+1	0.113970885922	6.347332923640
980	0.007266957384	0.290505214996	+1	0.113514148938	6.558351437242
990	0.007210673325	0.297558593890	+1	0.113066042344	6.777105466296
1000	0.007155333553	0.304784453273	+1	0.112626291695	7.003876362736
1025	0.007020958827	0.323627778854	+1	0.111561933010	7.607914128504
1050	0.006891977401	0.343637285113	+1	0.110544957499	8.269334051994
1075	0.006768063200	0.364883627249	+1	0.109572212354	8.994103702035
1100	0.006648919916	0.387440646220	+1	0.108640632040	9.788810252656
1125	0.006534277515	0.411387875719	+1	0.107747315429	10.660812886668
1150	0.006423878240	0.436820600157	+1	0.106889896607	11.618741220667
1175	0.006317484790	0.463844566806	+1	0.106066133387	12.672420100973
1200	0.006214879078	0.492574196619	+1	0.105273894861	13.832948215478
1225	0.006115860739	0.523135177029	+1	0.104511180516	15.112954498816
1250	0.006020239414	0.555672458484	+1	0.103776245414	16.527153370546
1275	0.005927838791	0.590347912364	+1	0.103067513229	18.092517714993
1300	0.005838496034	0.627340650462	+1	0.102383397674	19.828566649806
1325	0.005752059339	0.666851228327	+1	0.101722468501	21.757944295341
1350	0.005668385777	0.709109693568	+1	0.101083463579	23.907265619837
1375	0.005587341023	0.754375594925	+1	0.100465191940	26.307699675488
1400	0.005508800706	0.802943875249	+1	0.099866536965	28.995963423468
1425	0.005432647538	0.855149037799	+1	0.099286444847	32.015431948453
1450	0.005358771947	0.911377050694	+1	0.098723960417	35.417903694970
1475	0.005287069929	0.972072338507	+1	0.098178208694	39.265456760765
1500	0.005217444657	1.037748247106	+1	0.097648352626	43.632869405067
1550	0.005084064409	1.186530441121	+1	0.096633260035	54.310464355225
1600	0.004957961140	1.363860713813	+1	0.095673104775	68.455021278836
1650	0.004838540332	1.578379986635	+1	0.094762963557	87.624218487828
1700	0.004725262775	1.842673127600	+1	0.093898657196	114.336408685466

1750	0.004617657688	2.175749514183	+1	0.093076285305	152.862471569744
1800	0.004515294659	2.607801148904	+1	0.092292580115	210.909098895213
1850	0.004417785569	3.189799562110	+1	0.091544599984	303.505618494568
1900	0.004324786826	4.014953335565	+1	0.090829532360	463.116516216524
1950	0.004235980469	5.274260969356	+1	0.090145036139	770.733285712490
2000	0.004151069607	7.430823510292	+1	0.089489377740	1477.183149293627
2100	0.003991895258	27.682857924541	+1	0.088258072766	19178.141306847283
2200	0.003845500368	19.364763845172	-1	0.087120221586	9749.385292899575
2300	0.003710402990	7.107488366921	-1	0.086062761999	1457.041400195789
2400	0.003585308692	4.306919630088	-1	0.085076328026	590.680048361484
2500	0.003469073515	3.066588916204	-1	0.084155036298	329.174730602692
2600	0.003360707389	2.366946137662	-1	0.083294878721	214.746154812813
2700	0.003259431727	1.918567310045	-1	0.082488837262	153.948492135172
2800	0.003164576832	1.607324970870	-1	0.081730399099	117.496366244091
2900	0.003075538724	1.378966045832	-1	0.081014863524	93.743938232392
3000	0.002991771234	1.204390802534	-1	0.080339189659	77.291197353322
3100	0.002912787007	1.066642320360	-1	0.079701214660	65.350411031080
3200	0.002838185800	0.955331339113	-1	0.079097180553	56.370242206661
3300	0.002767612712	0.863637652343	-1	0.078523636351	49.420101410088
3400	0.002700742481	0.786863845550	-1	0.077978064369	43.910434823187
3500	0.002637275362	0.721665837317	-1	0.077458933369	39.452223914425
3600	0.002576939945	0.665616469037	-1	0.076965108709	35.781028977668
3700	0.002519508874	0.616963701004	-1	0.076494362672	32.714556603190
3800	0.002464777450	0.574375486924	-1	0.076044636201	30.121387799350
3900	0.002412555624	0.536809230455	-1	0.075614362027	27.904047671300
4000	0.002362666246	0.503435362936	-1	0.075202582108	25.988868055395
4100	0.002314946979	0.473592700494	-1	0.074808566047	24.319628314843
4200	0.002269258495	0.446768501132	-1	0.074430898170	22.853757913538
4300	0.002225473552	0.422544102800	-1	0.074068277156	21.557738005594
4400	0.002183472687	0.400569384306	-1	0.073719730649	20.404629240960
4500	0.002143143633	0.380548818790	-1	0.073384650538	19.372552634345
4600	0.002104382975	0.362234708928	-1	0.073062528752	18.443720095048
4700	0.002067100701	0.345426953455	-1	0.072752463399	17.603941754132

4800	0.002031213006	0.329955574087	-1	0.072453552453	16.841466381401
4900	0.001996641782	0.315672623008	-1	0.072165143814	16.146378670683
5000	0.001963311617	0.302448053867	-1	0.071886842806	15.510244023345
5500	0.001813082707	0.248815564514	-1	0.070629704465	13.000801688947
6000	0.001685556988	0.209940416329	-1	0.069557674940	11.247105908048
6500	0.001575844432	0.180612052560	-1	0.068630705443	9.955275983537
7000	0.001480385386	0.157793356402	-1	0.067818915539	8.965057614788
7500	0.001396519203	0.139598465897	-1	0.067099688141	8.182099863129
8000	0.001322217584	0.124797387894	-1	0.066455518141	7.547429167415
8500	0.001255780351	0.112515490070	-1	0.065889278639	7.022246317716
9000	0.001195979093	0.102177116417	-1	0.065391082910	6.580379744753
9500	0.001141922351	0.093393142679	-1	0.064939504435	6.203379852244
10000	0.001092806936	0.085851348650	-1	0.064527284629	5.877761747180
10500	0.001047971748	0.079315284600	-1	0.064148886778	5.593493171756
11000	0.001006877899	0.073607743249	-1	0.063798203914	5.343111665483
11500	0.000969065004	0.068584726921	-1	0.063472325386	5.120667829267
12000	0.000934153537	0.064137220482	-1	0.063166956337	4.921661588529
12500	0.000901816932	0.060175292190	-1	0.062879625910	4.742426326005
13000	0.000871780224	0.056628388894	-1	0.062607188488	4.580085718163
13500	0.000843803334	0.053436911706	-1	0.062347934609	4.432234172325
14000	0.000817682122	0.050553380650	-1	0.062099512248	4.296949831421
14500	0.000793235723	0.047937018984	-1	0.061860631674	4.172598229193
15000	0.000770310110	0.045554874265	-1	0.061629503888	4.057850100185
16000	0.000728483374	0.041383033239	-1	0.061186187521	3.852750050375
17000	0.000691285933	0.037858300161	-1	0.060761089889	3.674437080630
18000	0.000657994638	0.034848539335	-1	0.060347680824	3.517602336147
19000	0.000628031174	0.032254555754	-1	0.059940814385	3.378247374727
20000	0.000600926819	0.030000502665	-1	0.059536504511	3.253305675296
21000	0.000554858826	0.025428591052	-1	0.065894846028	3.313294160499
22000	0.000531404120	0.023706733123	-1	0.066087331983	3.230007875138
23000	0.000509002188	0.022039749598	-1	0.066372302633	3.144466341429
24000	0.000487913243	0.020475379505	-1	0.066745417439	3.061268068092
25000	0.000468373392	0.019062197485	-1	0.067171862117	2.985133971238

26000	0.000450528125	0.017835272303	-1	0.067591975687	2.919636972855
27000	0.000434204427	0.016774698635	-1	0.067978186003	2.863783438414
28000	0.000419167587	0.015847596393	-1	0.068326565157	2.815452073002
29000	0.000405200716	0.015022261077	-1	0.068648387069	2.772562818683
30000	0.000392101312	0.014268352859	-1	0.068970301041	2.733107743271
31000	0.000379703422	0.013561552210	-1	0.069324820767	2.695508894788
32000	0.000367947684	0.012896909128	-1	0.069715310342	2.659606192145
33000	0.000356803875	0.012274255032	-1	0.070135190880	2.625578536154
34000	0.000346245799	0.011693502153	-1	0.070575928581	2.593590374662
35000	0.000336250771	0.011154601930	-1	0.071026974268	2.563790617544
36000	0.000326794728	0.010656802986	-1	0.071477693632	2.536248988722
37000	0.000317838050	0.010196479982	-1	0.071924919229	2.510779028370
38000	0.000309339922	0.009769450624	-1	0.072368862142	2.487130082981
39000	0.000301259942	0.009371591574	-1	0.072812493629	2.465077403188
40000	0.000293546962	0.008998344255	-1	0.073266157039	2.444535734865
41000	0.000286181115	0.008646996678	-1	0.073730037109	2.425191975211
42000	0.000279139597	0.008315857722	-1	0.074203684589	2.406971854082
43000	0.000272403235	0.008003673909	-1	0.074685225789	2.389825298156
44000	0.000265956147	0.007709321019	-1	0.075172137411	2.373678403296
45000	0.000259788022	0.007431896807	-1	0.075660024225	2.358403848136
46000	0.000253873275	0.007169829105	-1	0.076152420696	2.344054321723
47000	0.000248197468	0.006922059746	-1	0.076648377391	2.330568776554
48000	0.000242746646	0.006687553297	-1	0.077147462212	2.317889031675
49000	0.000237507431	0.006465297330	-1	0.077649832240	2.305959423146
50000	0.000232467004	0.006254308512	-1	0.078156217320	2.294726796901
55000	0.000209879628	0.005342554490	-1	0.080752990680	2.247646406627
60000	0.000190895100	0.004620289440	-1	0.083437827059	2.213066712523
65000	0.000174716387	0.004037189612	-1	0.086202531513	2.188212549652
70000	0.000160765899	0.003558894371	-1	0.089041081798	2.171130106889
75000	0.000148614851	0.003161220190	-1	0.091948829853	2.160402243237
80000	0.000137938216	0.002826705919	-1	0.094921818645	2.154973671861
85000	0.000128484915	0.002542451537	-1	0.097956909466	2.154047650446
90000	0.000120058016	0.002298748306	-1	0.101051065411	2.157005168590

95000	0.000112500661	0.002088153390	-1	0.104202053121	2.163369035077
100000	0.000105686412	0.001904878808	-1	0.107407889655	2.172760858652
105000	0.000099511505	0.001744325090	-1	0.110669088294	2.184895921116
110000	0.000093890397	0.001602886796	-1	0.113985335462	2.199604205606
115000	0.000088755020	0.001477660220	-1	0.117349899229	2.216555066587
120000	0.000084070169	0.001366971054	-1	0.120682634355	2.234463593362
125000	0.000079761039	0.001268063076	-1	0.124053364275	2.254221975295
130000	0.000075771654	0.001178981251	-1	0.127509964849	2.276473491232
135000	0.000072075522	0.001098655718	-1	0.131022777612	2.300688424303
140000	0.000068649294	0.001026166488	-1	0.134560467539	2.326366446657
145000	0.000065464629	0.000960505707	-1	0.138125415237	2.353484139139
150000	0.000062497879	0.000900857032	-1	0.141715093195	2.381985682567
155000	0.000059728236	0.000846508961	-1	0.145328333901	2.411817271378
160000	0.000057137809	0.000796867315	-1	0.148961763642	2.442920214526
165000	0.000054710602	0.000751407325	-1	0.152613662611	2.475245824548
170000	0.000052432638	0.000709685654	-1	0.156280531708	2.508744632560
175000	0.000050291258	0.000671305829	-1	0.159960878579	2.543383175991
180000	0.000048275444	0.000635929753	-1	0.163651451185	2.579114068326
185000	0.000046375163	0.000603255001	-1	0.167350425767	2.615904070748
190000	0.000044581777	0.000573028809	-1	0.171052747161	2.653699039859
195000	0.000042887256	0.000545018280	-1	0.174755577048	2.692460017754
200000	0.000041283750	0.000518996109	-1	0.178462282089	2.732192593063
205000	0.000039764087	0.000494760241	-1	0.182177585312	2.772919469448
210000	0.000038323053	0.000472172948	-1	0.185892684566	2.814556746053
215000	0.000036956490	0.000451121838	-1	0.189592382483	2.856934795684
220000	0.000035654898	0.000431405004	-1	0.193317133428	2.900716758073
225000	0.000034417668	0.000412977335	-1	0.197027986767	2.945348288119
230000	0.000033241473	0.000395746188	-1	0.200713465818	2.990665847853
235000	0.000032122419	0.000379611500	-1	0.204371466002	3.036630249348
240000	0.000031057593	0.000364491490	-1	0.207992813710	3.083071379463
245000	0.000030044773	0.000350316597	-1	0.211563264638	3.129711194485
250000	0.000029077503	0.000336958362	-1	0.215121806196	3.177130027434
255000	0.000028152800	0.000324346615	-1	0.218672487777	3.225354215878

260000	0.000027268418	0.000312432526	-1	0.222210868377	3.274338358974
265000	0.000026422395	0.000301173671	-1	0.225730587121	3.324010899703
270000	0.000025612822	0.000290529047	-1	0.229226348309	3.374308836723
275000	0.000024837869	0.000280459323	-1	0.232693760906	3.425173294623
280000	0.000024095748	0.000270926718	-1	0.236129686656	3.476558653294
285000	0.000023384747	0.000261895138	-1	0.239532007249	3.528425408221
290000	0.000022703190	0.000253330121	-1	0.242899903050	3.580751084060
295000	0.000022049442	0.000245198597	-1	0.246234116119	3.633532268081
300000	0.000021421926	0.000237469156	-1	0.249536617243	3.686780519443

Electron Elastic Scattering Sampling Data
Solution for Z = 37

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.023922259387	0.924232340219	+1	0.026174859391	1.951519369547
52	0.023214736870	0.769259993327	+1	0.025732961752	1.513373124142
54	0.022551234141	0.704878154726	+1	0.026062767931	1.394574033280
56	0.021926358288	0.699335801689	+1	0.027069444023	1.475626190160
58	0.021333999513	0.741715771293	+1	0.028698371824	1.751773164494
60	0.020767916459	0.832476929366	+1	0.030921955064	2.296143218363
62	0.020222188119	0.981775834828	+1	0.033729543393	3.291968848183
64	0.019691719989	1.211984393853	+1	0.037115124314	5.146394760121
66	0.019172244914	1.568743908106	+1	0.041075915444	8.833957996622
68	0.018660579956	2.149408810016	+1	0.045603565814	17.016232834854
70	0.018154744433	3.195865759212	+1	0.050678018630	38.726859028016
72	0.017653731382	5.516104794434	+1	0.056268284435	119.288656876032
74	0.017157555909	14.410926798050	+1	0.062328568605	845.889212210756
76	0.016667027693	39.474053889678	-1	0.068799039511	6966.112747953930
78	0.016183551226	8.685433044499	-1	0.075608075879	418.385452652135
80	0.015708965743	4.937348340154	-1	0.082674481332	165.583639220183
82	0.015245330855	3.499842631156	-1	0.089910333603	100.522530777612
84	0.014794692670	2.753427946308	-1	0.097227610457	74.135975799727
86	0.014359026837	2.305975438808	-1	0.104538885590	61.103871716891
88	0.013940062495	2.015185459302	-1	0.111762974852	54.090516423875
90	0.013539192139	1.817080748183	-1	0.118827549777	50.303297605621
92	0.013157523991	1.678849000739	-1	0.125668820861	48.490906234933
94	0.012795723297	1.581842038210	-1	0.132236730152	48.023844054843
96	0.012454170141	1.514905089439	-1	0.138490726087	48.571061148958
98	0.012132946568	1.471003007000	-1	0.144401040841	49.955471613322
100	0.011831858655	1.445561228942	-1	0.149947890719	52.089300034194
105	0.011163980633	1.445360524652	-1	0.162174338433	60.604782623674
110	0.010607470966	1.519843009853	-1	0.172117980809	74.273801206515

115	0.010148791407	1.667102661571	-1	0.179953520182	95.175305752410
120	0.009772896178	1.900073405131	-1	0.185962595561	127.559736607038
125	0.009466113748	2.252008790208	-1	0.190428453809	180.274763263356
130	0.009215981100	2.791695146613	-1	0.193629167987	273.282409991947
135	0.009012089248	3.672850806475	-1	0.195801754781	459.533109069899
140	0.008845523274	5.301283438890	-1	0.197153608995	919.251000630048
145	0.008709035552	9.193417640260	-1	0.197852333277	2631.162587709756
150	0.008596604437	29.805908886949	-1	0.198037222167	26150.775069402884
155	0.008503371718	26.298227842373	+1	0.197818625391	20643.675544957077
160	0.008425355300	8.836447832763	+1	0.197286172820	2514.316432682906
165	0.008359350127	5.187014274045	+1	0.196510424205	931.142312346975
170	0.008302748630	3.613822811587	+1	0.195547911271	484.136609023052
175	0.008253453128	2.741458849535	+1	0.194443131647	297.518310527111
180	0.008209755223	2.189306734745	+1	0.193231824800	202.046669551780
185	0.008170290004	1.809913384483	+1	0.191942001436	146.658366401865
190	0.008133999851	1.534128030212	+1	0.190595088257	111.638400306454
195	0.008100006169	1.325319021952	+1	0.189208597880	88.073598560785
200	0.008067509634	1.162349454051	+1	0.187798636324	71.459867527673
205	0.008035883708	1.032081032748	+1	0.186377602730	59.308372919333
210	0.008004795072	0.925813470093	+1	0.184952027122	50.141904234147
215	0.007974003511	0.837652740352	+1	0.183526681512	43.048588985912
220	0.007943305822	0.763489472892	+1	0.182105836031	37.442539033280
225	0.007912526845	0.700371249951	+1	0.180693294914	32.932867906301
230	0.007881515724	0.646122534376	+1	0.179292436299	29.250369324120
235	0.007850147890	0.599105220828	+1	0.177906288581	26.204526493114
240	0.007818313187	0.558062864286	+1	0.176537581145	23.657354579764
245	0.007785919797	0.522015618013	+1	0.175188702386	21.506804556071
250	0.007752892324	0.490188179556	+1	0.173861848283	19.676042706846
255	0.007719189994	0.461952454562	+1	0.172558477577	18.105822490526
260	0.007684863757	0.436773002663	+1	0.171277950087	16.748487750443
265	0.007649984050	0.414210768995	+1	0.170019449971	15.566679560150
270	0.007614608989	0.393908273850	+1	0.168782387521	14.531137939794
275	0.007578784409	0.375571428616	+1	0.167566444620	13.618667042706

280	0.007542549995	0.358956226163	+1	0.166371419942	12.810659629846
285	0.007505941592	0.343858391071	+1	0.165197277028	12.092034151980
290	0.007468985902	0.330106025402	+1	0.164044087361	11.450477426776
295	0.007431707046	0.317553176974	+1	0.162912023151	10.875831000063
300	0.007394125093	0.306075452707	+1	0.161801283651	10.359660698146
310	0.007318178269	0.285918849251	+1	0.159643162594	9.474870401516
320	0.007241546751	0.268884628287	+1	0.157564297879	8.748713524558
330	0.007164579276	0.254400451973	+1	0.155559748205	8.146878680475
340	0.007087532218	0.242032746700	+1	0.153626350724	7.644489542263
350	0.007010590544	0.231448211492	+1	0.151762295393	7.223166971397
360	0.006933906854	0.222382400715	+1	0.149965845327	6.868857678771
370	0.006857693490	0.214609369308	+1	0.148233014995	6.569968414767
380	0.006782105833	0.207947013628	+1	0.146560367554	6.317485593317
390	0.006707288622	0.202247943120	+1	0.144945029790	6.104319274127
400	0.006633321117	0.197394391352	+1	0.143385075769	5.924995405005
410	0.006560271583	0.193288797888	+1	0.141878695313	5.775095186177
420	0.006488219337	0.189845596958	+1	0.140423180927	5.650814223537
430	0.006417229389	0.186992557083	+1	0.139015966512	5.549019809048
440	0.006347344099	0.184669917407	+1	0.137654978675	5.467193323493
450	0.006278589791	0.182827580963	+1	0.136338506008	5.403283905812
460	0.006210979727	0.181423215660	+1	0.135064960886	5.355603337378
470	0.006144532851	0.180419523111	+1	0.133832416802	5.322676442657
480	0.006079260930	0.179784264236	+1	0.132639005384	5.303256880584
490	0.006015164348	0.179489976022	+1	0.131483138775	5.296320253726
500	0.005952240095	0.179513057972	+1	0.130363411340	5.301013472368
510	0.005890477744	0.179833083972	+1	0.129278494232	5.316624151392
520	0.005829868771	0.180432562508	+1	0.128226958789	5.342551267028
530	0.005770401675	0.181296080366	+1	0.127207404530	5.378282621185
540	0.005712060302	0.182410344397	+1	0.126218612414	5.423402712011
550	0.005654828082	0.183763503857	+1	0.125259433187	5.477558628543
560	0.005598686354	0.185345326855	+1	0.124328786793	5.540466323786
570	0.005543615619	0.187147419865	+1	0.123425570007	5.611911556547
580	0.005489594143	0.189162663207	+1	0.122548725064	5.691734782421

590	0.005436603228	0.191384477227	+1	0.121697264561	5.779801164928
600	0.005384619536	0.193807193811	+1	0.120870254211	5.876020279174
610	0.005333624455	0.196425672365	+1	0.120066821910	5.980323154420
620	0.005283592973	0.199236408931	+1	0.119286096710	6.092710426570
630	0.005234504376	0.202236335837	+1	0.118527229672	6.213199750932
640	0.005186337019	0.205422746030	+1	0.117789439371	6.341831570290
650	0.005139068888	0.208793201759	+1	0.117071967101	6.478662844406
660	0.005092680834	0.212345588494	+1	0.116374095858	6.623766137726
670	0.005047151550	0.216079118681	+1	0.115695127968	6.777271776042
680	0.005002457143	0.219993532956	+1	0.115034417133	6.939343056580
690	0.004958581457	0.224088448670	+1	0.114391349001	7.110137280026
700	0.004915502543	0.228363691093	+1	0.113765307896	7.289834243496
710	0.004873202898	0.232819230990	+1	0.113155708068	7.478622012950
720	0.004831664242	0.237455759183	+1	0.112561959250	7.676724093191
730	0.004790862680	0.242275172529	+1	0.111983612138	7.884439204440
740	0.004750784321	0.247277928550	+1	0.111420047327	8.101990892183
750	0.004711411480	0.252465416598	+1	0.110870756613	8.329662107696
760	0.004672726264	0.257838970783	+1	0.110335267041	8.567746881639
770	0.004634712019	0.263400944605	+1	0.109813115337	8.816589336200
780	0.004597352043	0.269154003467	+1	0.109303883125	9.076562651875
790	0.004560630185	0.275100823660	+1	0.108807154814	9.348053061256
800	0.004524532554	0.281243944995	+1	0.108322531703	9.631451705464
810	0.004489043939	0.287586089628	+1	0.107849587915	9.927170954907
820	0.004454149219	0.294130878815	+1	0.107387975171	10.235683808788
830	0.004419834809	0.300882028559	+1	0.106937316768	10.557477980015
840	0.004386085618	0.307843344573	+1	0.106497262891	10.893069177029
850	0.004352889841	0.315018553307	+1	0.106067472586	11.242981165407
860	0.004320234608	0.322411532669	+1	0.105647599058	11.607764976398
870	0.004288105792	0.330027228274	+1	0.105237339409	11.988048767419
880	0.004256493050	0.337870470249	+1	0.104836407540	12.384470619069
890	0.004225381734	0.345946556816	+1	0.104444501617	12.797724624137
900	0.004194761739	0.354260505163	+1	0.104061350658	13.228508715794
910	0.004164623206	0.362817726288	+1	0.103686669510	13.677562521849

920	0.004134953223	0.371624506257	+1	0.103320209921	14.145711412891
930	0.004105742405	0.380687456979	+1	0.102961748370	14.633821193018
940	0.004076979884	0.390013276857	+1	0.102611034814	15.142797115105
950	0.004048655976	0.399608941916	+1	0.102267834657	15.673592323431
960	0.004020761653	0.409481451004	+1	0.101931942981	16.227201494672
970	0.003993286554	0.419638544447	+1	0.101603109536	16.804694791509
980	0.003966221285	0.430088158092	+1	0.101281123535	17.407199242321
990	0.003939558111	0.440838287719	+1	0.100965778976	18.035884549271
1000	0.003913287201	0.451897403705	+1	0.100656848693	18.691998945582
1025	0.003849271184	0.480957572744	+1	0.099911343398	20.461236605208
1050	0.003787527266	0.512170841427	+1	0.099202166696	22.434271494503
1075	0.003727937868	0.545721741408	+1	0.098526903706	24.638823056445
1100	0.003670394443	0.581813071875	+1	0.097883214255	27.106924147011
1125	0.003614797888	0.620672250231	+1	0.097268877418	29.875964662857
1150	0.003561050230	0.662568212894	+1	0.096681992725	32.990819053700
1175	0.003509059172	0.707808928353	+1	0.096120809233	36.504832288442
1200	0.003458741360	0.756742614408	+1	0.095583611001	40.481232760937
1225	0.003410017774	0.809768569591	+1	0.095068770828	44.995717878043
1250	0.003362812416	0.867358764364	+1	0.094574947849	50.140596509391
1275	0.003317056332	0.930062929440	+1	0.094100866475	56.028183160943
1300	0.003272682032	0.998521681882	+1	0.093645313626	62.795920140730
1325	0.003229629592	1.073488941807	+1	0.093207141471	70.613433730024
1350	0.003187838740	1.155868152220	+1	0.092785350280	79.693196881835
1375	0.003147255631	1.246739604246	+1	0.092379013986	90.302667891129
1400	0.003107826287	1.347406280093	+1	0.091987226403	102.782231164724
1425	0.003069502184	1.459455749574	+1	0.091609158702	117.570162916093
1450	0.003032238527	1.584841584980	+1	0.091244041519	135.238012258079
1475	0.002995989400	1.726005962893	+1	0.090891210970	156.543722754746
1500	0.002960713769	1.886021306533	+1	0.090549988990	182.505245648558
1550	0.002892926691	2.279522126478	+1	0.089899970223	254.526379542257
1600	0.002828532290	2.814639401605	+1	0.089291480675	371.124013257834
1650	0.002767314489	3.582290202982	+1	0.088719261323	575.904398274553
1700	0.002709043076	4.773329358258	+1	0.088179652969	981.106152831078

1750	0.002653506169	6.866908721974	+1	0.087669733467	1951.156076249923
1800	0.002600508751	11.504232820923	+1	0.087186930528	5269.847069902400
1850	0.002549874568	30.436156203250	+1	0.086728994783	35543.409166030775
1900	0.002501446382	57.661970543754	-1	0.086293818401	127392.260682845840
1950	0.002455078155	14.823316280268	-1	0.085879584928	8953.630552750317
2000	0.002410630087	8.436068558053	-1	0.085485017723	3079.315110525725
2100	0.002327004495	4.473701746659	-1	0.084750057329	972.169056755449
2200	0.002249746651	3.011342482096	-1	0.084077476323	491.769118729495
2300	0.002178158866	2.252519614654	-1	0.083457593796	305.609827364356
2400	0.002111620605	1.788957168719	-1	0.082883652445	213.085669849232
2500	0.002049573612	1.476761785502	-1	0.082351720742	159.822668949970
2600	0.001991530590	1.252350027360	-1	0.081859297634	126.028670201356
2700	0.001937116184	1.083606901562	-1	0.081401280081	103.085317665651
2800	0.001886005056	0.952374706937	-1	0.080972905588	86.700433953875
2900	0.001837899294	0.847550047694	-1	0.080570932374	74.525098027509
3000	0.001792524601	0.761957982413	-1	0.080193546453	65.181841648620
3100	0.001749635057	0.690781671523	-1	0.079839633769	57.819813354785
3200	0.001709032194	0.630746329501	-1	0.079506468777	51.895659120794
3300	0.001670540232	0.579497024418	-1	0.079191569088	47.043306933566
3400	0.001633995672	0.535278899564	-1	0.078893207463	43.006794655795
3500	0.001599245037	0.496755553033	-1	0.078610566073	39.602472811394
3600	0.001566148291	0.462901497927	-1	0.078343157704	36.696358756449
3700	0.001534591205	0.432946475043	-1	0.078089371207	34.190749549210
3800	0.001504470696	0.406280188747	-1	0.077847709915	32.011355986652
3900	0.001475688804	0.382405515539	-1	0.077617149325	30.100303907623
4000	0.001448153763	0.360913387905	-1	0.077397201892	28.411935756718
4100	0.001421780188	0.341467729469	-1	0.077187551643	26.910032782805
4200	0.001396497613	0.323802892300	-1	0.076987191730	25.566338451830
4300	0.001372240358	0.307696695110	-1	0.076795176765	24.357908887118
4400	0.001348946298	0.292958958775	-1	0.076610887895	23.265755707079
4500	0.001326556563	0.279425901449	-1	0.076433990352	22.274034323959
4600	0.001305016286	0.266957434952	-1	0.076264316605	21.369550366967
4700	0.001284280786	0.255440844423	-1	0.076100970525	20.541629716803

4800	0.001264307642	0.244778244279	-1	0.075943152026	19.781227393225
4900	0.001245052632	0.234879888581	-1	0.075790810320	19.080454863451
5000	0.001226475944	0.225668257547	-1	0.075643743850	18.432561220357
5500	0.001142590683	0.187846607294	-1	0.074977691542	15.810913397171
6000	0.001071217179	0.159967373523	-1	0.074402793549	13.909191656775
6500	0.001009724977	0.138679049680	-1	0.073895015041	12.465959486468
7000	0.000956178295	0.121965942422	-1	0.073437010555	11.331942044380
7500	0.000909120545	0.108547063403	-1	0.073015957456	10.416015603593
8000	0.000867432115	0.097571394052	-1	0.072622309264	9.659544444050
8500	0.000830237528	0.088453000170	-1	0.072248828476	9.023162286625
9000	0.000796843082	0.080775984637	-1	0.071890088365	8.479472190104
9500	0.000766690614	0.074237771604	-1	0.071541813313	8.008846154693
10000	0.000739326503	0.068613202924	-1	0.071200790632	7.596857258702
10500	0.000714376001	0.063730725519	-1	0.070864967976	7.232631387512
11000	0.000691534289	0.059461150165	-1	0.070531158274	6.907972133547
11500	0.000670537559	0.055698928506	-1	0.070199282388	6.616304654846
12000	0.000651170309	0.052363941728	-1	0.069867415016	6.352589737189
12500	0.000633245584	0.049389875234	-1	0.069535231941	6.112694280184
13000	0.000616606584	0.046724577688	-1	0.069201540988	5.893347533179
13500	0.000601115529	0.044323900423	-1	0.068866398075	5.691799946690
14000	0.000586656236	0.042152607171	-1	0.068529049265	5.505829434851
14500	0.000573125077	0.040180424961	-1	0.068189656977	5.333544666380
15000	0.000560434130	0.038382836624	-1	0.067847741724	5.173389876161
16000	0.000537266885	0.035229463427	-1	0.067156640166	4.884268672951
17000	0.000516633489	0.032558732569	-1	0.066455767222	4.629916546940
18000	0.000498124496	0.030272175891	-1	0.065745630996	4.403958232316
19000	0.000481413905	0.028295870475	-1	0.065026944767	4.201532718750
20000	0.000466239141	0.026573314323	-1	0.064300648927	4.018866270702
21000	0.000354571419	0.018504903622	-1	0.084446715464	4.901075615054
22000	0.000339762077	0.017241551445	-1	0.085069710078	4.798051947610
23000	0.000325488351	0.016014740690	-1	0.085864881429	4.694056531833
24000	0.000311961314	0.014863478702	-1	0.086795120667	4.594296018651
25000	0.000299390656	0.013825951074	-1	0.087777582887	4.503737294472

26000	0.000287927983	0.012928610658	-1	0.088700487691	4.425747809749
27000	0.000277473867	0.012155502650	-1	0.089528083695	4.358833912742
28000	0.000267870248	0.011481273121	-1	0.090266150238	4.300487228820
29000	0.000258963970	0.010881945300	-1	0.090941897926	4.248421068114
30000	0.000250606376	0.010334963984	-1	0.091603617296	4.200593326316
31000	0.000242673777	0.009822503320	-1	0.092305033289	4.155511194474
32000	0.000235130013	0.009341003266	-1	0.093050798853	4.112997191569
33000	0.000227962564	0.008890368787	-1	0.093829632024	4.073159202579
34000	0.000221161081	0.008470507091	-1	0.094627749859	4.036074778555
35000	0.000214717329	0.008081333916	-1	0.095428588854	4.001786654348
36000	0.000208620867	0.007722214393	-1	0.096216270330	3.970254500887
37000	0.000202846964	0.007390413409	-1	0.096987365903	3.941225517171
38000	0.000197368173	0.007082802063	-1	0.097743891190	3.914418438397
39000	0.000192158012	0.006796393440	-1	0.098490645293	3.889582315758
40000	0.000187190899	0.006528344900	-1	0.099235249709	3.866496900113
41000	0.000182443982	0.006276226307	-1	0.099985646734	3.844990419777
42000	0.000177903158	0.006038790383	-1	0.100741433329	3.824963624172
43000	0.000173557048	0.005815106331	-1	0.101500122314	3.806332594380
44000	0.000169394893	0.005604271604	-1	0.102259730565	3.789015193576
45000	0.000165406460	0.005405417444	-1	0.103018741312	3.772932491507
46000	0.000161581978	0.005217709295	-1	0.103776079529	3.758007557841
47000	0.000157911963	0.005040351099	-1	0.104530924892	3.744164156934
48000	0.000154387299	0.004872577625	-1	0.105282995636	3.731330245966
49000	0.000150999261	0.004713648537	-1	0.106032715878	3.719438337745
50000	0.000147739419	0.004562850491	-1	0.106781227516	3.708428206490
55000	0.000133126834	0.003912004255	-1	0.110518458708	3.664961611629
60000	0.000120844706	0.003397084658	-1	0.114239265201	3.637458729582
65000	0.000110379818	0.002981658002	-1	0.117944030092	3.622371847043
70000	0.000101361273	0.002640938691	-1	0.121634561938	3.617174276060
75000	0.000093512122	0.002357556182	-1	0.125311302895	3.620036317261
80000	0.000086622112	0.002118991419	-1	0.128975780942	3.629610640808
85000	0.000080528746	0.001916033916	-1	0.132628351940	3.644850855365
90000	0.000075104094	0.001741767153	-1	0.136269363153	3.664962656230

95000	0.000070246463	0.001590912185	-1	0.139897958469	3.689291880075
100000	0.000065873259	0.001459357371	-1	0.143515423331	3.717373997639
105000	0.000061917297	0.001343863186	-1	0.147122595128	3.748799288417
110000	0.000058323899	0.001241912707	-1	0.150715476115	3.783230941671
115000	0.000055044646	0.001151343453	-1	0.154304688993	3.820593609624
120000	0.000052048425	0.001070673616	-1	0.157859051481	3.859902620380
125000	0.000049305301	0.000998557694	-1	0.161363004158	3.900511310927
130000	0.000046780020	0.000933686529	-1	0.164844807754	3.943063450910
135000	0.000044440213	0.000874919680	-1	0.168347684222	3.988576356371
140000	0.000042273618	0.000821650416	-1	0.171833976441	4.035967158597
145000	0.000040264189	0.000773231304	-1	0.175294747140	4.084875294216
150000	0.000038396258	0.000729086392	-1	0.178729935151	4.135245006535
155000	0.000036656035	0.000688714160	-1	0.182140887683	4.187025076872
160000	0.000035031838	0.000651699467	-1	0.185524850018	4.240103052842
165000	0.000033513175	0.000617674342	-1	0.188881126996	4.294391824946
170000	0.000032090953	0.000586327657	-1	0.192207604547	4.349799039349
175000	0.000030756894	0.000557381011	-1	0.195504267653	4.406267186123
180000	0.000029503667	0.000530595312	-1	0.198770144651	4.463741187991
185000	0.000028324618	0.000505756992	-1	0.202005486505	4.522185597371
190000	0.000027214102	0.000482687873	-1	0.205207208318	4.581512014223
195000	0.000026166890	0.000461223965	-1	0.208374088248	4.641649751687
200000	0.000025177771	0.000441203844	-1	0.211511165057	4.702625524679
205000	0.000024242007	0.000422483889	-1	0.214624347257	4.764485921596
210000	0.000023356179	0.000404965613	-1	0.217707678541	4.827104803614
215000	0.000022517391	0.000388565506	-1	0.220751903798	4.890281151702
220000	0.000021723126	0.000373207561	-1	0.223746231019	4.953734520233
225000	0.000020967671	0.000358764269	-1	0.226723351567	5.018420134476
230000	0.000020249842	0.000345187146	-1	0.229664694406	5.083800569155
235000	0.000019568086	0.000332421911	-1	0.232557732744	5.149466318777
240000	0.000018919940	0.000320400962	-1	0.235404463879	5.215403335023
245000	0.000018303010	0.000309060087	-1	0.238209358910	5.281652762140
250000	0.000017717307	0.000298373485	-1	0.240944567500	5.347219637829
255000	0.000017157896	0.000288243779	-1	0.243657090357	5.413447542102

260000	0.000016623472	0.000278637728	-1	0.246342400588	5.480208168065
265000	0.000016112831	0.000269525657	-1	0.248995339423	5.547366851902
270000	0.000015624776	0.000260878314	-1	0.251612168235	5.614816898065
275000	0.000015158135	0.000252667266	-1	0.254190288424	5.682471430420
280000	0.000014711774	0.000244865274	-1	0.256727912412	5.750258591971
285000	0.000014284586	0.000237445900	-1	0.259224564273	5.818131157596
290000	0.000013875500	0.000230384038	-1	0.261680513185	5.886061772473
295000	0.000013483473	0.000223655356	-1	0.264097381092	5.954050818184
300000	0.000013107490	0.000217236706	-1	0.266477746915	6.022127633956

Electron Elastic Scattering Sampling Data
Solution for Z = 38

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.027941319658	1.002478360886	+1	0.035789976694	2.594283150703
52	0.027089195569	0.783022842001	+1	0.033233947306	1.724994059420
54	0.026271546542	0.668861532923	+1	0.031766475577	1.358305672185
56	0.025489241514	0.615941546515	+1	0.031179079444	1.225453694749
58	0.024740634097	0.605315558319	+1	0.031330703596	1.239687097639
60	0.024022553845	0.629387305154	+1	0.032128656119	1.383848470866
62	0.023331079874	0.687156465617	+1	0.033513989759	1.683800187333
64	0.022662287519	0.782511319238	+1	0.035446929381	2.211767289642
66	0.022012466443	0.925134171358	+1	0.037902096642	3.118780367224
68	0.021378544403	1.132831971113	+1	0.040858926226	4.713697805469
70	0.020758264535	1.437566153391	+1	0.044295157953	7.664834311363
72	0.020150148094	1.900691318728	+1	0.048184836373	13.577772765631
74	0.019553548943	2.653230718357	+1	0.052494535408	26.936977107019
76	0.018968544279	4.031169877101	+1	0.057181681259	63.640591810857
78	0.018395795888	7.229260012048	+1	0.062195167720	210.602550678978
80	0.017836412584	21.863096666670	+1	0.067475762287	1992.273257252060
82	0.017291807891	30.434789082148	-1	0.072957367930	4280.202821902382
84	0.016763457115	9.372225919343	-1	0.078571779612	486.335845172165
86	0.016252876029	5.670063656445	-1	0.084248616220	210.654672047110
88	0.015761407338	4.154784730818	-1	0.089920322688	132.175450483880
90	0.015290162255	3.347154770669	-1	0.095524325561	98.991000511425
92	0.014840030204	2.857736487552	-1	0.101003246117	82.243119025418
94	0.014411521967	2.539200944802	-1	0.106309755491	73.124746381292
96	0.014004902281	2.323965517716	-1	0.111403740814	68.196383721113
98	0.013620166628	2.176773850192	-1	0.116253684315	65.890235027428
100	0.013257061014	2.077591636648	-1	0.120836457129	65.423323206164
105	0.012440325517	1.971061836325	-1	0.131043621960	70.117863373455
110	0.011743324867	2.005095782571	-1	0.139455504966	82.185339074229

115	0.011151826703	2.155925108197	-1	0.146166244707	103.293203189022
120	0.010650189570	2.434030293504	-1	0.151380900464	138.525645750879
125	0.010224137163	2.886860883965	-1	0.155321281798	199.765211135810
130	0.009860724162	3.625929540141	-1	0.158213262183	316.583946060999
135	0.009549121382	4.930435800264	-1	0.160252587934	578.811865729185
140	0.009280100754	7.680412829490	-1	0.161611931083	1372.109821202163
145	0.009046166798	16.750454508664	-1	0.162430946381	6316.966843547815
150	0.008857481385	95.507182274174	+1	0.162554705281	200215.962409998410
155	0.008659921356	13.096188750374	+1	0.162887188154	4112.357450621417
160	0.008498481856	6.683239506675	+1	0.162689543058	1164.093651189201
165	0.008353467143	4.401728433662	+1	0.162290303370	546.859116771374
170	0.008222155052	3.238377020334	+1	0.161735361568	319.454443962508
175	0.008102326873	2.536490382717	+1	0.161060582309	210.838534528114
180	0.007992154443	2.069075466159	+1	0.160294567365	150.471662653526
185	0.007890143905	1.736829009523	+1	0.159459508021	113.396170019415
190	0.007795091492	1.489403890182	+1	0.158572514869	88.945834040382
195	0.007705982404	1.298646902445	+1	0.157647356580	71.943944926905
200	0.007621896303	1.147658827251	+1	0.156696442035	59.633824560441
205	0.007542080546	1.025602757227	+1	0.155729324136	50.427541207637
210	0.007466024202	0.925115145399	+1	0.154751370791	43.349363892051
215	0.007393310926	0.841107040392	+1	0.153766604862	37.780190078507
220	0.007323570856	0.769974796743	+1	0.152778618281	33.313278712851
225	0.007256472897	0.709093934057	+1	0.151790506306	29.671912463463
230	0.007191725088	0.656508820620	+1	0.150805074754	26.662302881549
235	0.007129063346	0.610732544059	+1	0.149824759455	24.145267984316
240	0.007068250610	0.570614593357	+1	0.148851776504	22.018639663961
245	0.007009073229	0.535251177156	+1	0.147888072487	20.205964856023
250	0.006951341797	0.503922764412	+1	0.146935411198	18.649059770544
255	0.006894898461	0.476042893952	+1	0.145995077735	17.302580940942
260	0.006839668299	0.451108674485	+1	0.145066847362	16.129532232007
265	0.006785594007	0.428706227951	+1	0.144150409241	15.100672845646
270	0.006732618898	0.408496853659	+1	0.143245608546	14.192908486367
275	0.006680682789	0.390200811447	+1	0.142352430868	13.387797860321

280	0.006629728710	0.373584921396	+1	0.141470980590	12.670440926070
285	0.006579699416	0.358453725549	+1	0.140601451221	12.028706098300
290	0.006530539012	0.344641601088	+1	0.139744068115	11.452596615418
295	0.006482193099	0.332008061283	+1	0.138899160642	10.933847967343
300	0.006434608152	0.320432680608	+1	0.138067070009	10.465549487124
310	0.006341574232	0.300043244624	+1	0.136441555599	9.657263554107
320	0.006251293578	0.282745222409	+1	0.134864985710	8.988239905457
330	0.006163653731	0.267980585061	+1	0.133334917610	8.429497280142
340	0.006078502394	0.255325927882	+1	0.131850264728	7.959931409727
350	0.005995680640	0.244453146599	+1	0.130410634010	7.563770796256
360	0.005915046055	0.235101231513	+1	0.129015713899	7.228868329482
370	0.005836532763	0.227047737184	+1	0.127663407193	6.945102249210
380	0.005760081612	0.220111607605	+1	0.126351779784	6.704466736030
390	0.005685617014	0.214147460513	+1	0.125079560796	6.500732696545
400	0.005613052982	0.209037497057	+1	0.123845847963	6.328996436619
410	0.005542307428	0.204684047314	+1	0.122649851694	6.185292880297
420	0.005473328112	0.201001477883	+1	0.121490003160	6.066170175702
430	0.005406067891	0.197917542004	+1	0.120364800087	5.968773720869
440	0.005340468705	0.195372007739	+1	0.119273067865	5.890796158208
450	0.005276471480	0.193314381576	+1	0.118213869720	5.830356312889
460	0.005214015511	0.191701806678	+1	0.117186297937	5.785897277690
470	0.005153057605	0.190496358979	+1	0.116189176574	5.756041460160
480	0.005093551596	0.189665352172	+1	0.115221309388	5.739628331195
490	0.005035451865	0.189180704116	+1	0.114281695387	5.735693232285
500	0.004978711601	0.189018410357	+1	0.113369478545	5.743443129224
510	0.004923284356	0.189157576442	+1	0.112483826285	5.762210557255
520	0.004869129356	0.189580066819	+1	0.111623760122	5.791422469773
530	0.004816208656	0.190270097320	+1	0.110788363031	5.830598617719
540	0.004764483501	0.191213887315	+1	0.109976803298	5.879343600266
550	0.004713915324	0.192399177162	+1	0.109188295549	5.937325457497
560	0.004664466442	0.193815352487	+1	0.108422103118	6.004278854752
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580	0.004568791907	0.197306318546	+1	0.106953620428	6.164341407015

590	0.004522499891	0.199366591864	+1	0.106249872754	6.257176424737
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610	0.004432851132	0.204086093445	+1	0.104900061799	6.468016439337
620	0.004389435108	0.206736042270	+1	0.104252748017	6.585969882520
630	0.004346918795	0.209574860911	+1	0.103622990622	6.712311042270
640	0.004305276987	0.212599562813	+1	0.103010219234	6.847085457633
650	0.004264482602	0.215807452909	+1	0.102413869597	6.990358232109
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670	0.004185339608	0.222764915830	+1	0.101268350285	7.302791161367
680	0.004146943344	0.226512609708	+1	0.100718158115	7.472242869644
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700	0.004072386516	0.234542806070	+1	0.099660444462	7.838459963097
710	0.004036185846	0.238824499428	+1	0.099152031084	8.035598935731
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760	0.003865160951	0.262928168759	+1	0.096797482808	9.171739802579
770	0.003832826839	0.268296331669	+1	0.096361361366	9.431114397732
780	0.003801076504	0.273851518068	+1	0.095936007135	9.702019887945
790	0.003769895398	0.279595999803	+1	0.095521077134	9.984840252968
800	0.003739267241	0.285532159630	+1	0.095116231726	10.279982961364
810	0.003709178852	0.291662496679	+1	0.094721164400	10.587870710733
820	0.003679615866	0.297990244000	+1	0.094335578103	10.908978734070
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840	0.003622010599	0.311252248359	+1	0.093591693165	11.592904976626
850	0.003593942705	0.318193552715	+1	0.093232845550	11.956788226250
860	0.003566349044	0.325346520363	+1	0.092882368063	12.336027897230
870	0.003539216463	0.332715786771	+1	0.092540002852	12.731263156447
880	0.003512534453	0.340306030234	+1	0.092205529783	13.143155820256
890	0.003486291109	0.348122082321	+1	0.091878696981	13.572400507255
900	0.003460476697	0.356168797345	+1	0.091559288456	14.019716682904
910	0.003435080355	0.364451245435	+1	0.091247057773	14.485861204572

920	0.003410092040	0.372975284766	+1	0.090941815780	14.971666624135
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940	0.003361300323	0.390772605448	+1	0.090351479519	16.005794100094
950	0.003337478468	0.400058381880	+1	0.090065996410	16.555983152583
960	0.003314027175	0.409611004166	+1	0.089786701502	17.129582902529
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980	0.003268203175	0.429546379113	+1	0.089246010712	18.351431484234
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1000	0.003223762664	0.450641110560	+1	0.088728029717	19.680799797700
1025	0.003170065970	0.478743504582	+1	0.088110510899	21.509899915447
1050	0.003118320825	0.508918465721	+1	0.087524251688	23.547678671216
1075	0.003068422694	0.541338888424	+1	0.086967206061	25.822052469395
1100	0.003020273939	0.576193855826	+1	0.086437325462	28.365156211111
1125	0.002973787346	0.613694677305	+1	0.085932707677	31.214368868851
1150	0.002928876729	0.654093876958	+1	0.085451755256	34.414651481321
1175	0.002885461450	0.697679774430	+1	0.084992994205	38.019290299463
1200	0.002843468192	0.744777937767	+1	0.084554960316	42.091291733454
1225	0.002802828778	0.795760510365	+1	0.084136305157	46.705849376844
1250	0.002763477569	0.851065763246	+1	0.083735848634	51.954270070784
1275	0.002725353863	0.911202653566	+1	0.083352508752	57.947291478740
1300	0.002688400456	0.976761909339	+1	0.082985217827	64.819776567596
1325	0.002652564092	1.048435971414	+1	0.082632954764	72.737454594901
1350	0.002617795248	1.127051706694	+1	0.082294888191	81.906904585207
1375	0.002584045291	1.213595752464	+1	0.081970198729	92.587137754775
1400	0.002551269672	1.309249994941	+1	0.081658099793	105.105500384025
1425	0.002519427073	1.415446440522	+1	0.081357869757	119.880756067018
1450	0.002488476402	1.533943993503	+1	0.081068829784	137.456258995795
1475	0.002458381013	1.666919816737	+1	0.080790401362	158.545652938241
1500	0.002429104725	1.817098785302	+1	0.080521990476	184.100031637204
1550	0.002372876436	2.183905792944	+1	0.080013082162	254.254722280263
1600	0.002319544675	2.676595345043	+1	0.079538256586	365.754716632253
1650	0.002268885924	3.371722798521	+1	0.079094099946	556.719460638684
1700	0.002220700356	4.423940461512	+1	0.078677683874	920.684500919514

1750	0.002174805737	6.199605892367	+1	0.078286373638	1739.398229804576
1800	0.002131038700	9.827551680547	+1	0.077917933529	4210.441153440998
1850	0.002089249576	21.333467190355	+1	0.077570343161	19137.417200808872
1900	0.002060290235	133.723094095691	+1	0.076805408084	725980.169803271070
1950	0.002010981956	18.682479556723	-1	0.076935244107	15209.916729580191
2000	0.001974306356	9.599813129444	-1	0.076643120010	4269.661503036333
2100	0.001905353849	4.799258348910	-1	0.076103588342	1200.953246821205
2200	0.001841705782	3.162165253576	-1	0.075615458971	583.502124671712
2300	0.001782771142	2.338825186364	-1	0.075170571864	355.392699958215
2400	0.001728027861	1.844357341409	-1	0.074763097665	244.885460781391
2500	0.001677011824	1.514968980029	-1	0.074389430647	182.286904992323
2600	0.001629318041	1.280026765010	-1	0.074047196765	143.009824127027
2700	0.001584630306	1.104367304692	-1	0.073732121745	116.557333987411
2800	0.001542675483	0.968344429821	-1	0.073440353314	97.779608288978
2900	0.001503203435	0.860063434887	-1	0.073169220120	83.891143738859
3000	0.001465985931	0.771898870583	-1	0.072917203938	73.273142223243
3100	0.001430818490	0.698760226374	-1	0.072683411414	64.932487249378
3200	0.001397536018	0.637195085738	-1	0.072465621042	58.237848849622
3300	0.001365992027	0.584730604996	-1	0.072261788562	52.765921932248
3400	0.001336050010	0.539531828437	-1	0.072070525553	48.222075062680
3500	0.001307583853	0.500207902183	-1	0.071891185541	44.395780017397
3600	0.001280477216	0.465693774572	-1	0.071723396521	41.133864678188
3700	0.001254635799	0.435188798979	-1	0.071565865873	38.324752688457
3800	0.001229974038	0.408059889860	-1	0.071417366737	35.883807980455
3900	0.001206410856	0.383792929283	-1	0.071277101231	33.745284474225
4000	0.001183870769	0.361965893592	-1	0.071144694919	31.857390311478
4100	0.001162284024	0.342233394811	-1	0.071019933297	30.179187352743
4200	0.001141591552	0.324320948792	-1	0.070902020251	28.678675824021
4300	0.001121739549	0.307999944856	-1	0.070790182263	27.329940157053
4400	0.001102677019	0.293075032290	-1	0.070683923598	26.111558854924
4500	0.001084355667	0.279378311497	-1	0.070583030343	25.005695982425
4600	0.001066730218	0.266766460993	-1	0.070487375527	23.997511358522
4700	0.001049762185	0.255122181107	-1	0.070396432716	23.074935888247

4800	0.001033416066	0.244344405612	-1	0.070309683143	22.227777898577
4900	0.001017659516	0.234345347737	-1	0.070226584384	21.447328576583
5000	0.001002463114	0.225048419420	-1	0.070146546215	20.726093737213
5500	0.000933851869	0.186924645973	-1	0.069794091199	17.809261357202
6000	0.000875487824	0.158876990962	-1	0.069502492261	15.694711838941
6500	0.000825220209	0.137496228999	-1	0.069253343323	14.090354404423
7000	0.000781468400	0.120736242229	-1	0.069033424091	12.829676949977
7500	0.000743042353	0.107298815564	-1	0.068833013585	11.811167500268
8000	0.000709028263	0.096322775147	-1	0.068644930286	10.969560880036
8500	0.000678711857	0.087215896734	-1	0.068463775517	10.261065131446
9000	0.000651526192	0.079558364170	-1	0.068285494285	9.655234587588
9500	0.000627014904	0.073044866817	-1	0.068107042995	9.130267271474
10000	0.000604807188	0.067448541613	-1	0.067926072259	8.670140304080
10500	0.000584596260	0.062596677595	-1	0.067741281420	8.262792471756
11000	0.000566131711	0.058359064542	-1	0.067550274790	7.899139258391
11500	0.000549197592	0.054629753182	-1	0.067353366249	7.571891192886
12000	0.000533615992	0.051328077251	-1	0.067149190067	7.275474507903
12500	0.000519233318	0.048387501547	-1	0.066937774526	7.005315524796
13000	0.000505919895	0.045755568543	-1	0.066718364660	6.757800928500
13500	0.000493562409	0.043388047859	-1	0.066491297579	6.529892493458
14000	0.000482063879	0.041249526454	-1	0.066256152154	6.319145319029
14500	0.000471338939	0.039309681643	-1	0.066013342018	6.123469739168
15000	0.000461314184	0.037543919512	-1	0.065762670742	5.941159578957
16000	0.000443110792	0.034452516164	-1	0.065238990682	5.610911577218
17000	0.000427018657	0.031841373124	-1	0.064686878634	5.319020094259
18000	0.000412694925	0.029611991213	-1	0.064108345520	5.058501412957
19000	0.000399865528	0.027690414728	-1	0.063505668367	4.824046813595
20000	0.000388309350	0.026020217621	-1	0.062881042268	4.611533790011
21000	0.000292526532	0.018150515087	-1	0.082181344369	5.654901098867
22000	0.000280379648	0.016907155629	-1	0.082873793122	5.539514836181
23000	0.000268648379	0.015701350412	-1	0.083734270633	5.423553813374
24000	0.000257517064	0.014571398169	-1	0.084721335978	5.312579729152
25000	0.000247169313	0.013554210689	-1	0.085750657116	5.211852692204

26000	0.000237738504	0.012674841340	-1	0.086712679443	5.124894949026
27000	0.000229142948	0.011917156136	-1	0.087575111945	5.050044042155
28000	0.000221250258	0.011256165669	-1	0.088345930352	4.984576535819
29000	0.000213931897	0.010668459877	-1	0.089052832323	4.926024257988
30000	0.000207063067	0.010132186643	-1	0.089742859225	4.872194748542
31000	0.000200540221	0.009630165747	-1	0.090467343038	4.821487489670
32000	0.000194334173	0.009158880103	-1	0.091230518482	4.773696033204
33000	0.000188435563	0.008718118594	-1	0.092021525197	4.728917858095
34000	0.000182836790	0.008307681825	-1	0.092827182368	4.687217276489
35000	0.000177531807	0.007927372780	-1	0.093631863065	4.648622589500
36000	0.000172512585	0.007576475265	-1	0.094420745675	4.613074743746
37000	0.000167758806	0.007252288438	-1	0.095190844848	4.580293948317
38000	0.000163247829	0.006951747181	-1	0.095944374773	4.549971624853
39000	0.000158957776	0.006671944383	-1	0.096686017545	4.521832970734
40000	0.000154867489	0.006410127105	-1	0.097422995709	4.495638111287
41000	0.000150958115	0.006163939629	-1	0.098162796704	4.471197795027
42000	0.000147218090	0.005932153094	-1	0.098905049246	4.448400062036
43000	0.000143638121	0.005713838851	-1	0.099647500843	4.427149207261
44000	0.000140209405	0.005508103886	-1	0.100388294526	4.407351023943
45000	0.000136923569	0.005314089034	-1	0.101126063132	4.388915655615
46000	0.000133772611	0.005130971661	-1	0.101859853624	4.371755979145
47000	0.000130748771	0.004957965648	-1	0.102589092678	4.355789263038
48000	0.000127844610	0.004794318740	-1	0.103313666987	4.340935776324
49000	0.000125052954	0.004639304468	-1	0.104034149596	4.327123025306
50000	0.000122366860	0.004492225879	-1	0.104751747384	4.314286713163
55000	0.000110325028	0.003857482820	-1	0.108309457117	4.262911536304
60000	0.000100202414	0.003355372925	-1	0.111807225323	4.228988547168
65000	0.000091578064	0.002950235613	-1	0.115251793641	4.208553561482
70000	0.000084146213	0.002617862088	-1	0.118648516771	4.198790996753
75000	0.000077677659	0.002341235992	-1	0.122006670770	4.197814914031
80000	0.000072002315	0.002108315146	-1	0.125316034965	4.203663524425
85000	0.000066982793	0.001909977952	-1	0.128592869561	4.215610671539
90000	0.000062514500	0.001739529452	-1	0.131836662834	4.232660597240

95000	0.000058513763	0.001591846114	-1	0.135046977138	4.254032144451
100000	0.000054911697	0.001462907603	-1	0.138229432464	4.279291999370
105000	0.000051657168	0.001349697686	-1	0.141370906743	4.307484160358
110000	0.000048704326	0.001249738254	-1	0.144469334959	4.338233084628
115000	0.000046011714	0.001160881027	-1	0.147539450370	4.371566249215
120000	0.000043544502	0.001081436497	-1	0.150594913387	4.407716324618
125000	0.000041280233	0.001010178355	-1	0.153618955420	4.445855663186
130000	0.000039195934	0.000946007432	-1	0.156610931959	4.485814085406
135000	0.000037271678	0.000887981249	-1	0.159572946081	4.527446967308
140000	0.000035490860	0.000835337185	-1	0.162503310767	4.570583224063
145000	0.000033838749	0.000787410118	-1	0.165403290738	4.615102026687
150000	0.000032302783	0.000743651446	-1	0.168271434456	4.660870993311
155000	0.000030871724	0.000703578395	-1	0.171108598917	4.707798452653
160000	0.000029535957	0.000666787850	-1	0.173913448267	4.755770656632
165000	0.000028286817	0.000632921822	-1	0.176686627052	4.804708073424
170000	0.000027116777	0.000601678417	-1	0.179427087640	4.854523918836
175000	0.000026019005	0.000572787123	-1	0.182135490880	4.905159921556
180000	0.000024987559	0.000546016808	-1	0.184810911249	4.956528923892
185000	0.000024017031	0.000521160370	-1	0.187453611108	5.008567744494
190000	0.000023102743	0.000498044015	-1	0.190061508796	5.061188633413
195000	0.000022240338	0.000476507565	-1	0.192634373330	5.114335060388
200000	0.000021425538	0.000456393583	-1	0.195177099890	5.168031814977
205000	0.000020654432	0.000437561263	-1	0.197695602874	5.222331921675
210000	0.000019924163	0.000419914148	-1	0.200185588704	5.277128602927
215000	0.000019232250	0.000403368901	-1	0.202640886108	5.332271212535
220000	0.000018576351	0.000387846526	-1	0.205056263165	5.387614094612
225000	0.000017954321	0.000373273198	-1	0.207426740035	5.442988548089
230000	0.000017364319	0.000359582652	-1	0.209745837802	5.498144093358
235000	0.000016801192	0.000346644274	-1	0.212057089346	5.554502979042
240000	0.000016265341	0.000334441750	-1	0.214330061397	5.610976026654
245000	0.000015754968	0.000322915080	-1	0.216566720483	5.667530797189
250000	0.000015268194	0.000312004723	-1	0.218772878749	5.724249089330
255000	0.000014803311	0.000301657757	-1	0.220954318695	5.781223592234

260000	0.000014360859	0.000291870709	-1	0.223080056763	5.837341270031
265000	0.000013937694	0.000282573883	-1	0.225180275826	5.893691940878
270000	0.000013532925	0.000273740181	-1	0.227250775366	5.950132769489
275000	0.000013145636	0.000265342482	-1	0.229288965527	6.006566330807
280000	0.000012774913	0.000257354202	-1	0.231293391891	6.062924143574
285000	0.000012419873	0.000249749656	-1	0.233263478323	6.119154263703
290000	0.000012079644	0.000242503927	-1	0.235199716328	6.175234266538
295000	0.000011753386	0.000235593164	-1	0.237103408101	6.231161369752
300000	0.000011440276	0.000228994431	-1	0.238976790730	6.286960117455

Electron Elastic Scattering Sampling Data
Solution for Z = 39

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.033706296377	1.425847155526	+1	0.063339480787	6.713059475325
52	0.032855708318	1.074421754767	+1	0.057070178023	3.975128928897
54	0.032007739752	0.872697552671	+1	0.052489109002	2.740806840390
56	0.031170093673	0.754731715951	+1	0.049289581013	2.136199372065
58	0.030347586072	0.690051513986	+1	0.047231883279	1.848934783091
60	0.029542464941	0.663619401067	+1	0.046135819635	1.755633089296
62	0.028754923145	0.668375434669	+1	0.045870505229	1.812242581960
64	0.027984044325	0.701868721616	+1	0.046338533853	2.017591061582
66	0.027227935962	0.765560880571	+1	0.047473773180	2.408561260345
68	0.026484606847	0.864454287373	+1	0.049227325552	3.069568654308
70	0.025752280448	1.007954725854	+1	0.051559795928	4.165220448461
72	0.025029498365	1.212530966246	+1	0.054438843563	6.020228215173
74	0.024315487655	1.506677544396	+1	0.057831514493	9.307607377077
76	0.023610102608	1.942820101551	+1	0.061701662781	15.556782695852
78	0.022913873877	2.627306342369	+1	0.066007387502	28.734686627057
80	0.022227948898	3.811434396374	+1	0.070699039540	61.400655109861
82	0.021553984265	6.263118617024	+1	0.075718707163	169.248144942922
84	0.020893943124	13.994396870944	+1	0.081002531248	867.094491816155
86	0.020304531938	192.395991432200	-1	0.086301154227	169642.325419778180
88	0.020295981964	217.541464272746	+1	0.086329034194	216923.553099856860
90	0.020346790013	261.394891045952	+1	0.086611460996	313277.043092254080
92	0.020415247529	282.045271339123	+1	0.086913554845	364769.699105736330
94	0.020494875490	317.089578477180	+1	0.087273488276	461123.192725531760
96	0.020585493113	363.529758504206	+1	0.087677776984	606182.739967674600
98	0.020686091370	422.705221489227	+1	0.088119984727	819723.731752914260
100	0.020795673613	503.952614885760	+1	0.088595999348	1165283.765145771700
105	0.021107540246	592.273207186742	+1	0.089864635968	1609720.752444699600
110	0.021457079476	634.916019349188	+1	0.091260850133	1849995.147096586900

115	0.021829471394	833.273518553764	+1	0.092775277002	3187071.288542616200
120	0.022221256571	908.194824879900	+1	0.094330975500	3786232.401042925200
125	0.022622034925	1035.197234161264	+1	0.095924169824	4919737.230587732000
130	0.023027098152	1148.779382557972	+1	0.097524926424	6059059.474920884700
135	0.023430981757	1282.172968935216	+1	0.099117454390	7548570.927926127800
140	0.023830082606	1403.281040555666	+1	0.100684584984	9042660.018717449200
145	0.024221019949	1514.724147659085	+1	0.102214312135	10536749.110262241000
150	0.024600410246	1744.782479046100	+1	0.103703966026	13982294.268218365000
155	0.024967026952	1837.016994112499	+1	0.105132608334	15501178.893346800000
160	0.025319982423	1882.562138546449	+1	0.106498515661	16280012.250413392000
165	0.025656878407	1925.406014077076	+1	0.107799971648	17030235.378096223000
170	0.025977255809	1938.642079837414	+1	0.109031645392	17265474.375770710000
175	0.026279055146	2001.343984303756	+1	0.110197538521	18401935.601091571000
180	0.026563252612	2029.192568683693	+1	0.111289382592	18918508.521727614000
185	0.026829268130	2044.023441824616	+1	0.112308057953	19196662.863617387000
190	0.027074256922	2130.988360967028	+1	0.113265929550	20869565.891385935000
195	0.027303882516	2130.986966483666	+1	0.114139729764	20869575.641386013000
200	0.027513370765	2154.051431921378	+1	0.114949270704	21326543.917415269000
205	0.027697832373	2224.906695822953	+1	0.115715154842	22766988.831077680000
210	0.027872793814	2224.937560632911	+1	0.116380293177	22768005.417014878000
215	0.028030016201	2224.098313238384	+1	0.116981567340	22752111.511763591000
220	0.028164030810	2178.128176048151	+1	0.117544272242	21833207.239292882000
225	0.028285562583	2142.863221637425	+1	0.118032071794	21137820.384474181000
230	0.028365251725	1471.405279666220	+1	0.118551008248	9989268.971730429700
235	0.028310408700	386.951087760756	+1	0.119356913636	698892.411707487420
240	0.007984324495	0.603645281123	+1	0.152086818841	21.574381429852
245	0.007907225365	0.564943953390	+1	0.151018202457	19.732876392121
250	0.007832400656	0.530761497764	+1	0.149966958858	18.158647874577
255	0.007759636847	0.500420781537	+1	0.148933667056	16.802717400184
260	0.007688808983	0.473346983076	+1	0.147917610954	15.625626493436
265	0.007619815911	0.449069799356	+1	0.146918016911	14.596417033062
270	0.007552553741	0.427206093482	+1	0.145934304030	13.690796347215
275	0.007486926166	0.407440576439	+1	0.144966053214	12.889448433255

280	0.007422837140	0.389511529533	+1	0.144013036510	12.176862594549
285	0.007360192943	0.373200284325	+1	0.143075078882	11.540459122116
290	0.007298905869	0.358322138697	+1	0.142152147487	10.969919793205
295	0.007238890126	0.344720698362	+1	0.141244273069	10.456736912429
300	0.007180064671	0.332262269547	+1	0.140351515443	9.993819081283
310	0.007065732462	0.310318301522	+1	0.138610752235	9.195316092364
320	0.006955599557	0.291691736418	+1	0.136925921357	8.534453434951
330	0.006849394943	0.275774756970	+1	0.135293627433	7.982160840059
340	0.006746838737	0.262105086805	+1	0.133711752012	7.517224471922
350	0.006647651569	0.250326143991	+1	0.132179142215	7.123880636439
360	0.006551580639	0.240154951476	+1	0.130694774802	6.790023940842
370	0.006458474838	0.231352089583	+1	0.129256161322	6.505649911900
380	0.006368202244	0.223723275349	+1	0.127861042812	6.262867038352
390	0.006280613675	0.217112446073	+1	0.126507786051	6.055534108488
400	0.006195562186	0.211392994317	+1	0.125195270050	5.878808709904
410	0.006112908149	0.206460122415	+1	0.123922465226	5.728778904134
420	0.006032554651	0.202222354567	+1	0.122687649070	5.602053648404
430	0.005954411888	0.198602614052	+1	0.121489210830	5.495834166717
440	0.005878372037	0.195538213959	+1	0.120326103429	5.407925691888
450	0.005804383936	0.192970291056	+1	0.119196560608	5.336237456176
460	0.005732312132	0.190857804238	+1	0.118100347782	5.279461191209
470	0.005662101151	0.189158542257	+1	0.117035946092	5.236152151172
480	0.005593683421	0.187837525536	+1	0.116002128395	5.205155613685
490	0.005526988550	0.186864756987	+1	0.114997823208	5.185511702426
500	0.005461950614	0.186214258726	+1	0.114022149692	5.176414241447
510	0.005398506407	0.185863570533	+1	0.113074218326	5.177182346866
520	0.005336596698	0.185793200282	+1	0.112153033299	5.187233579035
530	0.005276170099	0.185985810589	+1	0.111257637060	5.206058918950
540	0.005217174328	0.186426383516	+1	0.110387148359	5.233236818115
550	0.005159558573	0.187101567855	+1	0.109540798752	5.268410769396
560	0.005103273333	0.187999728787	+1	0.108717815949	5.311284202001
570	0.005048273170	0.189110914478	+1	0.107917387454	5.361613938482
580	0.004994516531	0.190426490853	+1	0.107138755980	5.419203094514

590	0.004941961602	0.191938644296	+1	0.106381196799	5.483887658647
600	0.004890568253	0.193640426322	+1	0.105644039412	5.555537042238
610	0.004840300818	0.195525395878	+1	0.104926591494	5.634034369311
620	0.004791116848	0.197589307212	+1	0.104228299026	5.719355745112
630	0.004742986734	0.199827438563	+1	0.103548429119	5.811439218174
640	0.004695876546	0.202236027105	+1	0.102886427082	5.910274214143
650	0.004649753448	0.204811666454	+1	0.102241706806	6.015862668545
660	0.004604587100	0.207551304992	+1	0.101613728966	6.128222052052
670	0.004560348651	0.210452912779	+1	0.101001955668	6.247406972534
680	0.004517009537	0.213514815329	+1	0.100405860246	6.373488979313
690	0.004474542161	0.216735544205	+1	0.099824938356	6.506551483462
700	0.004432922028	0.220113781918	+1	0.099258746743	6.646687659253
710	0.004392122041	0.223648399092	+1	0.098706771761	6.794000644191
720	0.004352119620	0.227339196501	+1	0.098168598746	6.948632441196
730	0.004312891732	0.231186154573	+1	0.097643787311	7.110735984463
740	0.004274414600	0.235189391337	+1	0.097131910871	7.280477550077
750	0.004236668785	0.239349012728	+1	0.096632588877	7.458025653040
760	0.004199633206	0.243665307505	+1	0.096145418912	7.643562701577
770	0.004163287288	0.248139238857	+1	0.095670009856	7.837303188231
780	0.004127613093	0.252772031012	+1	0.095206039802	8.039480442794
790	0.004092591025	0.257564944744	+1	0.094753133830	8.250335686045
800	0.004058203902	0.262519124091	+1	0.094310965967	8.470113744696
810	0.004024434494	0.267635953198	+1	0.093879203006	8.699076570839
820	0.003991267612	0.272917348643	+1	0.093457532174	8.937513705417
830	0.003958685178	0.278365639686	+1	0.093045661142	9.185749820650
840	0.003926672966	0.283982979050	+1	0.092643294228	9.444104589025
850	0.003895215968	0.289771543155	+1	0.092250147066	9.712912530529
860	0.003864300604	0.295733639693	+1	0.091865932372	9.992520972956
870	0.003833912410	0.301872234986	+1	0.091490405748	10.283324028168
880	0.003804037818	0.308190406339	+1	0.091123300371	10.585729260637
890	0.003774664617	0.314691297856	+1	0.090764385765	10.900162095393
900	0.003745778875	0.321378054353	+1	0.090413404497	11.227064304811
910	0.003717370487	0.328253958259	+1	0.090070134254	11.566892360771

920	0.003689426147	0.335322850584	+1	0.089734346190	11.920152369312
930	0.003661936199	0.342588766535	+1	0.089405839672	12.287369706159
940	0.003634887794	0.350055945240	+1	0.089084405010	12.669107213326
950	0.003608271764	0.357728546694	+1	0.088769847511	13.065934215902
960	0.003582076767	0.365610921132	+1	0.088461957436	13.478454669983
970	0.003556293859	0.373707817177	+1	0.088160549758	13.907308394745
980	0.003530913509	0.382024305254	+1	0.087865455321	14.353178992026
990	0.003505925895	0.390565537318	+1	0.087576482431	14.816776661459
1000	0.003481322312	0.399336605186	+1	0.087293444796	15.298831168093
1025	0.003421436377	0.422308187866	+1	0.086610790041	16.590042244471
1050	0.003363764564	0.446854574447	+1	0.085961947447	18.015613465987
1075	0.003308184608	0.473087855938	+1	0.085344722626	19.591405072096
1100	0.003254585428	0.501128212872	+1	0.084756996370	21.335309730205
1125	0.003202865190	0.531107659240	+1	0.084196741659	23.267727605794
1150	0.003152925952	0.563184202916	+1	0.083662278952	25.412876885915
1175	0.003104676078	0.597535024586	+1	0.083152007064	27.798835434025
1200	0.003058031850	0.634356110066	+1	0.082664397706	30.458044078605
1225	0.003012915513	0.673866786943	+1	0.082197994341	33.428253221348
1250	0.002969252126	0.716322860289	+1	0.081751545566	36.754360356636
1275	0.002926971442	0.762015743077	+1	0.081323889909	40.489429094708
1300	0.002886009832	0.811272528621	+1	0.080913832776	44.695904961103
1325	0.002846305624	0.864471065890	+1	0.080520374055	49.448585541506
1350	0.002807801872	0.922050144166	+1	0.080142543039	54.837503631867
1375	0.002770443368	0.984519519600	+1	0.079779464256	60.971671245209
1400	0.002734180411	1.052468635060	+1	0.079430263884	67.983264760933
1425	0.002698964243	1.126590523578	+1	0.079094178297	76.034653477573
1450	0.002664750262	1.207706940655	+1	0.078770499978	85.327002608403
1475	0.002631495785	1.296796147945	+1	0.078458597237	96.111604708324
1500	0.002599161209	1.395026800852	+1	0.078157856790	108.704734192642
1550	0.002537099486	1.624868073328	+1	0.077587520247	141.043909483656
1600	0.002478283205	1.912788856762	+1	0.077054971133	187.229793214052
1650	0.002422459454	2.283059472735	+1	0.076556244771	255.893257672760
1700	0.002369403585	2.775886586888	+1	0.076088336905	363.447310042886

1750	0.002318910810	3.462890740964	+1	0.075648665287	544.163329275133
1800	0.002270795838	4.484978033645	+1	0.075234611560	879.342701954234
1850	0.002224888750	6.163122493619	+1	0.074843799122	1601.660459761092
1900	0.002181038870	9.421012232590	+1	0.074474211710	3614.225760904770
1950	0.002139108697	18.452599148358	+1	0.074124119763	13405.440807405075
2000	0.002106179083	71.502029609746	+1	0.073501548468	194854.881034874650
2100	0.002023588998	11.418191966762	-1	0.073177069003	5521.202734474027
2200	0.001954111982	5.421532891926	-1	0.072618789592	1392.368668802182
2300	0.001889837309	3.514901357436	-1	0.072110071008	651.353093086936
2400	0.001830142156	2.579395480229	-1	0.071646573361	388.625040451316
2500	0.001774573964	2.024904444781	-1	0.071220724814	264.207995888578
2600	0.001722686105	1.658414513828	-1	0.070829283103	194.750894346213
2700	0.001674120674	1.398701008448	-1	0.070467773185	151.674960052047
2800	0.001628568516	1.205419752711	-1	0.070132199762	122.917318743968
2900	0.001585750643	1.056192131317	-1	0.069819699010	102.634748241883
3000	0.001545412830	0.937602280303	-1	0.069528451614	87.705654169272
3100	0.001507328699	0.841148447680	-1	0.069257234430	76.336954643356
3200	0.001471313831	0.761274146888	-1	0.069003743587	67.444870988957
3300	0.001437203595	0.694134843860	-1	0.068765869181	60.334241272222
3400	0.001404847222	0.636965636219	-1	0.068542156483	54.539523542796
3500	0.001374104633	0.587725890919	-1	0.068331743359	49.738810154483
3600	0.001344848549	0.544887194643	-1	0.068134082526	45.704326428090
3700	0.001316973730	0.507315196354	-1	0.067947849176	42.273553906396
3800	0.001290384433	0.474127536095	-1	0.067771798246	39.325825600907
3900	0.001264992181	0.444619541412	-1	0.067605103088	36.769248193309
4000	0.001240713188	0.418221661879	-1	0.067447261324	34.532789118816
4100	0.001217471064	0.394472751876	-1	0.067297983262	32.561103066445
4200	0.001195201208	0.373009052048	-1	0.067156436446	30.811426991174
4300	0.001173843117	0.353529933063	-1	0.067021848668	29.249566406529
4400	0.001153341629	0.335781515511	-1	0.066893697434	27.847596903244
4500	0.001133643219	0.319547605951	-1	0.066771688269	26.582549540263
4600	0.001114699041	0.304645081790	-1	0.066655643926	25.435490074515
4700	0.001096466715	0.290924485460	-1	0.066545011017	24.391126140109

4800	0.001078906930	0.278257543151	-1	0.066439295333	23.436646600571
4900	0.001061982510	0.266532099364	-1	0.066338131955	22.561138130700
5000	0.001045658323	0.255649374481	-1	0.066241344541	21.755242695078
5500	0.000971990670	0.211263448316	-1	0.065814516906	18.529663752985
6000	0.000909363963	0.178853908643	-1	0.065462337645	16.226342282115
6500	0.000855466960	0.154302216330	-1	0.065160478565	14.499875983268
7000	0.000808562548	0.135138454836	-1	0.064897914044	13.156333200330
7500	0.000767365679	0.119825166421	-1	0.064663754911	12.079693475031
8000	0.000730892025	0.107350470259	-1	0.064449854550	11.196270611899
8500	0.000698373702	0.097022916988	-1	0.064249985260	10.457121315780
9000	0.000669202283	0.088354946516	-1	0.064059332315	9.828507320745
9500	0.000642889341	0.080993473000	-1	0.063874221863	9.286438196996
10000	0.000619037650	0.074677055999	-1	0.063691734972	8.813401648823
10500	0.000597319803	0.069207372013	-1	0.063509991859	8.396280972823
11000	0.000577468181	0.064435086613	-1	0.063326269183	8.025246524156
11500	0.000559252812	0.060239243166	-1	0.063140297630	7.692446046678
12000	0.000542484340	0.056527732312	-1	0.062950407813	7.391893418382
12500	0.000526998843	0.053224774252	-1	0.062756270138	7.118705071350
13000	0.000512658622	0.050270728562	-1	0.062556793899	6.869025118394
13500	0.000499342713	0.047615320876	-1	0.062352041105	6.639630247994
14000	0.000486948169	0.045218383839	-1	0.062141349022	6.427930897142
14500	0.000475384260	0.043045572223	-1	0.061924836470	6.231718021052
15000	0.000464572869	0.041068990369	-1	0.061702131538	6.049192657465
16000	0.000444936419	0.037611659137	-1	0.061238606688	5.719212977165
17000	0.000427576039	0.034694958381	-1	0.060751154491	5.428171440584
18000	0.000412126049	0.032207632982	-1	0.060240702832	5.168806342403
19000	0.000398294183	0.030066252622	-1	0.059708552337	4.935618803070
20000	0.000385844199	0.028207183323	-1	0.059156204684	4.724366914664
21000	0.000305110895	0.020354196524	-1	0.075087920544	5.524390125191
22000	0.000292486393	0.018958002115	-1	0.075665854129	5.404893238552
23000	0.000280315709	0.017605949681	-1	0.076387704184	5.284497382419
24000	0.000268783249	0.016340049496	-1	0.077219177113	5.168923463481
25000	0.000258069024	0.015200699188	-1	0.078089011661	5.063705792596

26000	0.000248299944	0.014215185599	-1	0.078903909919	4.972694581140
27000	0.000239388454	0.013365396378	-1	0.079635810465	4.894287216075
28000	0.000231198493	0.012623531264	-1	0.080291004094	4.825695719788
29000	0.000223599742	0.011963604130	-1	0.080892763673	4.764332029150
30000	0.000216467000	0.011361395835	-1	0.081481081089	4.707832918595
31000	0.000209697000	0.010797869585	-1	0.082099755339	4.654419201834
32000	0.000203259332	0.010269049035	-1	0.082752411413	4.603865152136
33000	0.000197143075	0.009774612984	-1	0.083429700023	4.556294457338
34000	0.000191339065	0.009314261553	-1	0.084120301696	4.511806777439
35000	0.000185839744	0.008887702162	-1	0.084810820940	4.470472334244
36000	0.000180635684	0.008494086514	-1	0.085488478325	4.432272471280
37000	0.000175705685	0.008130380295	-1	0.086150706237	4.396931592074
38000	0.000171026450	0.007793163260	-1	0.086799301295	4.364129462228
39000	0.000166575626	0.007479193922	-1	0.087438232924	4.333573735887
40000	0.000162331754	0.007185403900	-1	0.088073683702	4.304998906962
41000	0.000158275707	0.006909170673	-1	0.088712017495	4.278189665548
42000	0.000154395460	0.006649109473	-1	0.089352917343	4.253032100244
43000	0.000150681208	0.006404173355	-1	0.089994396996	4.229435293359
44000	0.000147123713	0.006173352860	-1	0.090634871037	4.207308612656
45000	0.000143714235	0.005955684125	-1	0.091273090256	4.186563404268
46000	0.000140444415	0.005750240973	-1	0.091908254413	4.167115299918
47000	0.000137306206	0.005556141758	-1	0.092539811400	4.148880015975
48000	0.000134291869	0.005372540438	-1	0.093167680643	4.131777905868
49000	0.000131394019	0.005198625626	-1	0.093792307493	4.115733521261
50000	0.000128605530	0.005033616650	-1	0.094414712970	4.100676917764
55000	0.000116101926	0.004321531437	-1	0.097504383530	4.038309933889
60000	0.000105586008	0.003758276346	-1	0.100547868736	3.993562103903
65000	0.000096622090	0.003303841323	-1	0.103549848637	3.962384293750
70000	0.000088893322	0.002931050415	-1	0.106514380225	3.941915414447
75000	0.000082163584	0.002620862849	-1	0.109445198177	3.930085860365
80000	0.000076252739	0.002359553930	-1	0.112347350619	3.925406714721
85000	0.000071027343	0.002137292727	-1	0.115209156988	3.926279337854
90000	0.000066373978	0.001946319387	-1	0.118044018848	3.932139982835

95000	0.000062204735	0.001780843689	-1	0.120850414776	3.942152654533
100000	0.000058448102	0.001636353823	-1	0.123638107317	3.956037125829
105000	0.000055048901	0.001509401472	-1	0.126401651504	3.973088016088
110000	0.000051960795	0.001397254502	-1	0.129136544484	3.992846874297
115000	0.000049143527	0.001297587621	-1	0.131847686287	4.015029913170
120000	0.000046564533	0.001208605370	-1	0.134533107342	4.039357878240
125000	0.000044195685	0.001128783460	-1	0.137194650377	4.065611475031
130000	0.000042013634	0.001056902228	-1	0.139830213524	4.093567168586
135000	0.000039997888	0.000991908507	-1	0.142441144558	4.123056343022
140000	0.000038131165	0.000932946240	-1	0.145026178428	4.153924042199
145000	0.000036398149	0.000879269496	-1	0.147586589717	4.186057832554
150000	0.000034785815	0.000830263910	-1	0.150120884461	4.219327741023
155000	0.000033282568	0.000785388970	-1	0.152629530791	4.253630008925
160000	0.000031878457	0.000744192587	-1	0.155111421411	4.288857497809
165000	0.000030564522	0.000706274074	-1	0.157567030795	4.324929152384
170000	0.000029332946	0.000671294864	-1	0.159995302358	4.361760890477
175000	0.000028176646	0.000638952089	-1	0.162396594261	4.399290511553
180000	0.000027089430	0.000608986019	-1	0.164770249664	4.437444472268
185000	0.000026065671	0.000581163997	-1	0.167116670353	4.476168173993
190000	0.000025100500	0.000555291426	-1	0.169434047876	4.515390783852
195000	0.000024189401	0.000531188780	-1	0.171722152261	4.555060910344
200000	0.000023327980	0.000508680230	-1	0.173984953943	4.595176325799
205000	0.000022512227	0.000487608394	-1	0.176227410381	4.635758212017
210000	0.000021739149	0.000467864940	-1	0.178445678500	4.676720578514
215000	0.000021006147	0.000449356787	-1	0.180634073307	4.717942829259
220000	0.000020310819	0.000431996491	-1	0.182787252272	4.759291450965
225000	0.000019651045	0.000415704374	-1	0.184899015945	4.800584204367
230000	0.000019022645	0.000400353202	-1	0.186992286350	4.842470622684
235000	0.000018424020	0.000385880282	-1	0.189061455711	4.884755056208
240000	0.000017854043	0.000372234485	-1	0.191096269594	4.927076279714
245000	0.000017310715	0.000359345554	-1	0.193100090262	4.969453037714
250000	0.000016792105	0.000347146678	-1	0.195078170620	5.011944936174
255000	0.000016297885	0.000335609693	-1	0.197013914930	5.053948165371

260000	0.000015825470	0.000324665127	-1	0.198924390962	5.095979405526
265000	0.000015373418	0.000314271648	-1	0.200811885441	5.138128439258
270000	0.000014940730	0.000304397894	-1	0.202673235110	5.180307912096
275000	0.000014526413	0.000295012812	-1	0.204506500470	5.222455638824
280000	0.000014129508	0.000286086454	-1	0.206310416454	5.264520514674
285000	0.000013749074	0.000277589724	-1	0.208084669898	5.306471584273
290000	0.000013384209	0.000269494920	-1	0.209829497797	5.348288225443
295000	0.000013034037	0.000261775141	-1	0.211546123961	5.389968520814
300000	0.000012697712	0.000254404740	-1	0.213236451075	5.431526541919

Electron Elastic Scattering Sampling Data
Solution for Z = 40

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.038662645475	1.490315483712	+1	0.098806134350	10.132863306853
52	0.037936797393	1.148328691489	+1	0.088389414279	6.074720026239
54	0.037182498875	0.930150846638	+1	0.080103372575	4.053803177276
56	0.036407820202	0.787939818751	+1	0.073646463818	2.968217496660
58	0.035620653080	0.695982675687	+1	0.068744154716	2.362022470972
60	0.034827325662	0.639769737888	+1	0.065163651572	2.029029531581
62	0.034032125351	0.611077915316	+1	0.062717878242	1.872022453292
64	0.033237904355	0.605276321067	+1	0.061254365171	1.846114497984
66	0.032445649294	0.620576450323	+1	0.060661606333	1.938799857475
68	0.031655485156	0.657198113676	+1	0.060854176774	2.160948582009
70	0.030867157781	0.717175560774	+1	0.061764421123	2.547811611269
72	0.030079974271	0.804884344610	+1	0.063342922211	3.170676466953
74	0.029293580446	0.927533456970	+1	0.065547340666	4.159274274337
76	0.028507866215	1.096800489110	+1	0.068340901508	5.753552613997
78	0.027723250063	1.331747853556	+1	0.071687392916	8.416505377053
80	0.026940794903	1.664823501360	+1	0.075547106282	13.104301704284
82	0.026162111272	2.155492562905	+1	0.079874988972	21.993224186811
84	0.025389413758	2.925004684070	+1	0.084619369908	40.765550514105
86	0.024625370489	4.263246835811	+1	0.089720219328	87.651987578543
88	0.023872953955	7.077735543071	+1	0.095110891734	245.847968099400
90	0.023135274789	16.405180090639	+1	0.100719410622	1351.044828813587
92	0.022415487620	129.109619106656	-1	0.106469074999	87338.612436329888
94	0.022333841692	145.489470138016	+1	0.106208455333	110918.669240462360
96	0.022348372416	168.917928201669	+1	0.106386659555	149557.318374346770
98	0.022375112312	205.511724164592	+1	0.106633890121	221447.918406039420
100	0.022415974679	246.159065859429	+1	0.106915626137	317801.409809060280
105	0.022574858517	313.374963337640	+1	0.107722901959	515229.117061422440
110	0.022790694814	358.340024723372	+1	0.108720879161	673838.470053164870

115	0.022991163904	428.822050460475	+1	0.110112450950	969692.998562475080
120	0.023275118969	489.182730411618	+1	0.111397295150	1262152.449355778300
125	0.023577848092	589.722961570261	+1	0.112773646403	1834763.264722226400
130	0.023894726902	679.150769069619	+1	0.114191298054	2433924.375224803100
135	0.024217450110	841.290931682274	+1	0.115642680048	3735752.718604702500
140	0.024543562028	978.619591692526	+1	0.117087866643	5055891.611838791500
145	0.024868146614	1113.772998769592	+1	0.118517384906	6549980.701420418000
150	0.025187992448	1234.188311753010	+1	0.119917284241	8044069.792266817800
155	0.025498740967	1455.241058072471	+1	0.121286378410	11186108.098926416000
160	0.025800035369	1657.318270798161	+1	0.122605262813	14511251.875980446000
165	0.026089886898	1833.810653912227	+1	0.123868216879	17769638.452251110000
170	0.026368170388	1891.704947121850	+1	0.125064577130	18910868.049415320000
175	0.026632455666	1932.531259439685	+1	0.126197658441	19737385.122625705000
180	0.026881988893	1959.896689603399	+1	0.127264645160	20301641.759169139000
185	0.027114914085	2008.259304485046	+1	0.128268211547	21318893.695519432000
190	0.027320863474	2069.940240776303	+1	0.129246967164	22669931.642353941000
195	0.027524107358	2069.942973329951	+1	0.130105790854	22669996.079853881000
200	0.027711208725	2069.945404675463	+1	0.130895233722	22670060.517353833000
205	0.027623192680	818.363681546582	+1	0.132532902113	3608992.533997741100
210	0.009570182548	1.129928412011	+1	0.168897467417	50.620651519653
215	0.009452498335	1.014512904582	+1	0.167494452514	43.093168154533
220	0.009340384412	0.918713973292	+1	0.166113597798	37.246584340133
225	0.009233255542	0.838102198352	+1	0.164756566532	32.609931695679
230	0.009130601760	0.769485819356	+1	0.163424548466	28.867761408706
235	0.009031971213	0.710508096029	+1	0.162118468891	25.802190006248
240	0.008936965491	0.659390990329	+1	0.160838957834	23.258599385577
245	0.008845226509	0.614768951031	+1	0.159586467660	21.124762667923
250	0.008756433181	0.575576004451	+1	0.158361284282	19.317538784009
255	0.008670320819	0.540959279257	+1	0.157163263138	17.773743470726
260	0.008586723234	0.510204734788	+1	0.155990914326	16.443406079671
265	0.008505499459	0.482733364085	+1	0.154842741200	15.287821712421
270	0.008426511366	0.458077560963	+1	0.153717512064	14.276954377552
275	0.008349489622	0.435871400350	+1	0.152615822611	13.388197750547

280	0.008274719159	0.415752221612	+1	0.151532187126	12.599671122137
285	0.008201665247	0.397505942945	+1	0.150470707203	11.899300802286
290	0.008130350374	0.380897116373	+1	0.149429319576	11.273751733839
295	0.008060662458	0.365740278858	+1	0.148407648117	10.712924320919
300	0.007992493822	0.351878351411	+1	0.147405430987	10.208489294946
310	0.007860388569	0.327504805869	+1	0.145457349335	9.341385887254
320	0.007733594205	0.306849535637	+1	0.143578795197	8.626345223497
330	0.007611728887	0.289212250897	+1	0.141764395874	8.030179032578
340	0.007494407707	0.274063802466	+1	0.140010480807	7.528878433872
350	0.007381251271	0.260997499509	+1	0.138314547205	7.104701183205
360	0.007271923966	0.249692197369	+1	0.136674487299	6.744113172013
370	0.007166211521	0.239878926711	+1	0.135086887414	6.436078299768
380	0.007063920940	0.231340288492	+1	0.133548768129	6.171947995363
390	0.006964852752	0.223901977031	+1	0.132057904000	5.945001393816
400	0.006868806831	0.217422773443	+1	0.130612618056	5.749949962536
410	0.006775597734	0.211786115002	+1	0.129211450663	5.582534990185
420	0.006685097219	0.206890893784	+1	0.127852306428	5.439093816180
430	0.006597184844	0.202652127974	+1	0.126533276315	5.316615063714
440	0.006511737409	0.198998971416	+1	0.125252801122	5.212652888016
450	0.006428633681	0.195871871260	+1	0.124009626770	5.125203645714
460	0.006347756737	0.193220218634	+1	0.122802566470	5.052599862264
470	0.006269017900	0.190999510288	+1	0.121630180733	4.993374883004
480	0.006192333016	0.189171274242	+1	0.120491088490	4.946283157935
490	0.006117618228	0.187702547945	+1	0.119384108782	4.910285388422
500	0.006044787540	0.186564866353	+1	0.118308207160	4.884510695163
510	0.005973762716	0.185733581909	+1	0.117262415619	4.868219492274
520	0.005904479366	0.185186918777	+1	0.116245640611	4.860756995503
530	0.005836871216	0.184905949232	+1	0.115256806848	4.861569012198
540	0.005770877774	0.184873891362	+1	0.114294986459	4.870178258489
550	0.005706437897	0.185076093534	+1	0.113359310681	4.886183517941
560	0.005643493671	0.185499539487	+1	0.112448951751	4.909239330645
570	0.005581993967	0.186133075631	+1	0.111563036589	4.939054594236
580	0.005521889958	0.186966845760	+1	0.110700755190	4.975383627085

590	0.005463132897	0.187991981880	+1	0.109861288004	5.018014558318
600	0.005405676169	0.189200555280	+1	0.109043932042	5.066772039605
610	0.005349478468	0.190585522123	+1	0.108247988104	5.121506616235
620	0.005294494907	0.192141145481	+1	0.107472764776	5.182116327502
630	0.005240689618	0.193862206069	+1	0.106717564126	5.248509224358
640	0.005188022108	0.195744121527	+1	0.105981737643	5.320623219358
650	0.005136459750	0.197782564835	+1	0.105264685694	5.398401665722
660	0.005085964097	0.199973889300	+1	0.104565828794	5.481819248829
670	0.005036504298	0.202315182159	+1	0.103884564754	5.570867472817
680	0.004988048581	0.204804066282	+1	0.103220357599	5.665562650887
690	0.004940565331	0.207438342874	+1	0.102572655050	5.765928760537
700	0.004894027534	0.210215962327	+1	0.101940971308	5.871996357052
710	0.004848406183	0.213135062389	+1	0.101324768833	5.983804011419
720	0.004803674288	0.216194732449	+1	0.100723595082	6.101427837036
730	0.004759805523	0.219394221513	+1	0.100136989386	6.224951693726
740	0.004716776004	0.222732757035	+1	0.099564483232	6.354458690839
750	0.004674561579	0.226209793378	+1	0.099005674359	6.490048205169
760	0.004633139913	0.229824856035	+1	0.098460124133	6.631820850375
770	0.004592488676	0.233578068709	+1	0.097927427217	6.779904060163
780	0.004552585519	0.237469981631	+1	0.097407216963	6.934447770562
790	0.004513411548	0.241500927478	+1	0.096899118324	7.095593630963
800	0.004474946360	0.245671297949	+1	0.096402758967	7.263492662911
810	0.004437170651	0.249981665230	+1	0.095917790277	7.438307590645
820	0.004400067242	0.254433100458	+1	0.095443872370	7.620221583456
830	0.004363617502	0.259026874037	+1	0.094980691854	7.809435843922
840	0.004327803970	0.263764272555	+1	0.094527935705	8.006156836591
850	0.004292610587	0.268646484159	+1	0.094085288425	8.210591211307
860	0.004258022602	0.273674849405	+1	0.093652457566	8.422957426276
870	0.004224023599	0.278851229245	+1	0.093229164330	8.643505127156
880	0.004190597855	0.284177663233	+1	0.092815126744	8.872497287083
890	0.004157733285	0.289656028977	+1	0.092410092237	9.110194464964
900	0.004125413842	0.295288426728	+1	0.092013792352	9.356881073821
910	0.004093627498	0.301076915608	+1	0.091625976251	9.612842043291

920	0.004062360383	0.307024043353	+1	0.091246403382	9.878396203771
930	0.004031600806	0.313132592514	+1	0.090874854950	10.153879611993
940	0.004001335499	0.319405404231	+1	0.090511113937	10.439646053049
950	0.003971553091	0.325845187617	+1	0.090154938062	10.736047514058
960	0.003942242746	0.332454799491	+1	0.089806140793	11.043459283453
970	0.003913393263	0.339237507953	+1	0.089464506686	11.362283443143
980	0.003884993529	0.346196684575	+1	0.089129839316	11.692942320349
990	0.003857033904	0.353335679263	+1	0.088801945826	12.035867591650
1000	0.003829503593	0.360657979783	+1	0.088480636860	12.391515448675
1025	0.003762495175	0.379790570399	+1	0.087705005897	13.339499168572
1050	0.003697965152	0.400161387499	+1	0.086966874638	14.378538607333
1075	0.003635778367	0.421845622019	+1	0.086263852992	15.518169869190
1100	0.003575811856	0.444922157838	+1	0.085593636679	16.768950386150
1125	0.003517951254	0.469476732804	+1	0.084954027429	18.142740252560
1150	0.003462088212	0.495612627140	+1	0.084343189192	19.653489726336
1175	0.003408118149	0.523444773810	+1	0.083759377022	21.317154185842
1200	0.003355948445	0.553097258697	+1	0.083200927144	23.151751345941
1225	0.003305490705	0.584707186233	+1	0.082666234511	25.177876902114
1250	0.003256662048	0.618433523156	+1	0.082153933668	27.419634115637
1275	0.003209385213	0.654454319935	+1	0.081662733554	29.904902480042
1300	0.003163586831	0.692966864176	+1	0.081191368577	32.665868030106
1325	0.003119201587	0.734191396954	+1	0.080738668164	35.739866078779
1350	0.003076162938	0.778383685150	+1	0.080303600773	39.171164063226
1375	0.003034410442	0.825833171650	+1	0.079885183727	43.011785793232
1400	0.002993887219	0.876867196657	+1	0.079482503835	47.323094651849
1425	0.002954540423	0.931859589961	+1	0.079094653019	52.177946450718
1450	0.002916318832	0.991244728149	+1	0.078720854928	57.663950360464
1475	0.002879174043	1.055524014935	+1	0.078360377180	63.886562773909
1500	0.002843061331	1.125278518792	+1	0.078012503248	70.973440866299
1550	0.002773764823	1.284046651915	+1	0.077351991413	88.399258871954
1600	0.002708113245	1.474599712539	+1	0.076734593438	111.686938341481
1650	0.002645825650	1.706984571182	+1	0.076156114102	143.586229266916
1700	0.002586645725	1.996049403336	+1	0.075612914287	188.626843823122

1750	0.002530344062	2.364663389708	+1	0.075101728013	254.677048098535
1800	0.002476712500	2.850009214425	+1	0.074619724122	356.362129015130
1850	0.002425561906	3.516808535428	+1	0.074164366268	523.332020769066
1900	0.002376722472	4.488543288436	+1	0.073733378202	823.154173135976
1950	0.002330039015	6.033884183967	+1	0.073324739211	1437.941447877130
2000	0.002285365431	8.869548019322	+1	0.072936757817	3006.691037991403
2100	0.002201529171	57.047674579567	+1	0.072216750111	116824.701487121450
2200	0.002124313926	14.304370116497	-1	0.071561906723	7926.342892353426
2300	0.002052959841	6.253528598593	-1	0.070962710418	1684.226079074032
2400	0.001986809018	3.958108025857	-1	0.070411716287	746.689062895814
2500	0.001925284411	2.873113697310	-1	0.069903462334	433.564272190212
2600	0.001867887735	2.241590445197	-1	0.069433786737	289.718851004833
2700	0.001814169242	1.828869790190	-1	0.069000273455	210.975504060823
2800	0.001763783869	1.538583542997	-1	0.068598492918	162.809404593019
2900	0.001716452601	1.323742658590	-1	0.068223275953	130.989258976985
3000	0.001671890677	1.158465371827	-1	0.067872445809	108.720873491712
3100	0.001629845102	1.027453583185	-1	0.067544366788	92.431606353711
3200	0.001590106364	0.921198843227	-1	0.067236573954	80.102037992672
3300	0.001552489298	0.833408602195	-1	0.066946799086	70.507988292876
3400	0.001516824153	0.759726120796	-1	0.066673408401	62.867714450412
3500	0.001482954136	0.697038281779	-1	0.066415333249	56.661965372334
3600	0.001450737877	0.643074235746	-1	0.066171825204	51.535429021913
3700	0.001420056304	0.596177687668	-1	0.065941461298	47.241053799040
3800	0.001390801581	0.555085368764	-1	0.065722919025	43.599990092007
3900	0.001362875043	0.518807655674	-1	0.065515264426	40.479199470214
4000	0.001336182726	0.486557449421	-1	0.065317905893	37.777950329711
4100	0.001310639945	0.457706642814	-1	0.065130435858	35.419145620900
4200	0.001286173340	0.431763739477	-1	0.064951953924	33.344030685756
4300	0.001262716364	0.408326813645	-1	0.064781664750	31.506240652876
4400	0.001240206377	0.387060399738	-1	0.064618962182	29.868491538984
4500	0.001218584389	0.367681918546	-1	0.064463482555	28.400493449330
4600	0.001197796127	0.349953918666	-1	0.064314991526	27.077562133801
4700	0.001177793915	0.333683302033	-1	0.064172898871	25.879907138010

4800	0.001158534017	0.318705706043	-1	0.064036664499	24.791108531499
4900	0.001139975279	0.304878292679	-1	0.063905892832	23.797299106845
5000	0.001122078133	0.292076275517	-1	0.063780359929	22.886717775020
5500	0.001041356225	0.240174065011	-1	0.063221597162	19.283506547408
6000	0.000972778383	0.202585058661	-1	0.062754971103	16.752592533998
6500	0.000913758948	0.174258929697	-1	0.062357605103	14.879310400435
7000	0.000862406798	0.152247324742	-1	0.062012757082	13.436709844189
7500	0.000817329261	0.134733510391	-1	0.061703794203	12.291066016715
8000	0.000777420708	0.120506144444	-1	0.061424494006	11.358008837085
8500	0.000741835453	0.108753396045	-1	0.061167813468	10.582374724204
9000	0.000709905823	0.098906793840	-1	0.060928071395	9.926510758286
9500	0.000681096483	0.090556640148	-1	0.060700769979	9.363849557225
10000	0.000654972765	0.083400639113	-1	0.060482376754	8.875131261938
10500	0.000631176553	0.077210374170	-1	0.060270347048	8.446019082673
11000	0.000609415094	0.071814070550	-1	0.060061570953	8.065819292563
11500	0.000589437698	0.067073193854	-1	0.059855196601	7.726031706733
12000	0.000571037494	0.062882320321	-1	0.059649204525	7.420205775711
12500	0.000554036362	0.059154994026	-1	0.059442804382	7.143091211417
13000	0.000538284071	0.055823083397	-1	0.059234711015	6.890563251371
13500	0.000523648738	0.052829439827	-1	0.059024532640	6.659181666008
14000	0.000510018880	0.050128316502	-1	0.058811440308	6.446188035418
14500	0.000497295403	0.047680737499	-1	0.058595215915	6.249241631508
15000	0.000485393575	0.045455025015	-1	0.058375297883	6.066437753701
16000	0.000463759859	0.041563870907	-1	0.057923953700	5.736930834344
17000	0.000444614701	0.038283259583	-1	0.057456242511	5.447328801032
18000	0.000427560995	0.035487250019	-1	0.056971831125	5.190018290146
19000	0.000412281168	0.033081482171	-1	0.056470962105	4.959260715146
20000	0.000398518023	0.030994025646	-1	0.055954224776	4.750649180909
21000	0.000326908366	0.022982787967	-1	0.069280744586	5.351763322381
22000	0.000313422241	0.021406580590	-1	0.069744032308	5.228590535043
23000	0.000300444791	0.019882079379	-1	0.070331086923	5.104293551626
24000	0.000288164554	0.018455614628	-1	0.071014246554	4.984726790158
25000	0.000276761980	0.017171725110	-1	0.071733716818	4.875648129707

26000	0.000266360284	0.016060432336	-1	0.072410037171	4.781172004022
27000	0.000256863618	0.015101386163	-1	0.073018366917	4.699731910446
28000	0.000248128508	0.014263513590	-1	0.073563293611	4.628479271908
29000	0.000240019251	0.013517793132	-1	0.074064224405	4.564723601135
30000	0.000232406691	0.012837192806	-1	0.074555141531	4.505958712559
31000	0.000225184939	0.012200458635	-1	0.075073544807	4.450258952352
32000	0.000218321392	0.011603080955	-1	0.075622507668	4.397380859964
33000	0.000211803060	0.011044615040	-1	0.076193999755	4.347470984667
34000	0.000205618862	0.010524656676	-1	0.076778231188	4.300655731665
35000	0.000199759403	0.010042820412	-1	0.077363621422	4.257039918457
36000	0.000194213560	0.009598108205	-1	0.077939098463	4.216635439286
37000	0.000188958625	0.009187104599	-1	0.078502325730	4.179168257643
38000	0.000183969961	0.008805967409	-1	0.079054767311	4.144309407765
39000	0.000179224100	0.008451057647	-1	0.079599776084	4.111750779349
40000	0.000174698673	0.008118934758	-1	0.080142601422	4.081203808854
41000	0.000170373712	0.007806653121	-1	0.080688734743	4.052433104426
42000	0.000166236305	0.007512647510	-1	0.081237861809	4.025324048369
43000	0.000162275894	0.007235732272	-1	0.081788198778	3.999787387096
44000	0.000158482445	0.006974763644	-1	0.082338352061	3.975737355100
45000	0.000154846590	0.006728650138	-1	0.082887227215	3.953086835119
46000	0.000151359376	0.006496346770	-1	0.083434071233	3.931751588200
47000	0.000148012183	0.006276857051	-1	0.083978389128	3.911648322485
48000	0.000144796766	0.006069227131	-1	0.084520081512	3.892696987392
49000	0.000141705288	0.005872541158	-1	0.085059493506	3.874818500940
50000	0.000138730204	0.005685919583	-1	0.085597512083	3.857940765360
55000	0.000125386866	0.004880503476	-1	0.088275254228	3.786585642184
60000	0.000114160042	0.004243369891	-1	0.090922690307	3.732996870205
65000	0.000104585499	0.003729299366	-1	0.093542460088	3.693076273391
70000	0.000096326153	0.003307581419	-1	0.096136831734	3.663917647421
75000	0.000089130768	0.002956690037	-1	0.098708075942	3.643416554269
80000	0.000082807474	0.002661096803	-1	0.101260129976	3.630060088872
85000	0.000077214647	0.002409711021	-1	0.103780751759	3.622259410127
90000	0.000072234107	0.002193856530	-1	0.106273767658	3.619160602400

95000	0.000067766107	0.002006695617	-1	0.108756829657	3.620516079145
100000	0.000063738184	0.001843262486	-1	0.111230098035	3.625705959548
105000	0.000060092871	0.001699755737	-1	0.113677790212	3.633783266686
110000	0.000056779682	0.001573019458	-1	0.116100878493	3.644449171451
115000	0.000053754808	0.001460374257	-1	0.118509880904	3.657584720780
120000	0.000050983905	0.001359807969	-1	0.120900888640	3.672858088107
125000	0.000048437608	0.001269616971	-1	0.123272080571	3.689945287170
130000	0.000046090872	0.001188414659	-1	0.125622144445	3.708650682362
135000	0.000043921681	0.001115002255	-1	0.127953346597	3.728838901273
140000	0.000041911623	0.001048412241	-1	0.130264168987	3.750352554947
145000	0.000040044483	0.000987802751	-1	0.132555096865	3.773057855726
150000	0.000038306430	0.000932478474	-1	0.134824625576	3.796823029220
155000	0.000036685120	0.000881827313	-1	0.137073144130	3.821543966224
160000	0.000035169810	0.000835336122	-1	0.139299834167	3.847133979735
165000	0.000033750876	0.000792550368	-1	0.141505272734	3.873523713927
170000	0.000032420035	0.000753087318	-1	0.143688400077	3.900628534158
175000	0.000031169796	0.000716605071	-1	0.145849319118	3.928379237023
180000	0.000029993541	0.000682809939	-1	0.147987298181	3.956706918066
185000	0.000028885257	0.000651438597	-1	0.150102589407	3.985558701492
190000	0.000027839755	0.000622271094	-1	0.152193355471	4.014867091203
195000	0.000026852223	0.000595104336	-1	0.154259290933	4.044582341606
200000	0.000025917989	0.000569739323	-1	0.156303919385	4.074692420876
205000	0.000025032801	0.000545998510	-1	0.158331478287	4.105200630415
210000	0.000024193456	0.000523759749	-1	0.160338278846	4.136032848676
215000	0.000023397187	0.000502918890	-1	0.162318635979	4.167081848472
220000	0.000022641555	0.000483380850	-1	0.164265959917	4.198196139637
225000	0.000021922452	0.000465005534	-1	0.166195153173	4.229756006237
230000	0.000021237292	0.000447697988	-1	0.168108182567	4.261801037543
235000	0.000020585111	0.000431407802	-1	0.169990055143	4.293914360214
240000	0.000019963698	0.000416051260	-1	0.171842314199	4.326083665866
245000	0.000019370933	0.000401548980	-1	0.173667929134	4.358318403327
250000	0.000018806189	0.000387861058	-1	0.175452484325	4.390151121961
255000	0.000018266460	0.000374890494	-1	0.177214725520	4.421994380061

260000	0.000017749899	0.000362580274	-1	0.178959727174	4.453986144796
265000	0.000017255371	0.000350893444	-1	0.180684138024	4.486053937117
270000	0.000016781760	0.000339793765	-1	0.182385462803	4.518140955411
275000	0.000016327979	0.000329245753	-1	0.184062079927	4.550203520128
280000	0.000015892987	0.000319215292	-1	0.185712933024	4.582204650171
285000	0.000015475780	0.000309669659	-1	0.187337576389	4.614116763604
290000	0.000015075383	0.000300577310	-1	0.188936325259	4.645926417200
295000	0.000014690864	0.000291907924	-1	0.190510185087	4.677628626273
300000	0.000014321321	0.000283632574	-1	0.192060778661	4.709230787091

Electron Elastic Scattering Sampling Data
Solution for Z = 41

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.042869423629	1.345010096970	+1	0.134087757540	10.924660024902
52	0.042226617669	1.064449974552	+1	0.120220155059	6.823142449216
54	0.041606185059	0.859534963786	+1	0.108321863666	4.480375924605
56	0.040990862459	0.710384537408	+1	0.098315026904	3.104690825575
58	0.040373230637	0.602069100742	+1	0.090045500816	2.272412934950
60	0.039750934664	0.524028765372	+1	0.083330930618	1.756569274147
62	0.039123687306	0.469021426927	+1	0.077992199543	1.433607826142
64	0.038491925337	0.431976865776	+1	0.073858520017	1.234090466281
66	0.037856606791	0.409603589976	+1	0.070785851773	1.119469747219
68	0.037216499510	0.399967117284	+1	0.068662453827	1.069422685691
70	0.036570416146	0.401957437219	+1	0.067392603986	1.074235665969
72	0.035917241038	0.415297787464	+1	0.066902228599	1.132642484064
74	0.035255117972	0.440438195460	+1	0.067134594143	1.250942721757
76	0.034582043514	0.478620391796	+1	0.068048615151	1.444303066225
78	0.033896240739	0.531950514780	+1	0.069613382115	1.739869831487
80	0.033196431960	0.603582341601	+1	0.071803190450	2.183017194724
82	0.032481683362	0.698188543309	+1	0.074597423364	2.849908148192
84	0.031751948091	0.822580040109	+1	0.077974483932	3.870157796817
86	0.031007869749	0.986909108221	+1	0.081909962701	5.472335304276
88	0.030250940932	1.206836424509	+1	0.086374184335	8.078900179221
90	0.029483514643	1.507642700221	+1	0.091329550587	12.519020533002
92	0.028708665703	1.932765983557	+1	0.096729057379	20.553708521044
94	0.027930075036	2.563828484585	+1	0.102517645037	36.353212093581
96	0.027151914429	3.573492390003	+1	0.108630308665	71.416545123241
98	0.026378648421	5.401391821989	+1	0.114994125741	165.939373928890
100	0.025614841238	9.593810101430	+1	0.121530423950	535.211731277156
105	0.023774765878	19.729820585448	-1	0.138097707570	2692.318547570518
110	0.022077200757	5.816748544842	-1	0.154065552871	320.035896342947

115	0.020559586635	3.834181578326	-1	0.168470004366	178.973016155503
120	0.019234464570	3.171622710487	-1	0.180759213787	148.909092942177
125	0.018097472212	2.961897775780	-1	0.190718533529	150.092626616659
130	0.017131664385	3.003577158579	-1	0.198426292444	170.830738246873
135	0.016315753639	3.255454913690	-1	0.204104274761	214.248510133801
140	0.015626668330	3.755884370884	-1	0.208059139226	295.690285257495
145	0.015043315948	4.646734812332	-1	0.210597567357	458.428931142319
150	0.014546750059	6.321919007822	-1	0.212010019435	843.862130593356
155	0.014121188189	10.172890451871	-1	0.212542958042	2142.242644953112
160	0.013753381720	26.404812042532	-1	0.212404437991	13996.789195902191
165	0.013432660313	45.492845465100	+1	0.211760087567	41740.532585173700
170	0.013150319731	11.694287718551	+1	0.210742291242	2975.121999176653
175	0.012899410530	6.503642513670	+1	0.209453358025	989.583494353598
180	0.012674306027	4.416627330051	+1	0.207972964545	489.432278684277
185	0.012470525649	3.298132992852	+1	0.206361410061	291.935274626075
190	0.012284493931	2.605011755803	+1	0.204663561391	194.332825485007
195	0.012113302644	2.135880246519	+1	0.202913789670	139.075597276378
200	0.011954480082	1.799105509698	+1	0.201140213944	104.812379474714
205	0.011806049507	1.546824039614	+1	0.199363152091	82.119689662892
210	0.011666573797	1.351392994087	+1	0.197593827124	66.298737994070
215	0.011534885669	1.195954064802	+1	0.195839912107	54.815361448346
220	0.011409994202	1.069700329036	+1	0.194107242947	46.208452242994
225	0.011291053753	0.965386769554	+1	0.192400320383	39.586616461767
230	0.011177335258	0.877975911068	+1	0.190722470478	34.380437199978
235	0.011068211284	0.803859134305	+1	0.189076249547	30.212150044835
240	0.010963136337	0.740383270356	+1	0.187463471863	26.822862537168
245	0.010861638319	0.685555875798	+1	0.185885507963	24.030289641135
250	0.010763299234	0.637852253498	+1	0.184343278607	21.703002779298
255	0.010667785861	0.596074001631	+1	0.182836896726	19.743565433987
260	0.010574903691	0.559234954479	+1	0.181364446808	18.076839193673
265	0.010484495141	0.526547807644	+1	0.179923913613	16.645842572937
270	0.010396407261	0.497385289713	+1	0.178513628688	15.407154486460
275	0.010310485827	0.471241927961	+1	0.177132330107	14.327217811911

280	0.010226598551	0.447703671197	+1	0.175778781712	13.379595507977
285	0.010144594095	0.426432740703	+1	0.174452284393	12.543481747886
290	0.010064343241	0.407146431581	+1	0.173152094002	11.802053082646
295	0.009985725115	0.389608261582	+1	0.171877635753	11.141676906675
300	0.009908611248	0.373619540981	+1	0.170628512924	10.551244405310
310	0.009758555145	0.345620919526	+1	0.168203377562	9.544149844604
320	0.009613778590	0.321997458810	+1	0.165867784140	8.720890385969
330	0.009473941613	0.301889030022	+1	0.163614131072	8.039140273306
340	0.009338669199	0.284653082901	+1	0.161437141445	7.468745957165
350	0.009207584884	0.269800152462	+1	0.159333232252	6.987692981323
360	0.009080348023	0.256947098078	+1	0.157299311499	6.579394803034
370	0.008956781468	0.245775887638	+1	0.155330800061	6.230538341112
380	0.008836721858	0.236031403169	+1	0.153423659099	5.930802123186
390	0.008719985410	0.227510286113	+1	0.151574900489	5.672226658695
400	0.008606382985	0.220048533793	+1	0.149782280179	5.448582002147
410	0.008495729063	0.213511545053	+1	0.148043841528	5.254890343446
420	0.008387916813	0.207783205591	+1	0.146356924826	5.086916803902
430	0.008282841586	0.202766498286	+1	0.144719110835	4.941205423128
440	0.008180393192	0.198380657816	+1	0.143128449285	4.814951679370
450	0.008080451780	0.194558030555	+1	0.141583329503	4.705865989578
460	0.007982905810	0.191241369464	+1	0.140082364981	4.612050455954
470	0.007887675185	0.188380267643	+1	0.138623705134	4.531836946559
480	0.007794685041	0.185931411167	+1	0.137205680466	4.463818394288
490	0.007703855843	0.183857720348	+1	0.135826844304	4.406818389886
500	0.007615103874	0.182127172517	+1	0.134485947783	4.359846807094
510	0.007528354841	0.180712047551	+1	0.133181797789	4.322058030361
520	0.007443543365	0.179587896838	+1	0.131913063031	4.292709657190
530	0.007360610847	0.178733330410	+1	0.130678461268	4.271160201470
540	0.007279495499	0.178129505488	+1	0.129476849196	4.256860485638
550	0.007200137443	0.177759911777	+1	0.128307181156	4.249340440766
560	0.007122477893	0.177609871558	+1	0.127168482859	4.248192707482
570	0.007046467554	0.177666710686	+1	0.126059697362	4.253064668880
580	0.006972055764	0.177919107976	+1	0.124979804401	4.263650059093

590	0.006899196104	0.178356909315	+1	0.123927840945	4.279680140782
600	0.006827838396	0.178971139046	+1	0.122902953201	4.300930226457
610	0.006757940990	0.179753596170	+1	0.121904320560	4.327197289936
620	0.006689456630	0.180697500147	+1	0.120931045873	4.358321784242
630	0.006622350622	0.181796603531	+1	0.119982338208	4.394158270450
640	0.006556579863	0.183045373756	+1	0.119057398713	4.434589128201
650	0.006492107147	0.184438758053	+1	0.118155507863	4.479512074065
660	0.006428895016	0.185972126287	+1	0.117275942123	4.528838930339
670	0.006366907830	0.187641803919	+1	0.116418001616	4.582510258811
680	0.006306113839	0.189444462892	+1	0.115581007320	4.640476547671
690	0.006246479829	0.191377159809	+1	0.114764310359	4.702703472838
700	0.006187972283	0.193437070261	+1	0.113967274457	4.769162797887
710	0.006130561491	0.195621665724	+1	0.113189313010	4.839835946125
720	0.006074221054	0.197929099999	+1	0.112429851886	4.914723644275
730	0.006018918510	0.200357861151	+1	0.111688301581	4.993842279354
740	0.005964628603	0.202906454302	+1	0.110964152176	5.077208821113
750	0.005911324743	0.205573484428	+1	0.110256864541	5.164844620708
760	0.005858981626	0.208357726991	+1	0.109565940024	5.256778834278
770	0.005807573338	0.211258649676	+1	0.108890878026	5.353063523403
780	0.005757076648	0.214275861747	+1	0.108231212187	5.453756685940
790	0.005707470288	0.217408679585	+1	0.107586425721	5.558904955079
800	0.005658725492	0.220657560008	+1	0.106956194984	5.668610099752
810	0.005610826382	0.224021552949	+1	0.106339971861	5.78290830109 1
820	0.005563751084	0.227500912628	+1	0.105737401089	5.901891618059
830	0.005517479309	0.231095928948	+1	0.105148084075	6.025651966058
840	0.005471990493	0.234806801059	+1	0.104571672533	6.154284917537
850	0.005427266028	0.238633715973	+1	0.104007790233	6.287884688477
860	0.005383288063	0.242576979305	+1	0.103456097554	6.426553637868
870	0.005340038272	0.246637404375	+1	0.102916209865	6.570410754801
880	0.005297499565	0.250816078196	+1	0.102387816509	6.719590982315
890	0.005255653735	0.255114022879	+1	0.101870565829	6.874229592981
900	0.005214486215	0.259532248154	+1	0.101364145965	7.034463510416
910	0.005173980218	0.264071805836	+1	0.100868227729	7.200436489618

920	0.005134121182	0.268734024706	+1	0.100382531253	7.372306365580
930	0.005094892669	0.273520424221	+1	0.099906781962	7.550245117266
940	0.005056281263	0.278432363536	+1	0.099440710295	7.734420346922
950	0.005018273122	0.283471180411	+1	0.098984051288	7.925004682988
960	0.004980854870	0.288638429415	+1	0.098536554008	8.122183639940
970	0.004944012337	0.293935797302	+1	0.098097949404	8.326152296467
980	0.004907734275	0.299365117439	+1	0.097668020889	8.537116479391
990	0.004872006416	0.304928447454	+1	0.097246525974	8.755298739292
1000	0.004836820063	0.310627023137	+1	0.096833191580	8.980885482062
1025	0.004751130464	0.325482432557	+1	0.095834407388	9.578986363287
1050	0.004668562762	0.341238405647	+1	0.094882334928	10.229118101566
1075	0.004588948659	0.357937872803	+1	0.093974060452	10.935869505965
1100	0.004512138978	0.375624158862	+1	0.093106786338	11.704175865207
1125	0.004437994631	0.394343651435	+1	0.092277831460	12.539470852518
1150	0.004366379523	0.414153999143	+1	0.091484908118	13.448140176935
1175	0.004297168175	0.435118317770	+1	0.090725880786	14.437328854593
1200	0.004230244589	0.457303331037	+1	0.089998675195	15.514923508954
1225	0.004165499738	0.480780988373	+1	0.089301354893	16.689720583774
1250	0.004102831061	0.505635241081	+1	0.088632201776	17.971864640162
1275	0.004042140318	0.531958455850	+1	0.087989626663	19.372830354846
1300	0.003983337501	0.559850359059	+1	0.087372090654	20.905486081175
1325	0.003926338641	0.589419719666	+1	0.086778112830	22.584347392454
1350	0.003871061180	0.620791822064	+1	0.086206443979	24.426255384586
1375	0.003817429765	0.654104879745	+1	0.085655853495	26.450385258587
1400	0.003765372640	0.689511267333	+1	0.085125199159	28.678653916522
1425	0.003714823645	0.727179839196	+1	0.084613379418	31.136180107995
1450	0.003665716854	0.767303330832	+1	0.084119414360	33.852251643900
1475	0.003617992325	0.810097626554	+1	0.083642386452	36.860795353292
1500	0.003571592347	0.855804814762	+1	0.083181438223	40.201273164074
1550	0.003482555622	0.957085187634	+1	0.082304458021	48.070337750661
1600	0.003398205360	1.073818669247	+1	0.081482543624	57.936993254600
1650	0.003318182152	1.209499890562	+1	0.080710407575	70.475490840383
1700	0.003242160909	1.368805065302	+1	0.079983525109	86.663360021030

1750	0.003169848115	1.558112394276	+1	0.079297886968	107.956291106236
1800	0.003100976767	1.786360199189	+1	0.078649849663	136.595474746476
1850	0.003035305620	2.066459145718	+1	0.078036167312	176.168155453563
1900	0.002972616689	2.417770416664	+1	0.077453990123	232.694285985641
1950	0.002912708795	2.870733190772	+1	0.076900738325	316.889588892815
2000	0.002855395039	3.476202126422	+1	0.076374218336	449.325354450471
2100	0.002747892187	5.602833820560	+1	0.075393532920	1094.772373935920
2200	0.002648938740	12.007221315140	+1	0.074497700700	4733.382478355753
2300	0.002569272747	99.644503530780	+1	0.073284350107	307881.471082199190
2400	0.002472869297	12.572186367668	-1	0.072915546154	5413.618770602232
2500	0.002394163960	6.202983414295	-1	0.072212338437	1449.050204582218
2600	0.002320792739	4.079309264129	-1	0.071559437040	686.532340619154
2700	0.002252226519	3.019285807473	-1	0.070950751795	410.565339695414
2800	0.002188007139	2.385002843612	-1	0.070381042509	278.740918514119
2900	0.002127724814	1.963453416327	-1	0.069846226926	204.912461087683
3000	0.002071011109	1.663248432954	-1	0.069343301265	159.038723743685
3100	0.002017540833	1.438723923420	-1	0.068869899711	128.369405808699
3200	0.001967040594	1.264700098202	-1	0.068423015854	106.736990896556
3300	0.001919269158	1.126046076163	-1	0.067999889269	90.834841341957
3400	0.001873972726	1.012977896897	-1	0.067600408119	78.742619529320
3500	0.001830951799	0.919054585093	-1	0.067223133932	69.294420342287
3600	0.001790054590	0.839884130640	-1	0.066865123460	61.747885010855
3700	0.001751126389	0.772308544824	-1	0.066524668767	55.607416003230
3800	0.001714027491	0.714009868961	-1	0.066200166917	50.531394864734
3900	0.001678629036	0.663234318514	-1	0.065890436517	46.276643860291
4000	0.001644811045	0.618630259632	-1	0.065594625930	42.666005738241
4100	0.001612464278	0.579146306102	-1	0.065312089629	39.568336328483
4200	0.001581494100	0.543973795259	-1	0.065041764828	36.886219121670
4300	0.001551813365	0.512464953796	-1	0.064782667602	34.544814221010
4400	0.001523341948	0.484089796930	-1	0.064534033112	32.485417078765
4500	0.001496003973	0.458409887303	-1	0.064295350333	30.661428751069
4600	0.001469729824	0.435062648747	-1	0.064066216732	29.035631863396
4700	0.001444457808	0.413755630385	-1	0.063845932941	27.578614561396

4800	0.001420131438	0.394243030174	-1	0.063633842344	26.266371689724
4900	0.001396697772	0.376314047276	-1	0.063429458774	25.078981188753
5000	0.001374106480	0.359786917487	-1	0.063232423818	23.999791031237
5500	0.001272289500	0.293478918602	-1	0.062344825069	19.813234543922
6000	0.001185883468	0.246133844854	-1	0.061590525376	16.955118126173
6500	0.001111579585	0.210815711856	-1	0.060939506608	14.885497006789
7000	0.001046963152	0.183575352581	-1	0.060369646223	13.319441890316
7500	0.000990230558	0.162004848209	-1	0.059864354266	12.093376424347
8000	0.000940004296	0.144555994497	-1	0.059410860347	11.107111882811
8500	0.000895213570	0.130190098805	-1	0.058999234516	10.296048647930
9000	0.000855013445	0.118185615857	-1	0.058621597268	9.616738965389
9500	0.000818726884	0.108026532244	-1	0.058271662238	9.038948007693
10000	0.000785820609	0.099342568855	-1	0.057941318415	8.541109502933
10500	0.000755831979	0.091842475107	-1	0.057628695094	8.107125659256
11000	0.000728389201	0.085311615474	-1	0.057330268653	7.725156971404
11500	0.000703177316	0.079579131708	-1	0.057044105636	7.385891820108
12000	0.000679936843	0.074515324596	-1	0.056767419529	7.082307907662
12500	0.000658444341	0.070014216712	-1	0.056498606233	6.808728808734
13000	0.000638511809	0.065992506413	-1	0.056235703012	6.560715608447
13500	0.000619974548	0.062380421406	-1	0.055977733536	6.334588472368
14000	0.000602692616	0.059122257106	-1	0.055723260384	6.127407872113
14500	0.000586542827	0.056170584956	-1	0.055471607768	5.936689914194
15000	0.000571419437	0.053486941205	-1	0.055221751145	5.760419406274
16000	0.000543883869	0.048796043976	-1	0.054725311170	5.444569487612
17000	0.000519459593	0.044841718458	-1	0.054229851817	5.169020533598
18000	0.000497652417	0.041471634030	-1	0.053732549170	4.925835955509
19000	0.000478067753	0.038571878464	-1	0.053231467455	4.709067870334
20000	0.000460386024	0.036055647393	-1	0.052725367799	4.514171584420
21000	0.000397226166	0.027972612952	-1	0.062609020399	4.833040031851
22000	0.000380838776	0.026061769426	-1	0.062883085417	4.709891957864
23000	0.000365127324	0.024216406854	-1	0.063254266211	4.585288368700
24000	0.000350295522	0.022490132516	-1	0.063706402788	4.465144098597
25000	0.000336537070	0.020935367995	-1	0.064195799197	4.355333612723

26000	0.000323976228	0.019587683115	-1	0.064661120088	4.260181116389
27000	0.000312492734	0.018422950181	-1	0.065080679181	4.178204385902
28000	0.000301917010	0.017404178139	-1	0.065455906469	4.106552682148
29000	0.000292091282	0.016496691307	-1	0.065800696836	4.042484286515
30000	0.000282867974	0.015668095789	-1	0.066141223464	3.983386416026
31000	0.000274126650	0.014892833677	-1	0.066507141852	3.927213528761
32000	0.000265827206	0.014165402981	-1	0.066900922675	3.873710972797
33000	0.000257951143	0.013485200142	-1	0.067316122112	3.823049832872
34000	0.000250482366	0.012851689251	-1	0.067744847796	3.775388298059
35000	0.000243406866	0.012264379284	-1	0.068177674579	3.730869667138
36000	0.000236709037	0.011722054705	-1	0.068605516183	3.689544119385
37000	0.000230361151	0.011220605081	-1	0.069026204267	3.651148111605
38000	0.000224333761	0.010755401777	-1	0.069440675403	3.615351502205
39000	0.000218599112	0.010322052085	-1	0.069851460446	3.581836359097
40000	0.000213130947	0.009916398100	-1	0.070262717541	3.550299628726
41000	0.000207905862	0.009534871680	-1	0.070678855782	3.520487858211
42000	0.000202908083	0.009175581520	-1	0.071099474698	3.492288014558
43000	0.000198124468	0.008837083656	-1	0.071523083658	3.465620274879
44000	0.000193542697	0.008517997232	-1	0.071948417372	3.440403980462
45000	0.000189151206	0.008216997834	-1	0.072374496087	3.416558056353
46000	0.000184939084	0.007932818764	-1	0.072800634415	3.394002387044
47000	0.000180895838	0.007664251383	-1	0.073226346642	3.372656805676
48000	0.000177011512	0.007410138212	-1	0.073651474704	3.352442032392
49000	0.000173276636	0.007169369292	-1	0.074076240443	3.333280866739
50000	0.000169682220	0.006940876396	-1	0.074501303709	3.315097608821
55000	0.000153559163	0.005954271829	-1	0.076636492521	3.236885891038
60000	0.000139988580	0.005173277409	-1	0.078775968507	3.176009498772
65000	0.000128410214	0.004542837715	-1	0.080917470951	3.128442230348
70000	0.000118417489	0.004025511404	-1	0.083059344390	3.091333111475
75000	0.000109707724	0.003595024690	-1	0.085200475345	3.062609439937
80000	0.000102050856	0.003232455574	-1	0.087340030231	3.040727502265
85000	0.000095268832	0.002923864571	-1	0.089477366381	3.024512976744
90000	0.000089221774	0.002658781242	-1	0.091611915394	3.013052531551

95000	0.000083798013	0.002429198253	-1	0.093743371499	3.005632836458
100000	0.000078906769	0.002228876981	-1	0.095872696251	3.001717648492
105000	0.000074472308	0.002052795477	-1	0.098007629157	3.001001089112
110000	0.000070447509	0.001897757123	-1	0.100109507264	3.002295662018
115000	0.000066773167	0.001760146597	-1	0.102198082243	3.005687568807
120000	0.000063402734	0.001637255671	-1	0.104285155630	3.011231713128
125000	0.000060297725	0.001526872237	-1	0.106381922060	3.018937187483
130000	0.000057434698	0.001427580234	-1	0.108466344260	3.028154648324
135000	0.000054786464	0.001337874549	-1	0.110542066367	3.038793160850
140000	0.000052330742	0.001256561068	-1	0.112607297296	3.050703786926
145000	0.000050048037	0.001182603498	-1	0.114661704756	3.063746402878
150000	0.000047921542	0.001115142597	-1	0.116703920449	3.077811282616
155000	0.000045936300	0.001053422345	-1	0.118734293960	3.092809172589
160000	0.000044079449	0.000996811824	-1	0.120751601331	3.108650436218
165000	0.000042339477	0.000944752284	-1	0.122755792770	3.125256530457
170000	0.000040706281	0.000896771536	-1	0.124745676198	3.142557534763
175000	0.000039170769	0.000852447895	-1	0.126721122970	3.160493131034
180000	0.000037725027	0.000811420513	-1	0.128681045430	3.178994010898
185000	0.000036361860	0.000773365570	-1	0.130625364027	3.198005756953
190000	0.000035074919	0.000738011086	-1	0.132552459747	3.217480684084
195000	0.000033858350	0.000705106446	-1	0.134461969039	3.237379509881
200000	0.000032706608	0.000674408588	-1	0.136356391999	3.257670177385
205000	0.000031614663	0.000645700892	-1	0.138238822139	3.278329031207
210000	0.000030578671	0.000618834737	-1	0.140105123932	3.299287296353
215000	0.000029595435	0.000593688397	-1	0.141947912143	3.320428230918
220000	0.000028660003	0.000570082846	-1	0.143778976462	3.341998927828
225000	0.000027768257	0.000547869590	-1	0.145606825240	3.364173227977
230000	0.000026919478	0.000527006323	-1	0.147409868947	3.386511612526
235000	0.000026110888	0.000507385265	-1	0.149187779445	3.408981987397
240000	0.000025339830	0.000488903664	-1	0.150941685925	3.431567452442
245000	0.000024605748	0.000471520939	-1	0.152652080366	3.453817681990
250000	0.000023904544	0.000455094598	-1	0.154340043467	3.476092214575
255000	0.000023233389	0.000439525647	-1	0.156016270433	3.498551163268

260000	0.000022590701	0.000424761472	-1	0.157678549609	3.521152101553
265000	0.000021975046	0.000410756072	-1	0.159323922573	3.543849757075
270000	0.000021385036	0.000397464382	-1	0.160950160256	3.566606336113
275000	0.000020819334	0.000384842651	-1	0.162555724148	3.589391101759
280000	0.000020276670	0.000372849368	-1	0.164139375039	3.612174935749
285000	0.000019755820	0.000361444113	-1	0.165700706178	3.634937487808
290000	0.000019255606	0.000350588508	-1	0.167239758134	3.657664873125
295000	0.000018774903	0.000340245474	-1	0.168757305482	3.680348805636
300000	0.000018312618	0.000330379742	-1	0.170254737267	3.702993019001

Electron Elastic Scattering Sampling Data
Solution for Z = 42

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.045927688973	1.310373012067	+1	0.179138090541	13.753670856676
52	0.045315961585	1.081870555192	+1	0.162230749301	9.207442170585
54	0.044786860744	0.895045906069	+1	0.146970570254	6.245296839033
56	0.044296628938	0.747130973000	+1	0.133503167018	4.347626623043
58	0.043819585717	0.632023895135	+1	0.121831678144	3.128590786942
60	0.043341646850	0.543457794336	+1	0.111871338113	2.336531145259
62	0.042855556899	0.476140307281	+1	0.103494968442	1.815506422048
64	0.042358358222	0.425716618459	+1	0.096545308043	1.469002174206
66	0.041848315800	0.389105891602	+1	0.090882197826	1.239308249559
68	0.041324780371	0.364009175834	+1	0.086371568158	1.090772208653
70	0.040787215894	0.348761006634	+1	0.082890357072	1.001520086935
72	0.040234371609	0.342403735738	+1	0.080342993350	0.959434537809
74	0.039665215509	0.344374803394	+1	0.078643877390	0.958265365252
76	0.039078033484	0.354621521011	+1	0.077728577135	0.997066582064
78	0.038471070025	0.373519749220	+1	0.077546448965	1.079536218850
80	0.037842730972	0.401863686392	+1	0.078056532186	1.214438405803
82	0.037191504764	0.440974175706	+1	0.079228833634	1.417418853283
84	0.036515640534	0.492845479865	+1	0.081043119283	1.714319900870
86	0.035815093232	0.560137750200	+1	0.083475774896	2.145487447275
88	0.035089576529	0.646688446173	+1	0.086509986930	2.776597450946
90	0.034339892920	0.757845281621	+1	0.090125367187	3.715048406594
92	0.033567546764	0.901272401283	+1	0.094297906866	5.142314459221
94	0.032774985136	1.088296783352	+1	0.098997848400	7.377195269411
96	0.031965432190	1.336241709667	+1	0.104187159286	11.006620179123
98	0.031142865023	1.672960693739	+1	0.109818596600	17.179015732816
100	0.030311928060	2.146168369740	+1	0.115835089210	28.325026397160
105	0.028231489679	4.793790827559	+1	0.132116889702	145.651278512982
110	0.026311425515	25.481809438752	+1	0.148492708938	4357.838554936766

115	0.024323119614	11.097818966596	-1	0.165925829662	1072.007422883390
120	0.022616465371	5.393381258814	-1	0.181206949850	329.955152660348
125	0.021115249185	4.004536914722	-1	0.194385323323	224.275238555376
130	0.019819989706	3.524640370464	-1	0.205174535551	203.668384625782
135	0.018717393377	3.437847805544	-1	0.213567676773	217.287193035425
140	0.017785193958	3.619569029352	-1	0.219770548359	260.190084473181
145	0.016999282006	4.079254588050	-1	0.224073250413	346.097814819680
150	0.016335641252	4.941300040788	-1	0.226803693971	518.692204177076
155	0.015773070793	6.576294079279	-1	0.228268069954	919.822014284190
160	0.015293040112	10.258086682129	-1	0.228742590962	2205.938513077054
165	0.014880300044	24.321769579380	-1	0.228456814909	12075.540798033440
170	0.014522192065	64.635856758514	+1	0.227600669655	84850.144767383565
175	0.014208564707	13.221910122587	+1	0.226324092673	3817.212719523297
180	0.013931151940	7.111544935675	+1	0.224746139677	1183.914514645359
185	0.013683389402	4.759646558935	+1	0.222958004957	567.091451175465
190	0.013460025775	3.523452948932	+1	0.221028661807	331.522611521348
195	0.013256840062	2.766351298531	+1	0.219010951644	217.515136045902
200	0.013070308627	2.258406864528	+1	0.216947657652	153.973591487269
205	0.012897642355	1.896096141828	+1	0.214869755636	115.035271524297
210	0.012736752113	1.625671964425	+1	0.212795816059	89.452772767002
215	0.012585950333	1.416786853320	+1	0.210738733365	71.737879060927
220	0.012443832216	1.251095268257	+1	0.208708151122	58.960599359784
225	0.012309223535	1.116859206114	+1	0.206711205770	49.440089739219
230	0.012181135037	1.006224270081	+1	0.204753074821	42.155738864668
235	0.012058729331	0.913738518629	+1	0.202837474404	36.458482551762
240	0.011941297733	0.835501993898	+1	0.200966943444	31.919448937964
245	0.011828229370	0.768652932451	+1	0.199143155953	28.245994580334
250	0.011719003656	0.711044568839	+1	0.197367093935	25.232793522455
255	0.011613200288	0.661020883352	+1	0.195638645107	22.731459365594
260	0.011510567133	0.617244231035	+1	0.193955211178	20.630406342954
265	0.011410896664	0.578662650812	+1	0.192314016590	18.846719977953
270	0.011313985795	0.544449329686	+1	0.190712744202	17.318349644417
275	0.011219643527	0.513944757105	+1	0.189149462471	15.998019241510

280	0.011127688089	0.486617148823	+1	0.187622514104	14.849186896604
285	0.011037945220	0.462032729408	+1	0.186130521000	13.843215415355
290	0.010950252195	0.439834288976	+1	0.184672305701	12.957382107258
295	0.010864452679	0.419725078322	+1	0.183246879091	12.173464105060
300	0.010780398434	0.401456746978	+1	0.181853398696	11.476702601816
310	0.010617103534	0.369614451717	+1	0.179157676858	10.297463435921
320	0.010459882781	0.342889921100	+1	0.176572297481	9.342139209220
330	0.010308316850	0.320238941494	+1	0.174086436008	8.556877771470
340	0.010161969288	0.300888011437	+1	0.171692060725	7.903769977424
350	0.010020367632	0.284255316251	+1	0.169383626802	7.355583345169
360	0.009883111686	0.269887504996	+1	0.167156255166	6.891953211147
370	0.009749980044	0.257412085805	+1	0.165003803155	6.496784193791
380	0.009620767488	0.246532428242	+1	0.162920946156	6.157722155943
390	0.009495252543	0.237012923722	+1	0.160903622575	5.865289317213
400	0.009373200242	0.228664979658	+1	0.158948795202	5.612137142286
410	0.009254392113	0.221334076582	+1	0.157053776878	5.392407803673
420	0.009138695043	0.214888205959	+1	0.155215296670	5.201185335754
430	0.009025983796	0.209217330339	+1	0.153430422035	5.034472132043
440	0.008916123981	0.204230209569	+1	0.151696773571	4.889039705413
450	0.008808973475	0.199850576255	+1	0.150012420659	4.762258546182
460	0.008704403381	0.196013890396	+1	0.148375624323	4.651945542854
470	0.008602319483	0.192663874284	+1	0.146784331986	4.556209678544
480	0.008502633156	0.189752383881	+1	0.145236666302	4.473461803275
490	0.008405252051	0.187237958791	+1	0.143731010337	4.402365472103
500	0.008310082140	0.185085102894	+1	0.142265966703	4.341801398156
510	0.008217038689	0.183262923068	+1	0.140840245578	4.290810647569
520	0.008126045668	0.181744461508	+1	0.139452359518	4.248558624940
530	0.008037042270	0.180505904474	+1	0.138100966884	4.214316591991
540	0.007949958375	0.179526603468	+1	0.136784840201	4.187469313856
550	0.007864728682	0.178788111085	+1	0.135502852124	4.167477492920
560	0.007781287795	0.178274391698	+1	0.134253950782	4.153882333983
570	0.007699581201	0.177971283067	+1	0.133037031188	4.146278314691
580	0.007619557938	0.177866283962	+1	0.131851010586	4.144312127256

590	0.007541165341	0.177948188487	+1	0.130694901006	4.147676871013
600	0.007464351027	0.178206969565	+1	0.129567793959	4.156106261242
610	0.007389068520	0.178633556335	+1	0.128468805818	4.169362627755
620	0.007315272469	0.179220343313	+1	0.127397048887	4.187251364728
630	0.007242921925	0.179960305148	+1	0.126351637784	4.209594846403
640	0.007171974576	0.180847231908	+1	0.125331768596	4.236244547727
650	0.007102391989	0.181875286950	+1	0.124336654285	4.267063283896
660	0.007034133301	0.183039383735	+1	0.123365578036	4.301940907426
670	0.006967161709	0.184335222309	+1	0.122417770744	4.340786443804
680	0.006901446720	0.185758933751	+1	0.121492537510	4.383521677139
690	0.006836950234	0.187307037491	+1	0.120589180694	4.430085548658
700	0.006773640056	0.188976289645	+1	0.119707043090	4.480423196253
710	0.006711487067	0.190763626041	+1	0.118845505882	4.534485840442
720	0.006650457594	0.192666855940	+1	0.118003951278	4.592253427672
730	0.006590526048	0.194683856107	+1	0.117181793770	4.653705283269
740	0.006531661123	0.196812721094	+1	0.116378442019	4.718831975461
750	0.006473837139	0.199051655907	+1	0.115593362011	4.787627246896
760	0.006417027085	0.201399041588	+1	0.114826017605	4.860092052177
770	0.006361207702	0.203853741366	+1	0.114075890721	4.936240347730
780	0.006306351939	0.206414976159	+1	0.113342481388	5.016101559833
790	0.006252435896	0.209081881996	+1	0.112625299293	5.099702446140
800	0.006199438371	0.211853642662	+1	0.111923874744	5.187071479852
810	0.006147336166	0.214729607240	+1	0.111237763780	5.278246378867
820	0.006096107969	0.217709480030	+1	0.110566520425	5.373275122769
830	0.006045732473	0.220793147721	+1	0.109909733130	5.472214677246
840	0.005996188845	0.223980488334	+1	0.109266999103	5.575123821040
850	0.005947458294	0.227271365189	+1	0.108637914538	5.682060872159
860	0.005899522004	0.230665738299	+1	0.108022109805	5.793090866403
870	0.005852362344	0.234163872471	+1	0.107419199834	5.908287846677
880	0.005805959008	0.237766385651	+1	0.106828841184	6.027743969868
890	0.005760295517	0.241473670114	+1	0.106250673081	6.151542190904
900	0.005715356274	0.245286117957	+1	0.105684349898	6.279767672906
910	0.005671123848	0.249204324544	+1	0.105129558137	6.412518297931

920	0.005627582757	0.253229063900	+1	0.104585979873	6.549897747425
930	0.005584716591	0.257361273404	+1	0.104053308396	6.692019487794
940	0.005542511770	0.261601828768	+1	0.103531272557	6.838997316715
950	0.005500952384	0.265951611244	+1	0.103019575557	6.990949270656
960	0.005460025511	0.270411484265	+1	0.102517938547	7.147993521550
970	0.005419716074	0.274982717429	+1	0.102026097876	7.310268462233
980	0.005380012105	0.279666520206	+1	0.101543790691	7.477910175760
990	0.005340900251	0.284464036488	+1	0.101070767368	7.651059132017
1000	0.005302367622	0.289376558852	+1	0.100606766865	7.829862850899
1025	0.005208491536	0.302170543985	+1	0.099484758955	8.302662159458
1050	0.005117976075	0.315720063920	+1	0.098414326903	8.814581805378
1075	0.005030646762	0.330055071208	+1	0.097392282082	9.368679981484
1100	0.004946346365	0.345205537274	+1	0.096415577282	9.968216696228
1125	0.004864927706	0.361203311265	+1	0.095481350663	10.616751902778
1150	0.004786248633	0.378089140235	+1	0.094587094441	11.318471457082
1175	0.004710176070	0.395907526909	+1	0.093730474608	12.078024453751
1200	0.004636584373	0.414704801726	+1	0.092909247315	12.900482008756
1225	0.004565362130	0.434530162151	+1	0.092121283959	13.791399148380
1250	0.004496396789	0.455442086642	+1	0.091364725144	14.757202496455
1275	0.004429584234	0.477504060714	+1	0.090637803100	15.805046065913
1300	0.004364830450	0.500783320338	+1	0.089938828827	16.942816895409
1325	0.004302042563	0.525353123202	+1	0.089266202174	18.179346592090
1350	0.004241135724	0.551296932562	+1	0.088618514932	19.524710277987
1375	0.004182025756	0.578707124679	+1	0.087994450250	20.990319670119
1400	0.004124637211	0.607682544682	+1	0.087392724757	22.588897413925
1425	0.004068897242	0.638332446548	+1	0.086812139548	24.334870898021
1450	0.004014737793	0.670779891428	+1	0.086251630211	26.244765560762
1475	0.003962091478	0.705161233423	+1	0.085710144844	28.337425685821
1500	0.003910899623	0.741626240278	+1	0.085186719191	30.634277334395
1550	0.003812641560	0.821496389025	+1	0.084190427650	35.942879927463
1600	0.003719530658	0.911986922225	+1	0.083256210343	42.417168333202
1650	0.003631175348	1.015110093560	+1	0.082378229322	50.389413577527
1700	0.003547224353	1.133446659545	+1	0.081551375708	60.316041058773

1750	0.003467356222	1.270350881961	+1	0.080771073792	72.836176487992
1800	0.003391281556	1.430267521784	+1	0.080033300755	88.866036396994
1850	0.003318737833	1.619200973274	+1	0.079334429328	109.753280445818
1900	0.003249481373	1.845475845044	+1	0.078671257008	137.544029085700
1950	0.003183296460	2.120966823050	+1	0.078040908421	175.459268062531
2000	0.003119978267	2.463268826668	+1	0.077440840764	228.807049177970
2100	0.003001222911	3.473870395905	+1	0.076322564274	426.608902036872
2200	0.002891923984	5.414379292953	+1	0.075300530368	975.123746153080
2300	0.002790989968	10.625427489976	+1	0.074361560109	3545.632797322332
2400	0.002705020352	47.022764524101	+1	0.073233961106	65789.108836998275
2500	0.002610593814	16.628516260175	-1	0.072691861612	8779.289820234675
2600	0.002529616667	7.336514591012	-1	0.071945581853	1869.618778345959
2700	0.002453964937	4.663975461907	-1	0.071249293032	823.808428861912
2800	0.002383128704	3.397378916880	-1	0.070597246290	475.051219980140
2900	0.002316652004	2.659323541979	-1	0.069984804092	315.369687512739
3000	0.002254129891	2.176513187823	-1	0.069408473004	228.248834775758
3100	0.002195200871	1.836272488467	-1	0.068865440757	175.084371019336
3200	0.002139562177	1.583912728328	-1	0.068352365004	140.041847249733
3300	0.002086944247	1.389532763473	-1	0.067866243164	115.595546596996
3400	0.002037102351	1.235357047328	-1	0.067404702587	97.777678553829
3500	0.001989813300	1.110150640487	-1	0.066966002060	84.328939951211
3600	0.001944875652	1.006488732240	-1	0.066548721225	73.885298845076
3700	0.001902116730	0.919333632230	-1	0.066151003843	65.587480021407
3800	0.001861367537	0.845069959141	-1	0.065771959858	58.864521844828
3900	0.001822455004	0.781004530389	-1	0.065412240544	53.322430584997
4000	0.001785288605	0.725268518824	-1	0.065068256873	48.692459197800
4100	0.001749748115	0.676348227566	-1	0.064739224812	44.774896855417
4200	0.001715727391	0.633095393386	-1	0.064423985053	41.424419967547
4300	0.001683131072	0.594606112121	-1	0.064121468791	38.531726859502
4400	0.001651869561	0.560150833972	-1	0.063830841736	36.012664925436
4500	0.001621858791	0.529135270791	-1	0.063551497146	33.801632112484
4600	0.001593021456	0.501073466557	-1	0.063282947735	31.847013605865
4700	0.001565289786	0.475576427159	-1	0.063024440499	30.108474246085

4800	0.001538600592	0.452320008619	-1	0.062775263916	28.553499162639
4900	0.001512895176	0.431029090594	-1	0.062534874096	27.155438492424
5000	0.001488117933	0.411468564883	-1	0.062302878386	25.892277295391
5500	0.001376502712	0.333615865392	-1	0.061254250649	21.061593634469
6000	0.001281845849	0.278626297408	-1	0.060358739562	17.830013660835
6500	0.001200491501	0.237920316766	-1	0.059582808557	15.525460377585
7000	0.001129776166	0.206702272582	-1	0.058901803770	13.802452092110
7500	0.001067710225	0.182088361241	-1	0.058297076131	12.466602959780
8000	0.001012777401	0.162243913037	-1	0.057754359463	11.400731148755
8500	0.000963799056	0.145948550550	-1	0.057262410433	10.530253832259
9000	0.000919846436	0.132360180307	-1	0.056812387669	9.805556856162
9500	0.000880175845	0.120879985349	-1	0.056397135407	9.192418211250
10000	0.000844184845	0.111070963520	-1	0.056010895086	8.666502105912
10500	0.000811380002	0.102606141439	-1	0.055649151385	8.209985680894
11000	0.000781356131	0.095241280473	-1	0.055307245034	7.809769938575
11500	0.000753784596	0.088788910472	-1	0.054979529111	7.455687836337
12000	0.000728366587	0.083093318316	-1	0.054665434545	7.139914658125
12500	0.000704856928	0.078033176547	-1	0.054363292680	6.856237666401
13000	0.000683049759	0.073513857073	-1	0.054070830869	6.599824752657
13500	0.000662765316	0.069456266898	-1	0.053786737776	6.366681551000
14000	0.000643850568	0.065797272625	-1	0.053509389977	6.153632728870
14500	0.000626170949	0.062483262047	-1	0.053237816856	5.957998019310
15000	0.000609610603	0.059470711562	-1	0.052970839647	5.777612535834
16000	0.000579448533	0.054206070805	-1	0.052447686627	5.455444419934
17000	0.000552680405	0.049768956261	-1	0.051934485073	5.175540508348
18000	0.000528767825	0.045987905205	-1	0.051427195440	4.929443131353
19000	0.000507280625	0.042734735492	-1	0.050922927813	4.710838506742
20000	0.000487870888	0.039911899913	-1	0.050419580092	4.514916172327
21000	0.000428773409	0.031553923678	-1	0.058736211188	4.735064128912
22000	0.000411111477	0.029405300657	-1	0.058914836045	4.607545825476
23000	0.000394189722	0.027331169620	-1	0.059179024496	4.478710963449
24000	0.000378234895	0.025391896659	-1	0.059515053819	4.354458712726
25000	0.000363448590	0.023645505960	-1	0.059886431246	4.240777676505

26000	0.000349949804	0.022130828553	-1	0.060241750658	4.142169718279
27000	0.000337600076	0.020820377987	-1	0.060562694197	4.057197936669
28000	0.000326219380	0.019673100392	-1	0.060849213093	3.982923823825
29000	0.000315641461	0.018650462015	-1	0.061112333897	3.916507050081
30000	0.000305711939	0.017716437993	-1	0.061373938431	3.855222379509
31000	0.000296305399	0.016842579130	-1	0.061659193702	3.796918960791
32000	0.000287378436	0.016022671942	-1	0.061970184727	3.741325739841
33000	0.000278909807	0.015255963825	-1	0.062301316872	3.688622598912
34000	0.000270880725	0.014541777735	-1	0.062645777673	3.638980882207
35000	0.000263274892	0.013879505648	-1	0.062995417415	3.592558250798
36000	0.000256074378	0.013267751035	-1	0.063342308012	3.549418350362
37000	0.000249249143	0.012701904869	-1	0.063684470844	3.509295124872
38000	0.000242767750	0.012176793413	-1	0.064022560162	3.471846829533
39000	0.000236600693	0.011687505815	-1	0.064358660634	3.436743079648
40000	0.000230720110	0.011229386701	-1	0.064696305993	3.403665835947
41000	0.000225101265	0.010798447257	-1	0.065039227053	3.372346375042
42000	0.000219727120	0.010392553863	-1	0.065387062888	3.342669073409
43000	0.000214583365	0.010010086851	-1	0.065738410641	3.314553466090
44000	0.000209656594	0.009649484041	-1	0.066092180943	3.287919851249
45000	0.000204934343	0.009309260164	-1	0.066447443782	3.262685366851
46000	0.000200404758	0.008987987436	-1	0.066803574706	3.238769442570
47000	0.000196056574	0.008684307556	-1	0.067160121876	3.216090679920
48000	0.000191879059	0.008396921927	-1	0.067516875107	3.194567539170
49000	0.000187862098	0.008124583242	-1	0.067873990958	3.174119764972
50000	0.000183996063	0.007866090959	-1	0.068232013901	3.154668803985
55000	0.000166652939	0.006749508426	-1	0.070039479971	3.070341076605
60000	0.000152051538	0.005865056924	-1	0.071863434970	3.003662925761
65000	0.000139590525	0.005150742553	-1	0.073699308548	2.950501958528
70000	0.000128832680	0.004564327525	-1	0.075544170711	2.907952832449
75000	0.000119453073	0.004076174522	-1	0.077395598367	2.873895482189
80000	0.000111204688	0.003664914204	-1	0.079251863387	2.846753091928
85000	0.000103896362	0.003314797063	-1	0.081111535891	2.825325747410
90000	0.000097377774	0.003013983484	-1	0.082973455979	2.808684757251

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120000	0.000069503177	0.001853884226	-1	0.094129347559	2.776585254954
125000	0.000066156500	0.001728978578	-1	0.095955733719	2.778560348504
130000	0.000063062838	0.001616315422	-1	0.097793591809	2.782473890485
135000	0.000060197018	0.001514391727	-1	0.099636119188	2.788001728307
140000	0.000057539288	0.001422044052	-1	0.101468151120	2.794711586300
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150000	0.000052765483	0.001261485223	-1	0.105103693132	2.811267067782
155000	0.000050614610	0.001191411065	-1	0.106909350797	2.820986550295
160000	0.000048601891	0.001127139822	-1	0.108705620147	2.831545763087
165000	0.000046715088	0.001068042339	-1	0.110491494918	2.842846110158
170000	0.000044943384	0.001013581039	-1	0.112266006885	2.854819044776
175000	0.000043276997	0.000963275319	-1	0.114029268126	2.867408910363
180000	0.000041707284	0.000916713753	-1	0.115780450633	2.880559126392
185000	0.000040226466	0.000873529058	-1	0.117519253984	2.894216397182
190000	0.000038827799	0.000833413014	-1	0.119244058508	2.908329470312
195000	0.000037505078	0.000796081614	-1	0.120954358289	2.922852691088
200000	0.000036252329	0.000761258158	-1	0.122652374493	2.937751396851
205000	0.000035064097	0.000728695051	-1	0.124341099486	2.953003921098
210000	0.000033936145	0.000698221313	-1	0.126017283585	2.968562849640
215000	0.000032864830	0.000669692609	-1	0.127675679675	2.984357050924
220000	0.000031846994	0.000642980572	-1	0.129309446853	3.000275616190
225000	0.000030876338	0.000617843580	-1	0.130941872936	3.016736069463
230000	0.000029950479	0.000594184563	-1	0.132566583242	3.033615090059
235000	0.000029067984	0.000571937156	-1	0.134169929868	3.050644658697
240000	0.000028226011	0.000550984395	-1	0.135752870227	3.067805625561
245000	0.000027421859	0.000531216021	-1	0.137317474807	3.085089846906
250000	0.000026655383	0.000512605741	-1	0.138841801488	3.102035996196
255000	0.000025921775	0.000494979058	-1	0.140353156838	3.119089596185

260000	0.000025218901	0.000478262918	-1	0.141853778640	3.136294806811
265000	0.000024545248	0.000462406645	-1	0.143340503991	3.153606149953
270000	0.000023899325	0.000447359625	-1	0.144811147583	3.170990746161
275000	0.000023279709	0.000433072990	-1	0.146264004528	3.188418700047
280000	0.000022685015	0.000419499073	-1	0.147698137450	3.205869360986
285000	0.000022113938	0.000406592615	-1	0.149112878208	3.223320946128
290000	0.000021565207	0.000394309701	-1	0.150508353562	3.240762219715
295000	0.000021037620	0.000382608641	-1	0.151885065897	3.258183437991
300000	0.000020530004	0.000371449048	-1	0.153244323364	3.275584928631

Electron Elastic Scattering Sampling Data
Solution for Z = 43

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.048493588305	1.268347887997	+1	0.227164133586	16.632228584977
52	0.047751574806	1.093812823475	+1	0.208438008590	12.053879001424
54	0.047205352685	0.931981521831	+1	0.190675992388	8.581451691338
56	0.046774672638	0.791719074425	+1	0.174278617335	6.114875755593
58	0.046406457114	0.674747505128	+1	0.159460599431	4.414760201362
60	0.046066821034	0.579422649677	+1	0.146297335181	3.254437510129
62	0.045734775160	0.502970769248	+1	0.134773756461	2.462072465829
64	0.045397916542	0.442320775378	+1	0.124801600104	1.916881577971
66	0.045048778160	0.394939695159	+1	0.116280169156	1.539776529947
68	0.044683417242	0.358656261522	+1	0.109089415909	1.278219473800
70	0.044299393042	0.331696972804	+1	0.103103689192	1.097630298548
72	0.043894548072	0.312834479021	+1	0.098217944030	0.976217581751
74	0.043467749429	0.301092218420	+1	0.094326760494	0.899548967113
76	0.043017219592	0.295893751596	+1	0.091346193473	0.859138891921
78	0.042541283510	0.296945618590	+1	0.089204791405	0.850476430437
80	0.042038324349	0.304200389921	+1	0.087841182256	0.872173154836
82	0.041506213810	0.317928298991	+1	0.087210737405	0.926073424652
84	0.040943378417	0.338645320695	+1	0.087274984612	1.017067199131
86	0.040348151361	0.367195671114	+1	0.088005747691	1.154103669499
88	0.039719244903	0.404791908022	+1	0.089381359727	1.351565737874
90	0.039055949623	0.453086766473	+1	0.091383556421	1.631677231909
92	0.038357980703	0.514318569571	+1	0.093997051539	2.028762605897
94	0.037625984001	0.591506898340	+1	0.097206050836	2.596236755041
96	0.036861525780	0.688721116702	+1	0.100990991718	3.418423451173
98	0.036066070489	0.811726554932	+1	0.105333678484	4.633639973792
100	0.035243471508	0.968426285217	+1	0.110199859664	6.470727565903
105	0.033094609747	1.600330558856	+1	0.124399534793	17.292336214730
110	0.030879244223	3.011965682228	+1	0.140828168453	62.221757214034

115	0.028689355625	7.754855668810	+1	0.158366604464	432.870824676289
120	0.026609696468	116.746507710147	-1	0.175813068612	107342.592717260330
125	0.026620998585	136.103429813516	+1	0.176143201945	145981.244109063410
130	0.026806607503	175.259235469210	+1	0.177584370690	242334.736110473020
135	0.027012591014	298.004181360806	+1	0.179317437114	701786.363861938590
140	0.027268654569	398.239359214135	+1	0.180986887875	1254255.577361499700
145	0.027549543196	483.976091840315	+1	0.182696202724	1853416.688395237800
150	0.027839394445	644.634347746718	+1	0.184481337221	3290285.316070711700
155	0.028138472524	833.279366207478	+1	0.186275242863	5500822.233880424900
160	0.028443783652	999.789812776670	+1	0.188050246124	7921882.759388609800
165	0.028747229013	1212.055463076993	+1	0.189811637660	11647569.749416852000
170	0.029048067334	1391.809256895551	+1	0.191531790876	15363719.997992102000
175	0.029338769389	1683.124821154436	+1	0.193221274312	22479719.182929009000
180	0.029625646335	1783.991860436645	+1	0.194831801819	25261268.603951219000
185	0.029900338673	1875.327115151611	+1	0.196383904830	27923608.735684976000
190	0.030158387126	1961.148410180549	+1	0.197882130378	30556146.545198936000
195	0.030414405308	1961.147624101393	+1	0.199267129745	30556156.295198966000
200	0.030652587299	1952.959672835448	+1	0.200584585815	30307804.275436409000
205	0.030879519874	1952.958568596019	+1	0.201805550820	30307794.525436435000
210	0.031091290361	1952.752259725585	+1	0.202942164510	30301437.363330398000
215	0.031284952708	1880.856545806497	+1	0.204002773812	28115934.389415428000
220	0.031456258291	1589.409163431231	+1	0.204995756487	20089176.231632970000
225	0.031591422765	604.922170114192	+1	0.205892336728	2916085.358141616900
230	0.013114438489	1.181084100273	+1	0.220083978967	54.712381268355
235	0.012979241604	1.061121144143	+1	0.217864573089	46.336505948122
240	0.012850165241	0.961240847279	+1	0.215700496833	39.836248911908
245	0.012726407923	0.877064940427	+1	0.213594747532	34.694228769926
250	0.012607296635	0.805394652012	+1	0.211549126107	30.560078536980
255	0.012492294575	0.743819019829	+1	0.209563805758	27.188434668475
260	0.012381060930	0.690437015025	+1	0.207635790548	24.400490261126
265	0.012273310765	0.643781582523	+1	0.205761824984	22.066689620296
270	0.012168777131	0.602717460339	+1	0.203939074744	20.092084930347
275	0.012067212107	0.566352125614	+1	0.202165087650	18.405717657816

280	0.011968382715	0.533974590535	+1	0.200437736467	16.953662990359
285	0.011872072721	0.505011222697	+1	0.198755124515	15.694290241319
290	0.011778079090	0.478994832904	+1	0.197115641745	14.595058641868
295	0.011686212858	0.455540538401	+1	0.195517831635	13.630182227417
300	0.011596298842	0.434328726474	+1	0.193960436884	12.779016038534
310	0.011421821030	0.397577428097	+1	0.190960200510	11.352797808906
320	0.011254089874	0.366948368885	+1	0.188097293863	10.210922055356
330	0.011092634690	0.341138885474	+1	0.185356611186	9.281536286913
340	0.010936941033	0.319197722031	+1	0.182726945863	8.515009836712
350	0.010786480594	0.300415082966	+1	0.180199939627	7.876100257061
360	0.010640786458	0.284244615862	+1	0.177768565747	7.338889426972
370	0.010499609546	0.270240059806	+1	0.175424411526	6.883127102439
380	0.010362719190	0.258048881012	+1	0.173160371599	6.493452666418
390	0.010229857553	0.247393494519	+1	0.170970918093	6.158209250291
400	0.010100749158	0.238052864633	+1	0.168851821733	5.868425768118
410	0.009975149825	0.229846890020	+1	0.166799399821	5.617000634719
420	0.009852901842	0.222622832994	+1	0.164809516715	5.398047254933
430	0.009733862212	0.216253782409	+1	0.162878479286	5.206801244106
440	0.009617876929	0.210634953842	+1	0.161003317005	5.039436567497
450	0.009504783478	0.205679243043	+1	0.159181579863	4.892853739294
460	0.009394431394	0.201313136316	+1	0.157411133540	4.764492716518
470	0.009286713855	0.197472946414	+1	0.155689556803	4.652153301874
480	0.009181531880	0.194104208609	+1	0.154014699111	4.553990231652
490	0.009078779863	0.191160396563	+1	0.152384684458	4.468462669305
500	0.008978353484	0.188601507320	+1	0.150797928230	4.394274846218
510	0.008880149989	0.186393041600	+1	0.149252965925	4.330329404684
520	0.008784095168	0.184504747014	+1	0.147748181621	4.275661342493
530	0.008690115019	0.182910229759	+1	0.146282091854	4.229443853311
540	0.008598135361	0.181586428433	+1	0.144853361524	4.190968793823
550	0.008508081945	0.180512947207	+1	0.143460809602	4.159624267195
560	0.008419884583	0.179671848119	+1	0.142103290768	4.134879375893
570	0.008333485275	0.179047536445	+1	0.140779641252	4.116272316481
580	0.008248828012	0.178626092681	+1	0.139488708211	4.103396219907

590	0.008165858234	0.178395097111	+1	0.138229470496	4.095896988909
600	0.008084521357	0.178343418891	+1	0.137000956294	4.093464172184
610	0.008004762670	0.178461183568	+1	0.135802274304	4.095830078475
620	0.007926538963	0.178739715716	+1	0.134632456857	4.102755809411
630	0.007849806944	0.179171314176	+1	0.133490605008	4.114035332976
640	0.007774522987	0.179749012828	+1	0.132375880942	4.129488456677
650	0.007700643499	0.180466463875	+1	0.131287487959	4.148956392446
660	0.007628129463	0.181317839426	+1	0.130224650011	4.172295536362
670	0.007556943996	0.182298268537	+1	0.129186601100	4.199389542989
680	0.007487050834	0.183403451191	+1	0.128172598484	4.230140134566
690	0.007418415889	0.184629328393	+1	0.127181934993	4.264457686794
700	0.007351005274	0.185972156130	+1	0.126213933432	4.302263907379
710	0.007284787393	0.187428563208	+1	0.125267952612	4.343492265023
720	0.007219731185	0.188995786435	+1	0.124343345389	4.388093573759
730	0.007155805511	0.190671400327	+1	0.123439482827	4.436030036422
740	0.007092984695	0.192453101433	+1	0.122555777100	4.487266854038
750	0.007031240809	0.194338730351	+1	0.121691657328	4.541776502541
760	0.006970546314	0.196326362342	+1	0.120846565584	4.599539399629
770	0.006910873868	0.198414550893	+1	0.120019963160	4.660550986050
780	0.006852200924	0.200602072936	+1	0.119211319464	4.724811240115
790	0.006794503366	0.202887643264	+1	0.118420144855	4.792322512921
800	0.006737758156	0.205270249738	+1	0.117645948993	4.863095129429
810	0.006681941143	0.207748781159	+1	0.116888240282	4.937138621109
820	0.006627032770	0.210322705391	+1	0.116146590854	5.014479479036
830	0.006573011421	0.212991504481	+1	0.115420533987	5.095145578908
840	0.006519855899	0.215754761705	+1	0.114709652343	5.179171105523
850	0.006467546258	0.218612092039	+1	0.114013529852	5.266591649103
860	0.006416064977	0.221563024870	+1	0.113331756097	5.357439978217
870	0.006365392255	0.224607624740	+1	0.112663946288	5.451768686095
880	0.006315510392	0.227745935748	+1	0.112009717403	5.549629732470
890	0.006266401063	0.230978098099	+1	0.111368710949	5.651081357362
900	0.006218047816	0.234304135621	+1	0.110740571751	5.756178610179
910	0.006170434786	0.237724182521	+1	0.110124951823	5.864981171000

920	0.006123545678	0.241238700633	+1	0.109521523071	5.977561623431
930	0.006077363899	0.244848207395	+1	0.108929966180	6.093997019782
940	0.006031875798	0.248553165485	+1	0.108349963608	6.214361952666
950	0.005987065534	0.252354175109	+1	0.107781229381	6.338741348246
960	0.005942918763	0.256251738619	+1	0.107223452474	6.467216184896
970	0.005899421907	0.260246576528	+1	0.106676348542	6.599877058344
980	0.005856561136	0.264339549551	+1	0.106139644022	6.736822193943
990	0.005814324464	0.268531404781	+1	0.105613070405	6.878146980148
1000	0.005772697739	0.272822948294	+1	0.105096357550	7.023953419787
1025	0.005671219751	0.283994489538	+1	0.103846112754	7.408806070308
1050	0.005573290321	0.295814831003	+1	0.102652296291	7.824298442581
1075	0.005478733092	0.308305083010	+1	0.101511485661	8.272548750759
1100	0.005387385575	0.321486154557	+1	0.100420430909	8.755801302601
1125	0.005299097377	0.335380093618	+1	0.099376060309	9.276481340347
1150	0.005213720613	0.350016777914	+1	0.098375664176	9.837481256639
1175	0.005131118615	0.365428801442	+1	0.097416709259	10.441988856615
1200	0.005051162418	0.381649769394	+1	0.096496796632	11.093451000697
1225	0.004973735688	0.398714885565	+1	0.095613629915	11.795599815350
1250	0.004898720249	0.416666093787	+1	0.094765191303	12.552734031474
1275	0.004826010469	0.435547988291	+1	0.093949578541	13.369558575651
1300	0.004755504971	0.455407489850	+1	0.093164957225	14.251219688271
1325	0.004687111200	0.476294692790	+1	0.092409587697	15.203369337956
1350	0.004620735822	0.498268818427	+1	0.091681930010	16.232520747136
1375	0.004556293417	0.521394262988	+1	0.090980509271	17.345915558447
1400	0.004493702583	0.545740041676	+1	0.090303914765	18.551583504477
1425	0.004432888666	0.571380898346	+1	0.089650828159	19.858468064781
1450	0.004373777824	0.598400647550	+1	0.089020071689	21.276723469641
1475	0.004316301353	0.626890398456	+1	0.088410534603	22.817726115183
1500	0.004260392588	0.656949739519	+1	0.087821163304	24.494282266807
1550	0.004153039901	0.722223677435	+1	0.086698943634	28.313601343660
1600	0.004051257694	0.795250877159	+1	0.085646154472	32.875860061845
1650	0.003954631965	0.877290566266	+1	0.084656320579	38.364540299504
1700	0.003862785080	0.969911869613	+1	0.083723765330	45.022178004159

1750	0.003775376235	1.075082665924	+1	0.082843437930	53.173484680722
1800	0.003692094250	1.195312024450	+1	0.082010863077	63.261298599579
1850	0.003612655089	1.333838974335	+1	0.081221988568	75.900508842802
1900	0.003536800264	1.494927266567	+1	0.080473288232	91.964775071047
1950	0.003464295257	1.684295419553	+1	0.079761559714	112.726240094437
2000	0.003394921012	1.909817310686	+1	0.079083898231	140.095433097298
2100	0.003264786226	2.518854167035	+1	0.077820569829	228.356274848603
2200	0.003144993837	3.494450155637	+1	0.076665644252	413.345966407167
2300	0.003034354389	5.300195405919	+1	0.075604484308	897.332746450145
2400	0.002931848468	9.756158579445	+1	0.074624957248	2877.990906537071
2500	0.002837287635	37.712883611335	+1	0.073695871588	40822.630264335377
2600	0.002747835308	22.606048769722	-1	0.072873061860	15222.758055602286
2700	0.002664922072	8.655095221874	-1	0.072085132051	2429.548880591352
2800	0.002587294684	5.304750342797	-1	0.071347026360	990.574568346616
2900	0.002514453702	3.801109667050	-1	0.070653575361	550.394710101915
3000	0.002445955511	2.947946572536	-1	0.070000735890	357.273952259216
3100	0.002381405713	2.398585140806	-1	0.069385184624	254.614824572754
3200	0.002320470577	2.015776700775	-1	0.068803250560	193.119639475684
3300	0.002262852712	1.734105742373	-1	0.068251643491	153.132523877682
3400	0.002208283945	1.518374000751	-1	0.067727703946	125.519053795078
3500	0.002156519231	1.347948545804	-1	0.067229409601	105.549808868973
3600	0.002107336803	1.209965324059	-1	0.066755114592	90.573075983918
3700	0.002060548575	1.096074752314	-1	0.066302751680	79.012461829909
3800	0.002015980855	1.000560335211	-1	0.065870463469	69.874304709827
3900	0.001973476942	0.919360473583	-1	0.065456745798	62.504184954691
4000	0.001932891351	0.849507924524	-1	0.065060463932	56.456140446085
4100	0.001894090429	0.788793351123	-1	0.064680708530	51.418069297068
4200	0.001856952107	0.735558602968	-1	0.064316599295	47.167655629700
4300	0.001821330614	0.688454695341	-1	0.063969604727	43.538095945086
4400	0.001787173413	0.646572260996	-1	0.063635958679	40.412299735515
4500	0.001754387669	0.609097497739	-1	0.063314999475	37.696011149843
4600	0.001722889182	0.575375728687	-1	0.063006112223	35.316419839519
4700	0.001692602777	0.544885782382	-1	0.062708506896	33.217284144968

4800	0.001663458720	0.517198315720	-1	0.062421413826	31.353896220937
4900	0.001635392729	0.491953351966	-1	0.062144224280	29.690134023706
5000	0.001608344301	0.468845848129	-1	0.061876471160	28.196476759145
5500	0.001486541191	0.377675402563	-1	0.060663304223	22.570870728577
6000	0.001383301292	0.314032318812	-1	0.059623464498	18.887683170113
6500	0.001294611091	0.267309631381	-1	0.058719735600	16.302765386645
7000	0.001217548639	0.231694450235	-1	0.057924738426	14.394027396128
7500	0.001149933551	0.203742046980	-1	0.057217791998	12.928910960311
8000	0.001090104080	0.181285636441	-1	0.056582957499	11.769529764638
8500	0.001036770906	0.162896464477	-1	0.056007766121	10.829283071497
9000	0.000988917164	0.147595844517	-1	0.055482280962	10.051204551443
9500	0.000945730116	0.134691836624	-1	0.054998514580	9.396365984016
10000	0.000906551917	0.123682037607	-1	0.054549953704	8.837301178868
10500	0.000870843016	0.114191992528	-1	0.054131476887	8.354046268346
11000	0.000838161048	0.105942852787	-1	0.053737980587	7.932004511723
11500	0.000808130966	0.098712525314	-1	0.053366513724	7.559807448051
12000	0.000780442788	0.092332988610	-1	0.053013524494	7.228945706805
12500	0.000754830036	0.086667657754	-1	0.052676655898	6.932611929923
13000	0.000731082214	0.081616840341	-1	0.052350174666	6.665609372094
13500	0.000708990301	0.077083697292	-1	0.052035360312	6.423479201808
14000	0.000688387359	0.072996972525	-1	0.051730396755	6.202768576070
14500	0.000669126665	0.069296326300	-1	0.051434115991	6.000579959106
15000	0.000651082398	0.065932868857	-1	0.051145115925	5.814569603147
16000	0.000618208480	0.060055977828	-1	0.050585267226	5.483397936194
17000	0.000589022327	0.055103518699	-1	0.050044105184	5.196804736935
18000	0.000562938659	0.050883434853	-1	0.049516584814	4.945743856685
19000	0.000539490245	0.047252433017	-1	0.048998823631	4.723482618033
20000	0.000518299668	0.044101525035	-1	0.048487902838	4.524904910307
21000	0.000461909522	0.035423039168	-1	0.055561036751	4.669201483813
22000	0.000442900487	0.033020404839	-1	0.055653840198	4.536874304441
23000	0.000424727159	0.030704631375	-1	0.055818577983	4.403185506813
24000	0.000407612405	0.028540380863	-1	0.056047363952	4.274267694908
25000	0.000391745490	0.026589652955	-1	0.056313247977	4.156407939662

26000	0.000377243143	0.024895083656	-1	0.056573339841	4.054259244453
27000	0.000363968934	0.023427593068	-1	0.056808593267	3.966218498348
28000	0.000351733408	0.022141972267	-1	0.057017264200	3.889231632193
29000	0.000340364524	0.020995886095	-1	0.057207107087	3.820320563400
30000	0.000329691660	0.019948666833	-1	0.057398100631	3.756732585968
31000	0.000319584506	0.018968865134	-1	0.057611507190	3.696213411226
32000	0.000309996481	0.018049534225	-1	0.057849015520	3.638471702053
33000	0.000300903433	0.017189753820	-1	0.058105772050	3.583694418111
34000	0.000292284026	0.016388710215	-1	0.058375818290	3.532059308432
35000	0.000284119370	0.015645671871	-1	0.058652045501	3.483735726956
36000	0.000276389252	0.014959046249	-1	0.058927538726	3.438796635839
37000	0.000269061215	0.014323705728	-1	0.059200404685	3.396969004681
38000	0.000262101721	0.013733894870	-1	0.059471084765	3.357899609951
39000	0.000255479342	0.013184146932	-1	0.059741298196	3.321245559623
40000	0.000249164574	0.012669290768	-1	0.060013998340	3.286673983823
41000	0.000243131248	0.012184877377	-1	0.060292389682	3.253901507397
42000	0.000237360981	0.011728530229	-1	0.060576062501	3.222809279626
43000	0.000231838200	0.011298425314	-1	0.060863789041	3.193316604744
44000	0.000226548483	0.010892823792	-1	0.061154514478	3.165340650461
45000	0.000221478244	0.010510056257	-1	0.061447426879	3.138799172896
46000	0.000216614787	0.010148530159	-1	0.061741912468	3.113608317563
47000	0.000211945918	0.009806728860	-1	0.062037521429	3.089685726447
48000	0.000207460136	0.009483197431	-1	0.062334057060	3.066947851337
49000	0.000203146569	0.009176540911	-1	0.062631628799	3.045312422185
50000	0.000198994951	0.008885418399	-1	0.062930672463	3.024697222327
55000	0.000180368918	0.007627252076	-1	0.064450087623	2.934840667639
60000	0.000164684464	0.006629859604	-1	0.065996574700	2.863010364863
65000	0.000151296194	0.005823783242	-1	0.067563692646	2.804965994844
70000	0.000139735013	0.005161650810	-1	0.069147161756	2.757731263067
75000	0.000129652447	0.004610190890	-1	0.070743467425	2.719131334238
80000	0.000120783411	0.004145395427	-1	0.072350083051	2.687557395902
85000	0.000112922980	0.003749557025	-1	0.073964873224	2.661779136205
90000	0.000105910021	0.003409354406	-1	0.075586109050	2.640844161265

95000	0.000099616022	0.003114596168	-1	0.077212300837	2.624004258488
100000	0.000093937542	0.002857369439	-1	0.078842023170	2.610653436020
105000	0.000088789449	0.002631394061	-1	0.080475096433	2.600310907203
110000	0.000084102303	0.002431784979	-1	0.082109433105	2.592613256403
115000	0.000079816859	0.002254400875	-1	0.083747815279	2.587249349437
120000	0.000075883929	0.002096006594	-1	0.085390308788	2.583996944189
125000	0.000072267578	0.001954189618	-1	0.087022346807	2.582321578839
130000	0.000068937441	0.001826971513	-1	0.088627841242	2.581747786908
135000	0.000065854888	0.001712014629	-1	0.090229282090	2.582553253522
140000	0.000062988517	0.001607516919	-1	0.091844052207	2.584966962162
145000	0.000060318906	0.001512321386	-1	0.093464528472	2.588706163307
150000	0.000057830774	0.001425524620	-1	0.095076398569	2.593403352608
155000	0.000055506412	0.001346130870	-1	0.096681158018	2.598992477717
160000	0.000053330939	0.001273326999	-1	0.098277319517	2.605376628900
165000	0.000051291100	0.001206394660	-1	0.099864259463	2.612466973518
170000	0.000049375000	0.001144714210	-1	0.101442360638	2.620226229725
175000	0.000047571940	0.001087735074	-1	0.103012710108	2.628622798664
180000	0.000045872769	0.001034995573	-1	0.104574025331	2.637588339615
185000	0.000044269273	0.000986083561	-1	0.106125367947	2.647053618692
190000	0.000042754164	0.000940649620	-1	0.107665223650	2.656971260493
195000	0.000041320722	0.000898371737	-1	0.109193120133	2.667300420338
200000	0.000039962568	0.000858935593	-1	0.110711167722	2.678004641532
205000	0.000038673881	0.000822060476	-1	0.112222079220	2.689057318753
210000	0.000037450053	0.000787550873	-1	0.113723203957	2.700421285388
215000	0.000036287013	0.000755238796	-1	0.115210710201	2.712053078511
220000	0.000035181022	0.000724967557	-1	0.116680744002	2.723899428477
225000	0.000034128774	0.000696594602	-1	0.118128719352	2.735881683339
230000	0.000033125911	0.000669934769	-1	0.119560970421	2.748092150868
235000	0.000032166433	0.000644742056	-1	0.121001627863	2.760909610261
240000	0.000031250601	0.000621017719	-1	0.122424814064	2.773874326566
245000	0.000030375532	0.000598636437	-1	0.123832376017	2.786974367474
250000	0.000029538472	0.000577479360	-1	0.125227370034	2.800208759226
255000	0.000028738036	0.000557481976	-1	0.126601744278	2.813394788698

260000	0.000027972842	0.000538590714	-1	0.127947553808	2.826398186387
265000	0.000027238985	0.000520665713	-1	0.129283479933	2.839543589562
270000	0.000026534968	0.000503654041	-1	0.130606478734	2.852786206441
275000	0.000025859290	0.000487501822	-1	0.131914614268	2.866094754652
280000	0.000025210499	0.000472156233	-1	0.133206695617	2.879445457244
285000	0.000024587176	0.000457565881	-1	0.134482200979	2.892822457402
290000	0.000023987992	0.000443681944	-1	0.135740846902	2.906207791278
295000	0.000023411633	0.000430456571	-1	0.136983334363	2.919597075449
300000	0.000022856872	0.000417844838	-1	0.138210483092	2.932982812115

Electron Elastic Scattering Sampling Data
Solution for Z = 44

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.051029208032	1.219354386130	+1	0.275367921427	19.174267319690
52	0.049903810951	1.099341790493	+1	0.256462571491	15.193359770464
54	0.049148577424	0.968510430874	+1	0.237531051724	11.518403941735
56	0.048636339251	0.842138638460	+1	0.219215858884	8.540063675304
58	0.048277767219	0.728171004221	+1	0.201959796707	6.292695230370
60	0.048011223397	0.629544616531	+1	0.186036201049	4.659898277783
62	0.047795188129	0.546415549412	+1	0.171588924921	3.494878156260
64	0.047601474955	0.477467487275	+1	0.158650740563	2.667540443514
66	0.047412112465	0.421095152055	+1	0.147205629612	2.080063513293
68	0.047215896373	0.375563136416	+1	0.137186527392	1.661244537902
70	0.047005147700	0.339260416186	+1	0.128498685230	1.361239748750
72	0.046774591790	0.310935440923	+1	0.121052614437	1.146567553259
74	0.046521156517	0.289459699815	+1	0.114741899755	0.993686735126
76	0.046241898533	0.274028788355	+1	0.109476227583	0.887119189821
78	0.045934583901	0.264043102281	+1	0.105171374106	0.816488513180
80	0.045597164716	0.259081172881	+1	0.101749860621	0.775039574418
82	0.045227222993	0.258956108176	+1	0.099151287744	0.759053891196
84	0.044822911284	0.263621428643	+1	0.097319824656	0.766871073233
86	0.044381986163	0.273233474085	+1	0.096212946898	0.798993501626
88	0.043902344372	0.288137474597	+1	0.095796950861	0.858025300934
90	0.043382403832	0.308863188205	+1	0.096043451319	0.948906638857
92	0.042820449601	0.336189155758	+1	0.096932829218	1.079796003081
94	0.042215606087	0.371155851355	+1	0.098448358367	1.263078673607
96	0.041567328188	0.415141685569	+1	0.100576882677	1.517368047504
98	0.040875709973	0.469949735588	+1	0.103306270520	1.870562663782
100	0.040141741935	0.537928813095	+1	0.106622561133	2.364756512350
105	0.038135035633	0.788706903893	+1	0.117366766898	4.738508747204
110	0.035928576928	1.234244801976	+1	0.131274620669	11.195938295811

115	0.033603450529	2.101044866615	+1	0.147637432459	32.492091391992
120	0.031258143448	4.170304042442	+1	0.165463850233	132.620665496109
125	0.028991383394	13.006847247135	+1	0.183559810065	1373.045659523117
130	0.026882084750	29.260268524153	-1	0.200797599933	8058.780000155092
135	0.024982509508	8.560003805391	-1	0.216264782371	881.852492968167
140	0.023314496516	5.749492263371	-1	0.229416653401	484.251250975172
145	0.021877704209	4.856758568684	-1	0.240029760644	401.857125424187
150	0.020655307839	4.642127172971	-1	0.248162350136	410.072794377058
155	0.019623315551	4.849575113251	-1	0.254029364522	482.812001030229
160	0.018754445541	5.483853543845	-1	0.257940654155	646.884069181995
165	0.018022736212	6.770331787846	-1	0.260221427729	1008.585265803915
170	0.017404335428	9.466506861974	-1	0.261188510102	1978.157718931755
175	0.016878913194	16.972361562700	-1	0.261120677104	6280.604568531272
180	0.016429171323	102.476243131976	-1	0.260258991408	223407.174604614910
185	0.016041007831	23.884489144800	+1	0.258800432031	12733.026365613719
190	0.015702819993	10.147540306214	+1	0.256904618028	2452.013599512472
195	0.015405300600	6.249349550288	+1	0.254698000558	989.731754530639
200	0.015140891648	4.426643462054	+1	0.252282884145	527.325197340198
205	0.014903610047	3.379841846623	+1	0.249736945553	325.767508478269
210	0.014688623873	2.704890789904	+1	0.247115859366	220.690538222948
215	0.014492043338	2.236120305858	+1	0.244461275353	159.255668357062
220	0.014310747728	1.893274357939	+1	0.241804632018	120.351998627052
225	0.014142221172	1.632803871214	+1	0.239169409467	94.222300983718
230	0.013984429201	1.429065332688	+1	0.236572992193	75.860009394659
235	0.013835721647	1.265993555318	+1	0.234027938045	62.484965828839
240	0.013694755782	1.133024713627	+1	0.231543145637	52.454918779905
245	0.013560434550	1.022934300736	+1	0.229124642930	44.750088899490
250	0.013431855557	0.930620414452	+1	0.226776337854	38.710742977839
255	0.013308306143	0.852354891561	+1	0.224499688873	33.893314078280
260	0.013189293127	0.785288495500	+1	0.222292196402	29.987018638092
265	0.013074404361	0.727273102084	+1	0.220150715389	26.773472541185
270	0.012963266957	0.676678035379	+1	0.218072431314	24.096714571318
275	0.012855545109	0.632242305577	+1	0.216054774456	21.842800765770

280	0.012750930929	0.592976162967	+1	0.214095366860	19.926883801817
285	0.012649145718	0.558092002985	+1	0.212192103356	18.284689497614
290	0.012549934097	0.526955637757	+1	0.210343035935	16.866782638122
295	0.012453064851	0.499050162573	+1	0.208546342931	15.634583144202
300	0.012358322911	0.473950914471	+1	0.206800427401	14.557659277944
310	0.012174631301	0.430782480406	+1	0.203452115393	12.775288058732
320	0.011998233341	0.395114845351	+1	0.200274905884	11.368994644322
330	0.011828606802	0.365278822730	+1	0.197248755693	10.238553023302
340	0.011665178752	0.340073639267	+1	0.194358510943	9.316122118757
350	0.011507359501	0.318614481046	+1	0.191592640064	8.554353371251
360	0.011354632341	0.300227282348	+1	0.188941310243	7.918948635476
370	0.011206735879	0.284365593981	+1	0.186393277260	7.383500990925
380	0.011063425363	0.270601568458	+1	0.183938983857	6.928238621089
390	0.010924418722	0.258601532542	+1	0.181570962525	6.538342881439
400	0.010789414958	0.248101650193	+1	0.179283404595	6.202516158359
410	0.010658137540	0.238888775638	+1	0.177071366771	5.911921125517
420	0.010530420876	0.230782370025	+1	0.174929422977	5.659271613324
430	0.010406108929	0.223633540368	+1	0.172852842201	5.438732815810
440	0.010285040690	0.217319749249	+1	0.170837721332	5.245636109072
450	0.010167010021	0.211740831478	+1	0.168881134295	5.076284105581
460	0.010051874340	0.206810861562	+1	0.166980140326	4.927552848226
470	0.009939512232	0.202456754979	+1	0.165131863346	4.796829667235
480	0.009829808244	0.198616273234	+1	0.163333746505	4.681935624942
490	0.009722648281	0.195236270437	+1	0.161583559063	4.581049423052
500	0.009617915441	0.192271171883	+1	0.159879405134	4.492645033183
510	0.009515497424	0.189681860931	+1	0.158219593861	4.415436141497
520	0.009415309868	0.187434166899	+1	0.156602275221	4.348299389343
530	0.009317274217	0.185498363120	+1	0.155025823438	4.290274371004
540	0.009221307804	0.183848526103	+1	0.153488762265	4.240540508701
550	0.009127329813	0.182461707765	+1	0.151989746355	4.198385328489
560	0.009035263046	0.181317895768	+1	0.150527580058	4.163198376111
570	0.008945044725	0.180399603404	+1	0.149100962270	4.134443097374
580	0.008856616583	0.179691317175	+1	0.147708713572	4.111651073385

590	0.008769916890	0.179179296268	+1	0.146349738852	4.094416758313
600	0.008684889628	0.178851069421	+1	0.145023011367	4.082377459461
610	0.008601476604	0.178695605348	+1	0.143727591945	4.075220608360
620	0.008519630965	0.178703331062	+1	0.142462486540	4.072671784698
630	0.008439307233	0.178865699440	+1	0.141226755148	4.074490494558
640	0.008360459815	0.179174948433	+1	0.140019538870	4.080464648800
650	0.008283044888	0.179623949906	+1	0.138839993803	4.090402808836
660	0.008207019593	0.180206341131	+1	0.137687346563	4.104139340569
670	0.008132346428	0.180916651570	+1	0.136560795332	4.121531664436
680	0.008058989223	0.181749937496	+1	0.135459579979	4.142454609198
690	0.007986911409	0.182701784288	+1	0.134382980535	4.166801032106
700	0.007916079889	0.183767901492	+1	0.133330304017	4.194468444707
710	0.007846460985	0.184944482014	+1	0.132300887237	4.225370439431
720	0.007778024032	0.186228390092	+1	0.131294070309	4.259438623506
730	0.007710738699	0.187616845866	+1	0.130309209859	4.296616060779
740	0.007644577761	0.189107192279	+1	0.129345688802	4.336849793674
750	0.007579511186	0.190697023762	+1	0.128402940888	4.380098445990
760	0.007515513636	0.192383994562	+1	0.127480374719	4.426319855401
770	0.007452559834	0.194166350083	+1	0.126577443959	4.475490483616
780	0.007390624044	0.196042582559	+1	0.125693611944	4.527595262670
790	0.007329682365	0.198011139290	+1	0.124828362428	4.582618788835
800	0.007269712894	0.200070593427	+1	0.123981192510	4.640549379343
810	0.007210690760	0.202219693537	+1	0.123151615817	4.701383693252
820	0.007152597225	0.204457481793	+1	0.122339152769	4.765123688487
830	0.007095409523	0.206783313850	+1	0.121543354252	4.831784867074
840	0.007039108706	0.209196387085	+1	0.120763762121	4.901376525002
850	0.006983672827	0.211696136221	+1	0.119999960123	4.973919477934
860	0.006929085541	0.214281836444	+1	0.119251511257	5.049426264750
870	0.006875326879	0.216953247695	+1	0.118518022436	5.127928475446
880	0.006822380202	0.219710174425	+1	0.117799113613	5.209458337739
890	0.006770227454	0.222552357910	+1	0.117094403522	5.294048467227
900	0.006718852634	0.225479636242	+1	0.116403522136	5.381734299765
910	0.006668239756	0.228491823523	+1	0.115726114162	5.472552436713

920	0.006618372982	0.231589094592	+1	0.115061826100	5.566550848590
930	0.006569232313	0.234771782206	+1	0.114410311802	5.663787353657
940	0.006520803677	0.238040059256	+1	0.113771219700	5.764311352962
950	0.006473072021	0.241394207493	+1	0.113144231614	5.868179397941
960	0.006426021229	0.244834512403	+1	0.112529025091	5.975450354099
970	0.006379642343	0.248361354343	+1	0.111925339339	6.086184328451
980	0.006333924989	0.251975242292	+1	0.111332931427	6.200449009676
990	0.006288860955	0.255676540043	+1	0.110751548704	6.318306554066
1000	0.006244441622	0.259465624571	+1	0.110180950056	6.439821893438
1025	0.006136126889	0.269327119618	+1	0.108799998495	6.760149199319
1050	0.006031527436	0.279755679374	+1	0.107480578748	7.105250600913
1075	0.005930412167	0.290767047900	+1	0.106218570063	7.476689822830
1100	0.005832578469	0.302375890174	+1	0.105010058014	7.876077176818
1125	0.005737855150	0.314597701860	+1	0.103851492992	8.305136905353
1150	0.005646129317	0.327454216621	+1	0.102740341824	8.765909766310
1175	0.005557303275	0.340968991523	+1	0.101674302817	9.260620303103
1200	0.005471281826	0.355166194715	+1	0.100651209014	9.791658667822
1225	0.005387965647	0.370071115140	+1	0.099668877112	10.361606633702
1250	0.005307222488	0.385715206972	+1	0.098725014149	10.973483986494
1275	0.005228925124	0.402131899898	+1	0.097817346508	11.630580754522
1300	0.005152954650	0.419355940047	+1	0.096943736667	12.336461027430
1325	0.005079205959	0.437424091220	+1	0.096102177914	13.094996780517
1350	0.005007586900	0.456379074487	+1	0.095291023860	13.910585588806
1375	0.004938012612	0.476266994061	+1	0.094508733373	14.788073594408
1400	0.004870403122	0.497136717254	+1	0.093753860274	15.732774817781
1425	0.004804682791	0.519040466417	+1	0.093024998490	16.750529716462
1450	0.004740775963	0.542037590433	+1	0.092320855828	17.847951279334
1475	0.004678608628	0.566192669881	+1	0.091640207033	19.032406976812
1500	0.004618113962	0.591574602725	+1	0.090981866800	20.312022440974
1550	0.004501884599	0.646327783334	+1	0.089727778773	23.194213245975
1600	0.004391608454	0.706996541156	+1	0.088550701812	26.581698933240
1650	0.004286851293	0.774418182834	+1	0.087443573514	30.584648585213
1700	0.004187217951	0.849615191017	+1	0.086400192820	35.344521694680

1750	0.004092349107	0.933834692848	+1	0.085414923868	41.044282318019
1800	0.004001917138	1.028623733057	+1	0.084482880465	47.924506708717
1850	0.003915622009	1.135913633062	+1	0.083599625965	56.305407113039
1900	0.003833189884	1.258153686792	+1	0.082761229609	66.620799093005
1950	0.003754370497	1.398487824989	+1	0.081964106234	79.468620881121
2000	0.003678932200	1.561039674519	+1	0.081205015823	95.692498648453
2100	0.003537375008	1.976748805021	+1	0.079789605856	143.726947910957
2200	0.003407012980	2.579546110023	+1	0.078495476539	230.073974674241
2300	0.003286567477	3.527747056553	+1	0.077306455097	405.854458156317
2400	0.003174946771	5.229803194895	+1	0.076208946953	843.876233531718
2500	0.003071205471	9.161547804577	+1	0.075191767426	2457.008656430893
2600	0.002974527970	27.910663432318	+1	0.074245606147	21691.782047481789
2700	0.002884215025	32.413727693955	-1	0.073362222856	29644.078725441144
2800	0.002799655234	10.222693042649	-1	0.072534610722	3195.885774698324
2900	0.002720308881	6.014794837136	-1	0.071756984229	1195.749613730692
3000	0.002645695044	4.235072775494	-1	0.071024715555	639.001190476916
3100	0.002575385610	3.253011416529	-1	0.070333987884	405.378883027351
3200	0.002509017136	2.631305813937	-1	0.069680752942	284.526724320875
3300	0.002446265750	2.202891462963	-1	0.069061394469	213.444460035229
3400	0.002386839683	1.890045786691	-1	0.068472946230	167.819330840472
3500	0.002330471833	1.651698839283	-1	0.067913111257	136.614720605013
3600	0.002276921779	1.464144891021	-1	0.067379952616	114.219540823685
3700	0.002225982885	1.312853357956	-1	0.066871231531	97.538165103399
3800	0.002177466735	1.188346627694	-1	0.066384901145	84.735332015322
3900	0.002131202010	1.084158295933	-1	0.065919311927	74.662489986917
4000	0.002087029127	0.995722511807	-1	0.065473182798	66.569641226712
4100	0.002044803216	0.919735702423	-1	0.065045443209	59.950416166950
4200	0.002004397776	0.853788207637	-1	0.064634709769	54.455441128982
4300	0.001965696077	0.796051685692	-1	0.064239748429	49.834500605908
4400	0.001928591359	0.745107563290	-1	0.063859513803	45.903813415054
4500	0.001892983357	0.699835582550	-1	0.063493221048	42.525677336892
4600	0.001858774039	0.659336360151	-1	0.063140509303	39.595148116927
4700	0.001825843769	0.622845317372	-1	0.062803046199	37.029796621669

4800	0.001794159263	0.589872920063	-1	0.062477307246	34.771377736026
4900	0.001763649712	0.559944346789	-1	0.062162618530	32.770127360682
5000	0.001734248914	0.532661802142	-1	0.061858460789	30.985940134856
5500	0.001601888863	0.426047911149	-1	0.060477879157	24.375558958201
6000	0.001489747746	0.352575621626	-1	0.059291266523	20.146060901532
6500	0.001393445706	0.299119084685	-1	0.058257597077	17.227360110377
7000	0.001309794853	0.258636565503	-1	0.057346633615	15.099912513035
7500	0.001236418363	0.227019819355	-1	0.056535559042	13.483710565266
8000	0.001171504263	0.201715260568	-1	0.055806752881	12.215572970211
8500	0.001113648937	0.181054951242	-1	0.055146417206	11.194420308393
9000	0.001061745314	0.163904897121	-1	0.054543536110	10.354519765061
9500	0.001014908662	0.149468283065	-1	0.053989234355	9.651384620649
10000	0.000972422602	0.137169432434	-1	0.053476267622	9.053884339355
10500	0.000933700946	0.126581312574	-1	0.052998890529	8.539556521075
11000	0.000898262325	0.117386893874	-1	0.052551479460	8.092065496774
11500	0.000865699671	0.109334597553	-1	0.052130619952	7.698772847403
12000	0.000835675286	0.102234506579	-1	0.051732383208	7.350260621369
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13000	0.000782131383	0.090308588551	-1	0.050992856544	6.759259069261
13500	0.000758155838	0.085262068967	-1	0.050646865493	6.506203654086
14000	0.000735792943	0.080713346784	-1	0.050313968922	6.276092650676
14500	0.000714896747	0.076601504997	-1	0.049989778278	6.065848111128
15000	0.000695318319	0.072865074082	-1	0.049675426608	5.872846161316
16000	0.000659642099	0.066337494813	-1	0.049072004457	5.530255064445
17000	0.000627958795	0.060837255203	-1	0.048495802772	5.234895761477
18000	0.000599634098	0.056150419769	-1	0.047940699591	4.977055575329
19000	0.000574162472	0.052117518488	-1	0.047401956522	4.749528266613
20000	0.000551135255	0.048617385870	-1	0.046875914236	4.546858951363
21000	0.000496547342	0.039589417772	-1	0.052938777470	4.630848386979
22000	0.000476124698	0.036916635277	-1	0.052953193576	4.493235968555
23000	0.000456624445	0.034342730266	-1	0.053029985266	4.354388181802
24000	0.000438274732	0.031937731375	-1	0.053165288131	4.220606130918
25000	0.000421275917	0.029769986275	-1	0.053336807192	4.098272530434

26000	0.000405743589	0.027886064259	-1	0.053508136575	3.992154132341
27000	0.000391522587	0.026253234374	-1	0.053662628529	3.900645480880
28000	0.000378398752	0.024820541568	-1	0.053799762086	3.820695055840
29000	0.000366188428	0.023541299362	-1	0.053925830947	3.749245175019
30000	0.000354727189	0.022372106601	-1	0.054055079000	3.683307886745
31000	0.000343878055	0.021278196373	-1	0.054205694711	3.620539684431
32000	0.000333599412	0.020252618309	-1	0.054377137600	3.560550442389
33000	0.000323853406	0.019293256275	-1	0.054567319351	3.503624857949
34000	0.000314616236	0.018399181155	-1	0.054770975406	3.449945368091
35000	0.000305866748	0.017569556424	-1	0.054981813593	3.399685284510
36000	0.000297582334	0.016802595060	-1	0.055193715271	3.352922368601
37000	0.000289728140	0.016092619966	-1	0.055404893581	3.309375125806
38000	0.000282268343	0.015433265847	-1	0.055615588079	3.268678480521
39000	0.000275169583	0.014818488341	-1	0.055827158728	3.230474980608
40000	0.000268400622	0.014242562876	-1	0.056042095424	3.194417290634
41000	0.000261933720	0.013700562610	-1	0.056263126163	3.160209483950
42000	0.000255749116	0.013189839247	-1	0.056489850980	3.127728047268
43000	0.000249829962	0.012708368768	-1	0.056721098925	3.096889545099
44000	0.000244160620	0.012254210610	-1	0.056955926134	3.067610507288
45000	0.000238726520	0.011825512271	-1	0.057193551532	3.039805362984
46000	0.000233513918	0.011420501049	-1	0.057433401946	3.013389249893
47000	0.000228509760	0.011037490873	-1	0.057675035587	2.988276698732
48000	0.000223701680	0.010674862825	-1	0.057918250784	2.964382405499
49000	0.000219078082	0.010331070621	-1	0.058163064436	2.941619785903
50000	0.000214627954	0.010004621936	-1	0.058409846525	2.919904931528
55000	0.000194661735	0.008592943837	-1	0.059674083383	2.824880802477
60000	0.000177846217	0.007472796292	-1	0.060974924672	2.748328816355
65000	0.000163489743	0.006566756902	-1	0.062304271433	2.685888002831
70000	0.000151090338	0.005821992170	-1	0.063656261452	2.634488187782
75000	0.000140274200	0.005201315809	-1	0.065026664683	2.591909354302
80000	0.000130757821	0.004677890885	-1	0.066412049039	2.556490102554
85000	0.000122321739	0.004231909077	-1	0.067809596367	2.526970140619
90000	0.000114793339	0.003848444862	-1	0.069217234566	2.502377296632

95000	0.000108035143	0.003516079670	-1	0.070632982339	2.481940484113
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105000	0.000096405504	0.002970980535	-1	0.073482909740	2.451192339570
110000	0.000091369176	0.002745732071	-1	0.074913791176	2.439996252248
115000	0.000086764039	0.002545548552	-1	0.076349556355	2.431122988783
120000	0.000082538262	0.002366851320	-1	0.077787524401	2.424295015859
125000	0.000078647277	0.002206585466	-1	0.079227628863	2.419271096917
130000	0.000075052551	0.002062216566	-1	0.080672286159	2.415933190247
135000	0.000071728029	0.001931988207	-1	0.082105130779	2.413792987296
140000	0.000068649161	0.001814316577	-1	0.083514007187	2.412507924549
145000	0.000065784273	0.001707267622	-1	0.084918815192	2.412326447318
150000	0.000063108259	0.001609378636	-1	0.086332774079	2.413407517613
155000	0.000060602466	0.001519566772	-1	0.087758965049	2.415708364855
160000	0.000058257097	0.001437239124	-1	0.089176595925	2.418774239721
165000	0.000056057306	0.001361551774	-1	0.090587268523	2.422560531136
170000	0.000053990432	0.001291808321	-1	0.091990558647	2.427008992841
175000	0.000052045170	0.001227391844	-1	0.093386489407	2.432062786780
180000	0.000050211560	0.001167772216	-1	0.094774707464	2.437671906061
185000	0.000048480636	0.001112478206	-1	0.096155099463	2.443787461174
190000	0.000046844661	0.001061118911	-1	0.097525627122	2.450349761996
195000	0.000045296521	0.001013332784	-1	0.098885239971	2.457303505170
200000	0.000043829287	0.000968760745	-1	0.100236406463	2.464624059163
205000	0.000042436614	0.000927080888	-1	0.101582364095	2.472298824765
210000	0.000041113489	0.000888070401	-1	0.102921120666	2.480302184482
215000	0.000039855491	0.000851538977	-1	0.104249391459	2.488600222434
220000	0.000038658527	0.000817306372	-1	0.105564272346	2.497154544418
225000	0.000037518798	0.000785202655	-1	0.106863245054	2.505923567471
230000	0.000036432833	0.000755069724	-1	0.108143856372	2.514856101761
235000	0.000035397594	0.000726767655	-1	0.109402498628	2.523874512154
240000	0.000034407483	0.000700043578	-1	0.110658333307	2.533241721149
245000	0.000033458787	0.000674733046	-1	0.111919606572	2.543045234925
250000	0.000032551002	0.000650808628	-1	0.113170075403	2.552987126930
255000	0.000031681464	0.000628151739	-1	0.114412198711	2.563061245634

260000	0.000030848041	0.000606679732	-1	0.115645196956	2.573255808435
265000	0.000030050179	0.000586376090	-1	0.116854574626	2.583355728406
270000	0.000029286340	0.000567180399	-1	0.118035326269	2.593286281864
275000	0.000028552782	0.000548946906	-1	0.119205222319	2.603325089314
280000	0.000027848050	0.000531620886	-1	0.120362146567	2.613436705088
285000	0.000027170691	0.000515146614	-1	0.121505058184	2.623597008504
290000	0.000026519276	0.000499469386	-1	0.122633694500	2.633791629165
295000	0.000025892433	0.000484536059	-1	0.123748367331	2.644009536151
300000	0.000025288844	0.000470295871	-1	0.124849852234	2.654244141108

Electron Elastic Scattering Sampling Data
Solution for Z = 45

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.054118624489	1.157601611962	+1	0.320583072355	20.658480186338
52	0.052262452426	1.092065561728	+1	0.303390859979	18.093536788624
54	0.051023842500	0.998151476549	+1	0.284968385094	14.822128335633
56	0.050214765946	0.892679531413	+1	0.266154508866	11.619629940678
58	0.049699089776	0.787616320748	+1	0.247601143947	8.881376534275
60	0.049379066439	0.689970165983	+1	0.229784071426	6.713384218047
62	0.049185774997	0.603043300927	+1	0.213027426225	5.070814941946
64	0.049068742007	0.527718806002	+1	0.197523272229	3.854987286171
66	0.048994605107	0.463702223875	+1	0.183376763257	2.965466105199
68	0.048940497138	0.410011851070	+1	0.170611837914	2.316601175430
70	0.048889595062	0.365454728153	+1	0.159202322213	1.842563942164
72	0.048830747878	0.328947821732	+1	0.149104673576	1.495723358010
74	0.048756405073	0.299381684848	+1	0.140237753103	1.240915588848
76	0.048660651438	0.275886318989	+1	0.132525894936	1.053837091704
78	0.048539338412	0.257726194111	+1	0.125888083610	0.917241438106
80	0.048389153153	0.244293121995	+1	0.120241773354	0.818946319777
82	0.048206703963	0.235180216882	+1	0.115519792630	0.750835890573
84	0.047989609076	0.230065962984	+1	0.111653228454	0.707237599396
86	0.047735025423	0.228789079759	+1	0.108587094025	0.684736229724
88	0.047440387075	0.231310096150	+1	0.106273910957	0.681564117421
90	0.047103424596	0.237700838180	+1	0.104672051738	0.697353412890
92	0.046721546675	0.248181401976	+1	0.103750965956	0.733266785884
94	0.046292930993	0.263093615009	+1	0.103483792899	0.791939621111
96	0.045815605126	0.282941544174	+1	0.103851448312	0.877945573496
98	0.045288175406	0.308395776209	+1	0.104838533476	0.998265934895
100	0.044709605756	0.340332745401	+1	0.106433123287	1.163240948309
105	0.043038911640	0.456750859666	+1	0.113014849856	1.888521915259
110	0.041065175913	0.650147982631	+1	0.123163245337	3.524892552365

115	0.038835090543	0.976041568309	+1	0.136566317727	7.561501982816
120	0.036429105865	1.556858366252	+1	0.152661605181	18.995057066189
125	0.033950389786	2.718624187089	+1	0.170557703098	59.220512387226
130	0.031506150829	5.716792617177	+1	0.189158355884	275.636478505298
135	0.029191589005	23.825374821586	+1	0.207298009430	5148.334720212111
140	0.027074193531	20.050836493297	-1	0.223992826820	4381.399780904538
145	0.025192069433	8.511984866231	-1	0.238538275638	982.071048893782
150	0.023554732389	6.188309153373	-1	0.250586684286	616.944487296737
155	0.022152899579	5.449360171354	-1	0.260067671398	545.519233448135
160	0.020964546167	5.374408324890	-1	0.267131961568	583.410825851310
165	0.019963054692	5.789661285733	-1	0.272040938810	721.468106437382
170	0.019120351867	6.800008918869	-1	0.275115826449	1033.071031298499
175	0.018410535152	8.900125301148	-1	0.276676036046	1797.571639414842
180	0.017810303919	13.989441269514	-1	0.277023208684	4432.405038549372
185	0.017299949432	37.360045108914	-1	0.276419154622	31108.116538177201
190	0.016862752118	49.134163788685	+1	0.275087616222	54514.504687800989
195	0.016485107391	13.870947764045	+1	0.273211971487	4627.473534639108
200	0.016155998590	7.768325336899	+1	0.270942666676	1541.933298284194
205	0.015866580294	5.266077704780	+1	0.268397990648	751.047496557369
210	0.015609421616	3.916367488455	+1	0.265669630520	439.404666244685
215	0.015378511282	3.078428455159	+1	0.262828455435	286.670807238619
220	0.015169071635	2.511355350516	+1	0.259928817279	201.125208712472
225	0.014977291471	2.104474164133	+1	0.257011976747	148.666661822447
230	0.014800131866	1.799909982252	+1	0.254108942937	114.312389765973
235	0.014635161144	1.564510782457	+1	0.251242664898	90.662559267274
240	0.014480431123	1.377951508215	+1	0.248429880524	73.730314679815
245	0.014334379639	1.227095104794	+1	0.245682426267	61.217671350459
250	0.014195745737	1.103087657524	+1	0.243008465576	51.727058649782
255	0.014063532746	0.999718693778	+1	0.240412435477	44.367627664814
260	0.013936981612	0.912431370767	+1	0.237893956501	38.545561879820
265	0.013815471308	0.837888526348	+1	0.235451260119	33.859195306610
270	0.013698436404	0.773617709740	+1	0.233082689986	30.030884701902
275	0.013585397274	0.717744909156	+1	0.230786300838	26.863284958576

280	0.013475928484	0.668825734864	+1	0.228560179197	24.213097075150
285	0.013369655088	0.625728612235	+1	0.226402374944	21.974136348050
290	0.013266243025	0.587555762560	+1	0.224310972660	20.066398190702
295	0.013165397209	0.553585160702	+1	0.222284109702	18.428612322560
300	0.013066852405	0.523230215349	+1	0.220319960250	17.013227085111
310	0.012875949707	0.471475467061	+1	0.216569296288	14.705266232659
320	0.012692795024	0.429150200820	+1	0.213030165232	12.916213834027
330	0.012516795410	0.394053334764	+1	0.209677336170	11.499688103739
340	0.012347308461	0.364627953253	+1	0.206491316884	10.358872864350
350	0.012183676392	0.339743080981	+1	0.203457032358	9.427530739467
360	0.012025337068	0.318546926357	+1	0.200561468599	8.658502567906
370	0.011872032860	0.300354927558	+1	0.197789859097	8.016076622725
380	0.011723522910	0.284636480189	+1	0.195129553871	7.473910580615
390	0.011579514118	0.270982191228	+1	0.192570689110	7.012542833024
400	0.011439683761	0.259071551890	+1	0.190105471287	6.617322197651
410	0.011303735695	0.248647266582	+1	0.187727307661	6.276903515816
420	0.011171505942	0.239492033199	+1	0.185429103593	5.982011952654
430	0.011042837036	0.231427670947	+1	0.183204664722	5.725286862994
440	0.010917550482	0.224309077897	+1	0.181049028036	5.500919246597
450	0.010795455296	0.218016905086	+1	0.178958067222	5.304264651658
460	0.010676370260	0.212451466322	+1	0.176928282467	5.131542618002
470	0.010560173172	0.207527024674	+1	0.174956045031	4.979550789253
480	0.010446745643	0.203170835820	+1	0.173038089921	4.845631897952
490	0.010335965478	0.199321274101	+1	0.171171742285	4.727590494247
500	0.010227703565	0.195925783895	+1	0.169354666376	4.623596796086
510	0.010121840290	0.192939271880	+1	0.167584780089	4.532108422247
520	0.010018281621	0.190322674455	+1	0.165860025226	4.451799131722
530	0.009916947830	0.188041848144	+1	0.164178393917	4.381521732150
540	0.009817745562	0.186067288033	+1	0.162538276863	4.320313576155
550	0.009720588772	0.184373028953	+1	0.160938128354	4.267338329716
560	0.009625393265	0.182936235521	+1	0.159376582900	4.221874825958
570	0.009532091794	0.181737172428	+1	0.157852240176	4.183297685474
580	0.009440621236	0.180758391369	+1	0.156363806666	4.151061700223

590	0.009350917641	0.179984383107	+1	0.154910085817	4.124691248367
600	0.009262917756	0.179401156703	+1	0.153489985193	4.103766171922
610	0.009176560945	0.178996323566	+1	0.152102483278	4.087920062297
620	0.009091798248	0.178759095397	+1	0.150746555011	4.076832022948
630	0.009008579450	0.178680041366	+1	0.149421234947	4.070226590585
640	0.008926857832	0.178750357808	+1	0.148125597555	4.067850679604
650	0.008846586929	0.178962138898	+1	0.146858795908	4.069482518784
660	0.008767721214	0.179308229543	+1	0.145620017205	4.074925335508
670	0.008690221904	0.179782564813	+1	0.144408446689	4.084011691040
680	0.008614052321	0.180379611672	+1	0.143223300512	4.096591482456
690	0.008539174688	0.181094389511	+1	0.142063835421	4.112533913533
700	0.008465554179	0.181922085347	+1	0.140929343635	4.131714988678
710	0.008393155805	0.182858532751	+1	0.139819160500	4.154031534293
720	0.008321948717	0.183900096977	+1	0.138732591912	4.179393332203
730	0.008251903256	0.185043638563	+1	0.137669017668	4.207726935560
740	0.008182989732	0.186286147961	+1	0.136627802185	4.238963456548
750	0.008115180634	0.187624753229	+1	0.135608340498	4.273039060426
760	0.008048447253	0.189056976720	+1	0.134610090461	4.309904589067
770	0.007982764110	0.190580697949	+1	0.133632456739	4.349517946266
780	0.007918107403	0.192194057114	+1	0.132674894775	4.391846026921
790	0.007854453561	0.193895320323	+1	0.131736894540	4.436861336892
800	0.007791778648	0.195682791562	+1	0.130817915267	4.484537440296
810	0.007730061163	0.197554909227	+1	0.129917473662	4.534853247962
820	0.007669278119	0.199510645160	+1	0.129035104472	4.587804478186
830	0.007609410013	0.201548936499	+1	0.128170319676	4.643383903773
840	0.007550437081	0.203668841785	+1	0.127322678749	4.701590507781
850	0.007492339463	0.205869423729	+1	0.126491748409	4.762424644563
860	0.007435098760	0.208149848795	+1	0.125677096314	4.825889431571
870	0.007378696546	0.210509616215	+1	0.124878302875	4.891998409564
880	0.007323114825	0.212948406170	+1	0.124094971279	4.960771710093
890	0.007268337349	0.215465721574	+1	0.123326692343	5.032223771487
900	0.007214347443	0.218061242750	+1	0.122573093436	5.106376686180
910	0.007161127547	0.220734654599	+1	0.121833795484	5.183253920937

920	0.007108664296	0.223485824919	+1	0.121108454745	5.262883577426
930	0.007056940213	0.226314721696	+1	0.120396732854	5.345300813142
940	0.007005943126	0.229221232902	+1	0.119698288398	5.430535418325
950	0.006955657313	0.232205284310	+1	0.119012791276	5.518622412911
960	0.006906067533	0.235267065150	+1	0.118339979751	5.609608614440
970	0.006857161980	0.238406556753	+1	0.117679477592	5.703527198364
980	0.006808927257	0.241624153808	+1	0.117031013935	5.800430996618
990	0.006761350895	0.244920068012	+1	0.116394268276	5.900365285797
1000	0.006714419194	0.248294648467	+1	0.115768964931	6.003384004323
1025	0.006599832641	0.257077919875	+1	0.114253909494	6.274787520951
1050	0.006489016962	0.266364963444	+1	0.112804549036	6.566823492267
1075	0.006381798801	0.276166283670	+1	0.111417103320	6.880594341594
1100	0.006278017892	0.286491702444	+1	0.110087967493	7.217242162476
1125	0.006177522899	0.297352053656	+1	0.108813767909	7.578010297963
1150	0.006080169112	0.308763492075	+1	0.107591451212	7.964397217456
1175	0.005985817034	0.320743949227	+1	0.106418127900	8.378052376926
1200	0.005894339260	0.333311407846	+1	0.105291071700	8.820720377783
1225	0.005805616459	0.346484455944	+1	0.104207697963	9.294267728467
1250	0.005719530746	0.360286571859	+1	0.103165679108	9.800860897902
1275	0.005635971606	0.374743018150	+1	0.102162825599	10.342863419182
1300	0.005554836233	0.389879552302	+1	0.101197059094	10.922800774550
1325	0.005476026892	0.405723324135	+1	0.100266386749	11.543405512727
1350	0.005399450681	0.422306249943	+1	0.099369024034	12.207775934867
1375	0.005325016365	0.439662747971	+1	0.098503273738	12.919315709903
1400	0.005252640025	0.457828782840	+1	0.097667528750	13.681709499971
1425	0.005182244478	0.476842274795	+1	0.096860235879	14.498955565128
1450	0.005113749965	0.496746927853	+1	0.096080014517	15.375595069468
1475	0.005047083949	0.517589488929	+1	0.095325542722	16.316604237611
1500	0.004982178068	0.539419805076	+1	0.094595573756	17.327445993908
1550	0.004857385702	0.586263680358	+1	0.093204463108	19.583426698604
1600	0.004738879481	0.637775123769	+1	0.091898135793	22.200620262335
1650	0.004626214265	0.694537215557	+1	0.090668907907	25.249496781416
1700	0.004518978518	0.757250615095	+1	0.089510042426	28.818509718070

1750	0.004416803249	0.826751359632	+1	0.088415437510	33.018966245464
1800	0.004319345276	0.904056608298	+1	0.087379700615	37.993224949481
1850	0.004226293620	0.990403123267	+1	0.086397949037	43.924634703559
1900	0.004137362901	1.087311388650	+1	0.085465905780	51.052549555932
1950	0.004052289505	1.196672357952	+1	0.084579662385	59.693788048477
2000	0.003970833493	1.320886326223	+1	0.083735611467	70.275821336564
2100	0.003817900194	1.627087226963	+1	0.082161543977	99.840825628618
2200	0.003676971042	2.043900246671	+1	0.080722223168	148.030871413211
2300	0.003546688774	2.641675643938	+1	0.079399856195	233.114221108474
2400	0.003425894590	3.567054961959	+1	0.078179422374	401.913688175207
2500	0.003313589634	5.185005049485	+1	0.077048323661	805.263577009065
2600	0.003208907235	8.725267486163	+1	0.075996061066	2167.948810588878
2700	0.003111096590	22.542133678831	+1	0.075013552472	13790.584579961109
2800	0.003019502416	51.869612327197	-1	0.074093053671	72457.696133479971
2900	0.002933542851	12.138405336504	-1	0.073228159309	4282.969554238947
3000	0.002852702346	6.811872829577	-1	0.072413647229	1452.092089373369
3100	0.002776521554	4.705426009571	-1	0.071645165364	744.140096209606
3200	0.002704607710	3.578165555594	-1	0.070918256716	461.082625174053
3300	0.002636611619	2.876927907511	-1	0.070228950581	318.689051314019
3400	0.002572217045	2.399026763506	-1	0.069573973369	236.445665101603
3500	0.002511136509	2.052624044012	-1	0.068950708895	184.327132229877
3600	0.002453111966	1.790121012145	-1	0.068356948916	149.024307267384
3700	0.002397917463	1.584516940524	-1	0.067790233937	123.895452969474
3800	0.002345350228	1.419269245259	-1	0.067248343649	105.302692268981
3900	0.002295223505	1.283645537244	-1	0.066729425628	91.109356660487
4000	0.002247365383	1.170374956851	-1	0.066232089513	79.990919910317
4100	0.002201619905	1.074377462901	-1	0.065755052487	71.091160289122
4200	0.002157848153	0.992036482411	-1	0.065296857058	63.839061566312
4300	0.002115924699	0.920678876176	-1	0.064856139922	57.838555422368
4400	0.002075732274	0.858273725376	-1	0.064431769451	52.806600931750
4500	0.002037163415	0.803250746050	-1	0.064022843702	48.536367694722
4600	0.002000116528	0.754380243264	-1	0.063628622027	44.874058636403
4700	0.001964503186	0.710708046115	-1	0.063248135930	41.704721097578

4800	0.001930241273	0.671466218347	-1	0.062880489743	38.939791765478
4900	0.001897253859	0.636025725144	-1	0.062524954237	36.509832897125
5000	0.001865461949	0.603854292185	-1	0.062181403150	34.359192275292
5500	0.001722199789	0.479220409364	-1	0.060630604516	26.521180870932
6000	0.001600856382	0.394535602517	-1	0.059294972827	21.628836440783
6500	0.001496678687	0.333520210696	-1	0.058129433926	18.312538026471
7000	0.001406207200	0.287638978653	-1	0.057100811747	15.927927750764
7500	0.001326863278	0.251994952620	-1	0.056184045721	14.135724495408
8000	0.001256682126	0.223582684605	-1	0.055359783909	12.741735302625
8500	0.001194141421	0.200458467945	-1	0.054612843424	11.627398962483
9000	0.001138040923	0.181311247777	-1	0.053931105564	10.716520579145
9500	0.001087421360	0.165225734030	-1	0.053304807540	9.958045389144
10000	0.001041507952	0.151544481672	-1	0.052725921934	9.316540978344
10500	0.000999664272	0.139781657260	-1	0.052188075747	8.766633726693
11000	0.000961369499	0.129578032159	-1	0.051685168150	8.289977508871
11500	0.000926183255	0.120649803783	-1	0.051213229083	7.872471612334
12000	0.000893739685	0.112782949950	-1	0.050767992828	7.503649108161
12500	0.000863726616	0.105804586584	-1	0.050346405906	7.175214452244
13000	0.000835879615	0.099579688511	-1	0.049945333739	6.880772460053
13500	0.000809970103	0.093996210850	-1	0.049562612558	6.615097230143
14000	0.000785801762	0.088964974501	-1	0.049195917632	6.374070523779
14500	0.000763203176	0.084410647508	-1	0.048843615967	6.154253595997
15000	0.000742027012	0.080272335886	-1	0.048503940238	5.952882732407
16000	0.000703441676	0.073048248445	-1	0.047854907799	5.596531073123
17000	0.000669178644	0.066967816395	-1	0.047238404621	5.290489308255
18000	0.000638540428	0.061786538728	-1	0.046650312897	5.024210067983
19000	0.000610981033	0.057327811017	-1	0.046084991418	4.789959607386
20000	0.000586059025	0.053457508955	-1	0.045538072498	4.581903829453
21000	0.000532610176	0.044058429590	-1	0.050767537801	4.616646575975
22000	0.000510711389	0.041099564049	-1	0.050709574024	4.473248819269
23000	0.000489826696	0.038252578394	-1	0.050705851453	4.328783646731
24000	0.000470190791	0.035593098510	-1	0.050755861799	4.189719559855
25000	0.000452006495	0.033195144482	-1	0.050842585262	4.062612172198

26000	0.000435385908	0.031109192133	-1	0.050935704045	3.952361468732
27000	0.000420159470	0.029299192963	-1	0.051019995556	3.857305653539
28000	0.000406109884	0.027710417674	-1	0.051092213117	3.774197656879
29000	0.000393041508	0.026291470584	-1	0.051156994887	3.699876121046
30000	0.000380777685	0.024994337273	-1	0.051226539117	3.631271756253
31000	0.000369166752	0.023779978915	-1	0.051317836300	3.566012166866
32000	0.000358156114	0.022639998244	-1	0.051431804728	3.503761063023
33000	0.000347719903	0.021573552873	-1	0.051563885836	3.444675639944
34000	0.000337830869	0.020579484271	-1	0.051709522396	3.388944329224
35000	0.000328469711	0.019657248834	-1	0.051862130223	3.336705266388
36000	0.000319608533	0.018804555759	-1	0.052016799462	3.288060461134
37000	0.000311206419	0.018014828592	-1	0.052172561238	3.242749783134
38000	0.000303225520	0.017281087488	-1	0.052329416255	3.200391517964
39000	0.000295630498	0.016596691518	-1	0.052488403617	3.160613843577
40000	0.000288388414	0.015955335165	-1	0.052651605402	3.123053359165
41000	0.000281469874	0.015351591363	-1	0.052821317958	3.087400939630
42000	0.000274853648	0.014782533709	-1	0.052997120215	3.053528491334
43000	0.000268521609	0.014245917746	-1	0.053177938609	3.021349651952
44000	0.000262456916	0.013739606792	-1	0.053362838276	2.990777465409
45000	0.000256643849	0.013261539179	-1	0.053551139032	2.961725106043
46000	0.000251067664	0.012809759303	-1	0.053742259605	2.934104098930
47000	0.000245714390	0.012382400340	-1	0.053935774853	2.907826159041
48000	0.000240570761	0.011977677515	-1	0.054131430982	2.882802934563
49000	0.000235624376	0.011593875475	-1	0.054329239628	2.858946003789
50000	0.000230863535	0.011229344118	-1	0.054529471594	2.836166715308
55000	0.000209502570	0.009651931307	-1	0.055566563608	2.736199488246
60000	0.000191510495	0.008398935107	-1	0.056648825954	2.655206970978
65000	0.000176147311	0.007384475506	-1	0.057766645961	2.588696136666
70000	0.000162876304	0.006549887980	-1	0.058912893723	2.533500953683
75000	0.000151297895	0.005853835303	-1	0.060082364760	2.487333430614
80000	0.000141108936	0.005266458018	-1	0.061270895631	2.448487942279
85000	0.000132074835	0.004765686696	-1	0.062475162749	2.415669218058
90000	0.000124011164	0.004334888429	-1	0.063692523769	2.387876182808

95000	0.000116770952	0.003961318894	-1	0.064920741085	2.364320243505
100000	0.000110235528	0.003635065462	-1	0.066157857226	2.344372215376
105000	0.000104307967	0.003348274439	-1	0.067402527523	2.327511987245
110000	0.000098908992	0.003094814898	-1	0.068652360762	2.313351324859
115000	0.000093971337	0.002869500495	-1	0.069908371690	2.301537016212
120000	0.000089439645	0.002668328148	-1	0.071167777435	2.291784372807
125000	0.000085266623	0.002487894496	-1	0.072429608169	2.283832572479
130000	0.000081412286	0.002325431977	-1	0.073692898297	2.277496552199
135000	0.000077841652	0.002178534895	-1	0.074959134565	2.272623079605
140000	0.000074524106	0.002045201537	-1	0.076230452903	2.269128770315
145000	0.000071439563	0.001924102419	-1	0.077491250309	2.266602526687
150000	0.000068570043	0.001814069280	-1	0.078726254490	2.264684421261
155000	0.000065887736	0.001713375363	-1	0.079957331480	2.263669997777
160000	0.000063373907	0.001620904740	-1	0.081189055405	2.263571388683
165000	0.000061007087	0.001535420667	-1	0.082443581969	2.264701613418
170000	0.000058783692	0.001456699211	-1	0.083688882009	2.266441357548
175000	0.000056690922	0.001384003785	-1	0.084927170202	2.268771602366
180000	0.000054717909	0.001316726906	-1	0.086158538504	2.271649848306
185000	0.000052854971	0.001254332762	-1	0.087383113908	2.275031410170
190000	0.000051093676	0.001196373184	-1	0.088599888057	2.278875994927
195000	0.000049426321	0.001142437253	-1	0.089808486428	2.283142771557
200000	0.000047845605	0.001092124640	-1	0.091010550005	2.287790849133
205000	0.000046344879	0.001045078083	-1	0.092208160068	2.292786312841
210000	0.000044918769	0.001001046160	-1	0.093399436201	2.298103313269
215000	0.000043562476	0.000959812106	-1	0.094581672853	2.303716851856
220000	0.000042271570	0.000921170607	-1	0.095752505469	2.309596151590
225000	0.000041041908	0.000884927299	-1	0.096910065052	2.315710462459
230000	0.000039869627	0.000850897624	-1	0.098053092612	2.322028431068
235000	0.000038751145	0.000818909427	-1	0.099180612839	2.328515157189
240000	0.000037683155	0.000788801752	-1	0.100291963693	2.335130827487
245000	0.000036662754	0.000760432590	-1	0.101385556492	2.341814730443
250000	0.000035684872	0.000733555445	-1	0.102478673403	2.348769945881
255000	0.000034745208	0.000707971376	-1	0.103586333468	2.356172274940

260000	0.000033844316	0.000683725609	-1	0.104686192155	2.363700055300
265000	0.000032980139	0.000660738381	-1	0.105776760110	2.371340391451
270000	0.000032150736	0.000638933433	-1	0.106856734965	2.379079236111
275000	0.000031354767	0.000618258788	-1	0.107920739016	2.386838309437
280000	0.000030592742	0.000598740673	-1	0.108946743707	2.394294738937
285000	0.000029859785	0.000580169137	-1	0.109963281991	2.401854193886
290000	0.000029154532	0.000562490530	-1	0.110968602967	2.409482153673
295000	0.000028475590	0.000545648104	-1	0.111962381500	2.417159015897
300000	0.000027821580	0.000529585994	-1	0.112945040251	2.424874084367

Electron Elastic Scattering Sampling Data
Solution for Z = 46

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.074812997611	0.820985283046	+1	0.315624190569	8.574473715121
52	0.068351458863	0.881395623568	+1	0.313664761061	10.378115887908
54	0.063535553191	0.898912083495	+1	0.306939057647	11.187523973521
56	0.059971516143	0.877753000500	+1	0.296564570358	10.931168567700
58	0.057344309362	0.827955526035	+1	0.283631460277	9.882885673269
60	0.055411542507	0.761037132940	+1	0.269104400133	8.437576692644
62	0.053992314413	0.686851671348	+1	0.253774063842	6.923845394867
64	0.052947838442	0.612629906596	+1	0.238289238999	5.543603371818
66	0.052181506540	0.542649857000	+1	0.223107918617	4.378587855984
68	0.051621100174	0.479103628142	+1	0.208551776386	3.439797679486
70	0.051211970035	0.422897516720	+1	0.194847542475	2.704978303014
72	0.050917441593	0.374086689942	+1	0.182128166461	2.139159062569
74	0.050708049231	0.332207232836	+1	0.170451685890	1.706795638235
76	0.050563080755	0.296678679751	+1	0.159841148500	1.377812847983
78	0.050467055628	0.266819485286	+1	0.150279527078	1.127627373370
80	0.050407304493	0.241953421174	+1	0.141726346884	0.937153388812
82	0.050374063274	0.221527369869	+1	0.134140835922	0.792306778722
84	0.050359317748	0.204991802374	+1	0.127461204181	0.682175514498
86	0.050355740445	0.191930020298	+1	0.121634832951	0.598950767812
88	0.050356993727	0.181996386614	+1	0.116608011043	0.536855144247
90	0.050357163126	0.174909045196	+1	0.112327195283	0.491643451546
92	0.050350298527	0.170490862938	+1	0.108750382755	0.460430793650
94	0.050331220350	0.168610380891	+1	0.105834432887	0.441163282129
96	0.050294445477	0.169221800209	+1	0.103545816512	0.432639911370
98	0.050234572415	0.172349751598	+1	0.101856956381	0.434334193603
100	0.050146286072	0.178084752096	+1	0.100744883223	0.446328661569
105	0.049768842395	0.205131974415	+1	0.100388231614	0.528012771649
110	0.049116002697	0.254637459627	+1	0.103377299122	0.714841023694

115	0.048128790047	0.335736418025	+1	0.109693425232	1.095319053962
120	0.046779536110	0.463951185296	+1	0.119337695567	1.879559115005
125	0.045072441079	0.665592604090	+1	0.132215238471	3.585826639229
130	0.043052204536	0.988441366806	+1	0.148037883893	7.605273675683
135	0.040800102000	1.526409740699	+1	0.166205308596	18.102231153890
140	0.038422706933	2.492839272904	+1	0.185837520625	49.811894971290
145	0.036034340377	4.483019563434	+1	0.205846889161	170.663154568953
150	0.033736362143	9.979234153530	+1	0.225158814197	912.929988077686
155	0.031676007862	51.509516396750	+1	0.242465104201	26490.997886181001
160	0.029688484130	27.665905836902	-1	0.258326836895	9035.946415462160
165	0.028003065410	14.385254581927	-1	0.271255599730	2861.710759810890
170	0.026546452340	11.865921784627	-1	0.281604003223	2195.999375144535
175	0.025302849798	12.052502229458	-1	0.289510320452	2470.902853005529
180	0.024248837961	14.576703743858	-1	0.295231163899	3829.605011109103
185	0.023359101716	22.662053338054	-1	0.299065401545	9570.974686534883
190	0.022608169866	81.563312505758	-1	0.301325120047	125622.521927006440
195	0.021973247175	39.527031911480	+1	0.302298352038	30908.025748891690
200	0.021434904545	14.443417431160	+1	0.302239659076	4412.922438112465
205	0.020976585267	8.393723398679	+1	0.301366620315	1588.135902121586
210	0.020583054401	5.728817703194	+1	0.299870377818	785.960471229158
215	0.020241635056	4.252941960094	+1	0.297908261717	459.020529737933
220	0.019942175565	3.327167297927	+1	0.295606008305	297.048834866399
225	0.019676584918	2.698625952833	+1	0.293063015671	206.229717070313
230	0.019438416038	2.247755596429	+1	0.290357423811	150.731433605849
235	0.019222591141	1.910942227684	+1	0.287549786507	114.593161768328
240	0.019024984411	1.651391993748	+1	0.284687773693	89.885190151647
245	0.018842494777	1.446367778274	+1	0.281806567199	72.321048186339
250	0.018672558889	1.281153453240	+1	0.278933732410	59.435109441951
255	0.018513177670	1.145768757217	+1	0.276088815479	49.727405281452
260	0.018362659678	1.033149629732	+1	0.273283944065	42.241941951452
265	0.018219579888	0.938255435770	+1	0.270527658528	36.354245924914
270	0.018082756263	0.857420518164	+1	0.267826343407	31.644307314688
275	0.017951195761	0.787917144556	+1	0.265184830980	27.821347746767

280	0.017824070639	0.727674271928	+1	0.262606496212	24.678879182754
285	0.017700680822	0.675093439587	+1	0.260093765030	22.067144748469
290	0.017580450036	0.628920295717	+1	0.257648130045	19.875309009026
295	0.017462875353	0.588159398079	+1	0.255270529944	18.020089513620
300	0.017347541121	0.552010316725	+1	0.252961378987	16.437875929745
310	0.017122549252	0.490996260543	+1	0.248542516371	13.903025177442
320	0.016904588522	0.441692140817	+1	0.244364197593	11.979327595454
330	0.016693051631	0.401226392827	+1	0.240400529696	10.483902591182
340	0.016487268008	0.367604680419	+1	0.236631776323	9.298865280770
350	0.016286544260	0.339400268899	+1	0.233042841022	8.345302911543
360	0.016090343824	0.315551176004	+1	0.229619947759	7.568058607162
370	0.015898640221	0.295209042120	+1	0.226344977875	6.926003017756
380	0.015711388069	0.277724685655	+1	0.223202304502	6.389364104902
390	0.015528413291	0.262603813698	+1	0.220180023509	5.936528032369
400	0.015349461079	0.249463993203	+1	0.217269054309	5.551474002137
410	0.015174292922	0.238000731447	+1	0.214461640105	5.221945601770
420	0.015002877696	0.227956191617	+1	0.211748712083	4.937970738788
430	0.014835176296	0.219120870205	+1	0.209122382187	4.691735478240
440	0.014671079784	0.211325822986	+1	0.206576462603	4.477153039362
450	0.014510438394	0.204433548265	+1	0.204106006532	4.289419435152
460	0.014353101816	0.198329989134	+1	0.201706819345	4.124659009454
470	0.014199003634	0.192916731998	+1	0.199374357142	3.979594123099
480	0.014048072868	0.188110608204	+1	0.197104606296	3.851524575268
490	0.013900212644	0.183841999431	+1	0.194894309885	3.738247775430
500	0.013755309931	0.180051766117	+1	0.192740713011	3.637938340517
510	0.013613252035	0.176689591051	+1	0.190641414245	3.549073432702
520	0.013473965017	0.173711684638	+1	0.188593899511	3.470338352836
530	0.013337379055	0.171080042897	+1	0.186595883507	3.400611866705
540	0.013203412565	0.168761886929	+1	0.184645417079	3.338947512301
550	0.013071977431	0.166728566232	+1	0.182740771327	3.284534856976
560	0.012942988017	0.164955058888	+1	0.180880409918	3.236677883171
570	0.012816380370	0.163419707009	+1	0.179062724924	3.194772610657
580	0.012692089398	0.162103335391	+1	0.177286213632	3.158292495445

590	0.012570051688	0.160989015765	+1	0.175549581095	3.126781032152
600	0.012450198218	0.160061555173	+1	0.173851604035	3.099836367170
610	0.012332460548	0.159307502191	+1	0.172191130486	3.077107572659
620	0.012216786388	0.158715232326	+1	0.170567043998	3.058289865413
630	0.012103121617	0.158274320495	+1	0.168978242537	3.043113274178
640	0.011991413986	0.157975379825	+1	0.167423719356	3.031338679788
650	0.011881610097	0.157809893480	+1	0.165902566747	3.022753994200
660	0.011773656868	0.157770042744	+1	0.164413844117	3.017166358436
670	0.011667509292	0.157849302498	+1	0.162956671118	3.014414377569
680	0.011563124264	0.158041693445	+1	0.161530174325	3.014351628700
690	0.011460457277	0.158341802114	+1	0.160133559881	3.016849102680
700	0.011359466335	0.158744497414	+1	0.158766005665	3.021785248716
710	0.011260108520	0.159245169670	+1	0.157426786430	3.029054538567
720	0.011162347853	0.159839957567	+1	0.156115163709	3.038567481984
730	0.011066145987	0.160525306705	+1	0.154830397456	3.050243562849
740	0.010971467662	0.161297884575	+1	0.153571789051	3.064008701557
750	0.010878278155	0.162154646025	+1	0.152338705955	3.079797801903
760	0.010786541954	0.163092743638	+1	0.151130502099	3.097551200679
770	0.010696228422	0.164109782748	+1	0.149946515227	3.117218324779
780	0.010607305646	0.165203716850	+1	0.148786164143	3.138759441646
790	0.010519744299	0.166372467161	+1	0.147648829367	3.162133310168
800	0.010433513462	0.167614136733	+1	0.146533948170	3.187305311988
810	0.010348584805	0.168926981668	+1	0.145440965228	3.214244305482
820	0.010264932069	0.170309545333	+1	0.144369313189	3.242925094329
830	0.010182528131	0.171760635128	+1	0.143318499696	3.273331083097
840	0.010101344315	0.173279042599	+1	0.142287984089	3.305445198379
850	0.010021360180	0.174863508449	+1	0.141277263788	3.339248086966
860	0.009942549914	0.176512898129	+1	0.140285834399	3.374725284744
870	0.009864886755	0.178226579085	+1	0.139313257715	3.411876050744
880	0.009788350021	0.180003765443	+1	0.138359067063	3.450693923966
890	0.009712917212	0.181843732579	+1	0.137422798106	3.491174896313
900	0.009638565084	0.183745819741	+1	0.136504019864	3.533318046560
910	0.009565274252	0.185709377802	+1	0.135602307656	3.577121906114

920	0.009493022243	0.187734081866	+1	0.134717269300	3.622594779067
930	0.009421789598	0.189819547690	+1	0.133848471258	3.669741693167
940	0.009351556565	0.191965454368	+1	0.132995534190	3.718571286321
950	0.009282303730	0.194171501632	+1	0.132158085814	3.769093200017
960	0.009214012102	0.196437412884	+1	0.131335763160	3.821318183836
970	0.009146664397	0.198762979432	+1	0.130528177471	3.875257353315
980	0.009080242264	0.201148148186	+1	0.129735006773	3.930928467253
990	0.009014728754	0.203592737295	+1	0.128955888247	3.988344814591
1000	0.008950107115	0.206096615709	+1	0.128190484852	4.047522026698
1025	0.008792347210	0.212615840428	+1	0.126334941161	4.203303611831
1050	0.008639806182	0.219508498765	+1	0.124558392167	4.370608207486
1075	0.008492247428	0.226778104081	+1	0.122856383115	4.549869614052
1100	0.008349449551	0.234427628260	+1	0.121224702373	4.741533274386
1125	0.008211205514	0.242460379143	+1	0.119659374726	4.946076983278
1150	0.008077316857	0.250883672229	+1	0.118156739600	5.164109681413
1175	0.007947592852	0.259705957106	+1	0.116713407581	5.396306923379
1200	0.007821860742	0.268934854523	+1	0.115326086075	5.643348823705
1225	0.007699954455	0.278578552220	+1	0.113991732846	5.905970565128
1250	0.007581711931	0.288648471186	+1	0.112707555498	6.185038624543
1275	0.007466979422	0.299156743848	+1	0.111470948644	6.481486778528
1300	0.007355613880	0.310115338066	+1	0.110279404290	6.796288567864
1325	0.007247480087	0.321536762658	+1	0.109130563613	7.130483873263
1350	0.007142446404	0.333436528774	+1	0.108022295492	7.485262532540
1375	0.007040388893	0.345830914582	+1	0.106952543298	7.861897070346
1400	0.006941190911	0.358736758235	+1	0.105919371784	8.261745615066
1425	0.006844741407	0.372171403482	+1	0.104920950851	8.686256285984
1450	0.006750933864	0.386155147879	+1	0.103955599857	9.137052813432
1475	0.006659666053	0.400709554160	+1	0.103021727347	9.615891896373
1500	0.006570841179	0.415856871891	+1	0.102117820065	10.124651954172
1550	0.006400159893	0.448027453486	+1	0.100394296375	11.240269951630
1600	0.006238201594	0.482885074975	+1	0.098774654485	12.502682198706
1650	0.006084343738	0.520676461403	+1	0.097249601061	13.934031087724
1700	0.005938015352	0.561688083488	+1	0.095810993250	15.560841875759

1750	0.005798698626	0.606246901417	+1	0.094451425507	17.414739930812
1800	0.005665916818	0.654739313955	+1	0.093164341219	19.534180947930
1850	0.005539234748	0.707614106172	+1	0.091943789024	21.965803192663
1900	0.005418251447	0.765395725749	+1	0.090784529987	24.766647101631
1950	0.005302601060	0.828699319824	+1	0.089681800825	28.006872889284
2000	0.005191950770	0.898255311072	+1	0.088631196905	31.773664479141
2100	0.004984438294	1.059792391294	+1	0.086670991808	41.353778838889
2200	0.004793487053	1.259423291918	+1	0.084877673924	54.796809241314
2300	0.004617201428	1.511313895353	+1	0.083229435450	74.283529716789
2400	0.004453971177	1.837804764573	+1	0.081707778286	103.725835179240
2500	0.004302413106	2.276344940863	+1	0.080297089526	150.696553759476
2600	0.004161328221	2.894783858511	+1	0.078984257541	231.386238794328
2700	0.004029671931	3.829380533750	+1	0.077758189186	385.394085526191
2800	0.003906529337	5.401041336115	+1	0.076609454785	731.376011980537
2900	0.003791096242	8.589313041381	+1	0.075530114898	1768.337494457547
3000	0.003682660016	18.504192605657	+1	0.074513573867	7861.499839448902
3100	0.003597810602	86.321629502250	+1	0.073012609135	164424.867504816150
3200	0.003484343952	17.285437789996	-1	0.072646717344	7081.494251315583
3300	0.003393433657	8.783246551708	-1	0.071786159551	1951.731784850475
3400	0.003307424156	5.856296320551	-1	0.070968522057	924.323584069453
3500	0.003225921305	4.375529005977	-1	0.070190473778	548.634918966875
3600	0.003148570367	3.481798237949	-1	0.069449167644	368.726357790845
3700	0.003075060446	2.884279209406	-1	0.068741620696	268.108278210953
3800	0.003005111152	2.457002999479	-1	0.068065157908	205.816914997971
3900	0.002938466165	2.136480516485	-1	0.067417520146	164.373600922986
4000	0.002874891072	1.887233199861	-1	0.066796852018	135.275478622219
4100	0.002814171121	1.687908220540	-1	0.066201577089	113.974448343072
4200	0.002756116773	1.524980482110	-1	0.065629877115	97.861535267313
4300	0.002700555288	1.389401503751	-1	0.065080114336	85.342719711386
4400	0.002647327455	1.274871685790	-1	0.064550878364	75.396207605233
4500	0.002596285346	1.176866357783	-1	0.064041017866	67.341348995504
4600	0.002547291769	1.092061824324	-1	0.063549543133	60.710779156165
4700	0.002500225666	1.017996292682	-1	0.063075299089	55.176926057610

4800	0.002454974388	0.952782383310	-1	0.062617227954	50.502467325916
4900	0.002411433464	0.894941766371	-1	0.062174415805	46.511354484161
5000	0.002369504328	0.843298476757	-1	0.061746158242	43.070629435130
5500	0.002181119982	0.650818947067	-1	0.059798351629	31.260942219648
6000	0.002022005773	0.526187838957	-1	0.058119200111	24.457543201738
6500	0.001885735213	0.439270460914	-1	0.056652899541	20.096763942036
7000	0.001767648322	0.375419900958	-1	0.055358374593	17.088580099189
7500	0.001664282491	0.326672594101	-1	0.054204558550	14.899298538094
8000	0.001573007976	0.288332933114	-1	0.053167484367	13.239810528038
8500	0.001491791474	0.257457119441	-1	0.052228304807	11.941111966745
9000	0.001419034582	0.232107805653	-1	0.051371991621	10.898333492419
9500	0.001353458573	0.210955497148	-1	0.050586944037	10.043148983754
10000	0.001293899161	0.192969149469	-1	0.049878250438	9.327967967339
10500	0.001239654712	0.177571740862	-1	0.049224189534	8.722136928237
11000	0.001190036356	0.164262734986	-1	0.048617373105	8.202562934656
11500	0.001144466070	0.152651442187	-1	0.048052540447	7.751800919577
12000	0.001102461944	0.142445299392	-1	0.047524483405	7.357071635439
12500	0.001063614862	0.133410081512	-1	0.047029208048	7.008381309025
13000	0.001027578200	0.125363775412	-1	0.046562870764	6.698102007813
13500	0.000994053027	0.118156568428	-1	0.046122555078	6.420076721091
14000	0.000962783477	0.111669537236	-1	0.045705392634	6.169483928115
14500	0.000933546009	0.105802969554	-1	0.045309144000	5.942343213465
15000	0.000906148042	0.100476310720	-1	0.044931602009	5.735473714695
16000	0.000856208076	0.091178661142	-1	0.044225777061	5.372274889348
17000	0.000811834390	0.083349695980	-1	0.043575618732	5.063440753672
18000	0.000772139870	0.076680007474	-1	0.042971416667	4.797250241604
19000	0.000736418554	0.070940221734	-1	0.042405373371	4.565123548892
20000	0.000704100289	0.065956832019	-1	0.041871163894	4.360640914582
21000	0.000660416920	0.057228157695	-1	0.044497638158	4.263622741194
22000	0.000632986838	0.053426165710	-1	0.044282873933	4.117134389127
23000	0.000606923345	0.049780832125	-1	0.044099228532	3.969918807113
24000	0.000582486544	0.046380094433	-1	0.043955907229	3.828438096132
25000	0.000559888851	0.043311412495	-1	0.043850243830	3.699282442317

26000	0.000539230826	0.040635065157	-1	0.043767701680	3.587409186218
27000	0.000520292765	0.038306326984	-1	0.043695652676	3.491117164308
28000	0.000502807752	0.036257440802	-1	0.043628020175	3.407086770981
29000	0.000486539876	0.034424475670	-1	0.043564596379	3.332072807663
30000	0.000471278750	0.032747289327	-1	0.043511025860	3.262918990103
31000	0.000456856314	0.031177934861	-1	0.043475866466	3.197093034369
32000	0.000443202930	0.029705157937	-1	0.043459753301	3.134250485037
33000	0.000430275777	0.028326882596	-1	0.043460376314	3.074586852784
34000	0.000418036512	0.027041365390	-1	0.043474786182	3.018296196221
35000	0.000406450719	0.025847109275	-1	0.043499393036	2.965570038453
36000	0.000395483320	0.024741435496	-1	0.043530501168	2.916499050118
37000	0.000385086827	0.023716421370	-1	0.043566561715	2.870790442638
38000	0.000375213856	0.022763187253	-1	0.043607206677	2.828058190289
39000	0.000365820869	0.021873313736	-1	0.043652780036	2.787922038543
40000	0.000356867719	0.021038778991	-1	0.043704414563	2.750006381825
41000	0.000348318653	0.020252669621	-1	0.043763464874	2.713991011366
42000	0.000340146896	0.019511234551	-1	0.043829475593	2.679745051564
43000	0.000332329182	0.018811598078	-1	0.043901569138	2.647184586935
44000	0.000324844138	0.018151017641	-1	0.043978972452	2.616222775766
45000	0.000317671894	0.017526869185	-1	0.044061056924	2.586772616051
46000	0.000310794001	0.016936654959	-1	0.044147291444	2.558745238659
47000	0.000304193059	0.016378016325	-1	0.044237173876	2.532050782025
48000	0.000297852974	0.015848707319	-1	0.044330297198	2.506596478208
49000	0.000291759430	0.015346648463	-1	0.044426209727	2.482283185605
50000	0.000285886541	0.014868558286	-1	0.044528293260	2.459116051589
55000	0.000259549962	0.012796043897	-1	0.045089177705	2.357075761514
60000	0.000237406888	0.011147343866	-1	0.045708474207	2.273553056609
65000	0.000218508096	0.009808998848	-1	0.046381806562	2.204319957943
70000	0.000202188892	0.008705459198	-1	0.047098951491	2.146220785251
75000	0.000187955126	0.007783305499	-1	0.047852300317	2.096978317330
80000	0.000175431887	0.007003797635	-1	0.048636099788	2.054906445801
85000	0.000164329266	0.006338231237	-1	0.049445746953	2.018728006886
90000	0.000154419622	0.005764929852	-1	0.050277463316	1.987456291273

95000	0.000145521790	0.005267235522	-1	0.051128191718	1.960315314096
100000	0.000137489475	0.004832157930	-1	0.051995403533	1.936689482966
105000	0.000130203290	0.004449383782	-1	0.052877232837	1.916072178645
110000	0.000123565562	0.004110872260	-1	0.053770755125	1.898079110470
115000	0.000117493968	0.003809811187	-1	0.054675509633	1.882349333427
120000	0.000111920434	0.003540890481	-1	0.055589358195	1.868617308052
125000	0.000106786902	0.003299597597	-1	0.056511442239	1.856637029502
130000	0.000102044292	0.003082285686	-1	0.057440218564	1.846220617768
135000	0.000097650167	0.002885808005	-1	0.058375258143	1.837191700093
140000	0.000093568333	0.002707594184	-1	0.059315432258	1.829414137754
145000	0.000089767105	0.002545398010	-1	0.060260625913	1.822761126059
150000	0.000086218870	0.002397338439	-1	0.061210721853	1.817141985910
155000	0.000082898473	0.002261700126	-1	0.062168421176	1.812502491188
160000	0.000079787231	0.002137295854	-1	0.063127591092	1.808683560191
165000	0.000076879508	0.002023857926	-1	0.064052452788	1.805087903309
170000	0.000074145341	0.001919312148	-1	0.064975889930	1.802153241968
175000	0.000071570134	0.001822747719	-1	0.065897442669	1.799817779836
180000	0.000069132856	0.001732829186	-1	0.066841590970	1.798392757018
185000	0.000066827314	0.001649254187	-1	0.067793586873	1.797615340267
190000	0.000064647307	0.001571705070	-1	0.068739809719	1.797263994922
195000	0.000062582896	0.001499593622	-1	0.069681234553	1.797320718757
200000	0.000060625013	0.001432368599	-1	0.070619474565	1.797749424592
205000	0.000058765507	0.001369542465	-1	0.071556262650	1.798514434934
210000	0.000056997649	0.001310771694	-1	0.072490358310	1.799600321915
215000	0.000055315437	0.001255760237	-1	0.073419857287	1.800992613469
220000	0.000053713342	0.001204230044	-1	0.074343014359	1.802671998304
225000	0.000052186230	0.001155917637	-1	0.075258467804	1.804616934344
230000	0.000050729350	0.001110574373	-1	0.076165192136	1.806802119616
235000	0.000049338259	0.001067965302	-1	0.077062640447	1.809202259458
240000	0.000048008816	0.001027869094	-1	0.077950698208	1.811790595660
245000	0.000046737179	0.000990077919	-1	0.078829670149	1.814538243982
250000	0.000045519801	0.000954400458	-1	0.079699949229	1.817412064748
255000	0.000044353702	0.000920682700	-1	0.080560213210	1.820362244408

260000	0.000043233694	0.000888651062	-1	0.081425018870	1.823556263144
265000	0.000042155519	0.000858100173	-1	0.082305738124	1.827131687088
270000	0.000041120131	0.000829137668	-1	0.083179777281	1.830829097159
275000	0.000040125264	0.000801664427	-1	0.084046355812	1.834639321023
280000	0.000039168791	0.000775586325	-1	0.084904810886	1.838551039498
285000	0.000038248703	0.000750813464	-1	0.085754745988	1.842553609117
290000	0.000037366903	0.000727472388	-1	0.086566072507	1.846288566210
295000	0.000036517237	0.000705232610	-1	0.087371610154	1.850125336501
300000	0.000035698142	0.000684025641	-1	0.088170860186	1.854043151515

Electron Elastic Scattering Sampling Data
Solution for Z = 47

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.064931554901	0.977612405711	+1	0.389582078740	17.844405270723
52	0.060099983234	1.012457563832	+1	0.381621111232	19.736044664781
54	0.056695797436	1.004716328445	+1	0.369785948343	19.726855426278
56	0.054336272609	0.962593952470	+1	0.355124585479	18.159735300352
58	0.052738559302	0.897369647756	+1	0.338571867488	15.697942683919
60	0.051694272187	0.819919810276	+1	0.320923916139	12.971056345183
62	0.051051566762	0.738747826444	+1	0.302824972198	10.397994433215
64	0.050692820394	0.659765549124	+1	0.284810421316	8.187453747188
66	0.050537406506	0.586308821696	+1	0.267262117003	6.389670379427
68	0.050524354107	0.519969803136	+1	0.250453046921	4.975464869786
70	0.050606017170	0.461311554736	+1	0.234583238406	3.885922346302
72	0.050750477878	0.410229590441	+1	0.219776511179	3.055901337566
74	0.050931950367	0.366183627902	+1	0.206088167394	2.426184809906
76	0.051131927383	0.328570129024	+1	0.193545335139	1.949242719793
78	0.051336925697	0.296707965163	+1	0.182136646033	1.587508991625
80	0.051536080939	0.269927633316	+1	0.171826701888	1.312381748532
82	0.051721053290	0.247680630089	+1	0.162579207225	1.102932184070
84	0.051885555511	0.229425727443	+1	0.154335367950	0.943184698055
86	0.052023819845	0.214745369720	+1	0.147043583641	0.821675785188
88	0.052131204952	0.203290527282	+1	0.140649725904	0.729942491751
90	0.052203706132	0.194771468240	+1	0.135097984028	0.661745469343
92	0.052237111879	0.188998895625	+1	0.130343520794	0.612758939915
94	0.052228311890	0.185825595796	+1	0.126338713346	0.579834083274
96	0.052173826631	0.185185874448	+1	0.123045211109	0.560972601043
98	0.052070294620	0.187081237011	+1	0.120430159078	0.555061123561
100	0.051914565138	0.191575377123	+1	0.118464834394	0.561747735694
105	0.051278781015	0.215270217499	+1	0.116255056826	0.638390071444
110	0.050267806377	0.260559804778	+1	0.117714600822	0.830045940690

115	0.048857026971	0.335763000212	+1	0.122738585227	1.224534438099
120	0.047051761555	0.455248425748	+1	0.131252299196	2.031677650684
125	0.044885435572	0.643719126042	+1	0.143109019695	3.767830325540
130	0.042425949200	0.946637285924	+1	0.157995237156	7.818461637854
135	0.039770844252	1.455414750254	+1	0.175316008346	18.371439901908
140	0.037035664472	2.385807365271	+1	0.194213726818	50.692515709075
145	0.034337950449	4.387409630161	+1	0.213623708939	180.788330043120
150	0.031777835276	10.716196998850	+1	0.232476195100	1159.854429707214
155	0.030192422691	38.315035277704	+1	0.244734148829	15693.012080971568
160	0.027330681478	15.198320703750	-1	0.265056033110	3162.192781620058
165	0.025497486922	8.933020110820	-1	0.277776046194	1305.180425643543
170	0.023920492779	7.207284626727	-1	0.287918807742	976.506933125875
175	0.022578996178	6.751581582809	-1	0.295593720113	951.187924159323
180	0.021445434452	7.009277161980	-1	0.301039328074	1103.791464361792
185	0.020490996216	7.985572633602	-1	0.304547141822	1502.679648358892
190	0.019687361329	10.147930552370	-1	0.306430574122	2489.770673358722
195	0.019009493846	15.366258025923	-1	0.306983046351	5750.945661718661
200	0.018436321079	37.114965048979	-1	0.306464764558	33292.657120127442
205	0.017949926476	69.793838448433	+1	0.305101182398	118725.982702233440
210	0.017533884135	16.631764444293	+1	0.303095608395	7148.477104460271
215	0.017174586953	9.026768668138	+1	0.300616486004	2226.942013648095
220	0.016861177486	6.024563909450	+1	0.297798448645	1046.781559917159
225	0.016585014868	4.434994706512	+1	0.294747883245	597.501443664674
230	0.016339230256	3.459928919272	+1	0.291548068552	382.405923947143
235	0.016118374035	2.805838476308	+1	0.288263502977	264.069296234670
240	0.015918123359	2.339747241575	+1	0.284943575805	192.553105393549
245	0.015735052276	1.992818603707	+1	0.281625655364	146.292120522533
250	0.015566439006	1.725929232193	+1	0.278337663448	114.783082533055
255	0.015410113830	1.515198299994	+1	0.275099415335	92.428433170663
260	0.015264119111	1.345174265949	+1	0.271924439416	76.028194095847
265	0.015126835379	1.205525367093	+1	0.268822056985	63.659297153599
270	0.014996915851	1.089121146778	+1	0.265798963062	54.114223033711
275	0.014873245318	0.990883237451	+1	0.262859644503	46.604135398694

280	0.014754897274	0.907100472299	+1	0.260006951485	40.596532452076
285	0.014641096350	0.834999878978	+1	0.257242422476	35.721682389268
290	0.014531196107	0.772468988332	+1	0.254566560770	31.716511507687
295	0.014424662098	0.717871257721	+1	0.251979109476	28.389813605066
300	0.014321029564	0.669921789016	+1	0.249479291484	25.600142683340
310	0.014121241224	0.589989594251	+1	0.244732121337	21.225886758490
320	0.013930397872	0.526320188212	+1	0.240290197909	17.989220217043
330	0.013747443935	0.474688935262	+1	0.236120526477	15.526254611210
340	0.013571402391	0.432227215083	+1	0.232196475933	13.609760338073
350	0.013401378094	0.396920927958	+1	0.228496373321	12.091667896416
360	0.013236666113	0.367296376191	+1	0.225000447988	10.871055832406
370	0.013077036280	0.342198407234	+1	0.221685314250	9.874715723002
380	0.012922271667	0.320755221192	+1	0.218530838960	9.050695881915
390	0.012772069943	0.302310368092	+1	0.215521032783	8.361859989578
400	0.012626086130	0.286360793477	+1	0.212643160481	7.781051818072
410	0.012484007324	0.272509205839	+1	0.209886266619	7.287764598902
420	0.012345712734	0.260421818913	+1	0.207238517951	6.865563716497
430	0.012211082336	0.249829165511	+1	0.204689584381	6.501710364229
440	0.012079949703	0.240515776630	+1	0.202231152497	6.186384335191
450	0.011952120059	0.232307262934	+1	0.199856419650	5.911899767225
460	0.011827407119	0.225059919540	+1	0.197559519624	5.672109909677
470	0.011705700311	0.218649824994	+1	0.195334529921	5.461854453198
480	0.011586893274	0.212972884182	+1	0.193176264497	5.276917471282
490	0.011470861031	0.207942183754	+1	0.191080354089	5.113873825999
500	0.011357468222	0.203484528491	+1	0.189043128796	4.969913479495
510	0.011246584260	0.199537690547	+1	0.187061380494	4.842699379661
520	0.011138117271	0.196047608568	+1	0.185131937295	4.730224972138
530	0.011031979647	0.192967532522	+1	0.183251996968	4.630790756186
540	0.010928076251	0.190257206975	+1	0.181419068315	4.542963737779
550	0.010826310206	0.187881627003	+1	0.179631030337	4.465525867356
560	0.010726588843	0.185810344000	+1	0.177885969930	4.397435045713
570	0.010628839757	0.184016919304	+1	0.176181985522	4.337788098329
580	0.010532992781	0.182478192307	+1	0.174517409686	4.285807555994

590	0.010438977535	0.181173592088	+1	0.172890694845	4.240814567874
600	0.010346723022	0.180084802547	+1	0.171300452188	4.202216545879
610	0.010256163063	0.179195541012	+1	0.169745436153	4.169494797871
620	0.010167240346	0.178491879318	+1	0.168224392346	4.142203908107
630	0.010079900518	0.177961385327	+1	0.166736211363	4.119953144145
640	0.009994094363	0.177592649415	+1	0.165279769693	4.102386290704
650	0.009909766507	0.177375570250	+1	0.163854151772	4.089198976514
660	0.009826867957	0.177300852568	+1	0.162458393035	4.080111227991
670	0.009745356240	0.177360619862	+1	0.161091640252	4.074887291886
680	0.009665190383	0.177547913778	+1	0.159753021398	4.073319586149
690	0.009586331062	0.177856215215	+1	0.158441735813	4.075217959715
700	0.009508738673	0.178279501090	+1	0.157157051495	4.080411398590
710	0.009432375643	0.178812359510	+1	0.155898233778	4.088747415498
720	0.009357209180	0.179450118110	+1	0.154664576770	4.100094707652
730	0.009283207697	0.180188695046	+1	0.153455443546	4.114341657305
740	0.009210339317	0.181024221193	+1	0.152270157718	4.131383365790
750	0.009138574867	0.181953009465	+1	0.151108113617	4.151122728443
760	0.009067883898	0.182971734591	+1	0.149968722252	4.173475066668
770	0.008998240965	0.184077677375	+1	0.148851418931	4.198371748878
780	0.008929621384	0.185268380166	+1	0.147755635142	4.225751944640
790	0.008862000488	0.186541546737	+1	0.146680843662	4.255561714458
800	0.008795353817	0.187894899789	+1	0.145626513734	4.287748578315
810	0.008729658917	0.189326467922	+1	0.144592167500	4.322270041023
820	0.008664894734	0.190834597355	+1	0.143577297951	4.359091291280
830	0.008601040951	0.192417812254	+1	0.142581444166	4.398184372610
840	0.008538076748	0.194074743405	+1	0.141604137949	4.439525025183
850	0.008475984151	0.195804037171	+1	0.140644945654	4.483089972300
860	0.008414743068	0.197604452502	+1	0.139703441059	4.528861081045
870	0.008354336358	0.199475068749	+1	0.138779207264	4.576828275419
880	0.008294746891	0.201415084372	+1	0.137871804793	4.626984474644
890	0.008235959380	0.203423751711	+1	0.136980881340	4.679327037598
900	0.008177955629	0.205500263844	+1	0.136106016864	4.733851411164
910	0.008120721358	0.207643932646	+1	0.135246844238	4.790556686972

920	0.008064241380	0.209854385534	+1	0.134403014521	4.849452376958
930	0.008008499981	0.212131282367	+1	0.133574165346	4.910549344308
940	0.007953485214	0.214474201964	+1	0.132759943954	4.973854962756
950	0.007899181828	0.216882855319	+1	0.131960020328	5.039383814353
960	0.007845577081	0.219356876798	+1	0.131174047173	5.107146677197
970	0.007792658169	0.221896185326	+1	0.130401731893	5.177165188474
980	0.007740412410	0.224500618253	+1	0.129642747103	5.249457776386
990	0.007688827473	0.227170142591	+1	0.128896809111	5.324048868638
1000	0.007637892264	0.229904529942	+1	0.128163594765	5.400955398865
1025	0.007513318930	0.237024837139	+1	0.126384445664	5.603545800489
1050	0.007392558340	0.244554726329	+1	0.124678878986	5.821327609086
1075	0.007275447860	0.252498737207	+1	0.123042896604	6.054896480347
1100	0.007161835545	0.260860787737	+1	0.121472688205	6.304863814254
1125	0.007051578737	0.269645435285	+1	0.119964671015	6.571896485751
1150	0.006944540487	0.278861821689	+1	0.118515594097	6.856847347172
1175	0.006840590712	0.288520049349	+1	0.117122345538	7.160644157669
1200	0.006739608252	0.298629946777	+1	0.115782007071	7.484256915420
1225	0.006641478752	0.309201895542	+1	0.114491810282	7.828724391419
1250	0.006546090642	0.320249552269	+1	0.113249173851	8.195252141306
1275	0.006453337403	0.331787693099	+1	0.112051703514	8.585152989035
1300	0.006363119806	0.343831109382	+1	0.110897093778	8.999806691938
1325	0.006275344436	0.356395152218	+1	0.109783158341	9.440685532703
1350	0.006189919541	0.369498937649	+1	0.108707916702	9.909484249060
1375	0.006106758073	0.383162856284	+1	0.107669496637	10.408038308253
1400	0.006025777901	0.397407916713	+1	0.106666125118	10.938309320914
1425	0.005946901782	0.412256161052	+1	0.105696119157	11.502407140155
1450	0.005870052821	0.427732568966	+1	0.104757868852	12.102676963181
1475	0.005795158421	0.443863673525	+1	0.103849899126	12.741667295081
1500	0.005722148297	0.460677112550	+1	0.102970771301	13.422119732837
1550	0.005581526033	0.496471694929	+1	0.101293699127	14.919607709123
1600	0.005447689670	0.535390316380	+1	0.099716955983	16.622923663038
1650	0.005320187303	0.577746568682	+1	0.098231791079	18.565234336618
1700	0.005198600144	0.623907513289	+1	0.096830403944	20.786704941814

1750	0.005082546405	0.674296838204	+1	0.095505754998	23.335882566440
1800	0.004971672246	0.729415126850	+1	0.094251567097	26.272336435162
1850	0.004865652875	0.789849803011	+1	0.093062195844	29.669332029065
1900	0.004764186244	0.856298896439	+1	0.091932569425	33.617987583588
1950	0.004666996063	0.929592807212	+1	0.090858079024	38.232326187616
2000	0.004573830488	1.010728729133	+1	0.089834485638	43.656496217781
2100	0.004398644741	1.201632074068	+1	0.087925091080	57.726279599282
2200	0.004236909116	1.442465055946	+1	0.086178889855	78.088672787627
2300	0.004087147769	1.754385852666	+1	0.084574638074	108.786587892361
2400	0.003948099623	2.172655426826	+1	0.083094221927	157.601560416489
2500	0.003818674942	2.760796214373	+1	0.081722310715	241.053140836334
2600	0.003697922274	3.645912249133	+1	0.080445972887	399.248661059801
2700	0.003585004712	5.123880953024	+1	0.079254342244	750.698006544756
2800	0.003479186945	8.080247202650	+1	0.078138174066	1781.285826779769
2900	0.003379816412	16.921183574566	+1	0.077089693345	7469.229029193935
3000	0.003301066246	78.367538789391	+1	0.075621747449	153635.152546871770
3100	0.003198168493	17.786264717484	-1	0.075170786253	8464.955341972391
3200	0.003114930735	8.784506953207	-1	0.074289516938	2207.545181957286
3300	0.003036202084	5.799064554147	-1	0.073453869460	1026.378291741156
3400	0.002961622869	4.310417637325	-1	0.072659847591	603.794810711420
3500	0.002890868161	3.419054106651	-1	0.071904167803	403.751893099530
3600	0.002823642056	2.825830790554	-1	0.071184017120	292.610912096733
3700	0.002759685940	2.402973125348	-1	0.070496488402	224.113158286993
3800	0.002698766420	2.086579542391	-1	0.069838949922	178.696559579521
3900	0.002640669985	1.841095084838	-1	0.069209194403	146.897447943689
4000	0.002585198309	1.645156330515	-1	0.068605415995	123.671053158953
4100	0.002532172323	1.485181112208	-1	0.068026061909	106.124937564153
4200	0.002481431936	1.352186644279	-1	0.067469405695	92.506769065287
4300	0.002432832760	1.239952883262	-1	0.066933812532	81.697664100538
4400	0.002386238587	1.144013337362	-1	0.066417942994	72.952895759326
4500	0.002341525489	1.061081977217	-1	0.065920698142	65.760883667774
4600	0.002298577962	0.988692894365	-1	0.065441123561	59.760863290002
4700	0.002257292080	0.924987943519	-1	0.064978086495	54.694320599196

4800	0.002217571969	0.868520205827	-1	0.064530552839	50.370210618523
4900	0.002179329669	0.818140372163	-1	0.064097648192	46.644282675253
5000	0.002142482605	0.772922481429	-1	0.063678643920	43.405802112016
5500	0.001976664893	0.602404503205	-1	0.061768705937	32.086939732160
6000	0.001836184684	0.490178621250	-1	0.060121950334	25.400436146325
6500	0.001715521000	0.411005008434	-1	0.058686777059	21.039786475439
7000	0.001610753633	0.352416617880	-1	0.057417730934	17.995567179709
7500	0.001518889919	0.307440258231	-1	0.056285012066	15.759740283020
8000	0.001437649800	0.271913967446	-1	0.055265677163	14.052643598112
8500	0.001365264533	0.243204153990	-1	0.054341640060	12.708742658063
9000	0.001300341750	0.219565057963	-1	0.053498495499	11.624294084685
9500	0.001241769350	0.199795284961	-1	0.052724535173	10.731216610699
10000	0.001188646975	0.183041531709	-1	0.052010203700	9.983106834625
10500	0.001140236406	0.168679503984	-1	0.051347824016	9.347230670035
11000	0.001095934149	0.156251517543	-1	0.050730171054	8.800210313193
11500	0.001055228861	0.145398371715	-1	0.050152341709	8.324318037427
12000	0.001017697028	0.135851036884	-1	0.049609246802	7.906504196165
12500	0.000982976039	0.127393228476	-1	0.049097125164	7.536540647386
13000	0.000950760148	0.119856844428	-1	0.048612242943	7.206589191745
13500	0.000920783842	0.113102923130	-1	0.048151888644	6.910308386914
14000	0.000892820126	0.107021330223	-1	0.047713250476	6.642721589189
14500	0.000866670833	0.101519381073	-1	0.047294242660	6.399708335858
15000	0.000842164450	0.096522100536	-1	0.046892787816	6.177972236605
16000	0.000797492123	0.087795949683	-1	0.046135958128	5.787651526992
17000	0.000757796555	0.080444884926	-1	0.045431183078	5.454641934277
18000	0.000722286334	0.074180022875	-1	0.044769372633	5.166707008794
19000	0.000690333745	0.068788781373	-1	0.044142457680	4.914892605391
20000	0.000661441146	0.064115346789	-1	0.043541268625	4.692531232628
21000	0.000608853087	0.053925736874	-1	0.047485231127	4.650675986599
22000	0.000583819141	0.050347051232	-1	0.047296557623	4.494142648789
23000	0.000559995842	0.046909042828	-1	0.047149488741	4.337003792903
24000	0.000537630982	0.043698913257	-1	0.047049188260	4.186101971336
25000	0.000516932004	0.040802483454	-1	0.046987282475	4.048355901399

26000	0.000498004476	0.038278522597	-1	0.046943175176	3.928920403306
27000	0.000480651471	0.036084220354	-1	0.046903318481	3.825956511254
28000	0.000464628625	0.034154740844	-1	0.046862752793	3.735951034027
29000	0.000449718265	0.032429088477	-1	0.046823090701	3.655491222769
30000	0.000435724742	0.030850063426	-1	0.046792380594	3.581275943403
31000	0.000422491434	0.029372219480	-1	0.046781510880	3.510667018790
32000	0.000409955390	0.027985075615	-1	0.046791208736	3.443300409955
33000	0.000398079382	0.026686876014	-1	0.046818550770	3.379368876326
34000	0.000386830047	0.025476104940	-1	0.046859945734	3.319062795444
35000	0.000376177766	0.024351476917	-1	0.046911031835	3.262566578878
36000	0.000366092454	0.023310581148	-1	0.046967368052	3.209957472846
37000	0.000356528439	0.022345627584	-1	0.047027846691	3.160939583530
38000	0.000347437114	0.021447657837	-1	0.047093383691	3.115146459650
39000	0.000338785419	0.020609454831	-1	0.047163199443	3.072125902279
40000	0.000330536188	0.019823439017	-1	0.047238734568	3.031486308465
41000	0.000322656573	0.019083084281	-1	0.047321631850	2.992891329112
42000	0.000315124992	0.018385148949	-1	0.047410731660	2.956177449965
43000	0.000307920707	0.017726933840	-1	0.047504948892	2.921247925833
44000	0.000301020340	0.017105442938	-1	0.047604402369	2.888041887495
45000	0.000294406132	0.016518227626	-1	0.047708370643	2.856462611931
46000	0.000288061347	0.015962940162	-1	0.047816290690	2.826414255837
47000	0.000281970013	0.015437335363	-1	0.047927708158	2.797801104487
48000	0.000276117094	0.014939265891	-1	0.048042333069	2.770528181473
49000	0.000270488525	0.014466659941	-1	0.048160084135	2.744498976687
50000	0.000265071000	0.014017534951	-1	0.048281076875	2.719618805769
55000	0.000240763171	0.012071077335	-1	0.048932301199	2.610036920950
60000	0.000220286403	0.010521118557	-1	0.049644140509	2.520610251467
65000	0.000202798440	0.009263457008	-1	0.050403882823	2.446527080251
70000	0.000187688474	0.008226724299	-1	0.051202209939	2.384410804035
75000	0.000174502599	0.007360553965	-1	0.052031966374	2.331816173037
80000	0.000162895728	0.006628434467	-1	0.052887772427	2.286933613495
85000	0.000152601358	0.006003344989	-1	0.053765286663	2.248387422350
90000	0.000143409945	0.005464887013	-1	0.054660959521	2.215114639652

95000	0.000135154463	0.004997394193	-1	0.055571917897	2.186280864963
100000	0.000127700129	0.004588662835	-1	0.056495684182	2.161220152223
105000	0.000120936707	0.004228973887	-1	0.057431090465	2.139395329739
110000	0.000114774096	0.003910803822	-1	0.058374751299	2.120383333987
115000	0.000109136284	0.003627774526	-1	0.059325958441	2.103788146801
120000	0.000103960406	0.003374890702	-1	0.060282783751	2.089324718664
125000	0.000099192649	0.003147900998	-1	0.061244916793	2.076735633287
130000	0.000094787606	0.002943394020	-1	0.062210643463	2.065815351368
135000	0.000090705986	0.002758426008	-1	0.063179419735	2.056371267184
140000	0.000086914389	0.002590589893	-1	0.064150039601	2.048252840090
145000	0.000083383552	0.002437786553	-1	0.065122273619	2.041320732543
150000	0.000080088109	0.002298269244	-1	0.066095434698	2.035466838362
155000	0.000077005474	0.002170490666	-1	0.067070041296	2.030598348381
160000	0.000074115383	0.002053111302	-1	0.068047737974	2.026668493616
165000	0.000071401492	0.001945065945	-1	0.069026129546	2.023559477988
170000	0.000068860587	0.001846190632	-1	0.069969144054	2.020627082753
175000	0.000066467498	0.001754815134	-1	0.070907965979	2.018324095760
180000	0.000064210178	0.001670199988	-1	0.071842090337	2.016594420677
185000	0.000062073117	0.001591393292	-1	0.072787161216	2.015639867757
190000	0.000060047267	0.001517893286	-1	0.073742247646	2.015418048754
195000	0.000058129395	0.001449534285	-1	0.074688531947	2.015591393691
200000	0.000056310746	0.001385778009	-1	0.075628859262	2.016139225827
205000	0.000054583641	0.001326159954	-1	0.076565541270	2.017030864270
210000	0.000052941780	0.001270355927	-1	0.077497498909	2.018251965750
215000	0.000051379587	0.001218088576	-1	0.078422817020	2.019786004151
220000	0.000049891917	0.001169096749	-1	0.079339823340	2.021612448087
225000	0.000048473998	0.001123133134	-1	0.080247213021	2.023707274740
230000	0.000047121385	0.001079964065	-1	0.081144122008	2.026045662397
235000	0.000045829926	0.001039367869	-1	0.082030213932	2.028601961779
240000	0.000044595724	0.001001134445	-1	0.082905762022	2.031351793941
245000	0.000043415125	0.000965065388	-1	0.083771596378	2.034270927815
250000	0.000042284688	0.000930972751	-1	0.084629234649	2.037337498032
255000	0.000041201276	0.000898690313	-1	0.085480100432	2.040532341974

260000	0.000040162359	0.000868106328	-1	0.086322860241	2.043836643652
265000	0.000039165736	0.000839129809	-1	0.087155009394	2.047224357635
270000	0.000038209646	0.000811689860	-1	0.087971979264	2.050638285560
275000	0.000037288245	0.000785479616	-1	0.088800532039	2.054423088356
280000	0.000036400890	0.000760493882	-1	0.089631606415	2.058458305136
285000	0.000035547337	0.000736742260	-1	0.090453001124	2.062579760827
290000	0.000034725820	0.000714143832	-1	0.091264664587	2.066775879048
295000	0.000033934646	0.000692621639	-1	0.092066817690	2.071037352121
300000	0.000033172217	0.000672101700	-1	0.092860026243	2.075354891738

Electron Elastic Scattering Sampling Data
Solution for Z = 48

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.054301926181	1.003698684477	+1	0.462269544175	30.198556219949
52	0.051877101261	1.015330332081	+1	0.451383856500	30.852498493978
54	0.050347206353	0.993461595797	+1	0.437269170342	29.100392311713
56	0.049505236609	0.945677845422	+1	0.420686384257	25.717166602972
58	0.049183165901	0.880940832722	+1	0.402354366615	21.618176030164
60	0.049246591457	0.807482451275	+1	0.382921220791	17.527592251723
62	0.049590691683	0.731697317154	+1	0.362943444758	13.868972225423
64	0.050126197984	0.658086709464	+1	0.342911139885	10.817865795442
66	0.050789488829	0.589307033908	+1	0.323202519338	8.380614665683
68	0.051529731195	0.526686518844	+1	0.304106411443	6.484931313689
70	0.052303947388	0.470756952554	+1	0.285851950935	5.035178758387
72	0.053081920833	0.421533967551	+1	0.268604240927	3.936782835425
74	0.053839126098	0.378622561463	+1	0.252454934720	3.106891132001
76	0.054556819002	0.341569067358	+1	0.237468461021	2.480393998844
78	0.055221608730	0.309829667614	+1	0.223665649506	2.006483446347
80	0.055823141066	0.282845382951	+1	0.211036182690	1.646712564578
82	0.056353469481	0.260151701645	+1	0.199564538611	1.373019263788
84	0.056807637512	0.241277066338	+1	0.189206142178	1.164144482718
86	0.057181366512	0.225849260136	+1	0.179918849594	1.004781308781
88	0.057471971908	0.213551062881	+1	0.171653800464	0.883642036418
90	0.057677963575	0.204112979010	+1	0.164356464894	0.792392248262
92	0.057797619625	0.197351944954	+1	0.157980922888	0.725159285384
94	0.057830913874	0.193120800083	+1	0.152475935085	0.677620327918
96	0.057777434836	0.191343508741	+1	0.147798003146	0.646880710179
98	0.057637038481	0.192003467692	+1	0.143908058210	0.631121515784
100	0.057409900316	0.195138972217	+1	0.140770297067	0.629410526505
105	0.056466616926	0.214652192071	+1	0.136027025095	0.688120919970
110	0.055006200763	0.253958467435	+1	0.135421436080	0.859532177463

115	0.053053076817	0.320045798758	+1	0.138732315935	1.218091118362
120	0.050657286022	0.424995641016	+1	0.145781752752	1.941911079373
125	0.047889901242	0.589369824999	+1	0.156347777821	3.459246593690
130	0.044848252570	0.850171298375	+1	0.170071675967	6.878773929461
135	0.041650437585	1.279500427120	+1	0.186350736007	15.396869201857
140	0.038424766124	2.039571306847	+1	0.204340146707	39.901683093908
145	0.035294203401	3.582571886399	+1	0.223000515564	128.950244465471
150	0.032359817440	7.816920113904	+1	0.241269382312	656.039557502043
155	0.030160170914	25.770691074375	+1	0.254878658198	7595.450954980209
160	0.027327561678	18.036715353206	-1	0.273102127711	4595.061526287250
165	0.025273243222	8.851732544558	-1	0.285575506757	1345.255934081372
170	0.023514672558	6.599358990334	-1	0.295494873424	874.000133557402
175	0.022025068300	5.807015321266	-1	0.302933066897	763.138014868237
180	0.020771256133	5.648525533156	-1	0.308103475394	788.723338446956
185	0.019719431889	5.935469190088	-1	0.311284630676	925.281142399017
190	0.018836948338	6.705780340070	-1	0.312787241718	1225.486500841394
195	0.018095205618	8.236062263692	-1	0.312907944474	1880.425886041810
200	0.017470348451	11.424709597150	-1	0.311911700440	3619.891727410232
205	0.016942146764	20.272042845170	-1	0.310031834366	11246.548607490588
210	0.016492133053	118.774095119839	-1	0.307483898473	376787.321102578020
215	0.016105077913	28.492834041207	+1	0.304448233647	22476.811554455180
220	0.015768867503	12.047219950272	+1	0.301069357428	4227.093903906021
225	0.015473891916	7.400982633427	+1	0.297461642554	1675.375197279917
230	0.015212535719	5.230097880254	+1	0.293714507965	877.387044580427
235	0.014978770080	3.983195589925	+1	0.289897051636	533.002119036043
240	0.014767818022	3.179763740872	+1	0.286061974171	355.355618638115
245	0.014575907627	2.622463698612	+1	0.282248743147	252.610518149580
250	0.014400047980	2.215481717525	+1	0.278486449991	188.235092782113
255	0.014237802722	1.906722808331	+1	0.274796022622	145.431566000142
260	0.014086994269	1.665381526271	+1	0.271192213561	115.622881206069
265	0.013945756681	1.472222099152	+1	0.267685688116	94.087437704323
270	0.013812587466	1.314639041331	+1	0.264283463743	78.057844069076
275	0.013686251951	1.184038698860	+1	0.260989913560	65.828126769349

280	0.013565736382	1.074367721531	+1	0.257807380925	56.301779222228
285	0.013450209169	0.981240868540	+1	0.254736558243	48.748685570437
290	0.013338982095	0.901406897680	+1	0.251776954398	42.668109203232
295	0.013231488829	0.832406858897	+1	0.248927218195	37.707742104109
300	0.013127257954	0.772347158193	+1	0.246185286060	33.614047463930
310	0.012927260730	0.673343267911	+1	0.241009851449	27.323444779410
320	0.012737256078	0.595492056054	+1	0.236208330072	22.778139223478
330	0.012555962826	0.533031702700	+1	0.231740620474	19.387839398913
340	0.012382285850	0.482125046578	+1	0.227573030546	16.794324536891
350	0.012215270758	0.440121778099	+1	0.223677235912	14.769832163555
360	0.012054186281	0.405110804552	+1	0.220027324909	13.162547930869
370	0.011898724847	0.375619263968	+1	0.216594627242	11.865055382554
380	0.011748600207	0.350549218919	+1	0.213354336913	10.802468406993
390	0.011603471769	0.329081236596	+1	0.210286367985	9.921969130685
400	0.011462966333	0.310592404447	+1	0.207374311360	9.185404534140
410	0.011326750795	0.294594420280	+1	0.204603923409	8.564300952510
420	0.011194669038	0.280679280901	+1	0.201960474882	8.036125129460
430	0.011066563480	0.268520076184	+1	0.199431194857	7.583610281153
440	0.010942241810	0.257856895475	+1	0.197005494037	7.193547186791
450	0.010821488374	0.248480871742	+1	0.194674664301	6.855694618852
460	0.010704094235	0.240220451687	+1	0.192431147795	6.561916951199
470	0.010589927651	0.232927724465	+1	0.190267491473	6.305417692881
480	0.010478856917	0.226479060454	+1	0.188177227343	6.080690333588
490	0.010370738183	0.220771655593	+1	0.186154820431	5.883283989061
500	0.010265428952	0.215719098581	+1	0.184195496836	5.709553583419
510	0.010162753853	0.211249556308	+1	0.182295436594	5.556560582562
520	0.010062629502	0.207298445576	+1	0.180450438321	5.421676743410
530	0.009964946138	0.203811290738	+1	0.178657032944	5.302747769043
540	0.009869589853	0.200741171747	+1	0.176912246243	5.197963361346
550	0.009776451607	0.198047450578	+1	0.175213370660	5.105783723653
560	0.009685427553	0.195694814463	+1	0.173558030129	5.024896564963
570	0.009596430159	0.193652544402	+1	0.171943982311	4.954169780161
580	0.009509377262	0.191893785825	+1	0.170369194867	4.892628415169

590	0.009424188023	0.190394703701	+1	0.168831848455	4.839424084097
600	0.009340781261	0.189134205046	+1	0.167330305548	4.793820549831
610	0.009259081111	0.188093554406	+1	0.165863069991	4.755173298271
620	0.009179021077	0.187256725146	+1	0.164428757308	4.722932853183
630	0.009100539777	0.186609314820	+1	0.163026067442	4.696611110073
640	0.009023575736	0.186138478164	+1	0.161653823163	4.675781025037
650	0.008948070122	0.185832395121	+1	0.160310920496	4.660056098478
660	0.008873967343	0.185680500772	+1	0.158996363038	4.649096392157
670	0.008801217622	0.185673856454	+1	0.157709187833	4.642613995483
680	0.008729773071	0.185804418373	+1	0.156448507755	4.640354231314
690	0.008659589788	0.186064742388	+1	0.155213483287	4.642084185761
700	0.008590622610	0.186447976752	+1	0.154003326584	4.647594777778
710	0.008522830785	0.186947866229	+1	0.152817318070	4.656697862771
720	0.008456175858	0.187559199853	+1	0.151654717288	4.669236568255
730	0.008390622911	0.188277333080	+1	0.150514878955	4.685074550135
740	0.008326136793	0.189097812241	+1	0.149397162851	4.704083704962
750	0.008262685159	0.190016511610	+1	0.148300965722	4.726147299620
760	0.008200235712	0.191029645798	+1	0.147225708280	4.751161183735
770	0.008138760171	0.192134145896	+1	0.146170824516	4.779041744941
780	0.008078231361	0.193327137226	+1	0.145135800922	4.809713830400
790	0.008018621281	0.194606113095	+1	0.144120138179	4.843115385057
800	0.007959904661	0.195968504871	+1	0.143123345875	4.879182573208
810	0.007902058881	0.197411859568	+1	0.142144932107	4.917854324960
820	0.007845060013	0.198934429906	+1	0.141184445369	4.959093475314
830	0.007788887035	0.200534620665	+1	0.140241467165	5.002867848166
840	0.007733518483	0.202210837898	+1	0.139315578567	5.049146553113
850	0.007678934550	0.203961503927	+1	0.138406341466	5.097898164847
860	0.007625116143	0.205785221859	+1	0.137513364644	5.149098824329
870	0.007572044695	0.207681008349	+1	0.136636289549	5.202738670205
880	0.007519703490	0.209647918162	+1	0.135774730995	5.258807367406
890	0.007468075349	0.211685049984	+1	0.134928328373	5.317298023483
900	0.007417144257	0.213791515961	+1	0.134096730394	5.378204484720
910	0.007366894102	0.215966519066	+1	0.133279587305	5.441524119795

920	0.007317311483	0.218209578486	+1	0.132476600638	5.507264791392
930	0.007268380789	0.220520245663	+1	0.131687418044	5.575435178820
940	0.007220088381	0.222898184152	+1	0.130911757758	5.646049971212
950	0.007172422119	0.225342868906	+1	0.130149304299	5.719116137311
960	0.007125368024	0.227854020444	+1	0.129399751800	5.794650586898
970	0.007078914407	0.230431439814	+1	0.128662824380	5.872673090032
980	0.007033048216	0.233074975467	+1	0.127938245280	5.953206712246
990	0.006987759777	0.235784444976	+1	0.127225736835	6.036271436174
1000	0.006943035768	0.238559740619	+1	0.126525033591	6.121894013147
1025	0.006833631937	0.245785809114	+1	0.124823232114	6.347321981202
1050	0.006727535721	0.253426498915	+1	0.123189811153	6.589495072996
1075	0.006624597776	0.261486149412	+1	0.121621167915	6.849067267533
1100	0.006524681322	0.269968559200	+1	0.120113883182	7.126711309148
1125	0.006427658307	0.278878150539	+1	0.118664741427	7.423160735559
1150	0.006333406695	0.288224112134	+1	0.117270791294	7.739356022535
1175	0.006241811846	0.298016683427	+1	0.115929228722	8.076324000963
1200	0.006152769654	0.308265803929	+1	0.114637392687	8.435131962098
1225	0.006066178286	0.318982079574	+1	0.113392758077	8.816932281069
1250	0.005981942695	0.330179592378	+1	0.112193001662	9.223065171938
1275	0.005899970394	0.341873598190	+1	0.111035942381	9.654992129249
1300	0.005820179902	0.354079013376	+1	0.109919471396	10.114228724169
1325	0.005742486946	0.366812147049	+1	0.108841614663	10.602439504318
1350	0.005666817108	0.380092150878	+1	0.107800514092	11.121478680829
1375	0.005593094543	0.393939759280	+1	0.106794452696	11.673381008835
1400	0.005521248162	0.408376396536	+1	0.105821770547	12.260319343313
1425	0.005451215804	0.423424165796	+1	0.104880878293	12.884604054310
1450	0.005382929508	0.439109115607	+1	0.103970318720	13.548866281245
1475	0.005316330842	0.455458538132	+1	0.103088732172	14.255933707389
1500	0.005251359136	0.472501480537	+1	0.102234784298	15.008885174584
1550	0.005126082767	0.508792663225	+1	0.100604874094	16.666052243197
1600	0.005006682662	0.548262896219	+1	0.099071444585	18.551229163764
1650	0.004892776279	0.591233160686	+1	0.097626220407	20.701295811026
1700	0.004784009718	0.638082832829	+1	0.096261892477	23.161141042901

1750	0.004680060386	0.689250842560	+1	0.094971827855	25.985130873033
1800	0.004580628279	0.745253125427	+1	0.093750060864	29.239904459684
1850	0.004485440302	0.806693956144	+1	0.092591155819	33.007388542864
1900	0.004394239359	0.874296399109	+1	0.091490307315	37.389921984430
1950	0.004306787225	0.948922416177	+1	0.090443115070	42.515871848391
2000	0.004222870347	1.031604898097	+1	0.089445485309	48.547543992488
2100	0.004064851452	1.226440364052	+1	0.087584537211	64.222300993453
2200	0.003918701988	1.472839047612	+1	0.085882899641	86.979162797702
2300	0.003783153151	1.792988402382	+1	0.084320006342	121.433829873286
2400	0.003657111714	2.224111415802	+1	0.082878328066	176.545646454092
2500	0.003539632174	2.833834593999	+1	0.081542884018	271.545363134674
2600	0.003429887808	3.759140134818	+1	0.080300995209	453.863515687626
2700	0.003327147179	5.325210140751	+1	0.079142036320	867.184896370108
2800	0.003230762064	8.539086076863	+1	0.078056944570	2127.746055660397
2900	0.003140159953	18.849038499478	+1	0.077038070097	9913.725609354337
3000	0.003072267043	97.248347217394	+1	0.075483108637	253134.432647613310
3100	0.002974322934	16.143285418335	-1	0.075174182718	7540.789483957037
3200	0.002898236524	8.351674329265	-1	0.074318485210	2157.284832233813
3300	0.002826219469	5.601106932768	-1	0.073507242753	1035.016258759905
3400	0.002757950510	4.196344771137	-1	0.072736548945	618.494850021165
3500	0.002693139299	3.344340110104	-1	0.072003180368	417.457806261560
3600	0.002631523062	2.772749646480	-1	0.071304354413	304.412690266550
3700	0.002572869911	2.363068139340	-1	0.070637217825	234.167405494090
3800	0.002516971644	2.055305797709	-1	0.069999194071	187.314238026315
3900	0.002463634602	1.815791273243	-1	0.069388119907	154.361144088620
4000	0.002412682121	1.624165870796	-1	0.068802234020	130.207385760323
4100	0.002363952903	1.467417621399	-1	0.068239998440	111.909531347187
4200	0.002317303415	1.336906227889	-1	0.067699703682	97.675366261093
4300	0.002272603068	1.226626082249	-1	0.067179782976	86.355635734923
4400	0.002229729004	1.132254061897	-1	0.066678934870	77.182894163796
4500	0.002188569643	1.050602951257	-1	0.066196081651	69.628488810272
4600	0.002149019415	0.979275915432	-1	0.065730274733	63.318692769534
4700	0.002110985312	0.916462793515	-1	0.065280450332	57.985046730744

4800	0.002074381722	0.860753202975	-1	0.064845561378	53.428834557558
4900	0.002039127263	0.811023200285	-1	0.064424787485	49.499700164765
5000	0.002005147072	0.766368066020	-1	0.064017430100	46.082167071855
5500	0.001851984980	0.597624678974	-1	0.062166252466	34.110736146853
6000	0.001722008800	0.486409269372	-1	0.060571195804	27.024641456821
6500	0.001610303191	0.407991983911	-1	0.059174368374	22.401126887365
7000	0.001513208140	0.349933573843	-1	0.057937753230	19.170114672385
7500	0.001427989532	0.305348336447	-1	0.056832649984	16.795246312836
8000	0.001352562310	0.270122451103	-1	0.055836942166	14.980855077361
8500	0.001285306166	0.241650578497	-1	0.054933205983	13.551745661158
9000	0.001224944606	0.218204827359	-1	0.054107519127	12.398022157329
9500	0.001170455540	0.198595182165	-1	0.053348616331	11.447519060789
10000	0.001121011055	0.181976178204	-1	0.052647286772	10.651017123074
10500	0.001075932514	0.167729484912	-1	0.051996052593	9.973781179935
11000	0.001034663446	0.155401032245	-1	0.051387970502	9.390987592096
11500	0.000996732257	0.144634919465	-1	0.050818285838	8.883817417711
12000	0.000961748034	0.135164327233	-1	0.050282059283	8.438406589380
12500	0.000929375714	0.126774740874	-1	0.049775663754	8.043887545475
13000	0.000899332712	0.119299382891	-1	0.049295477605	7.691927639466
13500	0.000871373685	0.112600545828	-1	0.048838848407	7.375787006789
14000	0.000845287922	0.106568803335	-1	0.048403090390	7.090175206002
14500	0.000820892074	0.101112320054	-1	0.047986148242	6.830710761003
15000	0.000798026914	0.096156686072	-1	0.047585995319	6.593887454883
16000	0.000756347390	0.087506572998	-1	0.046828927084	6.176838612171
17000	0.000719328466	0.080231810081	-1	0.046117187109	5.820922312090
18000	0.000686216715	0.074034390410	-1	0.045445722302	5.512960288760
19000	0.000656424758	0.068701594773	-1	0.044807557190	5.243408876363
20000	0.000629477716	0.064072342643	-1	0.044197125667	5.005111986476
21000	0.000576696643	0.053525774465	-1	0.048476708177	4.978792365846
22000	0.000553146189	0.049975979893	-1	0.048300581783	4.811861888002
23000	0.000530714990	0.046563715032	-1	0.048170616139	4.644560342522
24000	0.000509642106	0.043377200573	-1	0.048089755569	4.484074831958
25000	0.000490130115	0.040502672609	-1	0.048046885191	4.337628608749

26000	0.000472285203	0.037998700612	-1	0.048018923992	4.210563901936
27000	0.000455923891	0.035822367667	-1	0.047992186931	4.100901043036
28000	0.000440815845	0.033908928860	-1	0.047962413679	4.004927834028
29000	0.000426755290	0.032197700769	-1	0.047932003032	3.919053096278
30000	0.000413557314	0.030631986392	-1	0.047909828859	3.839812694854
31000	0.000401072017	0.029166663001	-1	0.047907722411	3.764457734569
32000	0.000389229811	0.027790113363	-1	0.047928252851	3.692679128582
33000	0.000378007078	0.026501888522	-1	0.047966589064	3.624592232533
34000	0.000367373185	0.025300475307	-1	0.048018920030	3.560384794052
35000	0.000357300918	0.024184557513	-1	0.048080689052	3.500238498630
36000	0.000347769879	0.023152513324	-1	0.048145815792	3.444162806012
37000	0.000338729871	0.022195782013	-1	0.048214538045	3.391898896426
38000	0.000330140823	0.021306111155	-1	0.048286568515	3.343010028346
39000	0.000321965360	0.020475624235	-1	0.048362530321	3.297071101921
40000	0.000314168603	0.019696848346	-1	0.048443912240	3.253669481173
41000	0.000306719575	0.018963336421	-1	0.048532422332	3.212451664035
42000	0.000299595451	0.018271589783	-1	0.048627581764	3.173268139013
43000	0.000292776574	0.017618906242	-1	0.048728426076	3.136017804562
44000	0.000286244750	0.017002717098	-1	0.048834109236	3.100599104204
45000	0.000279983089	0.016420557549	-1	0.048943968553	3.066910039984
46000	0.000273975684	0.015870077630	-1	0.049057481002	3.034849839443
47000	0.000268207487	0.015349044550	-1	0.049174198562	3.004316487618
48000	0.000262664331	0.014855317856	-1	0.049293857501	2.975208637204
49000	0.000257332909	0.014386846715	-1	0.049416386148	2.947425328381
50000	0.000252200711	0.013941655378	-1	0.049541944920	2.920865662583
55000	0.000229164311	0.012012374558	-1	0.050212738832	2.803856359767
60000	0.000209747492	0.010476191084	-1	0.050938994842	2.708306916871
65000	0.000193156085	0.009229700440	-1	0.051708741312	2.629102844752
70000	0.000178814353	0.008202143500	-1	0.052512846729	2.562637543724
75000	0.000166293767	0.007343559852	-1	0.053344614907	2.506309742001
80000	0.000155268828	0.006617775329	-1	0.054198784125	2.458185139580
85000	0.000145486957	0.005997925835	-1	0.055072332655	2.416828553471
90000	0.000136752118	0.005464040788	-1	0.055958468373	2.381012893984

95000	0.000128904145	0.005000342185	-1	0.056858004355	2.349944490875
100000	0.000121816251	0.004594827496	-1	0.057767434498	2.322881138901
105000	0.000115384144	0.004237896801	-1	0.058685193916	2.299240475465
110000	0.000109522411	0.003922068751	-1	0.059608528423	2.278580445130
115000	0.000104158945	0.003641012409	-1	0.060537297287	2.260488171643
120000	0.000099234238	0.003389802978	-1	0.061469258641	2.244651790580
125000	0.000094697355	0.003164248396	-1	0.062403763715	2.230789394870
130000	0.000090505120	0.002960946911	-1	0.063339879006	2.218693900441
135000	0.000086620146	0.002776970029	-1	0.064277788847	2.208172551410
140000	0.000083010939	0.002609962819	-1	0.065215582799	2.199048837216
145000	0.000079649935	0.002457867719	-1	0.066152304728	2.191157244184
150000	0.000076512872	0.002318948389	-1	0.067087497148	2.184388944305
155000	0.000073578083	0.002191660377	-1	0.068022206454	2.178656542066
160000	0.000070826164	0.002074663164	-1	0.068958780222	2.173921502333
165000	0.000068245650	0.001967180168	-1	0.069883608191	2.169856642236
170000	0.000065824899	0.001868432338	-1	0.070786051262	2.166213427415
175000	0.000063545188	0.001777155946	-1	0.071681441932	2.163197135101
180000	0.000061394699	0.001692590874	-1	0.072570964046	2.160782846210
185000	0.000059356830	0.001613684420	-1	0.073476290202	2.159300398072
190000	0.000057428014	0.001540257841	-1	0.074379232871	2.158398864654
195000	0.000055601715	0.001471914183	-1	0.075273007390	2.157916649645
200000	0.000053869770	0.001408134504	-1	0.076159817352	2.157822852471
205000	0.000052224855	0.001348459748	-1	0.077042101556	2.158089881603
210000	0.000050661017	0.001292572012	-1	0.077918727004	2.158700951124
215000	0.000049172978	0.001240197435	-1	0.078787846045	2.159637244440
220000	0.000047755849	0.001191078009	-1	0.079647862754	2.160876614044
225000	0.000046405092	0.001144969215	-1	0.080497571775	2.162394285337
230000	0.000045116484	0.001101639833	-1	0.081336179094	2.164163759855
235000	0.000043886070	0.001060869907	-1	0.082163465664	2.166158709447
240000	0.000042710131	0.001022451017	-1	0.082979790856	2.168354603528
245000	0.000041585185	0.000986185523	-1	0.083786124994	2.170727220175
250000	0.000040507934	0.000951886336	-1	0.084584073357	2.173255264657
255000	0.000039475358	0.000919386447	-1	0.085375321678	2.175922456524

260000	0.000038484992	0.000888571919	-1	0.086159071170	2.178715925478
265000	0.000037534607	0.000859344248	-1	0.086934028678	2.181622962677
270000	0.000036622145	0.000831611565	-1	0.087698784316	2.184626393213
275000	0.000035745722	0.000805288817	-1	0.088451701382	2.187702000315
280000	0.000034903714	0.000780303469	-1	0.089190101194	2.190808452042
285000	0.000034093244	0.000756507860	-1	0.089922074622	2.194049787810
290000	0.000033310338	0.000733694259	-1	0.090666547870	2.197677915956
295000	0.000032556292	0.000711955061	-1	0.091401456482	2.201373186901
300000	0.000031829584	0.000691217295	-1	0.092127335731	2.205126297519

Electron Elastic Scattering Sampling Data
Solution for Z = 49

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.035451398308	0.957941425821	+1	0.509605953344	53.096374130252
52	0.035987699833	0.954862511161	+1	0.504085541012	50.891569182953
54	0.036903225319	0.928665455438	+1	0.494758249492	45.836078615966
56	0.038155896952	0.884902583065	+1	0.482185557548	39.210300348254
58	0.039690495730	0.829536304155	+1	0.466955590684	32.217958570899
60	0.041444119564	0.767959260880	+1	0.449658756975	25.701740856532
62	0.043351365723	0.704496941022	+1	0.430865467465	20.098734616793
64	0.045343606430	0.642289130694	+1	0.411120518621	15.536307025737
66	0.047358385421	0.583448871989	+1	0.390916756483	11.954248585180
68	0.049339404554	0.529176851534	+1	0.370677723084	9.206022857325
70	0.051235443906	0.480069246798	+1	0.350769078148	7.127504943399
72	0.053003902327	0.436378240159	+1	0.331502887927	5.569059512817
74	0.054613080226	0.397957411949	+1	0.313097666803	4.402765485682
76	0.056038157392	0.364590051749	+1	0.295731282953	3.530225333863
78	0.057263553400	0.335952329522	+1	0.279519806306	2.876057758816
80	0.058281414911	0.311665269099	+1	0.264525518734	2.383856660396
82	0.059088229600	0.291413001354	+1	0.250789831646	2.013015967617
84	0.059687503833	0.274852359231	+1	0.238307272031	1.733227683939
86	0.060084984758	0.261714392420	+1	0.227061720826	1.522934180420
88	0.060289496033	0.251773877805	+1	0.217019776174	1.366529334917
90	0.060312136046	0.244846277411	+1	0.208133920838	1.252742796417
92	0.060164024844	0.240824078983	+1	0.200358642494	1.173851092610
94	0.059857923089	0.239640002219	+1	0.193638994629	1.124472668361
96	0.059405952737	0.241297580920	+1	0.187924273473	1.101343653060
98	0.058819945651	0.245864990723	+1	0.183165772168	1.102887808234
100	0.058111456058	0.253474654621	+1	0.179316490892	1.129019512248
105	0.055875471760	0.287391243673	+1	0.173398254156	1.315523409918
110	0.053103691561	0.347591299200	+1	0.172305972331	1.743659806679

115	0.049934252688	0.444609826959	+1	0.175564668444	2.608852278448
120	0.046499748917	0.596886810785	+1	0.182709368693	4.378856131515
125	0.042926637538	0.837605797759	+1	0.193203150273	8.233062373891
130	0.039337415240	1.232249878144	+1	0.206380052820	17.495822101206
135	0.035846500848	1.928323355987	+1	0.221398762183	43.243099975106
140	0.032551685881	3.343805249911	+1	0.237307540123	134.458455944864
145	0.029527649132	7.296593972325	+1	0.253120016068	674.883482687950
150	0.028326036485	10.105869830221	+1	0.254923047646	1318.310190265912
155	0.024445892886	14.156631552721	-1	0.281152888640	3350.994463319358
160	0.022400105309	6.960038474061	-1	0.292260343112	998.969480261035
165	0.020660351037	5.028649383298	-1	0.301087627675	619.330721431814
170	0.019194450949	4.236049560637	-1	0.307641714984	503.786316348103
175	0.017966989815	3.901745798878	-1	0.312060625183	474.339778912235
180	0.016942412110	3.826702334648	-1	0.314571144335	491.994326578639
185	0.016088020624	3.947843465835	-1	0.315434824068	550.600707944731
190	0.015374277638	4.263325746128	-1	0.314927995662	660.789202870185
195	0.014776245854	4.823618886302	-1	0.313307953744	854.753592320262
200	0.014273631616	5.760849416395	-1	0.310800628502	1213.207769331985
205	0.013849506379	7.398989413387	-1	0.307604112277	1966.207318944809
210	0.013488624887	10.684376866207	-1	0.303902838924	3986.879347788174
215	0.013178502578	19.914680965839	-1	0.299851159239	13359.429835473809
220	0.012917824004	156.105477773261	-1	0.295576788547	786470.726405359570
225	0.012673051219	25.261084355601	+1	0.291163493782	21232.691344016606
230	0.012463721550	11.260372841010	+1	0.286700014251	4397.286258932013
235	0.012276376061	7.068233319022	+1	0.282239544734	1804.506188907785
240	0.012107159023	5.064672238830	+1	0.277825274529	964.316068376473
245	0.011953024855	3.897659197508	+1	0.273488915454	594.089303456716
250	0.011811574360	3.137861730268	+1	0.269252908924	400.309276293640
255	0.011680853376	2.606334010700	+1	0.265132759524	286.967305696550
260	0.011559070289	2.215189903457	+1	0.261139505913	215.284900926478
265	0.011444723082	1.916373166295	+1	0.257280332266	167.246638002943
270	0.011336598776	1.681435902640	+1	0.253559218433	133.583642524823
275	0.011233714955	1.492477033031	+1	0.249977715350	109.141773982250

280	0.011135273976	1.337676730157	+1	0.246535486183	90.874512693711
285	0.011040628978	1.208923113190	+1	0.243230835528	76.890389402026
290	0.010949255787	1.100466213216	+1	0.240060988274	65.966175359284
295	0.010860729550	1.008120442454	+1	0.237022448166	57.283503702126
300	0.010774702890	0.928769235581	+1	0.234111186317	50.278795328210
310	0.010609171549	0.800011120585	+1	0.228649389409	39.812983444505
320	0.010451334651	0.700535816175	+1	0.223624299801	32.491969098586
330	0.010300237490	0.621849559421	+1	0.218988126699	27.174473410565
340	0.010155094433	0.558456702782	+1	0.214699924954	23.195753132074
350	0.010015250134	0.506648897433	+1	0.210724705319	20.147277790273
360	0.009880213725	0.463808626615	+1	0.207030650750	17.764998217162
370	0.009749786879	0.427966289663	+1	0.203584716593	15.868073740332
380	0.009623775810	0.397675961287	+1	0.200358258864	14.333180218397
390	0.009501946596	0.371870269275	+1	0.197327617001	13.074777503120
400	0.009384036924	0.349745726386	+1	0.194473185237	12.032003866989
410	0.009269812463	0.330677943590	+1	0.191777843856	11.160088400963
420	0.009159156889	0.314151232375	+1	0.189224542689	10.424274077708
430	0.009051952887	0.299755383361	+1	0.186798453992	9.798235783208
440	0.008948051196	0.287166614091	+1	0.184487190791	9.262044840408
450	0.008847281353	0.276126179754	+1	0.182280324897	8.800377111305
460	0.008749480553	0.266422611886	+1	0.180168816783	8.401161563681
470	0.008654536813	0.257874203943	+1	0.178143961908	8.054418509013
480	0.008562337622	0.250329656293	+1	0.176198142238	7.752116637005
490	0.008472761737	0.243663942111	+1	0.174324822917	7.487815710974
500	0.008385680372	0.237772841637	+1	0.172518388269	7.256300563397
510	0.008300967546	0.232568304175	+1	0.170773929509	7.053281966173
520	0.008218526644	0.227973514905	+1	0.169086814544	6.875097253019
530	0.008138260260	0.223922655008	+1	0.167452913141	6.718684361262
540	0.008060072366	0.220359251924	+1	0.165868630103	6.581478038317
550	0.007983862435	0.217234840896	+1	0.164330806061	6.461328524744
560	0.007909538807	0.214507216365	+1	0.162836574719	6.356396828971
570	0.007837021034	0.212139737382	+1	0.161383340212	6.265108697884
580	0.007766233083	0.210100355991	+1	0.159968751713	6.186110424490

590	0.007697098025	0.208360800525	+1	0.158590683572	6.118232474473
600	0.007629543751	0.206895940346	+1	0.157247244468	6.060454539063
610	0.007563499347	0.205683765718	+1	0.155936692186	6.011896902637
620	0.007498902104	0.204705089424	+1	0.154657434589	5.971799034640
630	0.007435694391	0.203943048793	+1	0.153408057017	5.939501869211
640	0.007373818469	0.203382328807	+1	0.152187217401	5.914417260641
650	0.007313218137	0.203009005763	+1	0.150993711055	5.896021711308
660	0.007253841664	0.202810704042	+1	0.149826376222	5.883852829927
670	0.007195641742	0.202776769859	+1	0.148684210095	5.877518751107
680	0.007138573735	0.202897832764	+1	0.147566272332	5.876678780983
690	0.007082593801	0.203165110258	+1	0.146471650931	5.881018687279
700	0.007027661590	0.203570496423	+1	0.145399527098	5.890253602998
710	0.006973735638	0.204106753543	+1	0.144349103676	5.904134274862
720	0.006920782318	0.204767687036	+1	0.143319673757	5.922448038873
730	0.006868765764	0.205547876394	+1	0.142310559623	5.945014861840
740	0.006817654518	0.206442136237	+1	0.141321131449	5.971663945084
750	0.006767415765	0.207445653773	+1	0.140350774356	6.002241425174
760	0.006718021925	0.208553895436	+1	0.139398903134	6.036601812746
770	0.006669445553	0.209763303929	+1	0.138465008238	6.074638212003
780	0.006621657770	0.211070680244	+1	0.137548567525	6.116258362933
790	0.006574633989	0.212472942001	+1	0.136649093201	6.161373395938
800	0.006528351961	0.213967056380	+1	0.135766118597	6.209896389661
810	0.006482791951	0.215550042117	+1	0.134899124489	6.261738055004
820	0.006437919386	0.217220776399	+1	0.134047893657	6.316904539601
830	0.006393729648	0.218976324529	+1	0.133211851742	6.375292903747
840	0.006350197924	0.220815275565	+1	0.132390679729	6.436886830661
850	0.006307309112	0.222735764250	+1	0.131584024901	6.501644083326
860	0.006265041483	0.224736243406	+1	0.130791511370	6.569539835539
870	0.006223380328	0.226815444923	+1	0.130012779561	6.640553536173
880	0.006182303859	0.228972385597	+1	0.129247457936	6.714682327498
890	0.006141795617	0.231206102206	+1	0.128495222570	6.791922316753
900	0.006101838666	0.233515452514	+1	0.127755696473	6.872261674789
910	0.006062418497	0.235899647607	+1	0.127028613539	6.955705889759

920	0.006023529462	0.238358077827	+1	0.126313759413	7.042260783208
930	0.005985169215	0.240890228606	+1	0.125610973931	7.131935740120
940	0.005947331288	0.243495716320	+1	0.124920102076	7.224750738116
950	0.005910014271	0.246173972015	+1	0.124240966417	7.320712357121
960	0.005873209244	0.248924624479	+1	0.123573377832	7.419843262550
970	0.005836892402	0.251747577113	+1	0.122916938200	7.522181710418
980	0.005801040660	0.254642675251	+1	0.122271235492	7.627763569233
990	0.005765631575	0.257609805122	+1	0.121635898847	7.736629800990
1000	0.005730642296	0.260648802325	+1	0.121010501871	7.848817697130
1025	0.005644921588	0.268560977262	+1	0.119488776874	8.144114999824
1050	0.005561659270	0.276926619888	+1	0.118024872476	8.461254595515
1075	0.005480806895	0.285751007618	+1	0.116616702820	8.801119802002
1100	0.005402312434	0.295039233407	+1	0.115262249523	9.164645116939
1125	0.005326107236	0.304797210687	+1	0.113959335399	9.552859589027
1150	0.005252078759	0.315036111098	+1	0.112705279195	9.967085144443
1175	0.005180110006	0.325767869131	+1	0.111497328655	10.408750340749
1200	0.005110086547	0.337006764413	+1	0.110333084984	10.879492996676
1225	0.005041925529	0.348763716576	+1	0.109210020400	11.380824626493
1250	0.004975550311	0.361056630554	+1	0.108126256250	11.914688429745
1275	0.004910897125	0.373903864536	+1	0.107080021413	12.483139277281
1300	0.004847903984	0.387324300942	+1	0.106069590578	13.088370488712
1325	0.004786512061	0.401337747358	+1	0.105093332444	13.732743070274
1350	0.004726662852	0.415967900264	+1	0.104149680538	14.418934273433
1375	0.004668298510	0.431239924103	+1	0.103237138969	15.149853466055
1400	0.004611365723	0.447179979826	+1	0.102354234406	15.928617048554
1425	0.004555812550	0.463816047893	+1	0.101499636021	16.758632793568
1450	0.004501591698	0.481179709630	+1	0.100672069387	17.643682895122
1475	0.004448657548	0.499305107482	+1	0.099870353525	18.587921606538
1500	0.004396967191	0.518227833519	+1	0.099093332907	19.595831707844
1550	0.004297154729	0.558622899692	+1	0.097609142260	21.822895506800
1600	0.004201840752	0.602717842403	+1	0.096211566121	24.370869429912
1650	0.004110741521	0.650919905620	+1	0.094893389193	27.295307746423
1700	0.004023595442	0.703710981748	+1	0.093648237669	30.664426729075

1750	0.003940161001	0.761655061607	+1	0.092470218248	34.561963670338
1800	0.003860215864	0.825424180239	+1	0.091354082110	39.092138655182
1850	0.003783554668	0.895817153912	+1	0.090295001037	44.385269330503
1900	0.003709985714	0.973798241063	+1	0.089288690603	50.606579646468
1950	0.003639333212	1.060532842846	+1	0.088331240171	57.967080062784
2000	0.003571436362	1.157441273597	+1	0.087418970832	66.739199443220
2100	0.003443310150	1.389241619659	+1	0.085717077701	90.064910366576
2200	0.003324492558	1.689536027138	+1	0.084160854181	125.189808738818
2300	0.003214019499	2.092187514024	+1	0.082731749598	180.967328660348
2400	0.003111060826	2.657980614193	+1	0.081413785151	276.130074563712
2500	0.003014892636	3.508101469140	+1	0.080193288002	455.961362433199
2600	0.002924879704	4.923860085410	+1	0.079058621517	853.593959883196
2700	0.002840456936	7.740552052447	+1	0.078000025447	2009.345316016473
2800	0.002761121904	16.037294508272	+1	0.077009188625	8233.677202990884
2900	0.002698636860	75.605907773528	+1	0.075640810688	175153.384922294090
3000	0.002615981393	17.709817527198	-1	0.075203651527	10273.234155512822
3100	0.002549418954	8.632362182000	-1	0.074377966013	2614.123316996004
3200	0.002486431744	5.670588919405	-1	0.073597147731	1205.586559318284
3300	0.002426741019	4.203057080819	-1	0.072856913587	706.434351418222
3400	0.002370091386	3.327566763913	-1	0.072153669839	471.367606527287
3500	0.002316253694	2.746388508963	-1	0.071484407688	341.197633264858
3600	0.002265016814	2.332687151351	-1	0.070846586884	261.113032155661
3700	0.002216197360	2.023476913179	-1	0.070237554976	208.081008866180
3800	0.002169627211	1.783820277383	-1	0.069654922359	170.991169657477
3900	0.002125099526	1.592452246505	-1	0.069099521700	143.895680295702
4000	0.002082523437	1.436395736402	-1	0.068567109331	123.450491547471
4100	0.002041770229	1.306746795357	-1	0.068056252464	107.591263816901
4200	0.002002723899	1.197399438770	-1	0.067565374015	95.008808001802
4300	0.001965279060	1.103993324209	-1	0.067093025446	84.834585434182
4400	0.001929338299	1.023318359659	-1	0.066637998563	76.471804401679
4500	0.001894808038	0.952956638611	-1	0.066199328486	69.498878796160
4600	0.001861604927	0.891062693721	-1	0.065776171512	63.611639238049
4700	0.001829653192	0.836223046553	-1	0.065367507058	58.587633164823

4800	0.001798882625	0.787320267639	-1	0.064972420158	54.259409677124
4900	0.001769227047	0.743455127819	-1	0.064590130986	50.498502149269
5000	0.001740626177	0.703895956312	-1	0.064220006515	47.204927412231
5500	0.001611584723	0.553101192900	-1	0.062531207115	35.497017163177
6000	0.001501895808	0.452559272383	-1	0.061066763483	28.424179698106
6500	0.001407439512	0.381057409033	-1	0.059779896544	23.740355382550
7000	0.001325198322	0.327796638034	-1	0.058636376320	20.431005853495
7500	0.001252911307	0.286712408914	-1	0.057610358625	17.977691906463
8000	0.001188849118	0.254142254556	-1	0.056681984410	16.090437486029
8500	0.001131665556	0.227747595947	-1	0.055835592611	14.595437015534
9000	0.001080295381	0.205966925305	-1	0.055058708385	13.382666107826
9500	0.001033885639	0.187719320983	-1	0.054341244640	12.379315963242
10000	0.000991743823	0.172233662123	-1	0.053674894586	11.535410743731
10500	0.000953300795	0.158943701148	-1	0.053053039366	10.815497592639
11000	0.000918088558	0.147432390364	-1	0.052469357949	10.194111651215
11500	0.000885710856	0.137372579620	-1	0.051919564953	9.651886606177
12000	0.000855850765	0.128526640640	-1	0.051397103060	9.174651811340
12500	0.000828212640	0.120686597999	-1	0.050900779705	8.750938837906
13000	0.000802557493	0.113697940062	-1	0.050427395498	8.372088561828
13500	0.000778677213	0.107433032564	-1	0.049974604870	8.031080027873
14000	0.000756394034	0.101790427246	-1	0.049539987186	7.722385956450
14500	0.000735551824	0.096684668943	-1	0.049121769085	7.441421001667
15000	0.000716015805	0.092046624560	-1	0.048718146324	7.184509641744
16000	0.000680397505	0.083946615431	-1	0.047949161338	6.730911108080
17000	0.000648743977	0.077122421577	-1	0.047223223021	6.342422836350
18000	0.000620428010	0.071306603760	-1	0.046532676923	6.005303990473
19000	0.000594948243	0.066300365039	-1	0.045871510764	5.709448571669
20000	0.000571899415	0.061953164836	-1	0.045234903544	5.447259198176
21000	0.000511670757	0.050156159326	-1	0.050870574952	5.514505952466
22000	0.000491031950	0.046828845938	-1	0.050743347142	5.334106059827
23000	0.000471332882	0.043625998196	-1	0.050672182848	5.153606857505
24000	0.000452786318	0.040632351240	-1	0.050656579132	4.980717350556
25000	0.000435597714	0.037932712851	-1	0.050677965678	4.822963627196

26000	0.000419877983	0.035583353064	-1	0.050706793289	4.685892157035
27000	0.000405472650	0.033543668886	-1	0.050728251263	4.567316466216
28000	0.000392167294	0.031750826778	-1	0.050741011063	4.463367108150
29000	0.000379778471	0.030147449157	-1	0.050749484133	4.370242207820
30000	0.000368139132	0.028680031208	-1	0.050765181412	4.284304951631
31000	0.000357115397	0.027306355952	-1	0.050802069604	4.202664335821
32000	0.000346658452	0.026016985714	-1	0.050860757638	4.124887470480
33000	0.000336742082	0.024810516854	-1	0.050937386682	4.051142938426
34000	0.000327342602	0.023685673807	-1	0.051027393869	3.981598022322
35000	0.000318438805	0.022641292445	-1	0.051125473109	3.916416133451
36000	0.000310007539	0.021675040711	-1	0.051226509879	3.855654081373
37000	0.000302012062	0.020779749829	-1	0.051329060876	3.798959388921
38000	0.000294414750	0.019947447961	-1	0.051433329923	3.745885608027
39000	0.000287180966	0.019170618094	-1	0.051540410922	3.695997771282
40000	0.000280278511	0.018442159976	-1	0.051652281506	3.648871358756
41000	0.000273679197	0.017756008521	-1	0.051771018079	3.604141818888
42000	0.000267363681	0.017108908880	-1	0.051896126065	3.561642131023
43000	0.000261315693	0.016498380288	-1	0.052026475793	3.521253046704
44000	0.000255520050	0.015922044167	-1	0.052161106656	3.482856160830
45000	0.000249962504	0.015377613376	-1	0.052299270311	3.446335274450
46000	0.000244629624	0.014862903238	-1	0.052440367592	3.411575044600
47000	0.000239508084	0.014375807014	-1	0.052583974774	3.378466529085
48000	0.000234585332	0.013914305175	-1	0.052729859276	3.346900632361
49000	0.000229849566	0.013476465104	-1	0.052878006700	3.316769675799
50000	0.000225289666	0.013060431050	-1	0.053028633369	3.287966224932
55000	0.000204807357	0.011258034453	-1	0.053817671171	3.161113839473
60000	0.000187525706	0.009823531805	-1	0.054651200852	3.057584947810
65000	0.000172746138	0.008659985681	-1	0.055518358250	2.971814494141
70000	0.000159961091	0.007701071007	-1	0.056411297465	2.899895723647
75000	0.000148792465	0.006900001607	-1	0.057324094176	2.838995952999
80000	0.000138952631	0.006222917979	-1	0.058252202477	2.787012397879
85000	0.000130218710	0.005644762229	-1	0.059192072668	2.742350042471
90000	0.000122415282	0.005146634032	-1	0.060140821576	2.703774592020

95000	0.000115402586	0.004714040840	-1	0.061096010930	2.670310885491
100000	0.000109066997	0.004335669108	-1	0.062055924741	2.641195829760
105000	0.000103316250	0.004002563890	-1	0.063019387994	2.615791771442
110000	0.000098074484	0.003707757638	-1	0.063983467473	2.593607475077
115000	0.000093277311	0.003445341028	-1	0.064948378409	2.574199111791
120000	0.000088871696	0.003210695786	-1	0.065912842734	2.557242361078
125000	0.000084812205	0.002999903564	-1	0.066877044207	2.542442831071
130000	0.000081060729	0.002809844953	-1	0.067838710012	2.529541176444
135000	0.000077584229	0.002637823806	-1	0.068796865653	2.518297019009
140000	0.000074354301	0.002481608369	-1	0.069750909665	2.508545000373
145000	0.000071345939	0.002339245824	-1	0.070701625628	2.500141435107
150000	0.000068537374	0.002209109356	-1	0.071649353345	2.492978681311
155000	0.000065908371	0.002089705143	-1	0.072597838700	2.487012679932
160000	0.000063452132	0.001980520730	-1	0.073518837535	2.481572291648
165000	0.000061146913	0.001880003174	-1	0.074430575823	2.476940529090
170000	0.000058979232	0.001787221344	-1	0.075334603147	2.473084764734
175000	0.000056935574	0.001701261318	-1	0.076237578187	2.470072049331
180000	0.000055004041	0.001621348463	-1	0.077145422967	2.467961287206
185000	0.000053179891	0.001547162192	-1	0.078043301986	2.466390430576
190000	0.000051454642	0.001478163670	-1	0.078931519023	2.465333308018
195000	0.000049820683	0.001413867882	-1	0.079810488900	2.464755301394
200000	0.000048270930	0.001353810767	-1	0.080681666877	2.464607863014
205000	0.000046798980	0.001297577962	-1	0.081546780527	2.464845434888
210000	0.000045399586	0.001244877434	-1	0.082404501861	2.465442964109
215000	0.000044068053	0.001195456744	-1	0.083252907207	2.466377770350
220000	0.000042800035	0.001149076462	-1	0.084090425724	2.467623630729
225000	0.000041591472	0.001105509265	-1	0.084915942877	2.469153759778
230000	0.000040438584	0.001064539963	-1	0.085728757503	2.470938954299
235000	0.000039337818	0.001025963942	-1	0.086528793462	2.472953058688
240000	0.000038285836	0.000989586707	-1	0.087316547305	2.475169960095
245000	0.000037279492	0.000955223991	-1	0.088093161305	2.477567050699
250000	0.000036315822	0.000922701143	-1	0.088860413582	2.480123809522
255000	0.000035392101	0.000891862430	-1	0.089620104041	2.482824961073

260000	0.000034506107	0.000862600849	-1	0.090371632458	2.485658870191
265000	0.000033655836	0.000834823827	-1	0.091113917965	2.488613873632
270000	0.000032839417	0.000808443829	-1	0.091845911090	2.491675025748
275000	0.000032055089	0.000783377094	-1	0.092566744732	2.494826447731
280000	0.000031301204	0.000759544500	-1	0.093275628236	2.498050561826
285000	0.000030576230	0.000736871827	-1	0.093971755163	2.501325663163
290000	0.000029878821	0.000715293646	-1	0.094653643793	2.504615429423
295000	0.000029207822	0.000694754051	-1	0.095318910416	2.507866486787
300000	0.000028558071	0.000674974652	-1	0.096001954866	2.511607736540

Electron Elastic Scattering Sampling Data
Solution for Z = 50

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.029761890154	0.750560533109	+1	0.554835889113	53.433046137511
52	0.030374551009	0.754727134985	+1	0.559761497536	53.803380850863
54	0.031460095049	0.743880501470	+1	0.559498464321	50.776049408355
56	0.033008977100	0.721023543541	+1	0.554511191229	45.297435208369
58	0.034986666364	0.689360580759	+1	0.545326779012	38.573489831337
60	0.037336089425	0.651907324620	+1	0.532520022094	31.673506844366
62	0.039980937462	0.611293705297	+1	0.516701855804	25.326266708673
64	0.042828987922	0.569602772351	+1	0.498502345349	19.897991654998
66	0.045779531526	0.528519664608	+1	0.478562117208	15.486612683976
68	0.048731583679	0.489233587575	+1	0.457489942388	12.022034552413
70	0.051589005712	0.452534735672	+1	0.435851937677	9.360976023622
72	0.054265664568	0.418997035503	+1	0.414174949018	7.347390768594
74	0.056694766634	0.388855612432	+1	0.392877759362	5.833567707344
76	0.058825631293	0.362235727035	+1	0.372317637518	4.699224472329
78	0.060626531674	0.339130892955	+1	0.352764030922	3.849344885778
80	0.062083446178	0.319434410119	+1	0.334400242559	3.211356174446
82	0.063194363965	0.303043402359	+1	0.317360258404	2.732333299060
84	0.063970607006	0.289801464632	+1	0.301704584442	2.372772270213
86	0.064429934096	0.279582293320	+1	0.287460662594	2.104469785864
88	0.064595620564	0.272277671695	+1	0.274621101842	1.907107488129
90	0.064494346585	0.267801384116	+1	0.263150736778	1.766139359552
92	0.064152802589	0.266121623615	+1	0.253005948215	1.671666162050
94	0.063598553938	0.267239340270	+1	0.244126899164	1.616965682666
96	0.062857387573	0.271213268797	+1	0.236452694620	1.598108812666
98	0.061953335242	0.278159586477	+1	0.229921284310	1.613440839709
100	0.060908660681	0.288254106132	+1	0.224470314662	1.663337896536
105	0.057809763892	0.329091648361	+1	0.215185700981	1.961144187582
110	0.054222478134	0.397673226900	+1	0.211421808027	2.606906081081

115	0.050349338412	0.505122677953	+1	0.212439012874	3.877852731639
120	0.046354882403	0.670686250923	+1	0.217530992429	6.422347632117
125	0.042373459823	0.928979162262	+1	0.225965671086	11.844002246704
130	0.038517914375	1.348414779705	+1	0.236945408698	24.581831706859
135	0.034880650008	2.083903693453	+1	0.249582479572	59.212683712609
140	0.031531264146	3.577779351513	+1	0.262958109992	179.654884285521
145	0.028515222102	7.789521849849	+1	0.276180545726	890.740910954808
150	0.026120506606	35.208683725405	+1	0.286140306901	19065.523812270250
155	0.023541536520	13.886855826791	-1	0.299307428424	3664.853466069403
160	0.021563410426	6.873959301414	-1	0.308267593319	1094.982285801908
165	0.019888522920	4.923840263803	-1	0.315201312176	661.876797937117
170	0.018481163871	4.092560250465	-1	0.320109843657	521.325795084800
175	0.017304783711	3.707611132093	-1	0.323105716966	473.261627291400
180	0.016324090227	3.565615557921	-1	0.324380160070	471.112403383417
185	0.015507206759	3.593772836199	-1	0.324158465721	502.824047812205
190	0.014825620691	3.772537939061	-1	0.322683902865	570.117801450008
195	0.014255345294	4.117591327840	-1	0.320186693811	686.431831645643
200	0.013776920401	4.684613802398	-1	0.316870892567	884.422466935642
205	0.013374067708	5.599817746003	-1	0.312918776063	1241.927012878005
210	0.013032051352	7.154837559268	-1	0.308504508999	1971.747446906659
215	0.012738772375	10.165519259819	-1	0.303775643044	3838.726883510250
220	0.012484632901	18.018123362541	-1	0.298851206026	11554.677284514863
225	0.012262034444	83.067777623369	-1	0.293825644608	234090.847200435180
230	0.012064963112	30.937856538915	+1	0.288772783059	32855.606551428384
235	0.011888671237	12.512141630267	+1	0.283749157086	5567.487149074481
240	0.011729411094	7.647101181687	+1	0.278797336549	2154.061472161764
245	0.011584235402	5.413114807738	+1	0.273948382647	1117.758727907329
250	0.011450826955	4.137242507100	+1	0.269224220227	676.066478404296
255	0.011327297316	3.316023970351	+1	0.264639925914	449.612937572280
260	0.011211889161	2.745629506886	+1	0.260206668830	319.046363630270
265	0.011103137862	2.327991064525	+1	0.255931512279	237.373985187678
270	0.010999871260	2.010141340377	+1	0.251818125988	183.127929916986
275	0.010901158502	1.760979644035	+1	0.247867442177	145.398956128983

280	0.010806255337	1.561056521065	+1	0.244078358143	118.180858095422
285	0.010714571212	1.397593558469	+1	0.240448256860	97.952922762929
290	0.010625639434	1.261855668147	+1	0.236973362187	82.544666152619
295	0.010539090920	1.147672266426	+1	0.233649114579	70.561223526990
300	0.010454635074	1.050564910336	+1	0.230470432195	61.074598215212
310	0.010291194848	0.894956031891	+1	0.224524636515	47.226359107260
320	0.010134202334	0.776402847200	+1	0.219078278017	37.796514157063
330	0.009982896537	0.683662983583	+1	0.214077439286	31.096949311588
340	0.009836695304	0.609620496486	+1	0.209475191300	26.175788851007
350	0.009695147496	0.549556154200	+1	0.205230694782	22.463422976323
360	0.009557938576	0.500191505451	+1	0.201306960769	19.600467196551
370	0.009424979577	0.459102443947	+1	0.197666412286	17.346778398938
380	0.009296165981	0.424529946904	+1	0.194276490921	15.541453632863
390	0.009171348151	0.395186450686	+1	0.191109992921	14.074407803734
400	0.009050346984	0.370109453451	+1	0.188144153264	12.868240794296
410	0.008932999281	0.348555913934	+1	0.185359006174	11.866679681865
420	0.008819226976	0.329917155308	+1	0.182735020254	11.026673430165
430	0.008708948371	0.313712063484	+1	0.180255136888	10.315938967650
440	0.008602039974	0.299563097787	+1	0.177905046403	9.710255783165
450	0.008498365247	0.287169473509	+1	0.175672638785	9.191107000096
460	0.008397777954	0.276286832403	+1	0.173547298994	8.744038561019
470	0.008300181389	0.266705168044	+1	0.171518992151	8.357169372519
480	0.008205471408	0.258250429459	+1	0.169578826445	8.021004586224
490	0.008113534837	0.250779415059	+1	0.167719184763	7.727978733244
500	0.008024246552	0.244173324386	+1	0.165933530470	7.472008375662
510	0.007937488555	0.238332166281	+1	0.164216072208	7.248109553458
520	0.007853162462	0.233168204753	+1	0.162561397873	7.052031633956
530	0.007771171616	0.228606639706	+1	0.160964688614	6.880240865410
540	0.007691415984	0.224583626921	+1	0.159421729988	6.729798159768
550	0.007613797542	0.221044370599	+1	0.157928769577	6.598236785483
560	0.007538219408	0.217941551126	+1	0.156482500860	6.483475333274
570	0.007464605878	0.215233361137	+1	0.155079795211	6.383694785225
580	0.007392855028	0.212884628330	+1	0.153718085184	6.297419801646

590	0.007322905827	0.210862555032	+1	0.152394708719	6.223266281607
600	0.007254675221	0.209139414765	+1	0.151107491971	6.160107581263
610	0.007188088628	0.207690432501	+1	0.149854429031	6.106950487453
620	0.007123077845	0.206494236466	+1	0.148633682108	6.062946275644
630	0.007059578652	0.205531712559	+1	0.147443576182	6.027347895469
640	0.006997529945	0.204785764291	+1	0.146282566203	5.999496991445
650	0.006936869070	0.204240899699	+1	0.145149258618	5.978811716089
660	0.006877542650	0.203883153658	+1	0.144042350092	5.964769337813
670	0.006819496313	0.203700733018	+1	0.142960676198	5.956937528454
680	0.006762679279	0.203683085325	+1	0.141903148865	5.954933934059
690	0.006707043827	0.203820353112	+1	0.140868771899	5.958407518627
700	0.006652545620	0.204103522475	+1	0.139856591575	5.967039924893
710	0.006599138871	0.204524449601	+1	0.138865749956	5.980552556496
720	0.006546784914	0.205076202392	+1	0.137895434973	5.998707446083
730	0.006495444449	0.205752659485	+1	0.136944909605	6.021301512624
740	0.006445079971	0.206548083207	+1	0.136013491320	6.048148406796
750	0.006395657568	0.207456942150	+1	0.135100497840	6.079067561949
760	0.006347143295	0.208474272229	+1	0.134205317642	6.113903283406
770	0.006299505174	0.209596073155	+1	0.133327371963	6.152534420949
780	0.006252713448	0.210818633484	+1	0.132466122080	6.194851189000
790	0.006206741854	0.212138432153	+1	0.131621069096	6.240750302589
800	0.006161559304	0.213552235681	+1	0.130791701506	6.290143727491
810	0.006117144145	0.215056826212	+1	0.129977562184	6.342938377080
820	0.006073467709	0.216649953202	+1	0.129178221135	6.399084400866
830	0.006030509783	0.218329353835	+1	0.128393268980	6.458524931351
840	0.005988248654	0.220092888073	+1	0.127622308496	6.521210462676
850	0.005946660774	0.221938653432	+1	0.126864974651	6.587104577477
860	0.005905726770	0.223864678967	+1	0.126120880492	6.656163454984
870	0.005865427593	0.225869604130	+1	0.125389690377	6.728368141267
880	0.005825745007	0.227952177048	+1	0.124671083747	6.803704417147
890	0.005786662324	0.230111153137	+1	0.123964741785	6.882157492672
900	0.005748161789	0.232345417655	+1	0.123270376263	6.963721208199
910	0.005710227711	0.234653766235	+1	0.122587657632	7.048381913636

920	0.005672843341	0.237035641366	+1	0.121916336269	7.136156368471
930	0.005635996656	0.239490326797	+1	0.121256134081	7.227048887931
940	0.005599671782	0.242017290496	+1	0.120606802426	7.321078149791
950	0.005563856364	0.244615914604	+1	0.119968081209	7.418255416875
960	0.005528536665	0.247285698163	+1	0.119339722268	7.518599692860
970	0.005493701234	0.250026273179	+1	0.118721503640	7.622134570296
980	0.005459338188	0.252837399742	+1	0.118113186338	7.728888663681
990	0.005425434815	0.255718914669	+1	0.117514568448	7.838898415083
1000	0.005391981896	0.258670414380	+1	0.116925411379	7.952184707351
1025	0.005310249659	0.266355077377	+1	0.115492604289	8.250003480011
1050	0.005231110888	0.274480003920	+1	0.114114724918	8.569354209553
1075	0.005154423752	0.283049491539	+1	0.112788966466	8.911125557213
1100	0.005080067001	0.292066564425	+1	0.111512595372	9.276182368487
1125	0.005007918974	0.301536134293	+1	0.110283125183	9.665538435856
1150	0.004937873130	0.311467844377	+1	0.109098262540	10.080446083822
1175	0.004869831197	0.321872885888	+1	0.107955855031	10.522289041914
1200	0.004803700340	0.332762280238	+1	0.106853847588	10.992520497085
1225	0.004739397464	0.344147599598	+1	0.105790287992	11.492686463714
1250	0.004676842295	0.356044569705	+1	0.104763397242	12.024608780197
1275	0.004615961375	0.368470214586	+1	0.103771486032	12.590262218111
1300	0.004556685492	0.381441638152	+1	0.102812927476	13.191733118397
1325	0.004498949833	0.394977000739	+1	0.101886182549	13.831272251856
1350	0.004442694496	0.409097895537	+1	0.100989795602	14.511411897449
1375	0.004387861645	0.423827568924	+1	0.100122431802	15.234920185533
1400	0.004334397713	0.439190080209	+1	0.099282770431	16.004753902160
1425	0.004282251226	0.455210820982	+1	0.098469554201	16.824111453130
1450	0.004231375444	0.471918836880	+1	0.097681649328	17.696566920410
1475	0.004181722164	0.489345879268	+1	0.096918013934	18.626074823789
1500	0.004133249747	0.507524460438	+1	0.096177603511	19.616846889168
1550	0.004039682654	0.546280457768	+1	0.094762540228	21.801179030159
1600	0.003950368532	0.588508298694	+1	0.093429098348	24.292522018835
1650	0.003865030639	0.634578024632	+1	0.092170545086	27.142528580189
1700	0.003783413957	0.684926471767	+1	0.090980960330	30.414351799671

1750	0.003705285490	0.740063329208	+1	0.089854968290	34.185154371035
1800	0.003630431657	0.800592316035	+1	0.088787681757	38.550308482931
1850	0.003558657086	0.867226826931	+1	0.087774610058	43.628233860973
1900	0.003489778864	0.940824707530	+1	0.086811785528	49.568132399095
1950	0.003423631613	1.022414706385	+1	0.085895539383	56.558871119651
2000	0.003360059788	1.113241660292	+1	0.085022406116	64.842198565564
2100	0.003240086699	1.329078244880	+1	0.083393334661	86.640599591826
2200	0.003128814918	1.605772704588	+1	0.081903702297	118.932163738128
2300	0.003025341010	1.971717238414	+1	0.080535974824	169.130158226711
2400	0.002928886284	2.476375790365	+1	0.079275001181	252.334677582186
2500	0.002838775513	3.214322338459	+1	0.078107734924	403.152057758332
2600	0.002754415222	4.391844765412	+1	0.077023001168	715.467526708029
2700	0.002675278001	6.560527724121	+1	0.076011485819	1521.157942096971
2800	0.002600895093	11.860928380908	+1	0.075065242402	4747.531680919974
2900	0.002531551383	43.333986296660	+1	0.074154751317	60629.112190571395
3000	0.002464776804	28.575830771014	-1	0.073342406759	27072.288299598280
3100	0.002402336692	10.733975685514	-1	0.072555139285	4091.757880050757
3200	0.002343241675	6.559252332677	-1	0.071811014480	1633.256079500051
3300	0.002287230522	4.698806553863	-1	0.071105937524	894.147210083636
3400	0.002234067038	3.646857062445	-1	0.070436406711	573.496510886370
3500	0.002183534772	2.970925227185	-1	0.069799514050	404.531078454090
3600	0.002135439291	2.500243177357	-1	0.069192753030	303.995862876234
3700	0.002089607111	2.153964318032	-1	0.068613592875	239.003549385260
3800	0.002045881941	1.888762384488	-1	0.068059726669	194.367249776477
3900	0.002004120768	1.679290621796	-1	0.067529249626	162.259075284446
4000	0.001964189363	1.509729007120	-1	0.067020563335	138.301304640818
4100	0.001925946629	1.369617151745	-1	0.066533416795	119.877741080092
4200	0.001889270360	1.251904046578	-1	0.066067187597	105.360366754821
4300	0.001854095379	1.151794322256	-1	0.065618648297	93.700575623328
4400	0.001820329690	1.065656097809	-1	0.065186652743	84.172257913485
4500	0.001787887067	0.990777918226	-1	0.064770246659	76.267675586582
4600	0.001756688115	0.925102020147	-1	0.064368607477	69.623490829047
4700	0.001726662418	0.867060134955	-1	0.063980775446	63.975779518577

4800	0.001697744384	0.815419946527	-1	0.063605866261	59.127282977145
4900	0.001669872070	0.769193893998	-1	0.063243136592	54.927516723081
5000	0.001642988554	0.727582515978	-1	0.062891971957	51.260060561223
5500	0.001521667027	0.569637297779	-1	0.061289870960	38.306718560331
6000	0.001418499665	0.464923692522	-1	0.059900687906	30.549908149673
6500	0.001329624221	0.390748414286	-1	0.058679903669	25.444380222194
7000	0.001252212696	0.335657033723	-1	0.057594974852	21.853254118605
7500	0.001184146130	0.293255597001	-1	0.056621447186	19.200227702268
8000	0.001123803233	0.259700676710	-1	0.055740467906	17.164913196900
8500	0.001069921642	0.232546767829	-1	0.054937274632	15.556210322769
9000	0.001021503652	0.210166238005	-1	0.054199990154	14.253599308806
9500	0.000977748479	0.191434727961	-1	0.053519099592	13.177600935396
10000	0.000938006941	0.175551885228	-1	0.052886730805	12.273795083561
10500	0.000901744734	0.161931078737	-1	0.052296566517	11.503665329790
11000	0.000868523560	0.150140703477	-1	0.051742639305	10.839597097488
11500	0.000837975634	0.139846122883	-1	0.051220179071	10.260703628709
12000	0.000809797174	0.130796907313	-1	0.050723851931	9.751556466025
12500	0.000783712326	0.122780403321	-1	0.050252296345	9.299821947614
13000	0.000759497008	0.115637536807	-1	0.049802398280	8.896158054551
13500	0.000736955769	0.109236983224	-1	0.049371933145	8.533008491340
14000	0.000715921597	0.103474308005	-1	0.048958605673	8.204424139141
14500	0.000696247309	0.098261707348	-1	0.048560712149	7.905481245607
15000	0.000677806446	0.093528167029	-1	0.048176514363	7.632229001912
16000	0.000644187648	0.085265161985	-1	0.047443970804	7.149997883485
17000	0.000614316293	0.078307709668	-1	0.046751542036	6.737182541728
18000	0.000587602272	0.072381672805	-1	0.046091878849	6.379068720924
19000	0.000563572831	0.067283375991	-1	0.045459208601	6.064851362997
20000	0.000541845773	0.062858598689	-1	0.044848957045	5.786414400159
21000	0.000486122374	0.051100007694	-1	0.050274971161	5.846046589206
22000	0.000466609120	0.047709500100	-1	0.050158110345	5.654312073241
23000	0.000447969191	0.044446042691	-1	0.050097962179	5.462830123677
24000	0.000430414377	0.041397133686	-1	0.050092159481	5.279603108963
25000	0.000414140685	0.038648426079	-1	0.050121839270	5.112481596949

26000	0.000399260095	0.036257024121	-1	0.050156959673	4.967178116779
27000	0.000385621005	0.034180351082	-1	0.050184132830	4.841407989471
28000	0.000373023832	0.032354817146	-1	0.050201924110	4.731060094686
29000	0.000361295089	0.030722141948	-1	0.050214866545	4.632133895394
30000	0.000350276630	0.029228105438	-1	0.050234359784	4.540811364713
31000	0.000339841339	0.027830000176	-1	0.050274064209	4.454063701341
32000	0.000329941904	0.026518068035	-1	0.050334692925	4.371440630141
33000	0.000320552394	0.025290665930	-1	0.050412588066	4.293120686000
34000	0.000311649656	0.024146327416	-1	0.050503392766	4.219279115541
35000	0.000303212983	0.023083721165	-1	0.050602029318	4.150086726016
36000	0.000295220146	0.022100356851	-1	0.050703634885	4.085600697246
37000	0.000287636882	0.021188977487	-1	0.050806790769	4.025443964046
38000	0.000280428092	0.020341526998	-1	0.050911684135	3.969142235890
39000	0.000273561418	0.019550411103	-1	0.051019339578	3.916232193441
40000	0.000267006777	0.018808469899	-1	0.051131652632	3.866265324537
41000	0.000260738084	0.018109601884	-1	0.051250564522	3.818852354059
42000	0.000254738436	0.017450579922	-1	0.051375398319	3.773800263647
43000	0.000248993811	0.016828936935	-1	0.051504902686	3.730966805924
44000	0.000243490984	0.016242299481	-1	0.051637994964	3.690212603264
45000	0.000238217411	0.015688380672	-1	0.051773785603	3.651401769691
46000	0.000233160623	0.015164951150	-1	0.051911639480	3.614407425449
47000	0.000228306538	0.014669758298	-1	0.052051349601	3.579129130265
48000	0.000223641542	0.014200638781	-1	0.052192935469	3.545471089962
49000	0.000219152986	0.013755540972	-1	0.052336608692	3.513337177160
50000	0.000214829102	0.013332516210	-1	0.052482772463	3.482630110975
55000	0.000195379276	0.011498608053	-1	0.053249812182	3.347571806770
60000	0.000178961947	0.010038978231	-1	0.054056108967	3.237193342724
65000	0.000164916258	0.008854963921	-1	0.054891612975	3.145609585416
70000	0.000152762101	0.007879088463	-1	0.055748773434	3.068670155600
75000	0.000142141497	0.007063752510	-1	0.056622098354	3.003378648089
80000	0.000132781715	0.006374492114	-1	0.057507511088	2.947514469318
85000	0.000124471818	0.005785832587	-1	0.058401629073	2.899382758087
90000	0.000117045492	0.005278547847	-1	0.059301876044	2.857679460214

95000	0.000110370022	0.004837890347	-1	0.060206134471	2.821376877017
100000	0.000104338057	0.004452375971	-1	0.061112668930	2.789657555301
105000	0.000098861673	0.004112892938	-1	0.062020442925	2.761852937787
110000	0.000093869040	0.003812348023	-1	0.062926973706	2.737444606371
115000	0.000089299213	0.003544738072	-1	0.063832637749	2.715962499054
120000	0.000085101837	0.003305380914	-1	0.064735858363	2.697052436205
125000	0.000081233673	0.003090293007	-1	0.065636746404	2.680400017486
130000	0.000077657995	0.002896250507	-1	0.066534714829	2.665768064734
135000	0.000074342301	0.002720423181	-1	0.067431924407	2.652974345978
140000	0.000071267546	0.002561188583	-1	0.068309273868	2.641420760404
145000	0.000068403811	0.002416049041	-1	0.069180486628	2.631248634280
150000	0.000065730607	0.002283363447	-1	0.070045654548	2.622339685514
155000	0.000063226511	0.002161449283	-1	0.070914546890	2.614783535311
160000	0.000060879003	0.002049359869	-1	0.071778353333	2.608285768161
165000	0.000058675427	0.001946127652	-1	0.072632914797	2.602649873492
170000	0.000056603412	0.001850836749	-1	0.073477859115	2.597793793248
175000	0.000054651832	0.001762668483	-1	0.074313548630	2.593648470493
180000	0.000052810643	0.001680906144	-1	0.075140995244	2.590179642095
185000	0.000051070819	0.001604915061	-1	0.075961303116	2.587353370381
190000	0.000049424749	0.001534183133	-1	0.076773148396	2.585103712870
195000	0.000047865529	0.001468241335	-1	0.077575468961	2.583357713621
200000	0.000046386482	0.001406619675	-1	0.078369599455	2.582060441586
205000	0.000044981510	0.001348896463	-1	0.079157352304	2.581168195369
210000	0.000043645617	0.001294774993	-1	0.079937539776	2.580656041058
215000	0.000042374343	0.001243998801	-1	0.080708387633	2.580500102893
220000	0.000041163551	0.001196324937	-1	0.081468448110	2.580673472777
225000	0.000040009381	0.001151522564	-1	0.082216688349	2.581147860895
230000	0.000038908230	0.001109372833	-1	0.082952516048	2.581894058724
235000	0.000037856716	0.001069666905	-1	0.083675941751	2.582884599680
240000	0.000036851672	0.001032208284	-1	0.084387376889	2.584091610363
245000	0.000035890100	0.000996808786	-1	0.085087964369	2.585491320675
250000	0.000034969189	0.000963291138	-1	0.085779336661	2.587060701310
255000	0.000034086339	0.000931496463	-1	0.086463226232	2.588783935042

260000	0.000033239438	0.000901315413	-1	0.087139133960	2.590649113540
265000	0.000032426578	0.000872653740	-1	0.087806070805	2.592644292193
270000	0.000031645956	0.000845421124	-1	0.088463254640	2.594758035860
275000	0.000030895882	0.000819531630	-1	0.089109998232	2.596976241672
280000	0.000030174767	0.000794903213	-1	0.089745809562	2.599284401108
285000	0.000029481105	0.000771457607	-1	0.090370368355	2.601667944899
290000	0.000028813494	0.000749120989	-1	0.090983409353	2.604108866380
295000	0.000028170636	0.000727825189	-1	0.091584558090	2.606585124917
300000	0.000027551396	0.000707510241	-1	0.092172852508	2.609060692566

Electron Elastic Scattering Sampling Data
Solution for Z = 51

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.026117260127	0.580674045965	+1	0.607490711538	53.007806539062
52	0.025892725665	0.586475478995	+1	0.622743883856	57.819813133978
54	0.026226936743	0.582699577332	+1	0.631570777873	58.738137151987
56	0.027148140373	0.571360002418	+1	0.634355207995	55.858012190128
58	0.028652801249	0.554374412780	+1	0.631571816155	50.117893792734
60	0.030705685271	0.533420327713	+1	0.623766776700	42.849169461273
62	0.033239644895	0.509925798001	+1	0.611555616371	35.294925134977
64	0.036157745853	0.485003389331	+1	0.595595199993	28.312608259461
66	0.039338637755	0.459652135764	+1	0.576613109221	22.348550722619
68	0.042648837281	0.434661955482	+1	0.555345667258	17.514462418500
70	0.045953514891	0.410633591705	+1	0.532511872023	13.727652741338
72	0.049126479535	0.388102061007	+1	0.508822226928	10.828074245952
74	0.052065176512	0.367401727176	+1	0.484879203826	8.633199990537
76	0.054690027130	0.348802416504	+1	0.461219769782	6.982181038733
78	0.056949115789	0.332473595487	+1	0.438274446261	5.742442764198
80	0.058816222370	0.318495492343	+1	0.416362836733	4.810533533936
82	0.060284192498	0.306929249857	+1	0.395729298764	4.109900323738
84	0.061364088194	0.297778220712	+1	0.376519523407	3.583268727427
86	0.062076972391	0.291048361875	+1	0.358822857567	3.189504498071
88	0.062451400460	0.286744714711	+1	0.342674391770	2.898929530693
90	0.062520164570	0.284877774815	+1	0.328065793486	2.690278813678
92	0.062316318033	0.285490658968	+1	0.314967481693	2.548940634469
94	0.061873452937	0.288646751776	+1	0.303324422431	2.464905276028
96	0.061222771795	0.294451254209	+1	0.293073562905	2.432103100679
98	0.060393118468	0.303053283460	+1	0.284145600005	2.447614679664
100	0.059410771451	0.314650621742	+1	0.276467824373	2.511285651347
105	0.056436132919	0.358606080932	+1	0.262271514291	2.905128052405
110	0.052956727066	0.429171062292	+1	0.254351182189	3.752169184337

115	0.049196076243	0.536640387095	+1	0.251748338013	5.375110489707
120	0.045328180758	0.698325799598	+1	0.253570336704	8.502912384497
125	0.041487093624	0.944555256728	+1	0.258956269086	14.854681546667
130	0.037779966758	1.333164839445	+1	0.267040809899	28.904153958667
135	0.034289965231	1.988517265081	+1	0.276933175774	64.175953459525
140	0.031077658570	3.236302822032	+1	0.287754260265	172.857561944235
145	0.028181315670	6.280895861344	+1	0.298672703426	672.125279994353
150	0.025617224023	22.298805473703	+1	0.308979932750	8841.735059604176
155	0.023383452544	23.139394740245	-1	0.318118178117	10889.569725895977
160	0.021463075189	8.476730434240	-1	0.325717040582	1769.989038492570
165	0.019829942812	5.578558836096	-1	0.331571815732	900.173895069161
170	0.018452226557	4.422921525998	-1	0.335632332432	644.775335201097
175	0.017296924317	3.870088177723	-1	0.337954947462	546.779637202265
180	0.016331726953	3.612488814830	-1	0.338676842499	514.098119162269
185	0.015527013441	3.539387946768	-1	0.337977233513	520.188300699365
190	0.014855848975	3.609263258299	-1	0.336063478547	558.525490939844
195	0.014295296648	3.816137257195	-1	0.333139417243	633.222346611515
200	0.013826561552	4.182456407599	-1	0.329391013045	759.506685342028
205	0.013433708825	4.767156259499	-1	0.324989834412	972.275389947213
210	0.013102072423	5.695019059024	-1	0.320106071115	1352.404315469180
215	0.012819495393	7.250628508144	-1	0.314887409373	2117.644484693971
220	0.012576262045	10.214175944536	-1	0.309455266394	4030.857460292850
225	0.012364629563	17.697171125603	-1	0.303907941396	11540.830166749585
230	0.012178436600	68.895971368945	-1	0.298323691400	166091.834912571100
235	0.012012797963	35.441340012592	+1	0.292763668348	43977.132904828039
240	0.011863848836	13.520678202806	+1	0.287274739292	6591.935977348342
245	0.011728544079	8.142058217094	+1	0.281891934264	2462.424499378771
250	0.011604494325	5.724441363365	+1	0.276640551943	1254.047640994133
255	0.011489746437	4.357719397482	+1	0.271538716411	748.846118146819
260	0.011382467055	3.483141322904	+1	0.266600468169	493.085216421636
265	0.011281135615	2.878033233482	+1	0.261835270328	347.022362548940
270	0.011184552680	2.436223977005	+1	0.257248431231	256.365032558014
275	0.011091776989	2.100702507679	+1	0.252842078329	196.548572079940

280	0.011002074709	1.838136446018	+1	0.248615769019	155.185441196472
285	0.010914877769	1.627751053807	+1	0.244567225987	125.499262714698
290	0.010829749263	1.455932535906	+1	0.240692742099	103.539654361673
295	0.010746360664	1.313394641566	+1	0.236987540773	86.883088712716
300	0.010664463846	1.193590188853	+1	0.233446154003	73.979053367944
310	0.010504497314	1.004298253724	+1	0.226827869159	55.632906786807
320	0.010348978335	0.862306707440	+1	0.220776210703	43.514516215058
330	0.010197391261	0.752581955027	+1	0.215232491357	35.115885957835
340	0.010049419672	0.665835266989	+1	0.210144608702	29.072736083881
350	0.009904879554	0.596024124160	+1	0.205466432772	24.592475728203
360	0.009763695544	0.539021899590	+1	0.201155875951	21.187899643688
370	0.009625957111	0.491833150916	+1	0.197170598756	18.541826295175
380	0.009491721633	0.452309661834	+1	0.193473634863	16.445631648373
390	0.009360983068	0.418893330236	+1	0.190033950623	14.758750862146
400	0.009233689184	0.390427946663	+1	0.186825261502	13.383635930110
410	0.009109782755	0.366027513378	+1	0.183824488971	12.250295049556
420	0.008989276130	0.344972444193	+1	0.181009156942	11.305974988699
430	0.008872152937	0.326697941543	+1	0.178359647877	10.511583520579
440	0.008758353465	0.310762678561	+1	0.175859385899	9.838016493192
450	0.008647784022	0.296817478385	+1	0.173494291334	9.263247861786
460	0.008540349278	0.284578949065	+1	0.171252041876	8.770168721475
470	0.008435980822	0.273804634516	+1	0.169120879816	8.344860612332
480	0.008334602049	0.264294391430	+1	0.167090496965	7.976282970715
490	0.008236118009	0.255884204373	+1	0.165151996460	7.655695996202
500	0.008140423875	0.248438687009	+1	0.163297701284	7.376112028981
510	0.008047414630	0.241844025937	+1	0.161520818594	7.131835229747
520	0.007956999989	0.236000524320	+1	0.159815023049	6.918038109322
530	0.007869088606	0.230823134221	+1	0.158174612785	6.730714734999
540	0.007783589861	0.226239473141	+1	0.156594647766	6.566546264785
550	0.007700404255	0.222188118227	+1	0.155070722515	6.422784954756
560	0.007619439181	0.218615840239	+1	0.153598919040	6.297103786165
570	0.007540615893	0.215475530359	+1	0.152175575099	6.187480235949
580	0.007463833786	0.212727333873	+1	0.150797626641	6.092258834631

590	0.007389030026	0.210334588947	+1	0.149461943670	6.009915537525
600	0.007316118859	0.208266256268	+1	0.148165962113	5.939207203973
610	0.007245021256	0.206494888726	+1	0.146907318915	5.879050843143
620	0.007175667022	0.204996275134	+1	0.145683827740	5.828501168624
630	0.007107987921	0.203749134061	+1	0.144493534385	5.786742478121
640	0.007041917761	0.202734255339	+1	0.143334621956	5.753050806823
650	0.006977391339	0.201934431750	+1	0.142205426617	5.726789586426
660	0.006914350522	0.201334173437	+1	0.141104437173	5.707392186655
670	0.006852733003	0.200920354410	+1	0.140030277851	5.694389458137
680	0.006792489933	0.200680892291	+1	0.138981701508	5.687349206343
690	0.006733562653	0.200605001668	+1	0.137957512824	5.685898951601
700	0.006675905647	0.200682528885	+1	0.136956625018	5.689686197027
710	0.006619469038	0.200904452604	+1	0.135978017639	5.698406801722
720	0.006564207937	0.201263062897	+1	0.135020773951	5.711804094888
730	0.006510079338	0.201751440793	+1	0.134084052347	5.729652400151
740	0.006457042579	0.202363070746	+1	0.133167046463	5.751741388699
750	0.006405057643	0.203091843701	+1	0.132268982898	5.777877154281
760	0.006354087424	0.203932242660	+1	0.131389164835	5.807888224313
770	0.006304096066	0.204879684218	+1	0.130526949428	5.841637147672
780	0.006255050245	0.205929944632	+1	0.129681715821	5.878998466814
790	0.006206918133	0.207079145978	+1	0.128852905051	5.919861110635
800	0.006159667609	0.208323430514	+1	0.128039942391	5.964115050488
810	0.006113269628	0.209659406049	+1	0.127242333699	6.011667932581
820	0.006067697344	0.211084218225	+1	0.126459580927	6.062443828137
830	0.006022923838	0.212595398849	+1	0.125691259298	6.116384596223
840	0.005978922726	0.214190606191	+1	0.124936923468	6.173435497941
850	0.005935674460	0.215867138151	+1	0.124196108258	6.233521859426
860	0.005893144544	0.217623676445	+1	0.123468557045	6.296644268083
870	0.005851322631	0.219457740745	+1	0.122753775673	6.362725302345
880	0.005810183063	0.221368154050	+1	0.122051462593	6.431759842079
890	0.005769704847	0.223353402525	+1	0.121361268665	6.503724321888
900	0.005729870271	0.225412070431	+1	0.120682881732	6.578597682961
910	0.005690659318	0.227542831822	+1	0.120015976019	6.656364319579

920	0.005652055248	0.229744846194	+1	0.119360283225	6.737025906998
930	0.005614041759	0.232017238341	+1	0.118715514898	6.820581865039
940	0.005576601201	0.234359266847	+1	0.118081393117	6.907039317207
950	0.005539718957	0.236770131987	+1	0.117457660741	6.996401754688
960	0.005503380515	0.239249100349	+1	0.116844060534	7.088675495899
970	0.005467570196	0.241795730489	+1	0.116240359616	7.183881101222
980	0.005432277318	0.244409492667	+1	0.115646326380	7.282030379179
990	0.005397485388	0.247090109408	+1	0.115061727450	7.383152489524
1000	0.005363183606	0.249837036870	+1	0.114486352133	7.487261934368
1025	0.005279492038	0.256993142203	+1	0.113086898864	7.760803816621
1050	0.005198608171	0.264563061529	+1	0.111740792309	8.053835669543
1075	0.005120371150	0.272548530607	+1	0.110445232499	8.367061553222
1100	0.005044634603	0.280950734353	+1	0.109197556995	8.701198122904
1125	0.004971264273	0.289771543882	+1	0.107995256281	9.057024576585
1150	0.004900136153	0.299018513186	+1	0.106836094469	9.435593123914
1175	0.004831140662	0.308700022165	+1	0.105717976833	9.838034581805
1200	0.004764165289	0.318825657764	+1	0.104638985013	10.265616392643
1225	0.004699122297	0.329403263166	+1	0.103597136423	10.719545762130
1250	0.004635918745	0.340446227993	+1	0.102590741250	11.201367054054
1275	0.004574471133	0.351968498920	+1	0.101618176475	11.712720519579
1300	0.004514703163	0.363983942531	+1	0.100677869661	12.255321818753
1325	0.004456543825	0.376507312923	+1	0.099768337951	12.831016361167
1350	0.004399922527	0.389556857973	+1	0.098888212439	13.441920787457
1375	0.004344778193	0.403151849716	+1	0.098036211564	14.090302346546
1400	0.004291052352	0.417312163162	+1	0.097211093749	14.778582033232
1425	0.004238687355	0.432058935630	+1	0.096411660740	15.509382132615
1450	0.004187631376	0.447416373660	+1	0.095636826752	16.285621254244
1475	0.004137835342	0.463410293463	+1	0.094885546980	17.110464967070
1500	0.004089251091	0.480067857881	+1	0.094156821765	17.987339558866
1550	0.003995545831	0.515491622454	+1	0.092763274256	19.912358189197
1600	0.003906187020	0.553951879177	+1	0.091449185463	22.095002858520
1650	0.003820880242	0.595750230566	+1	0.090208213543	24.576133337110
1700	0.003739354176	0.641240668660	+1	0.089034647789	27.405199014653

1750	0.003661367489	0.690831327125	+1	0.087923305233	30.641810844834
1800	0.003586693452	0.745002380260	+1	0.086869458705	34.358862407169
1850	0.003515129801	0.804314795498	+1	0.085868827966	38.645603463681
1900	0.003446488512	0.869435876761	+1	0.084917529708	43.612822449559
1950	0.003380597407	0.941156675082	+1	0.084012019697	49.398642487465
2000	0.003317298646	1.020418221719	+1	0.083148937219	56.176479628466
2100	0.003197902907	1.206365438819	+1	0.081538296161	73.655472951830
2200	0.003087235099	1.439920844978	+1	0.080065360308	98.740117420883
2300	0.002984377353	1.740790788034	+1	0.078713037012	136.184068729885
2400	0.002888541431	2.141398643294	+1	0.077466476313	194.993865924931
2500	0.002799044732	2.699151668712	+1	0.076312850595	293.885697790597
2600	0.002715290127	3.526246491717	+1	0.075241099656	476.961807640711
2700	0.002636746680	4.875416901652	+1	0.074242079732	868.942650629351
2800	0.002562945618	7.460559470721	+1	0.073307976708	1943.279401885664
2900	0.002493468600	14.391645895929	+1	0.072432033488	6919.823363734000
3000	0.002434504843	57.161771335885	+1	0.071365679680	104693.888154503480
3100	0.002366044160	22.226784360231	-1	0.070832517259	16594.157395638453
3200	0.002307473702	9.838615918903	-1	0.070099397302	3475.744623388921
3300	0.002251972664	6.276268002693	-1	0.069405126424	1509.040954995237
3400	0.002199304482	4.586765995603	-1	0.068746219962	858.239272577919
3500	0.002149253870	3.601302857805	-1	0.068119733311	562.384268815986
3600	0.002101626262	2.956068141843	-1	0.067523169289	402.092265656190
3700	0.002056248910	2.501223907235	-1	0.066953977255	304.984652408709
3800	0.002012966516	2.163634438026	-1	0.066409911269	241.399827253023
3900	0.001971634601	1.903315866512	-1	0.065889027368	197.304922476835
4000	0.001932120889	1.696559556039	-1	0.065389761522	165.342975782577
4100	0.001894304553	1.528440488801	-1	0.064910708562	141.349027692529
4200	0.001858077373	1.389148810583	-1	0.064450381868	122.823266355633
4300	0.001823340430	1.271934804046	-1	0.064007399834	108.183138869141
4400	0.001790003376	1.171985081124	-1	0.063580626648	96.383521837274
4500	0.001757979123	1.085774687148	-1	0.063169094676	86.710966088074
4600	0.001727162038	1.010575318934	-1	0.062773703051	78.657435647429
4700	0.001697486979	0.944445276127	-1	0.062393260783	71.869802427866

4800	0.001668910057	0.885922797757	-1	0.062025565688	66.091010877032
4900	0.001641370325	0.833785669878	-1	0.061669867821	61.122558523029
5000	0.001614810360	0.787053094036	-1	0.061325582236	56.812764156643
5500	0.001494986005	0.611382654030	-1	0.059755470752	41.817950833955
6000	0.001393136435	0.496396095636	-1	0.058394812401	33.020381558938
6500	0.001305424542	0.415649245759	-1	0.057199689371	27.311041979753
7000	0.001229045238	0.356052654793	-1	0.056138100830	23.336661893588
7500	0.001161897315	0.310400132426	-1	0.055186037661	20.423805967324
8000	0.001102375448	0.274404917611	-1	0.054325029655	18.203268806854
8500	0.001049230532	0.245361154140	-1	0.053540611545	16.457206117852
9000	0.001001475928	0.221479577569	-1	0.052821181800	15.049455964453
9500	0.000958320598	0.201530708466	-1	0.052157394610	13.890854188132
10000	0.000919122753	0.184642975265	-1	0.051541569193	12.920731587549
10500	0.000883355833	0.170180286300	-1	0.050967498230	12.096371313661
11000	0.000850586599	0.157675602178	-1	0.050429345843	11.387270700765
11500	0.000820447985	0.146764314316	-1	0.049923183554	10.770378565676
12000	0.000792635047	0.137172717150	-1	0.049444870823	10.228706988816
12500	0.000766896773	0.128690220578	-1	0.048989378678	9.749156225088
13000	0.000743005152	0.121140195179	-1	0.048554697250	9.321401782908
13500	0.000720764011	0.114378750521	-1	0.048139359976	8.937151265153
14000	0.000700008421	0.108294325342	-1	0.047741065125	8.589951059415
14500	0.000680593900	0.102793212589	-1	0.047358180166	8.274473249246
15000	0.000662395595	0.097799748459	-1	0.046988945188	7.986446880201
16000	0.000629216771	0.089087714563	-1	0.046286192376	7.478949375117
17000	0.000599735110	0.081756821493	-1	0.045623412476	7.045337016472
18000	0.000573369070	0.075515987860	-1	0.044993274021	6.669814314497
19000	0.000549653549	0.070149418699	-1	0.044389908548	6.340804118210
20000	0.000528211878	0.065493796079	-1	0.043808694540	6.049634103658
21000	0.000477585382	0.053775017255	-1	0.048695368096	6.070690744971
22000	0.000458437695	0.050207631819	-1	0.048570358212	5.868946679812
23000	0.000440157884	0.046777872187	-1	0.048497811053	5.667711569766
24000	0.000422959055	0.043577440253	-1	0.048474959423	5.475220999957
25000	0.000406999885	0.040690340423	-1	0.048488326351	5.299866278922

26000	0.000392399560	0.038177074477	-1	0.048509008988	5.147459114006
27000	0.000379011621	0.035993111552	-1	0.048524180757	5.015562178257
28000	0.000366655829	0.034073865087	-1	0.048530154094	4.899726079596
29000	0.000355154083	0.032357250313	-1	0.048532026522	4.795841777712
30000	0.000344348504	0.030786279380	-1	0.048540659655	4.699953402793
31000	0.000334115540	0.029316488259	-1	0.048568572038	4.608896568466
32000	0.000324408556	0.027937586926	-1	0.048616351649	4.522193632985
33000	0.000315201611	0.026647693541	-1	0.048680602410	4.440024389262
34000	0.000306471456	0.025445106888	-1	0.048757328655	4.362567560155
35000	0.000298197313	0.024328308756	-1	0.048841821836	4.289997018341
36000	0.000290357270	0.023294614164	-1	0.048929539310	4.222365814412
37000	0.000282918759	0.022336468531	-1	0.049019048258	4.159267221151
38000	0.000275848565	0.021445517035	-1	0.049110350193	4.100191358575
39000	0.000269115877	0.020613877977	-1	0.049204239505	4.044643772726
40000	0.000262692052	0.019834113485	-1	0.049302321251	3.992144557506
41000	0.000256551646	0.019099830977	-1	0.049406349640	3.942283944188
42000	0.000250676183	0.018407498873	-1	0.049515874786	3.894879552612
43000	0.000245049900	0.017754370832	-1	0.049629975901	3.849804331062
44000	0.000239658114	0.017137839715	-1	0.049747853737	3.806932455561
45000	0.000234487107	0.016555413721	-1	0.049868889580	3.766140010119
46000	0.000229524084	0.016004722968	-1	0.049992597441	3.727302734648
47000	0.000224756846	0.015483520098	-1	0.050118573966	3.690297360755
48000	0.000220173844	0.014989656013	-1	0.050246585086	3.655002133021
49000	0.000215764266	0.014521073495	-1	0.050376608550	3.621296656061
50000	0.000211517928	0.014075806439	-1	0.050508805901	3.589060935131
55000	0.000192438371	0.012146534886	-1	0.051200914911	3.446862974835
60000	0.000176331141	0.010610574595	-1	0.051930804981	3.330444255183
65000	0.000162548648	0.009364299856	-1	0.052688469778	3.233642949406
70000	0.000150620306	0.008336818210	-1	0.053466531393	3.152122282208
75000	0.000140195052	0.007478106668	-1	0.054259743383	3.082758943224
80000	0.000131006138	0.006751980427	-1	0.055063876887	3.023218011817
85000	0.000122846601	0.006131653733	-1	0.055875783256	2.971737386757
90000	0.000115553595	0.005596926353	-1	0.056692926667	2.926952477152

95000	0.000108996707	0.005132279919	-1	0.057513444174	2.887799623181
100000	0.000103070830	0.004725639709	-1	0.058335758636	2.853424128122
105000	0.000097689565	0.004367405213	-1	0.059159282328	2.823139195273
110000	0.000092781631	0.004050035759	-1	0.059983155146	2.796440544532
115000	0.000088292005	0.003767703410	-1	0.060799782600	2.772643595018
120000	0.000084170986	0.003515425249	-1	0.061607087737	2.751369468540
125000	0.000080372740	0.003288664393	-1	0.062410821148	2.732430296104
130000	0.000076857153	0.003083639286	-1	0.063219411902	2.715786456604
135000	0.000073598364	0.002897934510	-1	0.064023454963	2.700967278317
140000	0.000070570341	0.002729216425	-1	0.064821053169	2.687757898045
145000	0.000067749699	0.002575397117	-1	0.065612559378	2.675989720036
150000	0.000065116545	0.002434758296	-1	0.066397453414	2.665518741212
155000	0.000062653280	0.002305791154	-1	0.067175811303	2.656209378102
160000	0.000060344426	0.002187230540	-1	0.067947068300	2.647952585824
165000	0.000058176206	0.002077957107	-1	0.068711124494	2.640645283537
170000	0.000056136752	0.001977029883	-1	0.069467117435	2.634188760052
175000	0.000054215337	0.001883600831	-1	0.070214972990	2.628497818270
180000	0.000052402126	0.001796918097	-1	0.070955700414	2.623536921997
185000	0.000050688288	0.001716317218	-1	0.071690258921	2.619267848682
190000	0.000049066620	0.001641277990	-1	0.072416212003	2.615589334918
195000	0.000047530566	0.001571318454	-1	0.073131591430	2.612398403630
200000	0.000046073467	0.001505934614	-1	0.073838105735	2.609650695129
205000	0.000044689175	0.001444670354	-1	0.074538251401	2.607322190750
210000	0.000043372747	0.001387211289	-1	0.075231104941	2.605392239660
215000	0.000042119797	0.001333286548	-1	0.075915102976	2.603837661397
220000	0.000040926246	0.001282639817	-1	0.076588976299	2.602632989809
225000	0.000039788303	0.001235027472	-1	0.077251838327	2.601750153362
230000	0.000038702430	0.001190218934	-1	0.077903189426	2.601160397781
235000	0.000037665307	0.001147994521	-1	0.078543031939	2.600835191139
240000	0.000036673827	0.001108146489	-1	0.079171809827	2.600746257415
245000	0.000035725059	0.001070477212	-1	0.079790529941	2.600867679080
250000	0.000034816244	0.001034799469	-1	0.080400717250	2.601175371279
255000	0.000033944852	0.001000946133	-1	0.081003900462	2.601649525450

260000	0.000033108798	0.000968801725	-1	0.081599660439	2.602279649694
265000	0.000032306202	0.000938266552	-1	0.082187134209	2.603054681160
270000	0.000031535295	0.000909245250	-1	0.082765622700	2.603962986295
275000	0.000030794415	0.000881646682	-1	0.083334572302	2.604991624168
280000	0.000030081984	0.000855383748	-1	0.083893604205	2.606127874568
285000	0.000029396527	0.000830373681	-1	0.084442453744	2.607356743152
290000	0.000028736648	0.000806537483	-1	0.084981058651	2.608664045347
295000	0.000028101042	0.000783801024	-1	0.085509366460	2.610032320720
300000	0.000027488517	0.000762096226	-1	0.086027153097	2.611437663387

Electron Elastic Scattering Sampling Data
Solution for Z = 52

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.022273331834	0.465641211207	+1	0.661784460006	58.647548910713
52	0.020633876962	0.468297658513	+1	0.683751722299	70.592008853475
54	0.019635253780	0.464366695368	+1	0.698017578246	78.508059300543
56	0.019311573769	0.455771042216	+1	0.705095882127	80.590253779826
58	0.019654615312	0.444110052415	+1	0.705612379357	76.704334329360
60	0.020626180760	0.430583748906	+1	0.700251292377	68.356843109712
62	0.022163520186	0.416057619968	+1	0.689746008033	57.815875450366
64	0.024183178062	0.401077599461	+1	0.674820998117	47.083168214382
66	0.026580708726	0.386102149648	+1	0.656277932303	37.447099687195
68	0.029240392696	0.371473409935	+1	0.634914653398	29.439880987888
70	0.032042842037	0.357443080016	+1	0.611494603373	23.093796762154
72	0.034871954310	0.344277040270	+1	0.586782579114	18.210946828727
74	0.037628116386	0.332161952279	+1	0.561436765148	14.508460350849
76	0.040228095876	0.321282451962	+1	0.536053418574	11.721001124285
78	0.042609905554	0.311788820526	+1	0.511124987913	9.625456148293
80	0.044732021271	0.303791987400	+1	0.487032373355	8.046908557913
82	0.046569045335	0.297401175752	+1	0.464076965562	6.855503184876
84	0.048111834694	0.292692518824	+1	0.442458100074	5.954454123390
86	0.049361289361	0.289744384002	+1	0.422310973981	5.274063899186
88	0.050326802414	0.288632758814	+1	0.403709062551	4.763885250994
90	0.051023723261	0.289434709521	+1	0.386675461706	4.387544908985
92	0.051469945573	0.292246949366	+1	0.371203656258	4.119525228662
94	0.051686271095	0.297177465714	+1	0.357255943508	3.941806106575
96	0.051693444761	0.304362159031	+1	0.344780406723	3.842553370174
98	0.051512024033	0.313967344508	+1	0.333714121950	3.814698079726
100	0.051161893915	0.326194366496	+1	0.323987037339	3.855138847744
105	0.049670227587	0.369969230087	+1	0.305048494513	4.267187984249
110	0.047507450245	0.437207288947	+1	0.292879727094	5.229786803233

115	0.044887071774	0.536533360796	+1	0.286437373492	7.055790569273
120	0.041989350141	0.681829878023	+1	0.284751335528	10.434325308195
125	0.038960076346	0.896343842292	+1	0.286916408032	16.896159791760
130	0.035920460178	1.221865049459	+1	0.292060072537	30.098745784175
135	0.032967596929	1.741039701915	+1	0.299320835641	59.864278995951
140	0.030176834205	2.643789046803	+1	0.307865449280	137.836739509380
145	0.027601698375	4.482043641550	+1	0.316907242340	401.892992577665
150	0.025274643629	9.817977507085	+1	0.325759079627	1980.269378204849
155	0.023339162100	73.841754025268	+1	0.332706799485	115368.191246994420
160	0.022360130792	28.999494233959	-1	0.333176477020	19014.702379830411
165	0.019849292150	7.537118320432	-1	0.346278094773	1683.711167802523
170	0.018520706948	5.394598646478	-1	0.350214205126	985.617832479179
175	0.017395822675	4.440748424651	-1	0.352573473530	743.428212367060
180	0.016449204304	3.964841824578	-1	0.353425080864	643.545443595032
185	0.015656184781	3.744288429999	-1	0.352891407378	609.216477727596
190	0.014993240675	3.692727393151	-1	0.351136084243	616.219944262315
195	0.014439673182	3.778479527045	-1	0.348331595354	658.854349603950
200	0.013978121828	4.000663518357	-1	0.344642571616	742.288870251453
205	0.013593443724	4.384724940486	-1	0.340228894572	883.670779955683
210	0.013271275506	4.990231144979	-1	0.335257352856	1121.116169250116
215	0.012999478414	5.943283713912	-1	0.329877757849	1542.606746473688
220	0.012768207317	7.528673640737	-1	0.324216995872	2382.256356096226
225	0.012569506720	10.514984661112	-1	0.318380682781	4443.587619305943
230	0.012396966328	17.875961025956	-1	0.312455576627	12217.989025985678
235	0.012245451115	62.302304311994	-1	0.306511448405	140627.550081976950
240	0.012110856862	40.686922016369	+1	0.300603678424	59473.385114858422
245	0.011989919718	14.695854712498	+1	0.294775344501	7946.045111001937
250	0.011880066729	8.732094080883	+1	0.289058912808	2874.283057855538
255	0.011779180509	6.100606996191	+1	0.283479132399	1438.003557701257
260	0.011685259716	4.626162944658	+1	0.278056220060	847.966461326296
265	0.011596649599	3.687698199147	+1	0.272804915711	552.810590787504
270	0.011512051313	3.040755600102	+1	0.267734878029	385.795290960728
275	0.011430462233	2.569662900124	+1	0.262851650639	282.917198261137

280	0.011351107596	2.212639249704	+1	0.258157574323	215.479313443576
285	0.011273400990	1.933705852179	+1	0.253652457346	169.114718206048
290	0.011196908351	1.710506148639	+1	0.249334158717	136.011711870258
295	0.011121312971	1.528427043023	+1	0.245199051984	111.640600098093
300	0.011046394688	1.377519443524	+1	0.241242409911	93.235388170394
310	0.010898054421	1.143006815457	+1	0.233839254263	67.859953774197
320	0.010751238262	0.970242396891	+1	0.227064370265	51.677655794425
330	0.010605706048	0.838593055561	+1	0.220857914795	40.776678723300
340	0.010461448578	0.735663545254	+1	0.215165100383	33.115150094860
350	0.010318592257	0.653568403795	+1	0.209936351879	27.546091349841
360	0.010177366747	0.587022630696	+1	0.205125593434	23.384400591448
370	0.010038121340	0.532265113283	+1	0.200686149451	20.196298022750
380	0.009901147259	0.486633631934	+1	0.196576874025	17.702303598093
390	0.009766642157	0.448216916051	+1	0.192762963289	15.717304904292
400	0.009634737681	0.415607872200	+1	0.189214699501	14.114697037278
410	0.009505543650	0.387737104480	+1	0.185905783758	12.804927579092
420	0.009379207400	0.363744035862	+1	0.182810595979	11.721599796041
430	0.009255828649	0.342958491703	+1	0.179906722942	10.816125533414
440	0.009135446465	0.324859438879	+1	0.177175126901	10.052669320604
450	0.009018052954	0.309036557904	+1	0.174599608758	9.404344101752
460	0.008903625150	0.295158270365	+1	0.172165885173	8.850443417997
470	0.008792151232	0.282942344692	+1	0.169860420614	8.374315485245
480	0.008683616733	0.272155591424	+1	0.167671074364	7.962785884794
490	0.008577958510	0.262609476859	+1	0.165587653296	7.605596040877
500	0.008475108170	0.254147943539	+1	0.163601174509	7.294540503989
510	0.008374990264	0.246640520959	+1	0.161703724454	7.022985599619
520	0.008277540069	0.239972576169	+1	0.159887865768	6.785323483841
530	0.008182686586	0.234046786881	+1	0.158146943278	6.576936755543
540	0.008090350189	0.228780889792	+1	0.156475136751	6.394032906592
550	0.008000447870	0.224105052260	+1	0.154867324469	6.233474901886
560	0.007912896056	0.219959050807	+1	0.153318872352	6.092623822933
570	0.007827615717	0.216289737139	+1	0.151825549431	5.969210296181
580	0.007744533789	0.213050715490	+1	0.150383486111	5.861292952770

590	0.007663568073	0.210201761054	+1	0.148989253376	5.767232417263
600	0.007584643008	0.207707702668	+1	0.147639756209	5.685620770654
610	0.007507684816	0.205537576142	+1	0.146332194744	5.615243145304
620	0.007432620270	0.203664188266	+1	0.145064003654	5.555051787531
630	0.007359379640	0.202063405847	+1	0.143832835212	5.504132459419
640	0.007287897938	0.200713657043	+1	0.142636571895	5.461682053010
650	0.007218107286	0.199595751253	+1	0.141473253317	5.427000536729
660	0.007149946621	0.198692447105	+1	0.140341080750	5.399466326537
670	0.007083354634	0.197988826236	+1	0.139238439342	5.378551449659
680	0.007018274325	0.197471385634	+1	0.138163855091	5.363785044964
690	0.006954652157	0.197127880597	+1	0.137115920075	5.354743816389
700	0.006892430489	0.196947303131	+1	0.136093385991	5.351059972574
710	0.006831562814	0.196919305466	+1	0.135095019930	5.352383481188
720	0.006771998624	0.197035299995	+1	0.134119764905	5.358434977516
730	0.006713692088	0.197287381803	+1	0.133166623892	5.368958967818
740	0.006656597599	0.197668324217	+1	0.132234646682	5.383725997862
750	0.006600671849	0.198171314296	+1	0.131322948910	5.402523034481
760	0.006545877406	0.198790013509	+1	0.130430708072	5.425151807323
770	0.006492172503	0.199519252888	+1	0.129557158126	5.451458812047
780	0.006439520169	0.200354363563	+1	0.128701632200	5.481308495622
790	0.006387885572	0.201290828441	+1	0.127863435257	5.514567967899
800	0.006337235505	0.202324360866	+1	0.127041952400	5.551114957568
810	0.006287535532	0.203451127716	+1	0.126236583112	5.590844166250
820	0.006238756397	0.204667824798	+1	0.125446769182	5.633665386380
830	0.006190867630	0.205971646298	+1	0.124672041437	5.679510652917
840	0.006143840581	0.207359731778	+1	0.123911862268	5.728305643586
850	0.006097649069	0.208829377466	+1	0.123165776059	5.779983442471
860	0.006052266094	0.210378149718	+1	0.122433352239	5.834488388670
870	0.006007666889	0.212004059385	+1	0.121714159869	5.891777550129
880	0.005963827843	0.213705400135	+1	0.121007836607	5.951820312220
890	0.005920728323	0.215480247134	+1	0.120313982064	6.014574257693
900	0.005878327718	0.217328936162	+1	0.119632498633	6.080109841945
910	0.005836651749	0.219244384372	+1	0.118962283688	6.148126522075

920	0.005795636646	0.221230834473	+1	0.118303779477	6.218879785579
930	0.005755278312	0.223285440380	+1	0.117656424704	6.292271899548
940	0.005715555618	0.225407303550	+1	0.117019921456	6.368303055635
950	0.005676452022	0.227595365343	+1	0.116393999515	6.446965357517
960	0.005637952380	0.229848604166	+1	0.115778362345	6.528249269940
970	0.005600038841	0.232166460368	+1	0.115172777142	6.612168401345
980	0.005562696047	0.234548248093	+1	0.114576971357	6.698727358604
990	0.005525908836	0.236993367627	+1	0.113990714819	6.787936735717
1000	0.005489663546	0.239501213752	+1	0.113413772062	6.879805350060
1025	0.005401329174	0.246042448341	+1	0.112010706633	7.121222980997
1050	0.005316091354	0.252970973071	+1	0.110661325272	7.379812366003
1075	0.005233765238	0.260285868524	+1	0.109362697670	7.656083903806
1100	0.005154182956	0.267985748899	+1	0.108112059057	7.950554227175
1125	0.005077190321	0.276069786383	+1	0.106906795536	8.263784282694
1150	0.005002646505	0.284542952448	+1	0.105744635600	8.596590385042
1175	0.004930424599	0.293411268778	+1	0.104623455703	8.949864513935
1200	0.004860404394	0.302680591986	+1	0.103541224560	9.324538646542
1225	0.004792476132	0.312357061194	+1	0.102496026016	9.721597908216
1250	0.004726539110	0.322450600848	+1	0.101486116830	10.142227839741
1275	0.004662498712	0.332972081456	+1	0.100509877951	10.587716530411
1300	0.004600266071	0.343932321444	+1	0.099565742180	11.059412972059
1325	0.004539762326	0.355342474511	+1	0.098652216467	11.558736800224
1350	0.004480909774	0.367217130098	+1	0.097767949132	12.087341462589
1375	0.004423638586	0.379571571982	+1	0.096911662256	12.646989591597
1400	0.004367881671	0.392421671023	+1	0.096082127455	13.239564908762
1425	0.004313575960	0.405783920572	+1	0.095278159667	13.867076369458
1450	0.004260664991	0.419677675085	+1	0.094498697675	14.531770292669
1475	0.004209091575	0.434123669602	+1	0.093742687663	15.236086257003
1500	0.004158805523	0.449143171822	+1	0.093009152004	15.982615933669
1550	0.004061899812	0.480996210748	+1	0.091605754880	17.613849906425
1600	0.003969586044	0.515445236044	+1	0.090281654716	19.451341460745
1650	0.003881540461	0.552726053938	+1	0.089030572129	21.525515093236
1700	0.003797470090	0.593113909247	+1	0.087846866095	23.872780109744

1750	0.003717111491	0.636923623304	+1	0.086725399091	26.536508766693
1800	0.003640222623	0.684521246148	+1	0.085661539662	29.568977759843
1850	0.003566584684	0.736329848278	+1	0.084651020624	33.033257377046
1900	0.003495995911	0.792847080221	+1	0.083690021771	37.006446500855
1950	0.003428272673	0.854655133663	+1	0.082775020315	41.582998580218
2000	0.003363247583	0.922434042884	+1	0.081902699160	46.879098005392
2100	0.003240678664	1.079305726980	+1	0.080274392035	60.247700330483
2200	0.003127163480	1.272205554285	+1	0.078784924390	78.809834240775
2300	0.003021735379	1.514175829970	+1	0.077417335754	105.399394134450
2400	0.002923569351	1.825457899613	+1	0.076156746620	145.007182784915
2500	0.002831952649	2.239311154250	+1	0.074990202393	207.067124239745
2600	0.002746260654	2.814523143949	+1	0.073906647282	311.129368115998
2700	0.002665940046	3.665666888251	+1	0.072896903501	503.084727648117
2800	0.002590503885	5.049913171101	+1	0.071953091976	912.020816028642
2900	0.002519518377	7.689254369157	+1	0.071068409323	2023.714458442141
3000	0.002452599897	14.686605294757	+1	0.070237017573	7078.702346216284
3100	0.002395458487	55.580910736776	+1	0.069227962425	97410.567773762275
3200	0.002329636005	23.716225139014	-1	0.068714332373	18522.238742287547
3300	0.002273017591	10.347472340330	-1	0.068014308901	3761.279580358942
3400	0.002219307463	6.575717057349	-1	0.067350249769	1617.362084309976
3500	0.002168284524	4.797619548882	-1	0.066719190605	915.075708798958
3600	0.002119747187	3.763535112894	-1	0.066118477833	597.520375906830
3700	0.002073518848	3.087886625510	-1	0.065545589090	426.125936524405
3800	0.002029437229	2.612249190138	-1	0.064998235168	322.571011921083
3900	0.001987353892	2.259502985088	-1	0.064474454040	254.893566970017
4000	0.001947133563	1.987604100408	-1	0.063972599468	208.026095162842
4100	0.001908651015	1.771699130689	-1	0.063491242013	174.093831413695
4200	0.001871795345	1.596227747204	-1	0.063028861141	148.655292564107
4300	0.001836465032	1.450900008481	-1	0.062584099853	129.037301558928
4400	0.001802565808	1.328626060767	-1	0.062155748407	113.548089434677
4500	0.001770009508	1.224358410416	-1	0.061742843521	101.072835833865
4600	0.001738715629	1.134415256187	-1	0.061344527831	90.852643795612
4700	0.001708611525	1.056075559629	-1	0.060959844057	82.358609772504

4800	0.001679629765	0.987264991385	-1	0.060587894790	75.210214116667
4900	0.001651707845	0.926367254276	-1	0.060227949573	69.127025252610
5000	0.001624786210	0.872103950948	-1	0.059879385182	63.898502894851
5500	0.001503244787	0.670402801447	-1	0.058300263866	46.050360518117
6000	0.001399981243	0.540573233779	-1	0.056935301392	35.863050335809
6500	0.001311111518	0.450464102825	-1	0.055737055207	29.377144348617
7000	0.001233766137	0.384510605745	-1	0.054673280191	24.924673256933
7500	0.001165799771	0.334302335722	-1	0.053719833495	21.695946761235
8000	0.001105574361	0.294904703447	-1	0.052858160287	19.255229139120
8500	0.001051817165	0.263235924045	-1	0.052073756513	17.349108936487
9000	0.001003523803	0.237275195016	-1	0.051355025238	15.821024289901
9500	0.000959889245	0.215643550408	-1	0.050692575084	14.569424558642
10000	0.000920262121	0.197369188721	-1	0.050078709640	13.525767422981
10500	0.000884107065	0.181745948992	-1	0.049507220386	12.642120593822
11000	0.000850984934	0.168257545347	-1	0.048972276583	11.884446711803
11500	0.000820523284	0.156502460739	-1	0.048469919471	11.227172497458
12000	0.000792412852	0.146180018682	-1	0.047995995654	10.651519374635
12500	0.000766388723	0.137050184819	-1	0.047547433984	10.142877263377
13000	0.000742227112	0.128926343761	-1	0.047121187569	9.690067250425
13500	0.000719739781	0.121661150165	-1	0.046713644474	9.284232244903
14000	0.000698760838	0.115133052784	-1	0.046322273838	8.918319351688
14500	0.000679136585	0.109233958619	-1	0.045946747938	8.586398080268
15000	0.000660740922	0.103881667674	-1	0.045585339039	8.283835282360
16000	0.000627199571	0.094548986525	-1	0.044899486019	7.751867043026
17000	0.000597392064	0.086700785039	-1	0.044255145066	7.298540037547
18000	0.000570731408	0.080022941171	-1	0.043644773406	6.906864400363
19000	0.000546747930	0.074282839263	-1	0.043062369363	6.564428008472
20000	0.000525061672	0.069304765060	-1	0.042503134095	6.261954431395
21000	0.000478642061	0.057509209698	-1	0.046800129580	6.235423522177
22000	0.000459441118	0.053697361422	-1	0.046656477199	6.024236538095
23000	0.000441118746	0.050036080746	-1	0.046560872439	5.813913930960
24000	0.000423883019	0.046621162145	-1	0.046512113267	5.612979149638
25000	0.000407912858	0.043544027032	-1	0.046496175505	5.429872688093

26000	0.000393307616	0.040865138853	-1	0.046488941345	5.270699185843
27000	0.000379904703	0.038534677356	-1	0.046480364123	5.133020297571
28000	0.000367519973	0.036483684223	-1	0.046467260596	5.012242687830
29000	0.000355988551	0.034648238441	-1	0.046452281326	4.903970975705
30000	0.000345159320	0.032968841726	-1	0.046444092283	4.804030430076
31000	0.000334915503	0.031399248125	-1	0.046452746913	4.709063653776
32000	0.000325199108	0.029926867287	-1	0.046480378589	4.618671914777
33000	0.000315984333	0.028549632935	-1	0.046523794631	4.533026871530
34000	0.000307247709	0.027265644555	-1	0.046579286668	4.452303026081
35000	0.000298967947	0.026073147960	-1	0.046642596971	4.376675232892
36000	0.000291122771	0.024969199930	-1	0.046709572360	4.306193186124
37000	0.000283679475	0.023945744834	-1	0.046778848904	4.240431562854
38000	0.000276604760	0.022993899047	-1	0.046850371045	4.178860324029
39000	0.000269867929	0.022105292239	-1	0.046924793414	4.120962214152
40000	0.000263440384	0.021272032290	-1	0.047003518533	4.066237567658
41000	0.000257296810	0.020487341718	-1	0.047088071834	4.014257676361
42000	0.000251418621	0.019747441167	-1	0.047178032434	3.964833012259
43000	0.000245789996	0.019049392988	-1	0.047272526742	3.917829830925
44000	0.000240396119	0.018390400388	-1	0.047370819959	3.873117397543
45000	0.000235223248	0.017767805945	-1	0.047472312647	3.830565620270
46000	0.000230258533	0.017179074786	-1	0.047576556921	3.790045272302
47000	0.000225489694	0.016621811374	-1	0.047683156088	3.751428599190
48000	0.000220905225	0.016093722017	-1	0.047791888273	3.714588084391
49000	0.000216494269	0.015592613534	-1	0.047902711246	3.679398258144
50000	0.000212246650	0.015116397677	-1	0.048015742239	3.645734349874
55000	0.000193161829	0.013052521789	-1	0.048612236648	3.497109586591
60000	0.000177050101	0.011408672218	-1	0.049247187403	3.375223410225
65000	0.000163263379	0.010074289758	-1	0.049910418014	3.273668696406
70000	0.000151330589	0.008973715632	-1	0.050594492866	3.187947921973
75000	0.000140900745	0.008053559620	-1	0.051293973450	3.114810942425
80000	0.000131706925	0.007275177591	-1	0.052004679471	3.051842759628
85000	0.000123541943	0.006609949345	-1	0.052723554932	2.997224116643
90000	0.000116243027	0.006036283700	-1	0.053448121460	2.949537489653

95000	0.000109679703	0.005537574157	-1	0.054176862205	2.907688494002
100000	0.000103745558	0.005100773321	-1	0.054909983997	2.870841455937
105000	0.000098362206	0.004716565835	-1	0.055635596874	2.837995038624
110000	0.000093456905	0.004376649711	-1	0.056353376040	2.808645742673
115000	0.000088964143	0.004073598141	-1	0.057072166876	2.782505308006
120000	0.000084830329	0.003801712995	-1	0.057798622203	2.759389576651
125000	0.000081020958	0.003557394207	-1	0.058519966372	2.738637826185
130000	0.000077499617	0.003336945236	-1	0.059236285442	2.720006435384
135000	0.000074235170	0.003137230164	-1	0.059947874692	2.703252660324
140000	0.000071201195	0.002955703192	-1	0.060653979428	2.688178288156
145000	0.000068374568	0.002790150685	-1	0.061354550382	2.674598711138
150000	0.000065735357	0.002638736416	-1	0.062048998023	2.662364652120
155000	0.000063265945	0.002499847384	-1	0.062737288098	2.651335837281
160000	0.000060950988	0.002372131134	-1	0.063418850399	2.641395376723
165000	0.000058776827	0.002254391717	-1	0.064093522276	2.632433247379
170000	0.000056731459	0.002145605826	-1	0.064761108398	2.624362896428
175000	0.000054804101	0.002044863825	-1	0.065421668435	2.617101770604
180000	0.000052985148	0.001951385599	-1	0.066074798999	2.610575995712
185000	0.000051265973	0.001864474794	-1	0.066720291376	2.604714544883
190000	0.000049639017	0.001783540623	-1	0.067357634676	2.599464298663
195000	0.000048097372	0.001708039705	-1	0.067986757449	2.594771576087
200000	0.000046634507	0.001637443053	-1	0.068608739309	2.590576356006
205000	0.000045244485	0.001571276632	-1	0.069224922501	2.586824415074
210000	0.000043922395	0.001509204679	-1	0.069834339459	2.583489668612
215000	0.000042663837	0.001450936853	-1	0.070435577339	2.580550305149
220000	0.000041464721	0.001396196205	-1	0.071027591999	2.577982194828
225000	0.000040321256	0.001344722631	-1	0.071609519071	2.575756703998
230000	0.000039229899	0.001296267348	-1	0.072180981306	2.573845431130
235000	0.000038187346	0.001250595626	-1	0.072741916733	2.572217855561
240000	0.000037190480	0.001207483410	-1	0.073292805927	2.570846446154
245000	0.000036236397	0.001166719667	-1	0.073834450934	2.569701087914
250000	0.000035322343	0.001128103101	-1	0.074368232918	2.568755775112
255000	0.000034445807	0.001091454702	-1	0.074895470603	2.567987394638

260000	0.000033604697	0.001056649590	-1	0.075415834568	2.567385896786
265000	0.000032797118	0.001023580462	-1	0.075928581489	2.566942341268
270000	0.000032021298	0.000992144401	-1	0.076433097566	2.566645094086
275000	0.000031275559	0.000962243286	-1	0.076928922925	2.566483209927
280000	0.000030558333	0.000933783350	-1	0.077415726989	2.566443433174
285000	0.000029868140	0.000906676159	-1	0.077893239296	2.566511338729
290000	0.000029203599	0.000880837856	-1	0.078361270825	2.566670081196
295000	0.000028563428	0.000856190860	-1	0.078819561694	2.566899402881
300000	0.000027946550	0.000832670396	-1	0.079266958519	2.567158764090

Electron Elastic Scattering Sampling Data
Solution for Z = 53

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.018350601213	0.394153377691	+1	0.697461845912	67.790445568352
52	0.015553905934	0.391242345481	+1	0.718139216833	87.797102237472
54	0.013642152928	0.383289542171	+1	0.730104899478	103.720057623494
56	0.012544738436	0.372431963563	+1	0.734350690354	111.238917758379
58	0.012150607484	0.360261092430	+1	0.731913972893	108.788343933437
60	0.012348486872	0.347819582051	+1	0.723795861076	98.271576099158
62	0.013039919576	0.335734090734	+1	0.710954375206	83.500545239894
64	0.014141313787	0.324300538020	+1	0.694236434613	67.993540947543
66	0.015573162048	0.313703441722	+1	0.674501403737	53.996093515474
68	0.017260822633	0.304030351429	+1	0.652539343203	42.404495202019
70	0.019133539011	0.295306306096	+1	0.629047325791	33.264700286644
72	0.021122263206	0.287578250732	+1	0.604687983553	26.260488282388
74	0.023165871474	0.280864181192	+1	0.580007685191	20.960283591199
76	0.025208858917	0.275203677370	+1	0.555485520497	16.968954377943
78	0.027204426931	0.270638193079	+1	0.531508458491	13.961206552596
80	0.029114722218	0.267206026819	+1	0.508371643031	11.685880202695
82	0.030908972758	0.264963176180	+1	0.486306970574	9.957844380918
84	0.032565242891	0.263960026850	+1	0.465468622627	8.640062539973
86	0.034067381968	0.264260860001	+1	0.445961960478	7.633789319494
88	0.035405229636	0.265937760173	+1	0.427845614067	6.867338326780
90	0.036573724244	0.269070261397	+1	0.411139782226	6.288676756592
92	0.037571018245	0.273756484718	+1	0.395841431583	5.860711389603
94	0.038399240876	0.280105314702	+1	0.381922895829	5.556650578165
96	0.039062370375	0.288247448370	+1	0.369344438287	5.358014509354
98	0.039566181245	0.298336386116	+1	0.358056667944	5.252574825977
100	0.039917841120	0.310551027758	+1	0.348003502033	5.233101799324
105	0.040186942396	0.351860751368	+1	0.327878362275	5.551000970040
110	0.039704296152	0.412267056989	+1	0.314136648562	6.459949611206

115	0.038614941530	0.498405840539	+1	0.305877972094	8.205688146804
120	0.037066018221	0.620414155434	+1	0.302249108821	11.328959310103
125	0.035192105643	0.794333145825	+1	0.302450829972	16.963658267853
130	0.033117103023	1.047018666007	+1	0.305713320246	27.583531345233
135	0.030948784827	1.426708003784	+1	0.311278660894	49.043080102546
140	0.028778954377	2.029850421899	+1	0.318407330906	97.038995090911
145	0.026680851325	3.080244672277	+1	0.326386453403	222.309278591150
150	0.024708860617	5.243745062965	+1	0.334569129221	650.154303412203
155	0.022899273607	11.765899086211	+1	0.342392665975	3338.718128837469
160	0.021447607016	99.434541675535	+1	0.347757702539	243048.664164464280
165	0.020578375652	29.658336980805	-1	0.348419820965	23151.168954843160
170	0.018578629376	8.112817804509	-1	0.359871837238	2196.327530774840
175	0.017497994317	5.875410953614	-1	0.363015052685	1293.035776877446
180	0.016575833591	4.859536881591	-1	0.364731373894	970.194326173624
185	0.015795058187	4.345993448766	-1	0.365079970919	832.643590944432
190	0.015137567445	4.103206819997	-1	0.364173646057	780.468852663042
195	0.014586395457	4.041078385748	-1	0.362146865910	781.533762039359
200	0.014126697946	4.126970534268	-1	0.359137021696	827.664460439644
205	0.013744895252	4.360177256476	-1	0.355287104631	924.328342535669
210	0.013427417183	4.765882681925	-1	0.350757837721	1090.999837220650
215	0.013162455645	5.406744224648	-1	0.345699510281	1372.393717831036
220	0.012940203460	6.416227351026	-1	0.340244056021	1872.169221468037
225	0.012752561319	8.095262368043	-1	0.334505302409	2865.522326317785
230	0.012592875451	11.253953585819	-1	0.328579803461	5292.587417493341
235	0.012455709992	19.011107303003	-1	0.322548358776	14363.178211413388
240	0.012336642634	64.921220091524	-1	0.316477519715	158664.596788879370
245	0.012232101909	44.051517362457	+1	0.310421269297	72153.385081493456
250	0.012139217156	15.734279474578	+1	0.304422656349	9378.955773454502
255	0.012055598343	9.317769157046	+1	0.298516238120	3353.165196639210
260	0.011978965538	6.496752865634	+1	0.292731870997	1662.894359361957
265	0.011907424459	4.919239160585	+1	0.287092801778	973.182994312915
270	0.011839483636	3.916534794489	+1	0.281616082211	630.111742922171
275	0.011773982029	3.226034775596	+1	0.276313590294	436.965414498264

280	0.011710033673	2.723657306738	+1	0.271192927330	318.547167801658
285	0.011646963127	2.343204231251	+1	0.266258369701	241.263417962227
290	0.011584277176	2.046154999888	+1	0.261511402945	188.350316028393
295	0.011521623682	1.808592165379	+1	0.256951357277	150.721128981788
300	0.011458762473	1.614890450958	+1	0.252575926683	123.121965753411
310	0.011331874534	1.319541390588	+1	0.244360637788	86.366708490758
320	0.011203012497	1.106356649794	+1	0.236815437757	63.831392209847
330	0.011072106414	0.946420282914	+1	0.229885930410	49.120820758809
340	0.010939404120	0.822898345308	+1	0.223519551875	39.045846473463
350	0.010805330180	0.725340505097	+1	0.217666773696	31.879503401833
360	0.010670427551	0.646886529459	+1	0.212280144387	26.621834970512
370	0.010535348020	0.582752250561	+1	0.207310278456	22.657610736066
380	0.010400657378	0.529599960204	+1	0.202713060825	19.599206056507
390	0.010266813353	0.485057271448	+1	0.198450688781	17.194392399329
400	0.010134182460	0.447393893174	+1	0.194490529018	15.273438035088
410	0.010003083402	0.415305406472	+1	0.190803455191	13.718081423675
420	0.009873852459	0.387753413792	+1	0.187360841252	12.442144910044
430	0.009746751953	0.363934765801	+1	0.184137477351	11.383346894369
440	0.009621961539	0.343228749816	+1	0.181111910373	10.496238457785
450	0.009499596446	0.325148628974	+1	0.178265762923	9.747018106421
460	0.009379739781	0.309303135736	+1	0.175582812098	9.109910708583
470	0.009262475607	0.295360176047	+1	0.173047486065	8.564381374836
480	0.009147853730	0.283048190118	+1	0.170646037134	8.094417872251
490	0.009035902150	0.272145960198	+1	0.168366465446	7.687485296874
500	0.008926595893	0.262473443016	+1	0.166198634711	7.333765585188
510	0.008819909189	0.253879450511	+1	0.164133356708	7.025309042612
520	0.008715819735	0.246231466327	+1	0.162161989789	6.755448666918
530	0.008614293972	0.239417279041	+1	0.160276808624	6.518726630843
540	0.008515281112	0.233342412912	+1	0.158471042613	6.310688281343
550	0.008418721446	0.227927021044	+1	0.156738723812	6.127671567741
560	0.008324553070	0.223102530043	+1	0.155074513198	5.966616254294
570	0.008232717285	0.218807998208	+1	0.153473410088	5.824880758226
580	0.008143149938	0.214990501573	+1	0.151930896063	5.700229984069

590	0.008055786547	0.211604230221	+1	0.150442951200	5.590773602913
600	0.007970554581	0.208609546777	+1	0.149005969883	5.494914884364
610	0.007887391378	0.205971345601	+1	0.147616668954	5.411265519358
620	0.007806230096	0.203658761860	+1	0.146272033803	5.338630771474
630	0.007727005408	0.201644385701	+1	0.144969294705	5.275969763638
640	0.007649653575	0.199903907566	+1	0.143705966658	5.222378030236
650	0.007574113913	0.198415644374	+1	0.142479742550	5.177060986916
660	0.007500321008	0.197160418755	+1	0.141288535071	5.139332283111
670	0.007428219016	0.196121206088	+1	0.140130452869	5.108588140135
680	0.007357749172	0.195282753867	+1	0.139003706315	5.084297237501
690	0.007288854238	0.194631328342	+1	0.137906685972	5.065990810553
700	0.007221483405	0.194154302702	+1	0.136837885351	5.053241487527
710	0.007155582288	0.193840418942	+1	0.135795901535	5.045676639647
720	0.007091103044	0.193679790205	+1	0.134779474513	5.042971765150
730	0.007027994770	0.193663589470	+1	0.133787416377	5.044843855164
740	0.006966212347	0.193783539809	+1	0.132818632017	5.051029776873
750	0.006905710714	0.194032043301	+1	0.131872074844	5.061291682119
760	0.006846448106	0.194402109286	+1	0.130946783466	5.075413553585
770	0.006788383376	0.194887822735	+1	0.130041884022	5.093217124340
780	0.006731474063	0.195483819290	+1	0.129156572550	5.114546457875
790	0.006675685028	0.196184932049	+1	0.128290076933	5.139248705089
800	0.006620980109	0.196986297540	+1	0.127441654007	5.167183180615
810	0.006567323261	0.197883609162	+1	0.126610623977	5.198229721085
820	0.006514681001	0.198873166861	+1	0.125796366301	5.232288109148
830	0.006463021631	0.199951567124	+1	0.124998269726	5.269266771409
840	0.006412313281	0.201115729620	+1	0.124215777701	5.309087283884
850	0.006362528285	0.202362455628	+1	0.123448327207	5.351664144216
860	0.006313636664	0.203688997790	+1	0.122695416586	5.396930929390
870	0.006265613165	0.205092958806	+1	0.121956578283	5.444830025654
880	0.006218428703	0.206572337883	+1	0.121231370920	5.495321102533
890	0.006172061671	0.208124982352	+1	0.120519364190	5.548353434357
900	0.006126484822	0.209749018197	+1	0.119820152856	5.603891529543
910	0.006081678174	0.211442505312	+1	0.119133359695	5.661892968194

920	0.006037616849	0.213204079982	+1	0.118458600809	5.722337791347
930	0.005994281892	0.215032469320	+1	0.117795554760	5.785207109174
940	0.005951654454	0.216926144947	+1	0.117143842866	5.850470837337
950	0.005909705507	0.218884746067	+1	0.116503278487	5.918157318330
960	0.005868426613	0.220906223446	+1	0.115873416256	5.988206478274
970	0.005827796806	0.222989951480	+1	0.115254020999	6.060628108191
980	0.005787797305	0.225135156005	+1	0.114644808769	6.135422866649
990	0.005748412399	0.227341004771	+1	0.114045516696	6.212587991446
1000	0.005709625422	0.229606673204	+1	0.113455887290	6.292122654713
1025	0.005615175244	0.235528492767	+1	0.112022506132	6.501362930871
1050	0.005524140809	0.241815516504	+1	0.110644579925	6.725720153907
1075	0.005436313908	0.248464228708	+1	0.109318942519	6.965528742391
1100	0.005351507376	0.255470447849	+1	0.108042595286	7.221110562884
1125	0.005269548856	0.262830797686	+1	0.106812742872	7.492832158164
1150	0.005190280492	0.270547577404	+1	0.105626978172	7.781290651192
1175	0.005113554296	0.278624614083	+1	0.104483069413	8.087171640514
1200	0.005039238083	0.287064903650	+1	0.103378885406	8.411153053870
1225	0.004967208031	0.295872017670	+1	0.102312412947	8.753966346175
1250	0.004897349076	0.305053242273	+1	0.101281857250	9.116523612719
1275	0.004829558781	0.314616154879	+1	0.100285506110	9.499780688783
1300	0.004763731025	0.324569669417	+1	0.099321825728	9.904820577270
1325	0.004699781839	0.334920938223	+1	0.098389195701	10.332660034971
1350	0.004637624268	0.345681447113	+1	0.097486273784	10.784573942635
1375	0.004577177916	0.356863309963	+1	0.096611732601	11.261916986128
1400	0.004518368874	0.368478643994	+1	0.095764331791	11.766110679550
1425	0.004461127601	0.380540110672	+1	0.094942864697	12.298666486827
1450	0.004405389299	0.393062938308	+1	0.094146233074	12.861284967817
1475	0.004351092110	0.406063295669	+1	0.093373401968	13.455799259220
1500	0.004298178231	0.419557867657	+1	0.092623358736	14.084155322652
1550	0.004196288255	0.448101598154	+1	0.091187902477	15.450933631496
1600	0.004099319477	0.478856593341	+1	0.089832903018	16.980770707696
1650	0.004006914051	0.512005592254	+1	0.088552043623	18.695973523262
1700	0.003918752054	0.547760249374	+1	0.087339648073	20.622917401873

1750	0.003834543440	0.586360395719	+1	0.086190538349	22.792640088331
1800	0.003754025692	0.628083132125	+1	0.085100038705	25.242090216809
1850	0.003676960755	0.673244717006	+1	0.084063860481	28.015191938065
1900	0.003603129381	0.722214305463	+1	0.083078155636	31.164914677247
1950	0.003532331605	0.775416964415	+1	0.082139376437	34.755015777519
2000	0.003464387855	0.833341803142	+1	0.081244170212	38.862455428157
2100	0.003336406148	0.965756367845	+1	0.079572607039	49.028187646215
2200	0.003217976208	1.125505356277	+1	0.078043100797	62.727146752983
2300	0.003108066523	1.321245066253	+1	0.076638415638	81.647155621337
2400	0.003005795559	1.565755667344	+1	0.075343507924	108.577996025137
2500	0.002910405065	1.878743671753	+1	0.074145254277	148.386863248516
2600	0.002821233650	2.292292599037	+1	0.073032303571	210.163020303918
2700	0.002737695837	2.862455934089	+1	0.071995330693	312.452482577932
2800	0.002659274363	3.696725849203	+1	0.071026300560	497.865129511230
2900	0.002585514143	5.030635720037	+1	0.070118255829	882.512785253803
3000	0.002516011464	7.499353546958	+1	0.069265169439	1880.592606206810
3100	0.002450405701	13.608537957504	+1	0.068461803433	5947.918375732756
3200	0.002391238350	46.271490269799	+1	0.067601113782	66161.410771706913
3300	0.002329646706	30.412585465961	-1	0.066985866987	29373.205602043075
3400	0.002273951696	11.774667893713	-1	0.066305460592	4686.785566668343
3500	0.002221061401	7.253933267076	-1	0.065659102887	1890.166253791041
3600	0.002170766240	5.217984448717	-1	0.065044062465	1037.562190792364
3700	0.002122879373	4.060827728496	-1	0.064457721678	665.581676886337
3800	0.002077230927	3.315103424829	-1	0.063897740034	469.099015519695
3900	0.002033665966	2.794856229401	-1	0.063362105540	352.087609277947
4000	0.001992043042	2.411446894089	-1	0.062849092732	276.403036150026
4100	0.001952230434	2.117280126531	-1	0.062357197229	224.401222718570
4200	0.001914112271	1.884605673505	-1	0.061884855278	186.998136508962
4300	0.001877582412	1.696092202606	-1	0.061430667117	159.107042228864
4400	0.001842541088	1.540334255129	-1	0.060993418856	137.690357999161
4500	0.001808897659	1.409524474542	-1	0.060572075835	120.840934179656
4600	0.001776566793	1.298142035304	-1	0.060165742917	107.311109093929
4700	0.001745472895	1.202209576288	-1	0.059773422011	96.259572491552

4800	0.001715545052	1.118761476082	-1	0.059394228570	87.098291679149
4900	0.001686718519	1.045538826390	-1	0.059027375312	79.405365169336
5000	0.001658931371	0.980784822178	-1	0.058672234397	72.870962718878
5500	0.001533745552	0.744557586537	-1	0.057051215759	51.161291432173
6000	0.001427445899	0.595573313350	-1	0.055652879240	39.176787744832
6500	0.001335968042	0.493475555854	-1	0.054431118232	31.713338514148
7000	0.001256409077	0.419491927334	-1	0.053347006838	26.674691497520
7500	0.001186538967	0.363585812193	-1	0.052375835825	23.066793849965
8000	0.001124657670	0.319964676079	-1	0.051498694508	20.366393163791
8500	0.001069445733	0.285056490110	-1	0.050700758602	18.274332311790
9000	0.001019862730	0.256541907409	-1	0.049970219222	16.608289865943
9500	0.000975076542	0.232851119159	-1	0.049297527428	15.251322508736
10000	0.000934413540	0.212884937049	-1	0.048674851548	14.125227466355
10500	0.000897321030	0.195849379322	-1	0.048095853149	13.175761440392
11000	0.000863345402	0.181166172208	-1	0.047554633309	12.364640894788
11500	0.000832103215	0.168388053869	-1	0.047047109128	11.663300593797
12000	0.000803275588	0.157180858191	-1	0.046569083078	11.050859722806
12500	0.000776589677	0.147278726162	-1	0.046117406036	10.511148124354
13000	0.000751814897	0.138475487113	-1	0.045688986219	10.031846036209
13500	0.000728750878	0.130602413278	-1	0.045281528627	9.603098785942
14000	0.000707225971	0.123525797730	-1	0.044892676811	9.217195654792
14500	0.000687090091	0.117134012798	-1	0.044520664978	8.867815691982
15000	0.000668226289	0.111347871772	-1	0.044161036509	8.550131681377
16000	0.000633832255	0.101266389471	-1	0.043480409230	7.992965632809
17000	0.000603264483	0.092794099516	-1	0.042843818666	7.519594029499
18000	0.000575920364	0.085588824577	-1	0.042243409207	7.111705345057
19000	0.000551318825	0.079397617500	-1	0.041672993095	6.755969837074
20000	0.000529070032	0.074029793276	-1	0.041127488481	6.442453788155
21000	0.000485884341	0.062045959607	-1	0.044866627164	6.367549813050
22000	0.000466359717	0.057939246861	-1	0.044698729431	6.147023554979
23000	0.000447741621	0.053999119150	-1	0.044574055508	5.927753933366
24000	0.000430237407	0.050326525013	-1	0.044492891813	5.718511669080
25000	0.000414023225	0.047017539868	-1	0.044443970996	5.527975153966

26000	0.000399192561	0.044135124249	-1	0.044406732281	5.362422414164
27000	0.000385593045	0.041627836759	-1	0.044370098242	5.219158184544
28000	0.000373033081	0.039421102947	-1	0.044330976424	5.093434960397
29000	0.000361339393	0.037445639772	-1	0.044291938231	4.980739539058
30000	0.000350343940	0.035635613923	-1	0.044262560012	4.876883881138
31000	0.000339936610	0.033942931894	-1	0.044250641784	4.778327735247
32000	0.000330069292	0.032355623714	-1	0.044256540527	4.684538224118
33000	0.000320718386	0.030871738097	-1	0.044276833228	4.595650906048
34000	0.000311860696	0.029489228171	-1	0.044307859786	4.511821498926
35000	0.000303466389	0.028204964823	-1	0.044347014545	4.433299336758
36000	0.000295512777	0.027015766913	-1	0.044390478304	4.360127449027
37000	0.000287966726	0.025913006299	-1	0.044436920914	4.291860331099
38000	0.000280794568	0.024887174384	-1	0.044486196245	4.227944964414
39000	0.000273965256	0.023929320708	-1	0.044538801059	4.167843104489
40000	0.000267449930	0.023031005926	-1	0.044595922715	4.111034698794
41000	0.000261222985	0.022184982613	-1	0.044658863678	4.057074271654
42000	0.000255265603	0.021387179018	-1	0.044727207582	4.005761968811
43000	0.000249561510	0.020634422074	-1	0.044800139914	3.956960060406
44000	0.000244095692	0.019923700376	-1	0.044876965939	3.910531092725
45000	0.000238854117	0.019252147039	-1	0.044957126223	3.866339855846
46000	0.000233823694	0.018617039705	-1	0.045040181020	3.824252303138
47000	0.000228991945	0.018015795546	-1	0.045125758830	3.784135303983
48000	0.000224347128	0.017445946814	-1	0.045213640365	3.745857256267
49000	0.000219878272	0.016905145935	-1	0.045303743301	3.709287031178
50000	0.000215575040	0.016391142351	-1	0.045396178638	3.674295946673
55000	0.000196242014	0.014162763736	-1	0.045890800446	3.519702936303
60000	0.000179922469	0.012386878308	-1	0.046425871913	3.392739011255
65000	0.000165958605	0.010944547717	-1	0.046990790639	3.286767350230
70000	0.000153872637	0.009754327630	-1	0.047577954500	3.197136457139
75000	0.000143308786	0.008758745920	-1	0.048181662468	3.120483584944
80000	0.000133996384	0.007916171527	-1	0.048797648130	3.054318454606
85000	0.000125725694	0.007195765007	-1	0.049422701174	2.996755175681
90000	0.000118331537	0.006574233180	-1	0.050054480520	2.946342839769

95000	0.000111681492	0.006033623500	-1	0.050691794135	2.901959998519
100000	0.000105668145	0.005559914777	-1	0.051334378177	2.862735736719
105000	0.000100218963	0.005143989912	-1	0.051961224495	2.827406405142
110000	0.000095249095	0.004775361843	-1	0.052587017549	2.795839569827
115000	0.000090691330	0.004445918754	-1	0.053222809667	2.767788712375
120000	0.000086501861	0.004150804957	-1	0.053858893814	2.742646097888
125000	0.000082640342	0.003885488072	-1	0.054491144438	2.719957326185
130000	0.000079070249	0.003646009697	-1	0.055119181116	2.699458520109
135000	0.000075760184	0.003428989396	-1	0.055743109452	2.680895531811
140000	0.000072683392	0.003231673543	-1	0.056362241496	2.664065577352
145000	0.000069816491	0.003051670387	-1	0.056976458770	2.648777700773
150000	0.000067139283	0.002886992757	-1	0.057585209416	2.634879125413
155000	0.000064633946	0.002735896828	-1	0.058188423365	2.622225915768
160000	0.000062284952	0.002596917950	-1	0.058785591147	2.610698565192
165000	0.000060078485	0.002468759021	-1	0.059376623447	2.600184794966
170000	0.000058002385	0.002350317138	-1	0.059961171407	2.590593510282
175000	0.000056045742	0.002240608018	-1	0.060539230490	2.581839065736
180000	0.000054198918	0.002138786295	-1	0.061110487732	2.573844893186
185000	0.000052453212	0.002044094685	-1	0.061674895565	2.566540139707
190000	0.000050800905	0.001955892741	-1	0.062231953166	2.559871260032
195000	0.000049234938	0.001873591700	-1	0.062781564041	2.553785495908
200000	0.000047748724	0.001796616208	-1	0.063324811725	2.548222001844
205000	0.000046336291	0.001724453283	-1	0.063862932407	2.543125163523
210000	0.000044992653	0.001656738786	-1	0.064395075506	2.538469616549
215000	0.000043713347	0.001593156912	-1	0.064920013374	2.534233887921
220000	0.000042494234	0.001533409662	-1	0.065436703483	2.530392378055
225000	0.000041331475	0.001477214336	-1	0.065944404633	2.526916905217
230000	0.000040221488	0.001424301716	-1	0.066442730083	2.523777271162
235000	0.000039160939	0.001374418009	-1	0.066931573742	2.520941512153
240000	0.000038146695	0.001327321267	-1	0.067411276649	2.518378643739
245000	0.000037175826	0.001282782538	-1	0.067882532495	2.516056618724
250000	0.000036245578	0.001240584611	-1	0.068346450819	2.513943964991
255000	0.000035353414	0.001200533290	-1	0.068804184786	2.512016022077

260000	0.000034497224	0.001162493402	-1	0.069255367084	2.510260742177
265000	0.000033675084	0.001126347741	-1	0.069699361649	2.508670090936
270000	0.000032885192	0.001091985587	-1	0.070135568949	2.507234299185
275000	0.000032125908	0.001059304512	-1	0.070563211479	2.505934694328
280000	0.000031395739	0.001028213262	-1	0.070981172392	2.504746806324
285000	0.000030691909	0.000998497024	-1	0.071398313566	2.503810467023
290000	0.000030013913	0.000970149780	-1	0.071808441774	2.503007488167
295000	0.000029360477	0.000943089572	-1	0.072211250619	2.502316486637
300000	0.000028730310	0.000917230370	-1	0.072607214628	2.501726710963

Electron Elastic Scattering Sampling Data
Solution for Z = 54

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.017026701114	0.357972851756	+1	0.677335164794	58.929166347181
52	0.014053290400	0.349386685415	+1	0.688130567327	72.996495706328
54	0.012091357918	0.336635266542	+1	0.690946592493	82.203191041226
56	0.010925945335	0.321972149993	+1	0.687209626577	84.663867507688
58	0.010367310569	0.306944069135	+1	0.678218819366	80.719794748619
60	0.010270346918	0.292499913221	+1	0.665112869351	72.365311731992
62	0.010529642037	0.279171066253	+1	0.648888835874	62.024322865842
64	0.011070515568	0.267182466749	+1	0.630365828318	51.584397935957
66	0.011835215767	0.256635781674	+1	0.610289247127	42.172950737146
68	0.012778363244	0.247534555374	+1	0.589282764008	34.235729318841
70	0.013862576072	0.239822207875	+1	0.567846442102	27.798322516974
72	0.015054076110	0.233448114832	+1	0.546412098145	22.700050004852
74	0.016323523032	0.228341663400	+1	0.525307133002	18.709365591236
76	0.017643568736	0.224451380401	+1	0.504796648562	15.603232773709
78	0.018989597923	0.221734950780	+1	0.485078408576	13.188532480894
80	0.020339619503	0.220158134656	+1	0.466290661300	11.308765470221
82	0.021673432821	0.219709526406	+1	0.448533976045	9.843330902054
84	0.022973822102	0.220384292653	+1	0.431865527900	8.699151039852
86	0.024225369193	0.222197330535	+1	0.416317971615	7.806620579152
88	0.025415043852	0.225177734314	+1	0.401900784546	7.113439035291
90	0.026532098500	0.229367440060	+1	0.388605168821	6.580458421217
92	0.027567424062	0.234828293165	+1	0.376412691533	6.178989667292
94	0.028514338804	0.241634626898	+1	0.365293320744	5.887731442726
96	0.029367567688	0.249880779638	+1	0.355212692263	5.691607959204
98	0.030123392315	0.259680612755	+1	0.346132784691	5.580331759277
100	0.030779532596	0.271168470385	+1	0.338013096094	5.547516794775
105	0.031981072964	0.308377962959	+1	0.321641766624	5.796490546562
110	0.032576442425	0.360449121330	+1	0.310356489655	6.560494650437

115	0.032611253373	0.432146554753	+1	0.303547807677	8.010321810099
120	0.032158554907	0.530427033492	+1	0.300625975373	10.512653295156
125	0.031301966555	0.665714178257	+1	0.301025161892	14.793538845726
130	0.030133397859	0.854280144708	+1	0.304181966421	22.308577068320
135	0.028743562024	1.122797286379	+1	0.309522954611	36.133146190327
140	0.027219291628	1.518388139921	+1	0.316466220311	63.318826988943
145	0.025637883430	2.132359557208	+1	0.324425354728	121.982426731656
150	0.024064627509	3.168474915824	+1	0.332840119505	267.378636155161
155	0.022550915683	5.189838580235	+1	0.341191886850	721.479187274417
160	0.021133740828	10.535793057102	+1	0.349039963057	3019.788388069791
165	0.019836958938	56.031856376133	+1	0.356028289722	87330.188371904354
170	0.018672640725	22.676934029639	-1	0.361904808785	16009.519575860066
175	0.017644029311	10.323743701838	-1	0.366507879388	3766.827081857691
180	0.016747494401	7.145077326522	-1	0.369765300334	2005.224652785274
185	0.015975075742	5.779335696830	-1	0.371672806414	1427.953325785998
190	0.015315551275	5.096581369773	-1	0.372289407614	1185.094241215291
195	0.014756980818	4.763822991791	-1	0.371705858910	1084.783541798003
200	0.014288100241	4.656723037992	-1	0.370025445492	1067.623408701379
205	0.013897752000	4.728838950309	-1	0.367367356393	1116.429708691040
210	0.013573778490	4.972309572199	-1	0.363880696485	1234.709497943910
215	0.013305139435	5.413039780672	-1	0.359711843519	1446.521008757653
220	0.013082363776	6.121537129779	-1	0.354994286466	1810.343788795925
225	0.012897403653	7.250983345053	-1	0.349847351575	2464.325791904917
230	0.012743470527	9.152426600351	-1	0.344375889424	3781.784380557982
235	0.012614870596	12.792817763306	-1	0.338670939732	7073.794459975492
240	0.012506856901	22.070064244683	-1	0.332810417180	20056.442471651881
245	0.012415503686	88.754184875681	-1	0.326860104417	307735.076114529690
250	0.012337389648	41.731137953923	+1	0.320879234679	67460.682498842798
255	0.012270309343	16.105994752248	+1	0.314901457818	10195.429007301540
260	0.012211042212	9.712404792535	+1	0.308981481379	3763.853501552991
265	0.012157517504	6.822877160320	+1	0.303149753844	1886.943152972075
270	0.012107934667	5.185958291886	+1	0.297433463013	1108.259532716124
275	0.012060868628	4.137763569285	+1	0.291853518472	717.788338030246

280	0.012015207198	3.412545905251	+1	0.286425497410	497.074847816372
285	0.011970093285	2.883243823736	+1	0.281160578728	361.520859063544
290	0.011924885477	2.481504385774	+1	0.276066187460	273.019619168457
295	0.011879112458	2.167324730721	+1	0.271146784520	212.455675875721
300	0.011832447028	1.915753026438	+1	0.266404377544	169.430545913855
310	0.011735641733	1.540031289607	+1	0.257446256316	114.222959256757
320	0.011633522417	1.274732233812	+1	0.249163938339	81.762633310572
330	0.011525913743	1.078968819852	+1	0.241517873048	61.264432663293
340	0.011413121721	0.929715415614	+1	0.234464981675	47.601779912762
350	0.011295740541	0.813038319898	+1	0.227961448948	38.101979052218
360	0.011174545607	0.719982843169	+1	0.221962651218	31.265812545968
370	0.011050457188	0.644430321842	+1	0.216419621680	26.196993233253
380	0.010924317780	0.582171525565	+1	0.211287536820	22.343269926581
390	0.010796849146	0.530247680608	+1	0.206527277360	19.351962456586
400	0.010668670434	0.486519893939	+1	0.202104666737	16.989580012131
410	0.010540337951	0.449389394403	+1	0.197988630197	15.095914729544
420	0.010412412633	0.417596647539	+1	0.194148135118	13.556189958559
430	0.010285356327	0.390174386209	+1	0.190555629349	12.288515289809
440	0.010159525827	0.366379270263	+1	0.187187487338	11.233761250163
450	0.010035190017	0.345631318945	+1	0.184023437871	10.348383749672
460	0.009912573416	0.327465750561	+1	0.181045394216	9.599456922167
470	0.009791882302	0.311490743954	+1	0.178235857494	8.961076997129
480	0.009673279607	0.297386914861	+1	0.175579313444	8.413200333503
490	0.009556874423	0.284896049747	+1	0.173062294755	7.940309212731
500	0.009442734067	0.273807316100	+1	0.170673178854	7.530241564752
510	0.009330901813	0.263945049780	+1	0.168401607238	7.173268980571
520	0.009221415651	0.255155427920	+1	0.166237674819	6.861284903441
530	0.009114295694	0.247308420849	+1	0.164172504060	6.587688484621
540	0.009009537687	0.240295043112	+1	0.162198355389	6.347128345313
550	0.008907121184	0.234023572570	+1	0.160308369543	6.135230514690
560	0.008807018570	0.228415271908	+1	0.158496418530	5.948354211187
570	0.008709197955	0.223400205368	+1	0.156756719382	5.783373636822
580	0.008613623173	0.218917601341	+1	0.155084035730	5.637647390435

590	0.008520248365	0.214915144014	+1	0.153473690026	5.508959285639
600	0.008429025543	0.211347577009	+1	0.151921516459	5.395436463829
610	0.008339900088	0.208175355217	+1	0.150423743243	5.295482189201
620	0.008252820064	0.205363085784	+1	0.148976827566	5.207697902866
630	0.008167731877	0.202879506966	+1	0.147577560081	5.130875693193
640	0.008084581954	0.200697066502	+1	0.146223015991	5.063971213598
650	0.008003312519	0.198791351409	+1	0.144910561941	5.006080748154
660	0.007923869243	0.197140651521	+1	0.143637751057	4.956412210559
670	0.007846198846	0.195725632302	+1	0.142402349305	4.914272593682
680	0.007770247048	0.194529008906	+1	0.141202289776	4.879053467426
690	0.007695960108	0.193535272234	+1	0.140035683841	4.850218974283
700	0.007623288343	0.192730186761	+1	0.138900757046	4.827283613111
710	0.007552179997	0.192101130869	+1	0.137795903638	4.809826019944
720	0.007482585804	0.191636984586	+1	0.136719639979	4.797479129087
730	0.007414458889	0.191327554991	+1	0.135670577669	4.789911006721
740	0.007347753305	0.191163602155	+1	0.134647445249	4.786826299886
750	0.007282422833	0.191136537079	+1	0.133649033839	4.787955136565
760	0.007218426241	0.191238527652	+1	0.132674216144	4.793052768482
770	0.007155719583	0.191462832723	+1	0.131721973357	4.801914915062
780	0.007094263428	0.191803344736	+1	0.130791351440	4.814357444369
790	0.007034018713	0.192254275346	+1	0.129881457391	4.830209449045
800	0.006974947588	0.192810193561	+1	0.128991423635	4.849311950796
810	0.006917013233	0.193466134058	+1	0.128120459280	4.871523119432
820	0.006860182857	0.194217905970	+1	0.127267825120	4.896723960909
830	0.006804419661	0.195061689606	+1	0.126432851415	4.924812959532
840	0.006749693501	0.195993771218	+1	0.125614867886	4.955687478473
850	0.006695971925	0.197010638017	+1	0.124813252292	4.989254981614
860	0.006643225193	0.198109108199	+1	0.124027424515	5.025432904213
870	0.006591425624	0.199286439859	+1	0.123256826749	5.064151376608
880	0.006540544033	0.200540183578	+1	0.122500963174	5.105353483958
890	0.006490552885	0.201868069656	+1	0.121759352758	5.148987399180
900	0.006441429019	0.203267658524	+1	0.121031508533	5.194992637278
910	0.006393145554	0.204736872170	+1	0.120316987376	5.243324640784

920	0.006345679110	0.206274070124	+1	0.119615389321	5.293951437340
930	0.006299007639	0.207877645977	+1	0.118926305581	5.346840727664
940	0.006253108278	0.209546174328	+1	0.118249389897	5.401969708163
950	0.006207959345	0.211278141448	+1	0.117584269430	5.459310793827
960	0.006163541168	0.213072200468	+1	0.116930598061	5.518841201009
970	0.006119833067	0.214927172262	+1	0.116288043676	5.580545040462
980	0.006076817924	0.216842018994	+1	0.115656305847	5.644409410209
990	0.006034475786	0.218815751656	+1	0.115035078103	5.710425402421
1000	0.005992788921	0.220847343704	+1	0.114424073634	5.778582218151
1025	0.005891334209	0.226174049645	+1	0.112939515337	5.958306690900
1050	0.005793623933	0.231849635543	+1	0.111513326508	6.151496628776
1075	0.005699430041	0.237867838969	+1	0.110142028659	6.358325423872
1100	0.005608546354	0.244221910248	+1	0.108822318119	6.578954316007
1125	0.005520781425	0.250905967760	+1	0.107551141808	6.813585950070
1150	0.005435960638	0.257920045118	+1	0.106325881723	7.062642583529
1175	0.005353921642	0.265265416252	+1	0.105144137068	7.326613072841
1200	0.005274515826	0.272942831868	+1	0.104003600126	7.605984363886
1225	0.005197605940	0.280953402893	+1	0.102902122442	7.901277885070
1250	0.005123066204	0.289301872882	+1	0.101837785027	8.213170057292
1275	0.005050777377	0.297993961505	+1	0.100808830589	8.542410729327
1300	0.004980629979	0.307034849667	+1	0.099813523678	8.889754623793
1325	0.004912524619	0.316430011541	+1	0.098850266345	9.255999617309
1350	0.004846364708	0.326188021239	+1	0.097917600084	9.642105985617
1375	0.004782063860	0.336317980378	+1	0.097014173761	10.049094002698
1400	0.004719536544	0.346829116486	+1	0.096138666564	10.478041932018
1425	0.004658709498	0.357730715846	+1	0.095289840772	10.930067027317
1450	0.004599508369	0.369034782863	+1	0.094466560417	11.406463620610
1475	0.004541865436	0.380753862626	+1	0.093667739234	11.908604710025
1500	0.004485717280	0.392900697550	+1	0.092892348949	12.437938547916
1550	0.004377667868	0.418533521747	+1	0.091407973736	13.584546832091
1600	0.004274921004	0.446059297386	+1	0.090006293671	14.860467644725
1650	0.004177082787	0.475619131447	+1	0.088680819047	16.282061415545
1700	0.004083800369	0.507376403383	+1	0.087425742111	17.868521839771

1750	0.003994757680	0.541514081676	+1	0.086235756218	19.642130032375
1800	0.003909667856	0.578242766468	+1	0.085106084707	21.629146786230
1850	0.003828270961	0.617800368385	+1	0.084032337990	23.860377295698
1900	0.003750327873	0.660462638978	+1	0.083010599222	26.372521737133
1950	0.003675623615	0.706542143684	+1	0.082037227976	29.208993248904
2000	0.003603962025	0.756394815313	+1	0.081108814605	32.421423954441
2100	0.003469057687	0.869132579744	+1	0.079374711508	40.235545132912
2200	0.003344312849	1.002928883717	+1	0.077787444460	50.496031816537
2300	0.003228619713	1.163662390345	+1	0.076329338377	64.235341238162
2400	0.003121031639	1.359648711307	+1	0.074984965569	83.070718335103
2500	0.003020738651	1.603054889892	+1	0.073740830864	109.643820647358
2600	0.002927033736	1.912449835550	+1	0.072585262391	148.499810120569
2700	0.002839291007	2.317718186906	+1	0.071508638221	207.988591586983
2800	0.002756959070	2.870179548608	+1	0.070502737307	304.769877074799
2900	0.002679554214	3.665968336493	+1	0.069560329196	475.969582094239
3000	0.002606646800	4.908707847210	+1	0.068675162940	818.361985728320
3100	0.002537855695	7.117679747539	+1	0.067841777808	1652.761692592979
3200	0.002472841579	12.123406833439	+1	0.067055285783	4612.957684182017
3300	0.002411302899	34.310337496739	+1	0.066311359075	35597.130363916280
3400	0.002352967246	48.984255675029	-1	0.065606199566	72890.027294159765
3500	0.002297589239	14.289774971386	-1	0.064936550795	6588.788162029386
3600	0.002244946717	8.308738016792	-1	0.064299539477	2362.201709771513
3700	0.002194841884	5.830761334754	-1	0.063692467514	1231.710181233570
3800	0.002147094202	4.476436089967	-1	0.063112897536	767.500559103977
3900	0.002101540232	3.623299582011	-1	0.062558732776	530.824203265934
4000	0.002058029082	3.036874538032	-1	0.062028148595	393.121445598054
4100	0.002016423555	2.609174778608	-1	0.061519558548	305.521985649201
4200	0.001976599793	2.283658446887	-1	0.061031349998	246.101741114549
4300	0.001938446394	2.027782032520	-1	0.060562077025	203.790396547838
4400	0.001901857548	1.821461570577	-1	0.060110449475	172.490086516370
4500	0.001866737933	1.651633162472	-1	0.059675394671	148.611091782921
4600	0.001832997264	1.509441910728	-1	0.059255943668	129.926230402156
4700	0.001800556062	1.388711825281	-1	0.058851087973	114.996369119214

4800	0.001769339430	1.284976391353	-1	0.058459896196	102.853053939274
4900	0.001739278461	1.194917098299	-1	0.058081564580	92.823317331449
5000	0.001710308269	1.116016370648	-1	0.057715412337	84.427273674853
5500	0.001579874773	0.833940804329	-1	0.056045397610	57.385362584435
6000	0.001469355002	0.660857979118	-1	0.054597027693	43.075296119558
6500	0.001374376781	0.544249532217	-1	0.053327586736	34.400556478636
7000	0.001291727725	0.460501579726	-1	0.052209940184	28.644588798003
7500	0.001219192086	0.397750551932	-1	0.051209193285	24.581966856615
8000	0.001154986930	0.349102388426	-1	0.050305797116	21.575138616287
8500	0.001097729454	0.310365991488	-1	0.049484466287	19.266579486175
9000	0.001046331221	0.278850776617	-1	0.048733028965	17.441721794272
9500	0.000999922293	0.252751821622	-1	0.048041646632	15.964634420948
10000	0.000957799101	0.230814752170	-1	0.047402244890	14.745361306954
10500	0.000919384750	0.212139053044	-1	0.046808310226	13.722062394256
11000	0.000884206305	0.196072014893	-1	0.046253815117	12.851394156694
11500	0.000851864368	0.182111676862	-1	0.045734490635	12.101262023363
12000	0.000822026535	0.169883913655	-1	0.045246045406	11.448313040772
12500	0.000794409285	0.159092414960	-1	0.044785228859	10.874570771262
13000	0.000768772364	0.149507826683	-1	0.044348876540	10.366391361027
13500	0.000744907988	0.140943248831	-1	0.043934574233	9.912908769355
14000	0.000722637760	0.133250679156	-1	0.043539932949	9.505653012531
14500	0.000701805543	0.126306891718	-1	0.043163092510	9.137701063797
15000	0.000682276905	0.120012550066	-1	0.042802246021	8.803544468465
16000	0.000646668970	0.109051159787	-1	0.042122262485	8.219032608201
17000	0.000615042295	0.099864409877	-1	0.041484634431	7.724423349172
18000	0.000586749255	0.092055497557	-1	0.040885991041	7.299471874957
19000	0.000561291127	0.085348134140	-1	0.040319786491	6.929835159282
20000	0.000538264767	0.079534234632	-1	0.039780757868	6.604858501644
21000	0.000497491324	0.067269624535	-1	0.043017416426	6.483834599678
22000	0.000477451033	0.062825602657	-1	0.042822377560	6.253753639088
23000	0.000458356690	0.058566878308	-1	0.042665823664	6.025378832206
24000	0.000440416481	0.054600006485	-1	0.042549666457	5.807718773401
25000	0.000423804852	0.051026278937	-1	0.042465361805	5.609677158429

26000	0.000408611329	0.047911694362	-1	0.042395641488	5.437678022710
27000	0.000394677554	0.045200590983	-1	0.042330200102	5.288889445395
28000	0.000381806484	0.042812760954	-1	0.042265644871	5.158375131456
29000	0.000369823104	0.040674209177	-1	0.042203444041	5.041431959124
30000	0.000358571130	0.038716740611	-1	0.042149709142	4.933576296078
31000	0.000347926893	0.036886868329	-1	0.042112320498	4.831240643110
32000	0.000337833805	0.035170435275	-1	0.042092547477	4.733925966257
33000	0.000328259605	0.033564070796	-1	0.042088479515	4.641837065845
34000	0.000319186015	0.032066472681	-1	0.042096034751	4.555075979580
35000	0.000310589367	0.030675269106	-1	0.042111840371	4.473816869360
36000	0.000302448463	0.029387296809	-1	0.042132008438	4.398070954182
37000	0.000294731735	0.028193612557	-1	0.042154705350	4.327344146066
38000	0.000287396982	0.027082806025	-1	0.042181015290	4.261139047455
39000	0.000280412990	0.026045336288	-1	0.042211214226	4.198892191458
40000	0.000273750534	0.025072173463	-1	0.042246233912	4.140060734381
41000	0.000267383664	0.024155546009	-1	0.042287143106	4.084179581329
42000	0.000261293033	0.023291059224	-1	0.042333516585	4.031040708633
43000	0.000255461900	0.022475271388	-1	0.042384602334	3.980500473490
44000	0.000249874759	0.021704926788	-1	0.042439732052	3.932415817786
45000	0.000244517230	0.020976918991	-1	0.042498390209	3.886645637563
46000	0.000239375828	0.020288313809	-1	0.042560133396	3.843050567451
47000	0.000234437734	0.019636308778	-1	0.042624629407	3.801492974454
48000	0.000229690961	0.019018255806	-1	0.042691620157	3.761835309355
49000	0.000225124209	0.018431615097	-1	0.042761018096	3.723942499142
50000	0.000220726926	0.017873958197	-1	0.042832898413	3.687680414228
55000	0.000200974182	0.015455371390	-1	0.043226445098	3.527386925777
60000	0.000184303143	0.013526588574	-1	0.043663230665	3.395593269445
65000	0.000170040109	0.011959080239	-1	0.044132158902	3.285434691323
70000	0.000157696085	0.010664804855	-1	0.044625203145	3.192104403558
75000	0.000146907019	0.009581586787	-1	0.045136405772	3.112133030679
80000	0.000137396158	0.008664362926	-1	0.045661330220	3.042951942082
85000	0.000128949110	0.007879753370	-1	0.046196533098	2.982616982447
90000	0.000121397056	0.007202523683	-1	0.046739507583	2.929632626656

95000	0.000114604859	0.006613234275	-1	0.047288770208	2.882839610360
100000	0.000108461460	0.006096456440	-1	0.047845599496	2.841379005799
105000	0.000102892553	0.005642417989	-1	0.048390152585	2.804001728298
110000	0.000097816235	0.005240326796	-1	0.048930175528	2.770379230239
115000	0.000093163075	0.004881166149	-1	0.049476537957	2.740251892387
120000	0.000088881303	0.004558724940	-1	0.050030350525	2.713273174800
125000	0.000084934783	0.004268811274	-1	0.050580408859	2.688800683630
130000	0.000081285860	0.004007067281	-1	0.051126840078	2.666575534276
135000	0.000077902421	0.003769807979	-1	0.051669758392	2.646338550517
140000	0.000074757068	0.003554028807	-1	0.052208608176	2.627884876954
145000	0.000071825915	0.003357124216	-1	0.052743286593	2.611019332026
150000	0.000069088359	0.003176934333	-1	0.053273232927	2.595585200661
155000	0.000066526230	0.003011560170	-1	0.053798367085	2.581434331574
160000	0.000064123682	0.002859408095	-1	0.054318202135	2.568444885677
165000	0.000061866599	0.002719063942	-1	0.054832674486	2.556503051882
170000	0.000059742580	0.002589328013	-1	0.055341411995	2.545514579534
175000	0.000057740490	0.002469128741	-1	0.055844376454	2.535391704398
180000	0.000055850477	0.002357543267	-1	0.056341305357	2.526057054556
185000	0.000054063661	0.002253745310	-1	0.056832173767	2.517438574505
190000	0.000052372184	0.002157037341	-1	0.057316542785	2.509482174909
195000	0.000050768878	0.002066778272	-1	0.057794307320	2.502132364164
200000	0.000049247054	0.001982345803	-1	0.058266225528	2.495321896611
205000	0.000047800650	0.001903181600	-1	0.058733271401	2.488988595977
210000	0.000046424569	0.001828887011	-1	0.059194706217	2.483107383715
215000	0.000045114215	0.001759115745	-1	0.059649488273	2.477659845161
220000	0.000043865346	0.001693540527	-1	0.060096766817	2.472622531943
225000	0.000042674023	0.001631851519	-1	0.060535940194	2.467969400400
230000	0.000041536601	0.001573756936	-1	0.060966600649	2.463670054787
235000	0.000040449680	0.001518980472	-1	0.061388628198	2.459692584577
240000	0.000039410124	0.001467265087	-1	0.061802005677	2.456000726847
245000	0.000038414834	0.001418347682	-1	0.062207913471	2.452571472891
250000	0.000037460113	0.001371889302	-1	0.062612342993	2.449457075084
255000	0.000036544283	0.001327783368	-1	0.063011572376	2.446550958217

260000	0.000035665178	0.001285881448	-1	0.063405326611	2.443842451499
265000	0.000034820825	0.001246054399	-1	0.063793089991	2.441324068365
270000	0.000034009369	0.001208178788	-1	0.064174464006	2.438987692459
275000	0.000033229585	0.001172191799	-1	0.064545862727	2.436767111038
280000	0.000032479435	0.001137937418	-1	0.064909426250	2.434690841567
285000	0.000031757179	0.001105287510	-1	0.065266341514	2.432767984669
290000	0.000031061388	0.001074142612	-1	0.065616530858	2.430983194061
295000	0.000030390694	0.001044406292	-1	0.065960139641	2.429322469612
300000	0.000029743794	0.001015985627	-1	0.066297508637	2.427772519112

Electron Elastic Scattering Sampling Data
Solution for Z = 55

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.009028153730	0.226808780751	+1	0.206883532381	7.967525564977
52	0.008541423791	0.210380905232	+1	0.197780271777	7.287759018312
54	0.008158632660	0.195217183014	+1	0.189405602113	6.628386728497
56	0.007858032887	0.181735684165	+1	0.181818412865	6.026088662725
58	0.007623581240	0.170120771022	+1	0.175030990721	5.498041232196
60	0.007443196191	0.160409735495	+1	0.169025329040	5.049240483367
62	0.007307573255	0.152560730890	+1	0.163766369106	4.678088065270
64	0.007209375610	0.146480099287	+1	0.159207371823	4.379272917749
66	0.007142698942	0.142073431898	+1	0.155299484410	4.146873623754
68	0.007102683430	0.139245530997	+1	0.151992634642	3.974891756458
70	0.007085240352	0.137908130854	+1	0.149237369751	3.857850869680
72	0.007086859671	0.137998367781	+1	0.146988208653	3.791598028905
74	0.007104497826	0.139466253418	+1	0.145202284944	3.772878144040
76	0.007135449278	0.142287081171	+1	0.143841107108	3.799795068061
78	0.007177301453	0.146456001104	+1	0.142869976768	3.871610982983
80	0.007227881220	0.151986374911	+1	0.142257550904	3.988702792222
82	0.007285189839	0.158914885300	+1	0.141976303129	4.152784350556
84	0.007347433621	0.167294681152	+1	0.142001546479	4.366709024741
86	0.007412942362	0.177200528177	+1	0.142311525156	4.634765971633
88	0.007480195465	0.188727182136	+1	0.142887019841	4.962744207577
90	0.007547810630	0.201989257183	+1	0.143710858991	5.358106577526
92	0.007614504306	0.217125431465	+1	0.144767807320	5.830394492447
94	0.007679149177	0.234297393242	+1	0.146044248257	6.391473335524
96	0.007740707594	0.253694611740	+1	0.147527873764	7.056143977587
98	0.007798252353	0.275536868597	+1	0.149207417811	7.842753559990
100	0.007850963879	0.300078286239	+1	0.151072403191	8.774033070117
105	0.007957279609	0.375296141292	+1	0.156483999203	11.938236838251
110	0.008021543689	0.475457868942	+1	0.162855841372	16.877735421436

115	0.008039430744	0.609640962793	+1	0.170050472842	24.809984857137
120	0.008010599714	0.791922377135	+1	0.177929178850	38.037294493899
125	0.007937540346	1.045153623500	+1	0.186338573548	61.185080946073
130	0.007825323337	1.409242519646	+1	0.195116433277	104.361301734285
135	0.007680613361	1.960163700379	+1	0.204085413593	192.236019973058
140	0.007511130387	2.863160243617	+1	0.213066071936	395.739366035874
145	0.007324862947	4.555962141957	+1	0.221875815276	978.208383119976
150	0.007129510759	8.707090962680	+1	0.230344965789	3522.895339892527
155	0.006932065804	32.670894597601	+1	0.238316659164	49309.747534278591
160	0.006738455557	26.021756424628	-1	0.245660736877	33755.317145899375
165	0.006553481632	9.994362245950	-1	0.252271055680	5620.040158315662
170	0.006380691906	6.484935261280	-1	0.258074189835	2629.345854128355
175	0.006222568190	4.995350354065	-1	0.263023188611	1707.092355579428
180	0.006080563296	4.207803333988	-1	0.267100443850	1305.460053689063
185	0.005955332194	3.751986334745	-1	0.270310611845	1102.495453953040
190	0.005846752883	3.484189880392	-1	0.272682684254	996.031069684090
195	0.005754294660	3.339034565351	-1	0.274258177647	946.035572608470
200	0.005677253708	3.284819833786	-1	0.275084491811	935.461474317268
205	0.005614655704	3.306576019793	-1	0.275217517873	957.688541429675
210	0.005565013786	3.398398940014	-1	0.274729962255	1011.809769389936
215	0.005526771207	3.562190311332	-1	0.273696406900	1101.986553276146
220	0.005498447875	3.807797317106	-1	0.272188074036	1238.364182542831
225	0.005478667531	4.155025869699	-1	0.270271896702	1440.113067420083
230	0.005466163069	4.638868856254	-1	0.268009748726	1742.606542145664
235	0.005459786871	5.321003263891	-1	0.265458234821	2214.210226036793
240	0.005458509253	6.315996234761	-1	0.262668668910	2999.319393561791
245	0.005461411254	7.858560265692	-1	0.259686986182	4447.036009236335
250	0.005467685562	10.510970124370	-1	0.256554161042	7594.738198083047
255	0.005476598862	16.030623896211	-1	0.253306770995	16819.096775588579
260	0.005487418513	34.102541026421	-1	0.249978779577	72311.964997690855
265	0.005504018188	223.514657663112	+1	0.246504944288	2966417.435236582100
270	0.005500128150	157.434308631909	+1	0.246105607579	1472328.341009647400
275	0.005582180079	20.883865146182	+1	0.241504092247	25922.969632607106

280	0.005538041948	8.938952436791	+1	0.236399633271	4939.160764654223
285	0.005550355042	6.600221357236	+1	0.233040432792	2730.982787286896
290	0.005561909421	5.185536522989	+1	0.229725690445	1710.418949426346
295	0.005572494641	4.240820401487	+1	0.226466103009	1161.207867691618
300	0.005581951025	3.567408043344	+1	0.223270360724	834.411545010315
310	0.005597038769	2.675719232332	+1	0.217094018336	484.550243453687
320	0.005606649363	2.115640328936	+1	0.211223752735	313.073675037191
330	0.005610610107	1.734048242262	+1	0.205670941851	217.570444537290
340	0.005608974820	1.459341881056	+1	0.200438090758	159.511310033126
350	0.005601960238	1.253602173215	+1	0.195521616319	121.885278945304
360	0.005589914399	1.094823863072	+1	0.190911982006	96.272692445756
370	0.005573324316	0.969199992354	+1	0.186590933649	78.119003874094
380	0.005552685316	0.867800799672	+1	0.182539493535	64.823544234083
390	0.005528459398	0.784640930760	+1	0.178740062179	54.823225588384
400	0.005501074709	0.715562309255	+1	0.175176433751	47.134455117115
410	0.005470940889	0.657565272931	+1	0.171832760295	41.111742303216
420	0.005438486383	0.608371995395	+1	0.168691010583	36.312122052765
430	0.005404094115	0.566277085667	+1	0.165734500784	32.429680502171
440	0.005368096982	0.529994174667	+1	0.162948625540	29.249201072289
450	0.005330779803	0.498535955149	+1	0.160320599008	26.615814318478
460	0.005292396910	0.471124145275	+1	0.157838705588	24.415077891067
470	0.005253193492	0.447114260573	+1	0.155490888584	22.559168701715
480	0.005213386879	0.425987618664	+1	0.153266153152	20.981370352155
490	0.005173156465	0.407329178710	+1	0.151154969905	19.630833450308
500	0.005132653691	0.390802909488	+1	0.149148944353	18.468204544518
510	0.005092009863	0.376131240139	+1	0.147240485761	17.462437762876
520	0.005051345988	0.363073920778	+1	0.145422041734	16.588138352127
530	0.005010764942	0.351429605004	+1	0.143686771464	15.824906857450
540	0.004970354370	0.341030333004	+1	0.142028601686	15.156328413740
550	0.004930183026	0.331735649742	+1	0.140442170107	14.569131696380
560	0.004890311016	0.323425474204	+1	0.138922628743	14.052363991667
570	0.004850791261	0.315993311204	+1	0.137465236250	13.596705192369
580	0.004811666275	0.309347442415	+1	0.136065688956	13.194385533974

590	0.004772973529	0.303408981836	+1	0.134720169160	12.838911660474
600	0.004734738722	0.298110044844	+1	0.133425169204	12.524845436260
610	0.004696985928	0.293391491839	+1	0.132177572877	12.247573662945
620	0.004659731402	0.289200577228	+1	0.130974359484	12.003101003244
630	0.004622988520	0.285490784867	+1	0.129812774320	11.787992844565
640	0.004586767573	0.282221306150	+1	0.128690332074	11.599305537487
650	0.004551074169	0.279356190469	+1	0.127604748404	11.434505334160
660	0.004515911781	0.276863411942	+1	0.126553895859	11.291383200325
670	0.004481282076	0.274714500335	+1	0.125535843278	11.168018147016
680	0.004447185157	0.272883969436	+1	0.124548738273	11.062719036513
690	0.004413617344	0.271348903389	+1	0.123590889909	10.974004400113
700	0.004380577387	0.270088765071	+1	0.122660767518	10.900566235947
710	0.004348060461	0.269084906952	+1	0.121756912745	10.841243169412
720	0.004316059567	0.268321127634	+1	0.120878007474	10.795043782652
730	0.004284567457	0.267782623375	+1	0.120022797608	10.761076960930
740	0.004253577927	0.267455897104	+1	0.119190138442	10.738544197687
750	0.004223082369	0.267328595619	+1	0.118378959210	10.726732988009
760	0.004193073198	0.267389392909	+1	0.117588238867	10.724996918467
770	0.004163541319	0.267628477284	+1	0.116817051333	10.732787876907
780	0.004134477322	0.268036992963	+1	0.116064522744	10.749619515210
790	0.004105872403	0.268606488766	+1	0.115329830313	10.775036300350
800	0.004077718206	0.269329216961	+1	0.114612214556	10.808628325287
810	0.004050004888	0.270197963036	+1	0.113910917908	10.850020496927
820	0.004022723184	0.271206824449	+1	0.113225296483	10.898916107132
830	0.003995863974	0.272350185931	+1	0.112554709211	10.955035655875
840	0.003969417808	0.273622868434	+1	0.111898577996	11.018131322078
850	0.003943376803	0.275019906703	+1	0.111256338958	11.087965044281
860	0.003917731397	0.276536725081	+1	0.110627444091	11.164325803876
870	0.003892472841	0.278169497036	+1	0.110011404621	11.247045021714
880	0.003867592354	0.279914744645	+1	0.109407765668	11.335976469810
890	0.003843081141	0.281769155157	+1	0.108816079612	11.430983961563
900	0.003818931789	0.283729381624	+1	0.108235915130	11.531928081736
910	0.003795136014	0.285792553028	+1	0.107666877703	11.638700353281

920	0.003771684769	0.287956228816	+1	0.107108573720	11.751216723794
930	0.003748570319	0.290218395829	+1	0.106560677495	11.869419385104
940	0.003725786033	0.292576949603	+1	0.106022845500	11.993240925944
950	0.003703323679	0.295029902184	+1	0.105494755720	12.122627964066
960	0.003681175298	0.297575378030	+1	0.104976077718	12.257531298088
970	0.003659335220	0.300211901652	+1	0.104466545460	12.397923079989
980	0.003637795292	0.302938065859	+1	0.103965869516	12.543784778092
990	0.003616549621	0.305752523164	+1	0.103473790085	12.695097689041
1000	0.003595592008	0.308653879219	+1	0.102990042843	12.851841472050
1025	0.003544414491	0.316281269300	+1	0.101815586766	13.267522324297
1050	0.003494898375	0.324437427355	+1	0.100688410802	13.717721119867
1075	0.003446954724	0.333116160989	+1	0.099605476661	14.203130297700
1100	0.003400501761	0.342310776271	+1	0.098563901007	14.724456326323
1125	0.003355465115	0.352016023405	+1	0.097561056468	15.282534637579
1150	0.003311771108	0.362235874681	+1	0.096594715816	15.878822521447
1175	0.003269353814	0.372976228163	+1	0.095662885081	16.514971200022
1200	0.003228150718	0.384242702114	+1	0.094763606874	17.192694018545
1225	0.003188104921	0.396041716851	+1	0.093895097590	17.913844027135
1250	0.003149162082	0.408385794911	+1	0.093055785839	18.680760029756
1275	0.003111271460	0.421289081091	+1	0.092244225600	19.496011684092
1300	0.003074386658	0.434765559826	+1	0.091459032674	20.362286243555
1325	0.003038463665	0.448830248354	+1	0.090698871934	21.282475571482
1350	0.003003461510	0.463503281478	+1	0.089962609376	22.259982489493
1375	0.002969341099	0.478806661302	+1	0.089249155379	23.298521770186
1400	0.002936066503	0.494762578039	+1	0.088557460872	24.402020323554
1425	0.002903576198	0.511414754302	+1	0.087887363579	25.576579743450
1450	0.002871864901	0.528774245077	+1	0.087237160608	26.825496519292
1475	0.002840903427	0.546871671449	+1	0.086606020188	28.154067018717
1500	0.002810663655	0.565739051475	+1	0.085993139073	29.568007999675
1550	0.002752242941	0.605925505852	+1	0.084819072466	32.677647180925
1600	0.002696405261	0.649653845192	+1	0.083709425267	36.212737296109
1650	0.002642973091	0.697294097002	+1	0.082659145565	40.243357774582
1700	0.002591787722	0.749284642557	+1	0.081663785447	44.855070123313

1750	0.002542704992	0.806135560132	+1	0.080719242987	50.152025374377
1800	0.002495593614	0.868452231326	+1	0.079821838318	56.262807542935
1850	0.002450334792	0.936949516656	+1	0.078968191635	63.346666396858
1900	0.002406818318	1.012486753016	+1	0.078155296700	71.603740738930
1950	0.002364944257	1.096091300117	+1	0.077380349895	81.286446212760
2000	0.002324621539	1.188999818015	+1	0.076640699171	92.716192271597
2100	0.002248298059	1.409141327982	+1	0.075257904253	122.608085063449
2200	0.002177237182	1.690157701877	+1	0.073990817806	166.501145795292
2300	0.002110911846	2.059921124454	+1	0.072825761099	234.044592041654
2400	0.002048867289	2.566460542755	+1	0.071750707596	344.612357380762
2500	0.001990707835	3.300218664880	+1	0.070755074400	541.738162194142
2600	0.001936086003	4.454258593926	+1	0.069829660796	940.207979949260
2700	0.001884692694	6.527776418293	+1	0.068966870288	1927.742745213579
2800	0.001836253511	11.330755901862	+1	0.068160177052	5555.314429761794
2900	0.001790523098	34.506750025572	+1	0.067403864754	49368.430520952701
3000	0.001747281802	38.580769915042	-1	0.066692979779	62343.271808936210
3100	0.001706332486	12.328212648795	-1	0.066023211086	6795.611006898755
3200	0.001667500147	7.279689271092	-1	0.065390610683	2524.774935601473
3300	0.001630626696	5.137977464661	-1	0.064791709983	1337.723742746848
3400	0.001595568582	3.954866760547	-1	0.064223465253	841.545400261053
3500	0.001562195114	3.205048650997	-1	0.063683269614	585.861584374544
3600	0.001530386213	2.687687158467	-1	0.063168847664	436.022843711348
3700	0.001500035993	2.309540901568	-1	0.062678006059	340.225707570950
3800	0.001471047024	2.021333546062	-1	0.062208772787	274.990170771212
3900	0.001443329940	1.794550621976	-1	0.061759462454	228.383650243339
4000	0.001416801767	1.611544186371	-1	0.061328626622	193.805143396162
4100	0.001391386205	1.460820569044	-1	0.060915016896	167.357335311163
4200	0.001367015187	1.334618466745	-1	0.060517317282	146.621383611912
4300	0.001343625968	1.227474516988	-1	0.060134350490	130.023110038620
4400	0.001321160096	1.135423556947	-1	0.059765086258	116.499554567113
4500	0.001299562737	1.055515220198	-1	0.059408681566	105.310789554691
4600	0.001278786882	0.985535469645	-1	0.059064085736	95.931262858479
4700	0.001258783998	0.923759553861	-1	0.058730766174	87.975953596084

4800	0.001239511294	0.868851960523	-1	0.058407963062	81.159899723909
4900	0.001220929134	0.819746284778	-1	0.058095046914	75.266539349077
5000	0.001203000436	0.775580430712	-1	0.057791482078	70.128745686780
5500	0.001122033935	0.608295809770	-1	0.056396909890	52.053950814056
6000	0.001053127237	0.497729684672	-1	0.055171327421	41.290427344899
6500	0.000993739040	0.419592668755	-1	0.054077943857	34.233613631867
7000	0.000941997184	0.361665186789	-1	0.053090525511	29.283776717280
7500	0.000896491795	0.317143739897	-1	0.052189780903	25.634090677756
8000	0.000856140526	0.281948191288	-1	0.051361157480	22.837942388830
8500	0.000820099646	0.253487851664	-1	0.050593374680	20.629847968663
9000	0.000787699675	0.230040942565	-1	0.049877573660	18.842903765525
9500	0.000758404421	0.210420760581	-1	0.049206658371	17.367311310839
10000	0.000731777514	0.193783549087	-1	0.048574832013	16.128070599014
10500	0.000707460753	0.179511839975	-1	0.047977530501	15.072198502769
11000	0.000685159761	0.167151960640	-1	0.047410322253	14.161739677993
11500	0.000664624408	0.156348884277	-1	0.046870386057	13.367968269859
12000	0.000645647634	0.146836036790	-1	0.046354604287	12.669634088520
12500	0.000628051237	0.138399389433	-1	0.045860787771	12.050105391540
13000	0.000611685195	0.130872460811	-1	0.045386647735	11.496587779080
13500	0.000596419150	0.124118047310	-1	0.044930567833	10.998749033240
14000	0.000582141240	0.118027080039	-1	0.044490828934	10.548446614294
14500	0.000568753900	0.112508042187	-1	0.044066185373	10.138951246229
15000	0.000556172616	0.107486861185	-1	0.043655331307	9.764853533966
16000	0.000533138804	0.098695816267	-1	0.042870934856	9.105355203668
17000	0.000512544288	0.091261335903	-1	0.042130386856	8.541825689792
18000	0.000494000117	0.084898916733	-1	0.041427840949	8.054106597162
19000	0.000477196413	0.079397563117	-1	0.040758489092	7.627361902267
20000	0.000461884079	0.074597677079	-1	0.040118396152	7.250426521439
21000	0.000367284454	0.053208199453	-1	0.048429760195	7.762511126010
22000	0.000352991405	0.049718353584	-1	0.048343075685	7.508029820008
23000	0.000339301170	0.046359760164	-1	0.048313043293	7.255373915269
24000	0.000326383647	0.043224102295	-1	0.048332922336	7.014415520766
25000	0.000314389592	0.040397596426	-1	0.048382607209	6.794806400735

26000	0.000303408222	0.037936295969	-1	0.048433134250	6.603433277094
27000	0.000293332759	0.035795811112	-1	0.048473030406	6.437207162570
28000	0.000284021019	0.033911599641	-1	0.048501651711	6.290807007055
29000	0.000275343836	0.032224208928	-1	0.048524380059	6.159191586640
30000	0.000267183242	0.030678943953	-1	0.048552316486	6.037589987161
31000	0.000259444446	0.029232974203	-1	0.048598181921	5.922235881470
32000	0.000252093461	0.027876327886	-1	0.048662467680	5.812525555184
33000	0.000245112571	0.026607069218	-1	0.048741696833	5.708624137898
34000	0.000238485955	0.025423447144	-1	0.048831809140	5.610696888866
35000	0.000232199452	0.024323825123	-1	0.048928189835	5.518905583493
36000	0.000226237863	0.023305473984	-1	0.049026414880	5.433271238299
37000	0.000220577173	0.022360976815	-1	0.049125250216	5.353282281687
38000	0.000215192659	0.021482197212	-1	0.049224833405	5.278311635195
39000	0.000210061301	0.020661474878	-1	0.049326056877	5.207755427190
40000	0.000205161562	0.019891624061	-1	0.049430512944	5.141033431858
41000	0.000200474337	0.019166475080	-1	0.049539881072	5.077648078132
42000	0.000195985943	0.018482564304	-1	0.049653741037	5.017367350895
43000	0.000191684693	0.017837187121	-1	0.049771195968	4.960025339953
44000	0.000187559717	0.017227776510	-1	0.049891486254	4.905459035023
45000	0.000183600868	0.016651892474	-1	0.050013987493	4.853507245007
46000	0.000179798644	0.016107208945	-1	0.050138249018	4.804012163611
47000	0.000176144036	0.015591513769	-1	0.050263940805	4.756817820627
48000	0.000172628528	0.015102702332	-1	0.050390882439	4.711771298214
49000	0.000169244082	0.014638752523	-1	0.050519120039	4.668722709523
50000	0.000165983128	0.014197748607	-1	0.050648834539	4.627523874329
55000	0.000151308261	0.012285259187	-1	0.051318916847	4.445454088853
60000	0.000138887939	0.010760376828	-1	0.052011977027	4.295872198059
65000	0.000128236419	0.009521391259	-1	0.052719315094	4.170997632808
70000	0.000118999401	0.008498538149	-1	0.053435319040	4.065380105230
75000	0.000110911981	0.007642571295	-1	0.054155828814	3.975071952076
80000	0.000103772070	0.006917816638	-1	0.054877766649	3.897139716798
85000	0.000097422645	0.006297851452	-1	0.055598843089	3.829358092128
90000	0.000091739629	0.005762723696	-1	0.056317319446	3.770010012287

95000	0.000086623744	0.005297082744	-1	0.057032377787	3.717759640184
100000	0.000081994162	0.004888935196	-1	0.057743911142	3.671563526369
105000	0.000077784891	0.004528813729	-1	0.058451677259	3.630548063243
110000	0.000073952104	0.004210532041	-1	0.059136621594	3.593428792085
115000	0.000070440321	0.003926658148	-1	0.059814267828	3.560117234877
120000	0.000067206713	0.003671773132	-1	0.060493233957	3.530470615245
125000	0.000064222290	0.003442172120	-1	0.061168055442	3.503870716813
130000	0.000061462156	0.003234801818	-1	0.061833057254	3.479816797561
135000	0.000058902020	0.003046732735	-1	0.062489274084	3.458031851385
140000	0.000056521466	0.002875601256	-1	0.063136258455	3.438271584203
145000	0.000054302618	0.002719357092	-1	0.063774130853	3.420307844735
150000	0.000052230001	0.002576296154	-1	0.064402540789	3.403960179659
155000	0.000050289893	0.002444919886	-1	0.065021743611	3.389063484598
160000	0.000048470366	0.002323970488	-1	0.065631464532	3.375477895601
165000	0.000046760795	0.002212333105	-1	0.066231917846	3.363073621464
170000	0.000045151900	0.002109065851	-1	0.066822812907	3.351738561746
175000	0.000043635319	0.002013325162	-1	0.067404318538	3.341370510220
180000	0.000042203607	0.001924383826	-1	0.067976316950	3.331880603892
185000	0.000040850047	0.001841591535	-1	0.068538935907	3.323186531228
190000	0.000039568728	0.001764399484	-1	0.069091817975	3.315225012107
195000	0.000038354250	0.001692303304	-1	0.069634970927	3.307930770471
200000	0.000037201535	0.001624812866	-1	0.070169435667	3.301228374274
205000	0.000036105962	0.001561489219	-1	0.070696449782	3.295050003810
210000	0.000035063723	0.001502020124	-1	0.071215151029	3.289361537845
215000	0.000034071391	0.001446136213	-1	0.071724209277	3.284134050964
220000	0.000033125846	0.001393585310	-1	0.072222371695	3.279327975837
225000	0.000032224205	0.001344133478	-1	0.072708377992	3.274897145667
230000	0.000031362258	0.001297400652	-1	0.073190661288	3.271007366091
235000	0.000030538669	0.001253299004	-1	0.073662110212	3.267458017251
240000	0.000029750971	0.001211618679	-1	0.074123282301	3.264218705892
245000	0.000028996875	0.001172161253	-1	0.074575126685	3.261258083641
250000	0.000028274208	0.001134738424	-1	0.075018999956	3.258547214114
255000	0.000027581800	0.001099260754	-1	0.075450490068	3.255930791585

260000	0.000026917054	0.001065516280	-1	0.075875885579	3.253545151333
265000	0.000026278569	0.001033410744	-1	0.076294183832	3.251368409209
270000	0.000025664982	0.001002850615	-1	0.076704733081	3.249383704362
275000	0.000025075008	0.000973745358	-1	0.077107085882	3.247574327545
280000	0.000024507415	0.000946007333	-1	0.077501016929	3.245925224214
285000	0.000023961040	0.000919552224	-1	0.077886496752	3.244421614271
290000	0.000023434779	0.000894299890	-1	0.078263588310	3.243047869497
295000	0.000022927580	0.000870172397	-1	0.078632667416	3.241791448086
300000	0.000022438442	0.000847096047	-1	0.078994172441	3.240638746371

Electron Elastic Scattering Sampling Data
Solution for Z = 56

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.011843466161	0.103662308041	+1	0.069284529363	0.710696649829
52	0.011277516754	0.090838501998	+1	0.066761574073	0.621556402538
54	0.010791672790	0.080496267773	+1	0.064689811496	0.551478787383
56	0.010373738444	0.072327510397	+1	0.063031185606	0.497787470291
58	0.010013838393	0.066033664035	+1	0.061747911408	0.458048162477
60	0.009703837674	0.061350421988	+1	0.060804440191	0.430247231954
62	0.009436959764	0.058058324265	+1	0.060168554837	0.412840607413
64	0.009207382413	0.055979100003	+1	0.059811242756	0.404699257215
66	0.009010210349	0.054981153732	+1	0.059707509687	0.405129669321
68	0.008841188919	0.054969075098	+1	0.059835586130	0.413790412300
70	0.008696569705	0.055878107331	+1	0.060176501913	0.430653107825
72	0.008573110714	0.057674225094	+1	0.060714228489	0.456016554076
74	0.008467909472	0.060344526169	+1	0.061434907537	0.490453007560
76	0.008378412130	0.063898108131	+1	0.062326774058	0.534842501439
78	0.008302340155	0.068361378198	+1	0.063379800948	0.590371036306
80	0.008237648562	0.073775234919	+1	0.064585301047	0.658547813706
82	0.008182511356	0.080196064308	+1	0.065935881250	0.741267561367
84	0.008135287403	0.087691798342	+1	0.067425113471	0.840835585534
86	0.008094499528	0.096343674004	+1	0.069047377061	0.960059782657
88	0.008058822120	0.106245289863	+1	0.070797734104	1.102332910960
90	0.008027066923	0.117502437875	+1	0.072671748701	1.271740197621
92	0.007998161841	0.130235217447	+1	0.074665365078	1.473220393747
94	0.007971163734	0.144577651764	+1	0.076774866066	1.712726585051
96	0.007945222966	0.160680391470	+1	0.078996693230	1.997469843234
98	0.007919588220	0.178712151775	+1	0.081327349185	2.336195525656
100	0.007893596281	0.198862001424	+1	0.083763318669	2.739539746014
105	0.007823518098	0.259972017085	+1	0.090290771350	4.123269165163
110	0.007741214093	0.339921356779	+1	0.097396603471	6.300086469912

115	0.007642526526	0.444546852434	+1	0.105011207483	9.784165368964
120	0.007525843253	0.582287295011	+1	0.113055463963	15.488393927773
125	0.007391354657	0.765730297413	+1	0.121433813884	25.098229719803
130	0.007240861621	1.014675974876	+1	0.130040427816	41.897520274848
135	0.007077195732	1.361874300010	+1	0.138755797142	72.710086481103
140	0.006903925667	1.865976576915	+1	0.147456874612	133.058723166687
145	0.006724923728	2.642495735187	+1	0.156015998571	262.814960946256
150	0.006544060401	3.955383249912	+1	0.164312400485	585.075768259506
155	0.006364963334	6.563445330741	+1	0.172231715616	1612.517642283117
160	0.006190804127	13.904727591933	+1	0.179676055454	7287.254497696825
165	0.006070517190	57.597078078528	+1	0.185588715833	125930.254618111810
170	0.005867275676	21.963249178373	-1	0.192828074494	20415.356598210001
175	0.005721407064	10.920865784886	-1	0.198429713818	5600.791715870608
180	0.005587539493	7.679940870772	-1	0.203343287807	3028.257319661901
185	0.005466129021	6.198361591685	-1	0.207561083787	2126.392233076439
190	0.005357169334	5.403567713825	-1	0.211093891422	1719.084395453082
195	0.005260388775	4.958759637433	-1	0.213962691424	1520.993663796676
200	0.005175384564	4.728695109581	-1	0.216194079998	1436.308760460387
205	0.005101564906	4.652434703942	-1	0.217822458510	1428.235384970599
210	0.005038007947	4.701633506650	-1	0.218896710352	1483.670646923828
215	0.004983720889	4.868648686495	-1	0.219469140622	1604.047394078189
220	0.004937730570	5.162519652229	-1	0.219591065213	1804.039019909354
225	0.004899108105	5.610498893651	-1	0.219312080722	2116.319973182041
230	0.004866977027	6.266515440109	-1	0.218679257639	2605.929613057519
235	0.004840522374	7.232511692817	-1	0.217736732677	3407.304071840567
240	0.004818992512	8.711773291948	-1	0.216525604410	4828.869467089122
245	0.004801703072	11.162104223411	-1	0.215083613436	7710.154116545893
250	0.004788031236	15.856494589425	-1	0.213445267253	15076.502427111587
255	0.004777405419	28.111122151632	-1	0.211642300014	45767.198516442644
260	0.004773818115	113.813347401749	-1	0.209777899601	723205.897333815000
265	0.004763621634	47.097073504349	+1	0.207669784770	124044.784099815570
270	0.004758420035	19.157213155328	+1	0.205532546079	20895.024352410328
275	0.004754883654	11.808818617981	+1	0.203343199489	8081.163471107487

280	0.004752132198	8.412569190668	+1	0.201110921187	4174.827656667783
285	0.004749872490	6.464262214372	+1	0.198852030088	2509.477082180082
290	0.004747854740	5.205678107469	+1	0.196580726543	1656.955075798571
295	0.004745868196	4.328880486850	+1	0.194309304135	1166.715378878810
300	0.004743734677	3.685238528464	+1	0.192048284436	861.086214210907
310	0.004738492895	2.808146781890	+1	0.187589847086	518.649778288120
320	0.004731358351	2.242359065390	+1	0.183251785915	343.155123239815
330	0.004721856808	1.850157152712	+1	0.179064761878	242.448775319605
340	0.004709718883	1.564387380917	+1	0.175049559523	179.897658162304
350	0.004694829365	1.348450788541	+1	0.171219437962	138.699883579952
360	0.004677208489	1.180659743573	+1	0.167580470339	110.301273478541
370	0.004657028559	1.047185921553	+1	0.164128956604	89.970530486945
380	0.004634501219	0.938977157440	+1	0.160858777388	74.959440790027
390	0.004609841125	0.849908735576	+1	0.157763415852	63.593306881559
400	0.004583257796	0.775691150012	+1	0.154836187531	54.805938712040
410	0.004554969441	0.713209578166	+1	0.152069660586	47.890667293023
420	0.004525227778	0.660084394510	+1	0.149453288757	42.358019554727
430	0.004494267574	0.614525425063	+1	0.146976865892	37.867490863071
440	0.004462293803	0.575177854446	+1	0.144631349868	34.178190370954
450	0.004429485385	0.540998618458	+1	0.142408710714	31.115864578841
460	0.004396006031	0.511163064707	+1	0.140301368174	28.551123944586
470	0.004362020914	0.484986286148	+1	0.138300865012	26.384150485004
480	0.004327675981	0.461916430154	+1	0.136399390290	24.538910593855
490	0.004293095721	0.441510804804	+1	0.134590067000	22.957221422800
500	0.004258385170	0.423410356173	+1	0.132866857128	21.593948762642
510	0.004223634471	0.407318174237	+1	0.131224175733	20.413404765575
520	0.004188932032	0.392975629057	+1	0.129656314297	19.386226429553
530	0.004154353380	0.380165819728	+1	0.128157960015	18.488777786613
540	0.004119960635	0.368707921375	+1	0.126724415558	17.702049908805
550	0.004085807073	0.358450429239	+1	0.125351579739	17.010634426875
560	0.004051933952	0.349263875409	+1	0.124035603077	16.401815966107
570	0.004018382220	0.341033168159	+1	0.122772698374	15.864737582420
580	0.003985184936	0.333658909289	+1	0.121559419658	15.390330275739

590	0.003952368709	0.327055891027	+1	0.120392628671	14.971029502944
600	0.003919954625	0.321150724158	+1	0.119269500834	14.600492711767
610	0.003887958872	0.315879562939	+1	0.118187474000	14.273351140321
620	0.003856395707	0.311184815614	+1	0.117144037227	13.984903057602
630	0.003825275572	0.307015947273	+1	0.116136871120	13.731123440025
640	0.003794605592	0.303328556069	+1	0.115163874911	13.508562380934
650	0.003764391572	0.300083533081	+1	0.114223134217	13.314246209904
660	0.003734635381	0.297246206611	+1	0.113312889016	13.145603521832
670	0.003705338119	0.294785456503	+1	0.112431422690	13.000365889970
680	0.003676499324	0.292673574076	+1	0.111577203771	12.876561772262
690	0.003648117400	0.290885526308	+1	0.110748752595	12.772441547727
700	0.003620188670	0.289398947452	+1	0.109944764205	12.686483465819
710	0.003592709646	0.288193830425	+1	0.109163981730	12.617342038116
720	0.003565674967	0.287252143310	+1	0.108405234147	12.563831182650
730	0.003539079436	0.286557826380	+1	0.107667446540	12.524911384390
740	0.003512916211	0.286096002262	+1	0.106949609883	12.499644453164
750	0.003487179256	0.285853240638	+1	0.106250772561	12.487193460162
760	0.003461861604	0.285817207138	+1	0.105570047059	12.486807373693
770	0.003436956153	0.285977149653	+1	0.104906612602	12.497841620068
780	0.003412455710	0.286323251633	+1	0.104259697252	12.519718689998
790	0.003388352052	0.286846501503	+1	0.103628559846	12.551920297274
800	0.003364638571	0.287538313470	+1	0.103012530271	12.593961184522
810	0.003341306284	0.288390964230	+1	0.102410934639	12.645415864375
820	0.003318348915	0.289397786627	+1	0.101823207119	12.705924317866
830	0.003295756895	0.290552690635	+1	0.101248769618	12.775171930785
840	0.003273522395	0.291849923425	+1	0.100687095889	12.852865706693
850	0.003251637855	0.293284036597	+1	0.100137677898	12.938732732548
860	0.003230096404	0.294849939490	+1	0.099600050998	13.032524388201
870	0.003208889119	0.296543581317	+1	0.099073753347	13.134058376238
880	0.003188009300	0.298361031582	+1	0.098558367567	13.243157678164
890	0.003167450119	0.300298622006	+1	0.098053496076	13.359663785024
900	0.003147204280	0.302352947080	+1	0.097558747007	13.483435964137
910	0.003127265658	0.304520648957	+1	0.097073760437	13.614336272732

920	0.003107626081	0.306799157214	+1	0.096598183557	13.752280397437
930	0.003088279301	0.309186174029	+1	0.096131728378	13.897201606572
940	0.003069218706	0.311679343919	+1	0.095674074547	14.049027061649
950	0.003050436923	0.314276585431	+1	0.095224935051	14.207708500741
960	0.003031928429	0.316975694794	+1	0.094784032381	14.373184300653
970	0.003013686985	0.319775042848	+1	0.094351100861	14.545430633451
980	0.002995705835	0.322673257386	+1	0.093925890699	14.724444128354
990	0.002977979989	0.325668654371	+1	0.093508159277	14.910197021891
1000	0.002960503238	0.328760041905	+1	0.093097684956	15.102699687693
1025	0.002917867037	0.336900541719	+1	0.092101759390	15.613515342098
1050	0.002876669967	0.345623979683	+1	0.091146774326	16.167302619869
1075	0.002836832923	0.354923706785	+1	0.090229992491	16.765060342856
1100	0.002798284255	0.364792619746	+1	0.089348841405	17.407811628422
1125	0.002760957748	0.375225132721	+1	0.088500922278	18.096729987661
1150	0.002724789209	0.386225970151	+1	0.087684285717	18.833778320974
1175	0.002689719658	0.397802305197	+1	0.086897142769	19.621186403391
1200	0.002655693810	0.409960767404	+1	0.086137769511	20.461260918477
1225	0.002622661338	0.422709075962	+1	0.085404550076	21.356491975739
1250	0.002590574092	0.436061961305	+1	0.084696152853	22.310029441206
1275	0.002559386196	0.450035943685	+1	0.084011277328	23.325314048441
1300	0.002529056598	0.464647679208	+1	0.083348728620	24.405980349118
1325	0.002499546199	0.479914972395	+1	0.082707337150	25.555938194888
1350	0.002470818220	0.495861500891	+1	0.082086122563	26.779782599562
1375	0.002442838280	0.512513090642	+1	0.081484147218	28.082530474173
1400	0.002415574990	0.529896381883	+1	0.080900503984	29.469538892476
1425	0.002388997699	0.548039702621	+1	0.080334349087	30.946633191071
1450	0.002363077984	0.566976851817	+1	0.079784909331	32.520423956374
1475	0.002337789827	0.586744300070	+1	0.079251486777	34.198152890954
1500	0.002313107901	0.607380172804	+1	0.078733384062	35.987651009280
1550	0.002265469113	0.651426839484	+1	0.077740557273	39.937291856029
1600	0.002219966233	0.699533043117	+1	0.076802543870	44.453855478220
1650	0.002176434062	0.752174865812	+1	0.075915513153	49.639273366775
1700	0.002134765827	0.809849920018	+1	0.075074614599	55.610544551459

1750	0.002094837015	0.873191039738	+1	0.074276426024	62.517550512976
1800	0.002056534291	0.942955603809	+1	0.073517863545	70.547523186541
1850	0.002019755542	1.020047694491	+1	0.072796116842	79.935552516854
1900	0.001984406967	1.105565924767	+1	0.072108674037	90.981308138856
1950	0.001950403631	1.200842028734	+1	0.071453204441	104.069134770029
2000	0.001917668142	1.307501616206	+1	0.070827504928	119.697300829426
2100	0.001855718988	1.563579655053	+1	0.069657530546	161.426437135237
2200	0.001798050622	1.897534046004	+1	0.068585388392	224.762877390657
2300	0.001744226802	2.349537321001	+1	0.067599714404	326.550105574982
2400	0.001693871675	2.993214507437	+1	0.066690410288	503.364542506533
2500	0.001646658841	3.979669024897	+1	0.065848586058	846.951291592418
2600	0.001602303440	5.675891736234	+1	0.065066462541	1643.159665066577
2700	0.001560554655	9.265516168744	+1	0.064337636186	4184.467065500371
2800	0.001521190354	21.865215404947	+1	0.063656604899	22309.697016724709
2900	0.001484011963	89.332026061684	-1	0.063018536910	365178.188328588150
3000	0.001448842401	14.852192893812	-1	0.062419228504	10802.884120093027
3100	0.001415522188	8.023402470940	-1	0.061854998667	3367.462277964225
3200	0.001383910622	5.462768636366	-1	0.061322498420	1664.279240741955
3300	0.001353881156	4.122970328657	-1	0.060818735353	1008.908743414094
3400	0.001325318225	3.299778917234	-1	0.060341140061	686.560636934312
3500	0.001298116276	2.743145544356	-1	0.059887451569	503.227717267975
3600	0.001272179391	2.341926795018	-1	0.059455718777	388.404389708379
3700	0.001247422350	2.039287243090	-1	0.059044062548	311.388207942657
3800	0.001223767040	1.803078887426	-1	0.058650784553	257.005967248063
3900	0.001201141335	1.613729055210	-1	0.058274432921	217.034827394064
4000	0.001179479107	1.458638621290	-1	0.057913765757	186.694431078272
4100	0.001158718433	1.329340750789	-1	0.057567695180	163.048636306538
4200	0.001138804835	1.219972276999	-1	0.057235095368	144.215825060088
4300	0.001119688041	1.126319355408	-1	0.056914918179	128.938388725897
4400	0.001101325588	1.045295683305	-1	0.056605888516	116.350952568301
4500	0.001083668867	0.974509621297	-1	0.056307673107	105.831650445671
4600	0.001066676811	0.912155764668	-1	0.056019632364	96.933458372403
4700	0.001050313054	0.856841451430	-1	0.055741064919	89.327417841581

4800	0.001034543377	0.807463818950	-1	0.055471300872	82.765264486633
4900	0.001019335909	0.763133067144	-1	0.055209805777	77.055991831897
5000	0.001004660633	0.723123890985	-1	0.054956119418	72.050635167436
5500	0.000938358069	0.570399617798	-1	0.053790157197	54.216169884315
6000	0.000881903393	0.468433488255	-1	0.052763796554	43.408633392761
6500	0.000833238702	0.395893418311	-1	0.051845676598	36.235387018297
7000	0.000790844558	0.341867929553	-1	0.051013587078	31.157280866031
7500	0.000753574483	0.300210458248	-1	0.050251284512	27.385746962649
8000	0.000720547495	0.267202310320	-1	0.049546620267	24.479015713708
8500	0.000691074469	0.240466235913	-1	0.048890249888	22.172047551734
9000	0.000664608861	0.218414152641	-1	0.048274873211	20.296943825707
9500	0.000640711028	0.199946535898	-1	0.047694684483	18.742571884308
10000	0.000619023304	0.184278950760	-1	0.047144981606	17.432618736047
10500	0.000599250992	0.170835786906	-1	0.046622065293	16.312942967582
11000	0.000581151768	0.159192638657	-1	0.046122355493	15.344598274307
11500	0.000564519216	0.149017131889	-1	0.045643658353	14.498022143362
12000	0.000549182155	0.140058910568	-1	0.045183482778	13.751274765067
12500	0.000534993091	0.132116935352	-1	0.044740110344	13.087142468935
13000	0.000521827488	0.125034394401	-1	0.044311741889	12.492355861149
13500	0.000509576649	0.118681985610	-1	0.043897148548	11.956178128025
14000	0.000498147753	0.112956840501	-1	0.043494979491	11.470128172614
14500	0.000487459225	0.107772468716	-1	0.043104318409	11.027184557303
15000	0.000477440547	0.103058996802	-1	0.042724117967	10.621700247771
16000	0.000459170093	0.094815220521	-1	0.041992192700	9.904793544812
17000	0.000442920878	0.087853983491	-1	0.041293775764	9.289934361714
18000	0.000428365771	0.081905766642	-1	0.040624551291	8.755947198617
19000	0.000415243826	0.076770548057	-1	0.039981040118	8.287214936503
20000	0.000403344709	0.072296924742	-1	0.039360456034	7.871963052705
21000	0.000313270735	0.050572160676	-1	0.048154057572	8.577244002564
22000	0.000301239719	0.047256016459	-1	0.048120416587	8.302603522132
23000	0.000289693231	0.044063761868	-1	0.048145476540	8.030255516904
24000	0.000278782215	0.041083631699	-1	0.048219885152	7.770659321714
25000	0.000268642485	0.038398001987	-1	0.048320917561	7.534002651036

26000	0.000259356938	0.036059916454	-1	0.048417671592	7.327513502053
27000	0.000250837069	0.034026746379	-1	0.048499150542	7.147867717436
28000	0.000242962162	0.032236897625	-1	0.048565785656	6.989403699602
29000	0.000235621870	0.030633861232	-1	0.048623916976	6.846773243139
30000	0.000228714933	0.029165800787	-1	0.048685537198	6.714926739357
31000	0.000222159859	0.027792233787	-1	0.048764010305	6.589885432455
32000	0.000215928581	0.026503717707	-1	0.048859868341	6.470997207364
33000	0.000210007132	0.025298369879	-1	0.048969550995	6.358420801368
34000	0.000204383090	0.024174476049	-1	0.049088907849	6.252313700854
35000	0.000199045387	0.023130424252	-1	0.049213236602	6.152829008247
36000	0.000193981836	0.022163556997	-1	0.049338088162	6.059974173901
37000	0.000189172314	0.021266813395	-1	0.049462300138	5.973197523692
38000	0.000184595930	0.020432461015	-1	0.049586136191	5.891829454286
39000	0.000180233136	0.019653240052	-1	0.049710569898	5.815226037129
40000	0.000176065693	0.018922350943	-1	0.049837271335	5.742767691847
41000	0.000172077356	0.018233960247	-1	0.049967985484	5.673926825710
42000	0.000168256763	0.017584767305	-1	0.050102356729	5.608451533081
43000	0.000164594221	0.016972186992	-1	0.050239540863	5.546160072770
44000	0.000161080744	0.016393769095	-1	0.050378841330	5.486874432124
45000	0.000157707853	0.015847183983	-1	0.050519695456	5.430420242347
46000	0.000154467587	0.015330212666	-1	0.050661714076	5.376627292708
47000	0.000151352319	0.014840756964	-1	0.050804570489	5.325327166894
48000	0.000148354839	0.014376815785	-1	0.050948098508	5.276353656680
49000	0.000145468317	0.013936478790	-1	0.051092324274	5.229545191500
50000	0.000142686310	0.013517928119	-1	0.051237441838	5.184742576257
55000	0.000130157024	0.011703025468	-1	0.051975976914	4.986667192817
60000	0.000119541583	0.010256106227	-1	0.052725801593	4.823814075775
65000	0.000110429775	0.009080358286	-1	0.053481812644	4.687828885962
70000	0.000102521720	0.008109949021	-1	0.054235620269	4.572642822492
75000	0.000095592588	0.007297696408	-1	0.054988203228	4.474146483208
80000	0.000089471263	0.006609851553	-1	0.055736523754	4.389116895210
85000	0.000084024516	0.006021407235	-1	0.056478150164	4.315103468548
90000	0.000079146895	0.005513389759	-1	0.057212542632	4.250262514415

95000	0.000074753724	0.005071227486	-1	0.057939477274	4.193150058981
100000	0.000070776518	0.004683592266	-1	0.058658731717	4.142609835944
105000	0.000067165542	0.004342307979	-1	0.059359038576	4.097223550723
110000	0.000063869001	0.004039605746	-1	0.060048050157	4.056628353862
115000	0.000060844527	0.003769196396	-1	0.060733101578	4.020417300592
120000	0.000058061877	0.003526728209	-1	0.061410067692	3.987937433961
125000	0.000055494923	0.003308477170	-1	0.062075998092	3.958597339800
130000	0.000053119981	0.003111248175	-1	0.062730738953	3.932047907815
135000	0.000050916533	0.002932302753	-1	0.063374848951	3.907964518208
140000	0.000048867150	0.002769408025	-1	0.064007994414	3.886081186504
145000	0.000046956530	0.002620622974	-1	0.064630499559	3.866153536591
150000	0.000045171440	0.002484333844	-1	0.065242181279	3.847984918408
155000	0.000043500172	0.002359123677	-1	0.065843381420	3.831392321128
160000	0.000041932556	0.002243804844	-1	0.066433845997	3.816218334126
165000	0.000040459504	0.002137323670	-1	0.067013793979	3.802317643067
170000	0.000039073002	0.002038786065	-1	0.067583066442	3.789572188874
175000	0.000037765832	0.001947391822	-1	0.068141941084	3.777874582067
180000	0.000036531657	0.001862451459	-1	0.068690480865	3.767127636855
185000	0.000035364741	0.001783348902	-1	0.069228965724	3.757242867470
190000	0.000034259985	0.001709565011	-1	0.069756999207	3.748148378982
195000	0.000033212734	0.001640623973	-1	0.070274518031	3.739771559553
200000	0.000032218605	0.001576059657	-1	0.070782719928	3.732036070088
205000	0.000031273630	0.001515455165	-1	0.071282990865	3.724872292943
210000	0.000030374545	0.001458515833	-1	0.071774468813	3.718241746635
215000	0.000029518464	0.001404988731	-1	0.072255755377	3.712104476626
220000	0.000028702745	0.001354640279	-1	0.072725353803	3.706410045627
225000	0.000027924170	0.001307164216	-1	0.073186945812	3.701234082415
230000	0.000027180215	0.001262327489	-1	0.073641568728	3.696572218456
235000	0.000026469301	0.001219995780	-1	0.074085225346	3.692278566804
240000	0.000025789338	0.001179971020	-1	0.074518433732	3.688315376765
245000	0.000025138342	0.001142065078	-1	0.074942140705	3.684649725085
250000	0.000024514987	0.001106155578	-1	0.075353658529	3.681143198013
255000	0.000023917234	0.001072047819	-1	0.075756472512	3.677828588468

260000	0.000023343351	0.001039596638	-1	0.076152793153	3.674755698906
265000	0.000022792121	0.001008710511	-1	0.076541807104	3.671903377440
270000	0.000022262361	0.000979299837	-1	0.076922970435	3.669255859686
275000	0.000021752963	0.000951277880	-1	0.077295932081	3.666795369620
280000	0.000021262866	0.000924561332	-1	0.077660502897	3.664505980677
285000	0.000020791066	0.000899070182	-1	0.078016677924	3.662372316434
290000	0.000020336602	0.000874727133	-1	0.078364670806	3.660381063467
295000	0.000019898575	0.000851458865	-1	0.078704780929	3.658516171550
300000	0.000019476120	0.000829195029	-1	0.079037503622	3.656764825561

Electron Elastic Scattering Sampling Data
Solution for Z = 57

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.015436959457	0.075892153320	+1	0.036081386400	0.194981647332
52	0.014668918554	0.059265316664	+1	0.034859462094	0.152339677316
54	0.013996642191	0.047403266500	+1	0.034023461259	0.123217879456
56	0.013407764196	0.038991867600	+1	0.033516603692	0.103397776938
58	0.012891716686	0.033098820787	+1	0.033292557332	0.090184667636
60	0.012439379390	0.029070037456	+1	0.033314036139	0.081858658279
62	0.012042865908	0.026452782144	+1	0.033551239032	0.077341270571
64	0.011695167450	0.024936662800	+1	0.033980270546	0.075983636976
66	0.011390290752	0.024318023777	+1	0.034582321517	0.077454811258
68	0.011122925230	0.024467308263	+1	0.035342433255	0.081655340477
70	0.010888329176	0.025308166385	+1	0.036248623510	0.088670096487
72	0.010682396852	0.026805564084	+1	0.037291466996	0.098751659258
74	0.010501418083	0.028951984622	+1	0.038463386949	0.112297547200
76	0.010342140695	0.031762897026	+1	0.039758360625	0.129858098076
78	0.010201667731	0.035270105423	+1	0.041171522730	0.152137817313
80	0.010077394691	0.039518055748	+1	0.042698938639	0.180008588292
82	0.009967029080	0.044562564855	+1	0.044337315291	0.214534172112
84	0.009868496290	0.050467960864	+1	0.046084036151	0.256994100616
86	0.009779950974	0.057307057227	+1	0.047936750933	0.308921838740
88	0.009699784253	0.065158435147	+1	0.049893139718	0.372133612681
90	0.009626393583	0.074116404665	+1	0.051952436301	0.448866481025
92	0.009558576350	0.084271633577	+1	0.054111913330	0.541686369265
94	0.009495117971	0.095731320229	+1	0.056370332426	0.653736216714
96	0.009434968382	0.108610679125	+1	0.058726062702	0.788765021864
98	0.009377191561	0.123035942884	+1	0.061177384235	0.951276446644
100	0.009320957382	0.139145473166	+1	0.063722406982	1.146689932019
105	0.009182615351	0.187833922027	+1	0.070481563852	1.825623094167
110	0.009040897996	0.250947779757	+1	0.077777653294	2.902160278359

115	0.008889890249	0.332330035344	+1	0.085561198488	4.619164791144
120	0.008726445703	0.437243095705	+1	0.093772046999	7.387174130768
125	0.008549407780	0.573055644164	+1	0.102333135356	11.918147472449
130	0.008359421429	0.750517410648	+1	0.111156058928	19.491409671514
135	0.008158346217	0.985778109981	+1	0.120137546199	32.496978217816
140	0.007948983185	1.304433612945	+1	0.129168270511	55.649037002176
145	0.007734630945	1.749137930416	+1	0.138131385739	98.874912180621
150	0.007518790411	2.396954556774	+1	0.146913061012	185.103878579763
155	0.007304891954	3.401348818924	+1	0.155401873207	374.341828374595
160	0.007096066603	5.118530885288	+1	0.163498488551	856.546439541614
165	0.006895036801	8.599735264224	+1	0.171114480652	2454.798000435712
170	0.006703986158	18.898664959959	+1	0.178179629607	12080.956437872946
175	0.006656855989	35.745694572965	+1	0.182063494655	43629.764285795020
180	0.006357992583	25.582327717538	-1	0.190455133652	25004.162299109314
185	0.006204859835	13.540256385949	-1	0.195607992521	7668.305658458696
190	0.006065382442	9.810754368331	-1	0.200094628509	4347.812671587926
195	0.005939453164	8.101147071418	-1	0.203923159687	3161.083061499439
200	0.005826809502	7.216227229530	-1	0.207107637794	2642.472617819166
205	0.005726963974	6.773141866159	-1	0.209671321448	2425.009878163151
210	0.005639042777	6.616146150658	-1	0.211654392399	2385.632144965137
215	0.005562059558	6.682184025434	-1	0.213102248679	2485.583473872880
220	0.005495032635	6.957970396234	-1	0.214060731301	2729.497537085141
225	0.005436998750	7.468679209995	-1	0.214575066762	3160.967024592785
230	0.005387033862	8.286036394973	-1	0.214689212484	3883.853968609136
235	0.005344264903	9.561968954370	-1	0.214445204093	5131.322230099395
240	0.005307871059	11.623924610812	-1	0.213882926820	7481.981321558566
245	0.005277092808	15.280795520709	-1	0.213039676618	12695.468282646105
250	0.005251227251	23.152692150479	-1	0.211950223617	28491.272530746228
255	0.005229617937	50.958910343244	-1	0.210647251602	134409.387367029330
260	0.005213253263	190.243897091876	+1	0.209128035858	1835850.733321192400
265	0.005222346502	81.954295255625	+1	0.208798600860	341761.641770893770
270	0.005184023895	16.918576664004	+1	0.205765380412	15072.255750005477
275	0.005173435522	11.247498376264	+1	0.203902877032	6784.855231232864

280	0.005164400522	8.303405861695	+1	0.201960530810	3766.026320097945
285	0.005156547963	6.509906089564	+1	0.199957255956	2357.438867374424
290	0.005149554483	5.308342787760	+1	0.197909828384	1596.313070654628
295	0.005143139397	4.450775884641	+1	0.195832991724	1142.818996552312
300	0.005137060417	3.810421767872	+1	0.193739685839	853.020667606987
310	0.005125145092	2.923096353073	+1	0.189545159853	520.630590222484
320	0.005112632334	2.341925386696	+1	0.185389878027	346.614500098799
330	0.005098719401	1.935207762092	+1	0.181319588594	245.486118282570
340	0.005082861092	1.636975943998	+1	0.177367873707	182.182916561302
350	0.005064717793	1.410617632919	+1	0.173558848164	140.288859054682
360	0.005044132006	1.234150486153	+1	0.169907600238	111.325674166100
370	0.005021153365	1.093431007409	+1	0.166417864196	90.557180808025
380	0.004995902078	0.979134121536	+1	0.163089545462	75.211860665144
390	0.004968519907	0.884913307453	+1	0.159921061213	63.591369895036
400	0.004939166111	0.806303654510	+1	0.156909860872	54.610004386724
410	0.004908019456	0.740050580963	+1	0.154051707420	47.545934417710
420	0.004875317570	0.683661036517	+1	0.151338532551	41.898206810503
430	0.004841290405	0.635255660300	+1	0.148762032271	37.317858521797
440	0.004806132979	0.593411713370	+1	0.146314867701	33.558056502375
450	0.004770032115	0.557028692027	+1	0.143990216725	30.439706598271
460	0.004733151853	0.525237110621	+1	0.141781499778	27.830005398761
470	0.004695669426	0.497313852287	+1	0.139680969479	25.626486360053
480	0.004657741931	0.472675718891	+1	0.137681304602	23.751116664668
490	0.004619505809	0.450854845480	+1	0.135776057565	22.144224854774
500	0.004581075315	0.431471601271	+1	0.133959513464	20.759548074046
510	0.004542552738	0.414211416486	+1	0.132226352516	19.560486304661
520	0.004504036738	0.398800275573	+1	0.130570932774	18.516968989421
530	0.004465614652	0.385008203414	+1	0.128987989995	17.604801895877
540	0.004427358495	0.372643556071	+1	0.127472888023	16.804556799475
550	0.004389329414	0.361545746990	+1	0.126021493910	16.100490280052
560	0.004351576822	0.351577722493	+1	0.124629964253	15.479636089429
570	0.004314150119	0.342617073383	+1	0.123294481208	14.930908325362
580	0.004277089610	0.334558479902	+1	0.122011464696	14.445066397086

590	0.004240427980	0.327311463870	+1	0.120777719011	14.014409629285
600	0.004204192071	0.320798321189	+1	0.119590368433	13.632497762950
610	0.004168402467	0.314951452461	+1	0.118446753529	13.293879916337
620	0.004133078270	0.309709646609	+1	0.117344285595	12.993778620721
630	0.004098233429	0.305019085938	+1	0.116280516544	12.728097877197
640	0.004063878629	0.300832550621	+1	0.115253258296	12.493335110302
650	0.004030022739	0.297108799584	+1	0.114260540374	12.286494908451
660	0.003996669379	0.293810923383	+1	0.113300467216	12.104963311792
670	0.003963821859	0.290905911109	+1	0.112371257473	11.946448851293
680	0.003931481867	0.288364065083	+1	0.111471272820	11.808938979445
690	0.003899648143	0.286158980566	+1	0.110598968369	11.690679549727
700	0.003868319342	0.284266910053	+1	0.109752937148	11.590125416770
710	0.003837492138	0.282666505117	+1	0.108931860754	11.505916005623
720	0.003807161874	0.281338807821	+1	0.108134491008	11.436861489933
730	0.003777323635	0.280266456850	+1	0.107359680953	11.381896361714
740	0.003747971240	0.279433744931	+1	0.106606313454	11.340070856681
750	0.003719098421	0.278826456851	+1	0.105873399558	11.310546149296
760	0.003690698669	0.278431432495	+1	0.105159976103	11.292557018298
770	0.003662763712	0.278237297489	+1	0.104465157831	11.285455549465
780	0.003635286710	0.278233379554	+1	0.103788116567	11.288642696077
790	0.003608258682	0.278409914749	+1	0.103128060226	11.301584804465
800	0.003581671857	0.278757955196	+1	0.102484259900	11.323800208464
810	0.003555518703	0.279269151253	+1	0.101856014090	11.354845576906
820	0.003529790724	0.279936278019	+1	0.101242671484	11.394347427662
830	0.003504478241	0.280752790736	+1	0.100643625807	11.441979553772
840	0.003479573242	0.281712485011	+1	0.100058290134	11.497432986050
850	0.003455067015	0.282809767140	+1	0.099486145567	11.560442627159
860	0.003430953361	0.284038641479	+1	0.098926606380	11.630708116226
870	0.003407221591	0.285395063329	+1	0.098379236037	11.708062271027
880	0.003383864625	0.286874680036	+1	0.097843582027	11.792309849957
890	0.003360873530	0.288473444313	+1	0.097319179371	11.883276526408
900	0.003338241073	0.290187475760	+1	0.096805621126	11.980798796793
910	0.003315960219	0.292013240258	+1	0.096302510440	12.084731558230

920	0.003294021861	0.293947842334	+1	0.095809487078	12.194975019996
930	0.003272418506	0.295988671495	+1	0.095326201575	12.311440136165
940	0.003251142719	0.298133150812	+1	0.094852330980	12.434043539359
950	0.003230186322	0.300378806608	+1	0.094387556766	12.562710985775
960	0.003209543455	0.302723246852	+1	0.093931560583	12.697363580409
970	0.003189205491	0.305164712136	+1	0.093484063905	12.837971948845
980	0.003169166997	0.307701294173	+1	0.093044795314	12.984487832610
990	0.003149421212	0.310331303596	+1	0.092613478072	13.136878924295
1000	0.003129961570	0.313052995959	+1	0.092189853604	13.295112140505
1025	0.003082525848	0.320249715174	+1	0.091162938270	13.716197450604
1050	0.003036744057	0.327997823596	+1	0.090179359307	14.174072586414
1075	0.002992525497	0.336286761049	+1	0.089236135698	14.669281554166
1100	0.002949787800	0.345105576484	+1	0.088330484643	15.202379322545
1125	0.002908454190	0.354445014388	+1	0.087459797125	15.774049148972
1150	0.002868451108	0.364305629367	+1	0.086621945438	16.385643162147
1175	0.002829708549	0.374690387683	+1	0.085814973542	17.038741686500
1200	0.002792163090	0.385601612040	+1	0.085037008163	17.734949315020
1225	0.002755756875	0.397042419559	+1	0.084286315320	18.475993570522
1250	0.002720433234	0.409022910088	+1	0.083561444592	19.264171655085
1275	0.002686139337	0.421554449083	+1	0.082860995178	20.101969458373
1300	0.002652827199	0.434648467788	+1	0.082183683571	20.992005731478
1325	0.002620451316	0.448317065988	+1	0.081528261818	21.937071499325
1350	0.002588969324	0.462577892195	+1	0.080893682535	22.940501389959
1375	0.002558340165	0.477450236523	+1	0.080278937987	24.005929027607
1400	0.002528527078	0.492953682312	+1	0.079683071133	25.137191555969
1425	0.002499494588	0.509109208819	+1	0.079105187021	26.338448803885
1450	0.002471209823	0.525942487812	+1	0.078544473653	27.614434000081
1475	0.002443641342	0.543481197144	+1	0.078000190239	28.970318359477
1500	0.002416759667	0.561754283723	+1	0.077471621578	30.411667033152
1550	0.002364947656	0.600630677907	+1	0.076458894606	33.575541680304
1600	0.002315571917	0.642860980928	+1	0.075501423018	37.162422822443
1650	0.002268451140	0.688778415658	+1	0.074594772385	41.239667371447
1700	0.002223423511	0.738778622000	+1	0.073735071806	45.889228518120

1750	0.002180343546	0.793322132838	+1	0.072918803115	51.210477940009
1800	0.002139079657	0.852952830073	+1	0.072142812364	57.325302447157
1850	0.002099513977	0.918309636279	+1	0.071404233792	64.383634948017
1900	0.002061537601	0.990157920412	+1	0.070700484935	72.572658753149
1950	0.002025014002	1.069526698778	+1	0.070030728215	82.144050506485
2000	0.001989885825	1.157440766126	+1	0.069391496523	93.386778987738
2100	0.001923513368	1.364485460115	+1	0.068195910735	122.520709679567
2200	0.001861845828	1.626273919696	+1	0.067099964485	164.690802392342
2300	0.001804388115	1.966573626524	+1	0.066092141035	228.401128563097
2400	0.001750715943	2.425287191987	+1	0.065162256624	330.175385112230
2500	0.001700462577	3.074959176910	+1	0.064301285656	505.523428130051
2600	0.001653309052	4.062831541537	+1	0.063501311659	842.221534240217
2700	0.001608976510	5.740783041441	+1	0.062755897285	1607.812491325681
2800	0.001567218225	9.209357146602	+1	0.062059457808	3963.243955129190
2900	0.001527816104	20.570662832832	+1	0.061407117144	18972.262702736243
3000	0.001499410441	132.478692299500	+1	0.060379399479	756698.732518685280
3100	0.001455319167	16.601883897019	-1	0.060218055781	12847.727907018580
3200	0.001421896384	8.684015860623	-1	0.059674187043	3747.996875949868
3300	0.001390166949	5.844779444651	-1	0.059159928936	1807.045726376739
3400	0.001360005814	4.385770686372	-1	0.058672645953	1081.079835850768
3500	0.001331298577	3.498036327571	-1	0.058210032305	729.520995810336
3600	0.001303941135	2.901410170247	-1	0.057770054847	531.560506547366
3700	0.001277841142	2.473256318618	-1	0.057350814636	408.473592090206
3800	0.001252914413	2.151324815109	-1	0.056950573180	326.360508903674
3900	0.001229083217	1.900627260383	-1	0.056567852338	268.616788892669
4000	0.001206275882	1.699988134588	-1	0.056201356327	226.310646612987
4100	0.001184426491	1.535853585553	-1	0.055849945423	194.282428427768
4200	0.001163476276	1.399187265744	-1	0.055512479566	169.383797027734
4300	0.001143371227	1.283702194730	-1	0.055187913372	149.595576383392
4400	0.001124060575	1.184881854921	-1	0.054875334344	133.571398650509
4500	0.001105497779	1.099395375909	-1	0.054573980706	120.383926431970
4600	0.001087639088	1.024738971295	-1	0.054283181647	109.377897531692
4700	0.001070445178	0.959012273408	-1	0.054002192736	100.081433406296

4800	0.001053879700	0.900732792135	-1	0.053730366109	92.145354534100
4900	0.001037908422	0.848723459660	-1	0.053467127636	85.306033947553
5000	0.001022499509	0.802037186819	-1	0.053211993371	79.361174617705
5500	0.000952935318	0.626054779652	-1	0.052041189210	58.590630569701
6000	0.000893759149	0.510471125028	-1	0.051014194488	46.334709416072
6500	0.000842779664	0.429147561473	-1	0.050099181413	38.349188784941
7000	0.000798389024	0.369064398084	-1	0.049273074332	32.773191920441
7500	0.000759376660	0.323017000825	-1	0.048519006208	28.675808561223
8000	0.000724813961	0.286703858885	-1	0.047824322522	25.544809364330
8500	0.000693975918	0.257403340494	-1	0.047179331337	23.077231949610
9000	0.000666288731	0.233312384311	-1	0.046576436105	21.083345248783
9500	0.000641290838	0.213190825906	-1	0.046009586227	19.438757026001
10000	0.000618607883	0.196158782787	-1	0.045473912740	18.058725165051
10500	0.000597931501	0.181573717009	-1	0.044965544594	16.883543020347
11000	0.000579008001	0.168963469801	-1	0.044480800508	15.870513663967
11500	0.000561622099	0.157959969940	-1	0.044017352274	14.987405761530
12000	0.000545594624	0.148286426631	-1	0.043572629384	14.210404373262
12500	0.000530771983	0.139721443100	-1	0.043144821514	13.520906408858
13000	0.000517023833	0.132092404641	-1	0.042732094746	12.904624185820
13500	0.000504237007	0.125257556660	-1	0.042333134699	12.350035125724
14000	0.000492314353	0.119104116318	-1	0.041946568837	11.848073007578
14500	0.000481170615	0.113537567559	-1	0.041571409141	11.391251167305
15000	0.000470732481	0.108481496824	-1	0.041206617225	10.973558862088
16000	0.000451718667	0.099650583910	-1	0.040505062090	10.236158432612
17000	0.000434838312	0.092206750116	-1	0.039836295231	9.604718065484
18000	0.000419748775	0.085856947897	-1	0.039195883093	9.056949887363
19000	0.000406176552	0.080384052778	-1	0.038580299348	8.576486851677
20000	0.000393900457	0.075624020181	-1	0.037986647016	8.151031914742
21000	0.000316873952	0.054499204619	-1	0.045632702984	8.669078411953
22000	0.000304659412	0.050928923025	-1	0.045574677501	8.386342518467
23000	0.000292948351	0.047495810503	-1	0.045569255978	8.106191330105
24000	0.000281891001	0.044292975623	-1	0.045608993347	7.839308293952
25000	0.000271620830	0.041407124752	-1	0.045674429844	7.596108748545

26000	0.000262217312	0.038893781714	-1	0.045738555384	7.383991018065
27000	0.000253589170	0.036707014970	-1	0.045791301912	7.199526017337
28000	0.000245614023	0.034780974208	-1	0.045832600711	7.036882346153
29000	0.000238180689	0.033055330616	-1	0.045867736055	6.890549178428
30000	0.000231187733	0.031474848409	-1	0.045907039311	6.755316552702
31000	0.000224553768	0.029996391379	-1	0.045962181294	6.627075161149
32000	0.000218250105	0.028609757277	-1	0.046033561705	6.505146163373
33000	0.000212261958	0.027312769018	-1	0.046117994721	6.389690707116
34000	0.000206576156	0.026103437333	-1	0.046211794870	6.280870438427
35000	0.000201180891	0.024979916692	-1	0.046310759822	6.178844641774
36000	0.000196063354	0.023939268510	-1	0.046410900018	6.083621954314
37000	0.000191203027	0.022973903532	-1	0.046511138525	5.994637131574
38000	0.000186578752	0.022075540485	-1	0.046611636325	5.911199769472
39000	0.000182170816	0.021236417284	-1	0.046713201206	5.832646856630
40000	0.000177960817	0.020449257734	-1	0.046817276642	5.758339619712
41000	0.000173932452	0.019707827596	-1	0.046925364763	5.687731694695
42000	0.000170074119	0.019008573458	-1	0.047037109781	5.620564250299
43000	0.000166375928	0.018348702217	-1	0.047151753789	5.556652493534
44000	0.000162828656	0.017725571155	-1	0.047268644504	5.495814501297
45000	0.000159423668	0.017136664120	-1	0.047387286292	5.437872629427
46000	0.000156152855	0.016579604196	-1	0.047507280065	5.382652121866
47000	0.000153008470	0.016052129296	-1	0.047628332984	5.329980700200
48000	0.000149983196	0.015552094731	-1	0.047750267273	5.279688634197
49000	0.000147070115	0.015077445891	-1	0.047873094927	5.231609566931
50000	0.000144262709	0.014626235911	-1	0.047996962215	5.185580124857
55000	0.000131621607	0.012669185134	-1	0.048631075766	4.981921102584
60000	0.000120914088	0.011108189187	-1	0.049279651911	4.814224343168
65000	0.000111724536	0.009839309202	-1	0.049935845242	4.673898469257
70000	0.000103749890	0.008791328080	-1	0.050594968826	4.554900865698
75000	0.000096762812	0.007913779452	-1	0.051255287757	4.452932701526
80000	0.000090590694	0.007170485274	-1	0.051912022440	4.364634908942
85000	0.000085097694	0.006534342893	-1	0.052563682166	4.287572971341
90000	0.000080181425	0.005985325027	-1	0.053207279072	4.219752055939

95000	0.000075755978	0.005507711090	-1	0.053841195294	4.159655880176
100000	0.000071748773	0.005088791605	-1	0.054469169690	4.106279644376
105000	0.000068102345	0.004718779896	-1	0.055093122998	4.058737654802
110000	0.000064773272	0.004390548644	-1	0.055707293132	4.016084694499
115000	0.000061721832	0.004097679940	-1	0.056312733681	3.977653071160
120000	0.000058915372	0.003835176162	-1	0.056908652780	3.942920859317
125000	0.000056325873	0.003598801177	-1	0.057495306230	3.911420134792
130000	0.000053929601	0.003385129954	-1	0.058072292020	3.882788834065
135000	0.000051705938	0.003191213224	-1	0.058640062449	3.856695727814
140000	0.000049637429	0.003014648901	-1	0.059198163611	3.832862698577
145000	0.000047708711	0.002853343478	-1	0.059746828511	3.811036717801
150000	0.000045906466	0.002705556863	-1	0.060285782686	3.791014081608
155000	0.000044218885	0.002569759829	-1	0.060815270816	3.772608747795
160000	0.000042635702	0.002444665882	-1	0.061335145850	3.755664887186
165000	0.000041147767	0.002329136824	-1	0.061845617392	3.740036398432
170000	0.000039747031	0.002222206106	-1	0.062346539952	3.725601499893
175000	0.000038426252	0.002123010535	-1	0.062838108438	3.712247768754
180000	0.000037179000	0.002030803658	-1	0.063320385617	3.699879977351
185000	0.000035999482	0.001944919878	-1	0.063793589752	3.688409272108
190000	0.000034882592	0.001864798310	-1	0.064257356421	3.677761145284
195000	0.000033823682	0.001789924754	-1	0.064711606557	3.667857895725
200000	0.000032818359	0.001719797592	-1	0.065157310900	3.658618200335
205000	0.000031862639	0.001653967887	-1	0.065595622533	3.649969255961
210000	0.000030953291	0.001592123514	-1	0.066025433871	3.641862994187
215000	0.000030087282	0.001533977083	-1	0.066446028473	3.634277905691
220000	0.000029260609	0.001479104885	-1	0.066864025281	3.627374388967
225000	0.000028471907	0.001427413170	-1	0.067272237027	3.620939095050
230000	0.000027718769	0.001378663421	-1	0.067670504041	3.614935893813
235000	0.000026998945	0.001332629987	-1	0.068058964033	3.609327802600
240000	0.000026310669	0.001289140416	-1	0.068435771195	3.604016519319
245000	0.000025652101	0.001248007117	-1	0.068800577887	3.598935189668
250000	0.000025020739	0.001208960528	-1	0.069158730540	3.594158547710
255000	0.000024414920	0.001171835648	-1	0.069511056857	3.589649912127

260000	0.000023833261	0.001136515915	-1	0.069857172278	3.585389750901
265000	0.000023274483	0.001102897882	-1	0.070196577298	3.581365687974
270000	0.000022737385	0.001070883083	-1	0.070528854306	3.577564061301
275000	0.000022220833	0.001040376396	-1	0.070853748090	3.573969497112
280000	0.000021723754	0.001011287375	-1	0.071171123411	3.570568380587
285000	0.000021245126	0.000983528207	-1	0.071481029997	3.567346079214
290000	0.000020783987	0.000957016228	-1	0.071783583921	3.564287523248
295000	0.000020339426	0.000931671004	-1	0.072079131254	3.561378151187
300000	0.000019910572	0.000907416302	-1	0.072368109457	3.558604015072

Electron Elastic Scattering Sampling Data
Solution for Z = 58

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.014301671639	0.133289547090	+1	0.051067684061	0.560394620459
52	0.013544688038	0.109894848113	+1	0.048576396822	0.453626728765
54	0.012882343129	0.091186061197	+1	0.046506397819	0.371936090803
56	0.012301199185	0.076422684076	+1	0.044822811483	0.310000987792
58	0.011790354759	0.064905884021	+1	0.043489178100	0.263432407191
60	0.011340798174	0.056026733953	+1	0.042470375066	0.228803649330
62	0.010944978722	0.049280889026	+1	0.041734300298	0.203533100858
64	0.010596354679	0.044260077989	+1	0.041252119830	0.185707092322
66	0.010289404654	0.040649051401	+1	0.040999043137	0.173969591160
68	0.010019286819	0.038206597876	+1	0.040953716758	0.167382261615
70	0.009781704368	0.036752337386	+1	0.041097801698	0.165334023672
72	0.009572934841	0.036159617977	+1	0.041416084074	0.167496829166
74	0.009389608598	0.036340430132	+1	0.041895567466	0.173756641606
76	0.009228760106	0.037241528085	+1	0.042525521409	0.184203065826
78	0.009087731110	0.038835848756	+1	0.043296963737	0.199102000823
80	0.008964113642	0.041117156437	+1	0.044202355071	0.218886539299
82	0.008855766486	0.044097906774	+1	0.045235484280	0.244166983216
84	0.008760738280	0.047803574940	+1	0.046391077606	0.275724609079
86	0.008677270565	0.052272743177	+1	0.047664773001	0.314540026230
88	0.008603774252	0.057554114117	+1	0.049052844205	0.361807184927
90	0.008538802325	0.063705394273	+1	0.050552111140	0.418963474016
92	0.008481048052	0.070793735068	+1	0.052159850115	0.487735780128
94	0.008429324222	0.078893642584	+1	0.053873652445	0.570177008243
96	0.008382553947	0.088088537993	+1	0.055691371073	0.668737856543
98	0.008339759760	0.098470487998	+1	0.057611003133	0.786338032983
100	0.008300055568	0.110140732955	+1	0.059630658221	0.926459311698
105	0.008209290797	0.145710893234	+1	0.065105330354	1.404638574578
110	0.008122825861	0.192128375503	+1	0.071164383087	2.142978300845

115	0.008032926934	0.252082079109	+1	0.077773329015	3.287147920498
120	0.007934349936	0.329129945186	+1	0.084891090697	5.074351803340
125	0.007823733363	0.428106210013	+1	0.092465016191	7.900007209437
130	0.007699571304	0.555796161079	+1	0.100432262991	12.442567250361
135	0.007561715143	0.721995673185	+1	0.108716289798	19.904594491243
140	0.007411267549	0.941462050100	+1	0.117231093050	32.510841811977
145	0.007250158484	1.237346043276	+1	0.125879547346	54.591292937976
150	0.007080960749	1.648279966941	+1	0.134560155761	95.173907059999
155	0.006906559770	2.243397652529	+1	0.143166931927	174.824386737110
160	0.006729957516	3.160065981020	+1	0.151597281519	346.705248860066
165	0.006554060194	4.713658447833	+1	0.159752052955	776.182493144116
170	0.006381517836	7.824717976714	+1	0.167543330039	2163.955842183960
175	0.006214650095	16.785497411628	+1	0.174892901009	10119.400194664373
180	0.006159636844	36.663966301955	+1	0.179539671432	48758.051068653651
185	0.005905143402	24.201714343652	-1	0.188028143773	23777.742528568033
190	0.005764994729	12.363695096832	-1	0.193733456203	6847.079986723558
195	0.005635583305	8.770326150880	-1	0.198834070935	3752.438924102112
200	0.005517391061	7.110493722245	-1	0.203316494224	2652.836493692257
205	0.005410595713	6.219657778753	-1	0.207178967628	2157.074085035683
210	0.005314848821	5.721027133830	-1	0.210443499637	1918.089841715293
215	0.005229600693	5.460866345517	-1	0.213140891397	1817.976677356579
220	0.005154227572	5.369594431209	-1	0.215304933040	1811.381923960661
225	0.005088062297	5.416689472664	-1	0.216971307388	1883.272030820783
230	0.005030420581	5.594599122132	-1	0.218176377741	2036.445575717212
235	0.004980620016	5.914023044850	-1	0.218956472735	2290.104443177731
240	0.004937989788	6.406062675483	-1	0.219347406074	2686.357516206368
245	0.004901886779	7.132326819059	-1	0.219383771385	3309.223071836208
250	0.004871694149	8.210007040062	-1	0.219098867265	4333.681033560675
255	0.004846802219	9.874240012609	-1	0.218525402174	6165.020193742224
260	0.004826537437	12.654349436961	-1	0.217698698832	9914.386404899340
265	0.004810246725	18.040230290977	-1	0.216652618927	19654.971285027517
270	0.004797353258	32.437801553748	-1	0.215417841102	61780.609374410422
275	0.004815400938	296.441504489169	+1	0.213118460334	4935527.260972469100

280	0.004824421161	146.585858337419	+1	0.213278713320	1209840.268015409800
285	0.004774026402	20.602513778856	+1	0.210849439681	24790.419143585917
290	0.004769955118	12.820604170412	+1	0.209115172657	9775.227836924372
295	0.004767144855	9.172539796681	+1	0.207307649418	5094.550695037601
300	0.004765302386	7.064689284584	+1	0.205443199845	3076.751589413815
310	0.004763527702	4.740891283220	+1	0.201598813071	1435.864831695186
320	0.004762940606	3.498883054686	+1	0.197673944867	810.389658627253
330	0.004762270139	2.733480370141	+1	0.193738861484	512.499565953743
340	0.004760584335	2.219053769357	+1	0.189847225536	349.953655708174
350	0.004757227803	1.852517105279	+1	0.186039506503	252.683712504714
360	0.004751781133	1.580088964173	+1	0.182344065301	190.424159402570
370	0.004744060896	1.370817203103	+1	0.178775904372	148.429154344932
380	0.004733995467	1.205869148876	+1	0.175343990119	118.910184512656
390	0.004721584034	1.073195724184	+1	0.172054059986	97.465008895495
400	0.004706874055	0.964737580813	+1	0.168909261395	81.460452376770
410	0.004689966460	0.874873337892	+1	0.165909852834	69.242780596739
420	0.004671040032	0.799485205528	+1	0.163051032403	59.723577424485
430	0.004650284912	0.735566444578	+1	0.160327032558	52.175337034633
440	0.004627877250	0.680894433191	+1	0.157732426939	46.100333888582
450	0.004603983786	0.633791614916	+1	0.155262097506	41.148872370971
460	0.004578767217	0.592956505638	+1	0.152910656511	37.068305320188
470	0.004552412097	0.557331812688	+1	0.150670953987	33.669322738753
480	0.004525087817	0.526079574952	+1	0.148536079959	30.811052163689
490	0.004496944619	0.498536577478	+1	0.146499925241	28.387820877973
500	0.004468113683	0.474171431600	+1	0.144557102309	26.319123083764
510	0.004438713676	0.452548720905	+1	0.142702434418	24.542300363106
520	0.004408867309	0.433293979252	+1	0.140930203768	23.006788192589
530	0.004378682814	0.416096249000	+1	0.139235012456	21.672522610257
540	0.004348253844	0.400698886255	+1	0.137612137841	20.507740184554
550	0.004317660788	0.386888886296	+1	0.136057372573	19.487022213953
560	0.004286974259	0.374485352231	+1	0.134566802227	18.589624918195
570	0.004256263769	0.363328042281	+1	0.133136365360	17.798037405269
580	0.004225588784	0.353279529343	+1	0.131762258100	17.097784522963

590	0.004195002016	0.344223048304	+1	0.130441133129	16.476942622026
600	0.004164546562	0.336058997950	+1	0.129169931214	15.925628117536
610	0.004134258834	0.328701193172	+1	0.127945871251	15.435545821892
620	0.004104175000	0.322071575666	+1	0.126766154254	14.999454936805
630	0.004074324403	0.316101937381	+1	0.125628158034	14.611205471245
640	0.004044731863	0.310732953076	+1	0.124529520138	14.265583510371
650	0.004015417855	0.305913010901	+1	0.123468107138	13.958158867743
660	0.003986399120	0.301596474997	+1	0.122441937526	13.685111805048
670	0.003957691656	0.297741841790	+1	0.121449065112	13.443057063594
680	0.003929307247	0.294312277574	+1	0.120487700510	13.229064299878
690	0.003901255971	0.291275011893	+1	0.119556169504	13.040578840317
700	0.003873544683	0.288601021399	+1	0.118652951610	12.875388653787
710	0.003846179998	0.286264297743	+1	0.117776655846	12.731550593421
720	0.003819165964	0.284241263252	+1	0.116925906462	12.607336104528
730	0.003792504469	0.282510700094	+1	0.116099425798	12.501223068925
740	0.003766198103	0.281053404178	+1	0.115296043354	12.411857818982
750	0.003740247227	0.279852098480	+1	0.114514661044	12.338047034777
760	0.003714651320	0.278891116178	+1	0.113754257252	12.278729442837
770	0.003689409179	0.278156384444	+1	0.113013854596	12.232964412835
780	0.003664518679	0.277635076632	+1	0.112292543971	12.199912140410
790	0.003639976151	0.277315461615	+1	0.111589464948	12.178821327220
800	0.003615779796	0.277186830256	+1	0.110903809254	12.169010972927
810	0.003591925702	0.277239262123	+1	0.110234843439	12.169871318614
820	0.003568409777	0.277463851494	+1	0.109581845679	12.180859454041
830	0.003545228138	0.277852554323	+1	0.108944167476	12.201495624252
840	0.003522376789	0.278397541807	+1	0.108321184319	12.231322078542
850	0.003499850022	0.279091908537	+1	0.107712279910	12.269943237431
860	0.003477645186	0.279928974029	+1	0.107116936142	12.316982017300
870	0.003455755072	0.280903544022	+1	0.106534574435	12.372153160698
880	0.003434175239	0.282010693032	+1	0.105964726576	12.435193584889
890	0.003412897930	0.283246078858	+1	0.105406882733	12.505880961148
900	0.003391920995	0.284604776667	+1	0.104860545703	12.583944762039
910	0.003371236173	0.286083400877	+1	0.104325337007	12.669237427421

920	0.003350838784	0.287677924506	+1	0.103800824121	12.761557951644
930	0.003330724302	0.289384775812	+1	0.103286663243	12.860742378816
940	0.003310888036	0.291200527469	+1	0.102782502648	12.966634998333
950	0.003291324974	0.293121862172	+1	0.102288012060	13.079090849045
960	0.003272030463	0.295145711223	+1	0.101802862287	13.197977610736
970	0.003252999299	0.297269728368	+1	0.101326740584	13.323207365245
980	0.003234225822	0.299491863440	+1	0.100859346941	13.454712752696
990	0.003215705010	0.301809928374	+1	0.100400381604	13.592416637346
1000	0.003197432116	0.304222048065	+1	0.099949579770	13.736263469616
1025	0.003152801774	0.310653064366	+1	0.098856568579	14.122488921505
1050	0.003109612973	0.317642824715	+1	0.097809377202	14.546690667180
1075	0.003067794425	0.325175527136	+1	0.096804782156	15.008935861768
1100	0.003027280846	0.333235333637	+1	0.095839766142	15.509319539738
1125	0.002988011684	0.341808460097	+1	0.094911565185	16.048092535962
1150	0.002949924259	0.350891738542	+1	0.094017871501	16.626251962946
1175	0.002912962791	0.360484303327	+1	0.093156626638	17.244999347447
1200	0.002877073311	0.370584830898	+1	0.092325816310	17.905567942282
1225	0.002842207124	0.381192961482	+1	0.091523602447	18.609313792268
1250	0.002808316544	0.392315101354	+1	0.090748425551	19.358139317748
1275	0.002775356072	0.403959354870	+1	0.089998841068	20.154165203697
1300	0.002743285006	0.416133265811	+1	0.089273468660	20.999564495445
1325	0.002712064790	0.428845288592	+1	0.088571006616	21.896680931922
1350	0.002681657954	0.442109450850	+1	0.087890351855	22.848396259922
1375	0.002652028441	0.455941316314	+1	0.087230445184	23.857852443802
1400	0.002623144427	0.470356515292	+1	0.086590288673	24.928345121414
1425	0.002594975112	0.485371716015	+1	0.085968939535	26.063426449537
1450	0.002567490927	0.501008067734	+1	0.085365559072	27.267187730699
1475	0.002540665146	0.517288645309	+1	0.084779367426	28.544083004693
1500	0.002514471243	0.534237105580	+1	0.084209616338	29.898872910381
1550	0.002463885196	0.570242156702	+1	0.083116594730	32.863240038756
1600	0.002415552312	0.609265410422	+1	0.082081474967	36.208536656976
1650	0.002369312007	0.651584115590	+1	0.081099681444	39.991888656102
1700	0.002325019563	0.697528001710	+1	0.080167220788	44.282421028885

1750	0.002282500472	0.747542923059	+1	0.079281994575	49.171209791482
1800	0.002241674835	0.802039239103	+1	0.078439511681	54.755256903611
1850	0.002202442222	0.861535545410	+1	0.077636561872	61.157365348368
1900	0.002164705643	0.926658689606	+1	0.076870513926	68.530483628004
1950	0.002128376481	0.998147984593	+1	0.076138901251	77.063849150718
2000	0.002093373392	1.076874607460	+1	0.075439405928	86.992818825942
2100	0.002027054133	1.260455094493	+1	0.074128510837	112.308604931423
2200	0.001965220131	1.488975207219	+1	0.072923768974	148.046398262868
2300	0.001907419788	1.780181536969	+1	0.071813188547	200.369856707919
2400	0.001853262709	2.162611673593	+1	0.070786125784	280.618156012428
2500	0.001802411217	2.685279294476	+1	0.069833145622	411.457195332164
2600	0.001754569826	3.440124696862	+1	0.068945953390	643.533638093346
2700	0.001709478912	4.622597157113	+1	0.068117697388	1109.472086572187
2800	0.001666908800	6.733821876321	+1	0.067342469366	2252.098905888138
2900	0.001626653599	11.561513687040	+1	0.066615061494	6361.614774374368
3000	0.001588529061	33.710504888904	+1	0.065930928335	51910.101750689471
3100	0.001552369442	43.368243975743	-1	0.065286053268	86440.450612008091
3200	0.001518028423	13.166667695098	-1	0.064676790419	8483.824103777384
3300	0.001485373565	7.703142099336	-1	0.064099883156	3086.678654642000
3400	0.001454284050	5.416463870040	-1	0.063552476260	1619.497439096504
3500	0.001424649781	4.160877181114	-1	0.063032105627	1012.556189896556
3600	0.001396370082	3.367850585768	-1	0.062536573952	701.768375467187
3700	0.001369355319	2.822019890635	-1	0.062063810689	520.484388937786
3800	0.001343523253	2.423730041251	-1	0.061611942210	404.984037664342
3900	0.001318798058	2.120500447056	-1	0.061179345619	326.538310019672
4000	0.001295109261	1.882061577246	-1	0.060764613929	270.610645228112
4100	0.001272392176	1.689744103493	-1	0.060366527445	229.190381088523
4200	0.001250588561	1.531457235746	-1	0.059983814612	197.568172354683
4300	0.001229645233	1.398990877217	-1	0.059615356560	172.815449675589
4400	0.001209511636	1.286563871588	-1	0.059260149012	153.028692866496
4500	0.001190141494	1.189987526778	-1	0.058917355131	136.925509961760
4600	0.001171490981	1.106158658773	-1	0.058586238951	123.616419389573
4700	0.001153520894	1.032748706003	-1	0.058265995345	112.470629451365

4800	0.001136199428	0.967986554606	-1	0.057955527968	103.030826063566
4900	0.001119488163	0.910433604770	-1	0.057654533642	94.950689968682
5000	0.001103354421	0.858962588809	-1	0.057362531368	87.969991983023
5500	0.001030377507	0.666504181515	-1	0.056020521549	63.907268356624
6000	0.000968128373	0.541455995794	-1	0.054839718218	49.972474178173
6500	0.000914383335	0.454125339661	-1	0.053784217933	41.012572997473
7000	0.000867495886	0.389946883426	-1	0.052828625658	34.817725487085
7500	0.000826220701	0.340955800370	-1	0.051954345549	30.300544019831
8000	0.000789598377	0.302438705996	-1	0.051147450406	26.870199856852
8500	0.000756877726	0.271433842065	-1	0.050397228228	24.180658903018
9000	0.000727462411	0.245989589123	-1	0.049695290942	22.016948237300
9500	0.000700871835	0.224769653310	-1	0.049034954462	20.239064247133
10000	0.000676715397	0.206829498243	-1	0.048410814709	18.752165911027
10500	0.000654670356	0.191481512054	-1	0.047818570915	17.489771660279
11000	0.000634471631	0.178221896486	-1	0.047254123065	16.404504307413
11500	0.000615893158	0.166658678107	-1	0.046714858665	15.460772430708
12000	0.000598746794	0.156497827488	-1	0.046197891009	14.632342233049
12500	0.000582871032	0.147504391347	-1	0.045701190086	13.898786941675
13000	0.000568129177	0.139495750809	-1	0.045222652306	13.244447717394
13500	0.000554402002	0.132321849156	-1	0.044760811654	12.656737537600
14000	0.000541587111	0.125863621654	-1	0.044314098143	12.125768747747
14500	0.000529594976	0.120021362131	-1	0.043881371341	11.643390753262
15000	0.000518347963	0.114714554429	-1	0.043461436031	11.203077211092
16000	0.000497821755	0.105443996144	-1	0.042656301039	10.427588691755
17000	0.000479550099	0.097626321678	-1	0.041892167129	9.765571755355
18000	0.000463171660	0.090953774559	-1	0.041163790644	9.192950584110
19000	0.000448397834	0.085198680974	-1	0.040466911914	8.692086470405
20000	0.000434995158	0.080189072097	-1	0.039798067288	8.249755475290
21000	0.000347401330	0.057731068453	-1	0.047584008108	8.778834737554
22000	0.000334125955	0.053983995525	-1	0.047461107130	8.482012162143
23000	0.000321399995	0.050377610451	-1	0.047392929664	8.188367961823
24000	0.000309382329	0.047010447678	-1	0.047372836724	7.909007478159
25000	0.000298214389	0.043974673420	-1	0.047381830239	7.654687570996

26000	0.000287980416	0.041329782252	-1	0.047392895375	7.432977665019
27000	0.000278582708	0.039027935658	-1	0.047395416955	7.240213302223
28000	0.000269890347	0.036999995179	-1	0.047388839426	7.070274608751
29000	0.000261784277	0.035182454522	-1	0.047378125498	6.917403757183
30000	0.000254155678	0.033517015629	-1	0.047373452077	6.776183277778
31000	0.000246917143	0.031958105045	-1	0.047386404700	6.642347703465
32000	0.000240037593	0.030495079580	-1	0.047417310808	6.515180173184
33000	0.000233500877	0.029125832589	-1	0.047462861865	6.394828768359
34000	0.000227292597	0.027848432291	-1	0.047519264711	6.281441925282
35000	0.000221399876	0.026661096117	-1	0.047582210580	6.175166988807
36000	0.000215808748	0.025560851538	-1	0.047647630914	6.075998218684
37000	0.000210497016	0.024539769160	-1	0.047714343342	5.983339560182
38000	0.000205441854	0.023589154100	-1	0.047782437514	5.896468982054
39000	0.000200621953	0.022700850693	-1	0.047852647055	5.814695495482
40000	0.000196017433	0.021867190185	-1	0.047926378792	5.737354735517
41000	0.000191610652	0.021081607030	-1	0.048005084296	5.663878372397
42000	0.000187389012	0.020340382668	-1	0.048088367857	5.593995348439
43000	0.000183341756	0.019640605426	-1	0.048175413943	5.527509846612
44000	0.000179458893	0.018979517991	-1	0.048265522321	5.464229437377
45000	0.000175731032	0.018354491176	-1	0.048358151192	5.403967364974
46000	0.000172149378	0.017763036606	-1	0.048452863368	5.346539866564
47000	0.000168705513	0.017202781555	-1	0.048549333178	5.291766484836
48000	0.000165391489	0.016671472897	-1	0.048647357003	5.239469911531
49000	0.000162199806	0.016166957919	-1	0.048746901498	5.189476396422
50000	0.000159123388	0.015687185418	-1	0.048848091397	5.141615542697
55000	0.000145264503	0.013604179902	-1	0.049377006709	4.929860365593
60000	0.000133516841	0.011940110320	-1	0.049932026985	4.755472088831
65000	0.000123428582	0.010585422085	-1	0.050505322211	4.609528244000
70000	0.000114668079	0.009465251578	-1	0.051088547642	4.485688087383
75000	0.000106989240	0.008526529114	-1	0.051676646438	4.379362738890
80000	0.000100202267	0.007730402699	-1	0.052268901701	4.287297896360
85000	0.000094160425	0.007048407088	-1	0.052861965061	4.206898679323
90000	0.000088747681	0.006459008550	-1	0.053453063782	4.136155389313

95000	0.000083870947	0.005945554558	-1	0.054041165821	4.073533997265
100000	0.000079454768	0.005495075856	-1	0.054625209076	4.017799570654
105000	0.000075436985	0.005097251042	-1	0.055204905580	3.967958009460
110000	0.000071766235	0.004743954869	-1	0.055779701142	3.923263452308
115000	0.000068402220	0.004428781089	-1	0.056345233502	3.882822225607
120000	0.000065310689	0.004146583153	-1	0.056897125031	3.845972013585
125000	0.000062457315	0.003892355223	-1	0.057441454554	3.812468595421
130000	0.000059812841	0.003662035690	-1	0.057984466593	3.782189355872
135000	0.000057357525	0.003452839983	-1	0.058521469572	3.754593354100
140000	0.000055073296	0.003262340285	-1	0.059049501932	3.729307963822
145000	0.000052943029	0.003088265649	-1	0.059569084301	3.706090721427
150000	0.000050952029	0.002928741066	-1	0.060080023881	3.684738410567
155000	0.000049087336	0.002782122363	-1	0.060582547991	3.665058771938
160000	0.000047337662	0.002647029759	-1	0.061076409438	3.646891009458
165000	0.000045692940	0.002522240270	-1	0.061561751065	3.630084972246
170000	0.000044144298	0.002406713623	-1	0.062038471349	3.614520189517
175000	0.000042683768	0.002299519845	-1	0.062506787553	3.600082448280
180000	0.000041304289	0.002199861953	-1	0.062966502158	3.586667624190
185000	0.000039999503	0.002107024029	-1	0.063417724710	3.574179440166
190000	0.000038763808	0.002020400976	-1	0.063860197215	3.562545422717
195000	0.000037592056	0.001939434429	-1	0.064294075796	3.551695633778
200000	0.000036479388	0.001863583797	-1	0.064720272104	3.541546438878
205000	0.000035421386	0.001792363653	-1	0.065139917750	3.532022777678
210000	0.000034414407	0.001725428660	-1	0.065552293378	3.523086875907
215000	0.000033455184	0.001662478985	-1	0.065956378416	3.514708131682
220000	0.000032540686	0.001603230130	-1	0.066351392046	3.506851158483
225000	0.000031668094	0.001547413543	-1	0.066736774842	3.499478233192
230000	0.000030834782	0.001494775507	-1	0.067112205153	3.492548861575
235000	0.000030038335	0.001445079110	-1	0.067477464989	3.486015265613
240000	0.000029276563	0.001398110635	-1	0.067832086924	3.479818027147
245000	0.000028545941	0.001353488132	-1	0.068185217035	3.474127319002
250000	0.000027845342	0.001311118491	-1	0.068532581390	3.468771977215
255000	0.000027173075	0.001270839745	-1	0.068874079981	3.463691140982

260000	0.000026527587	0.001232522412	-1	0.069209467596	3.458868567616
265000	0.000025907457	0.001196053256	-1	0.069538294542	3.454292686424
270000	0.000025311895	0.001161387253	-1	0.069856227217	3.449852518094
275000	0.000024739324	0.001128382601	-1	0.070165113235	3.445585088486
280000	0.000024188211	0.001096901896	-1	0.070467271918	3.441536788913
285000	0.000023657472	0.001066855577	-1	0.070762450511	3.437686128065
290000	0.000023146068	0.001038155823	-1	0.071050664382	3.434013629398
295000	0.000022652999	0.001010717383	-1	0.071332143806	3.430502835533
300000	0.000022177313	0.000984458302	-1	0.071607287930	3.427138064824

Electron Elastic Scattering Sampling Data
Solution for Z = 59

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.015470253673	0.170831493245	+1	0.047440933449	0.634101823625
52	0.014628196126	0.138193577748	+1	0.044720520310	0.496115377878
54	0.013886651627	0.112086352609	+1	0.042426421498	0.392255055980
56	0.013231503764	0.091485316704	+1	0.040526705159	0.314600790596
58	0.012651390898	0.075394982189	+1	0.038985197087	0.256733101430
60	0.012136967404	0.062937003604	+1	0.037765723949	0.213737687926
62	0.011680424681	0.053377240644	+1	0.036834443730	0.181966416221
64	0.011275006717	0.046117822569	+1	0.036160642132	0.158743075282
66	0.010915006097	0.040690926889	+1	0.035717674141	0.142154197850
68	0.010595406163	0.036733336052	+1	0.035482494998	0.130838796973
70	0.010311744534	0.033968374977	+1	0.035435414295	0.123851332089
72	0.010060158505	0.032192231461	+1	0.035559881756	0.120571494492
74	0.009837121187	0.031256860321	+1	0.035842024984	0.120624962195
76	0.009639530949	0.031060804238	+1	0.036270364303	0.123842990048
78	0.009464596310	0.031538128490	+1	0.036835343233	0.130224350401
80	0.009309781822	0.032651022436	+1	0.037529046078	0.139915643037
82	0.009172830496	0.034385424735	+1	0.038345011278	0.153206590772
84	0.009051672278	0.036744326425	+1	0.039277854674	0.170517786783
86	0.008944445316	0.039746171582	+1	0.040323176960	0.192411799558
88	0.008849455471	0.043421258572	+1	0.041477324908	0.219597566670
90	0.008765158283	0.047809727589	+1	0.042737276857	0.252944102016
92	0.008690154795	0.052961060582	+1	0.044100498293	0.293504626500
94	0.008623165604	0.058931747624	+1	0.045564862371	0.342535247123
96	0.008563026655	0.065785966378	+1	0.047128523446	0.401534091004
98	0.008508677494	0.073594895261	+1	0.048789862971	0.472280001198
100	0.008459146282	0.082436792316	+1	0.050547417732	0.556883666359
105	0.008350812491	0.109643247482	+1	0.055353736987	0.846647470547
110	0.008255729212	0.145417600514	+1	0.060732249354	1.293852125208

115	0.008164785511	0.191739699962	+1	0.066660732225	1.982657458975
120	0.008071316618	0.251131307332	+1	0.073111494702	3.045974575739
125	0.007970495660	0.326912333045	+1	0.080048456225	4.698166395829
130	0.007859344347	0.423564390294	+1	0.087426756899	7.292676528195
135	0.007736271882	0.547299562858	+1	0.095189637574	11.427546494169
140	0.007601048408	0.707022321209	+1	0.103270563032	18.147856400900
145	0.007454406301	0.915903338616	+1	0.111591267790	29.349598767821
150	0.007297933892	1.194352508584	+1	0.120066323305	48.646581388986
155	0.007133748670	1.575550026155	+1	0.128602527831	83.354767162207
160	0.006964337159	2.117411560420	+1	0.137105153891	149.555176294698
165	0.006792318466	2.930192646573	+1	0.145478170951	286.699377622417
170	0.006620281990	4.253164696832	+1	0.153631146692	608.570156832599
175	0.006450659799	6.717852843400	+1	0.161478846347	1537.913706399849
180	0.006285621300	12.708736007819	+1	0.168946565247	5599.518846522640
185	0.006196202740	27.414510395018	+1	0.174578049686	26425.669645007853
190	0.005976261291	39.865139512999	-1	0.182501198228	60493.339472429965
195	0.005834472455	15.242750202023	-1	0.188502738126	9799.984578427037
200	0.005702581101	9.997498305714	-1	0.193941497509	4612.627554563974
205	0.005581194749	7.800859942952	-1	0.198796669373	3035.216176968431
210	0.005470346845	6.654394804240	-1	0.203073872937	2359.778710098171
215	0.005369816020	6.003032311346	-1	0.206789522521	2030.072980005296
220	0.005279254789	5.635167679157	-1	0.209964686639	1872.402261376482
225	0.005198229696	5.456144326188	-1	0.212623851813	1820.462033455534
230	0.005126247488	5.421604976533	-1	0.214794004563	1848.373877593135
235	0.005062777559	5.513816408583	-1	0.216503541752	1950.445175790856
240	0.005007272263	5.733075003039	-1	0.217781813682	2135.621904644250
245	0.004959179248	6.096465373095	-1	0.218658250837	2429.331666448332
250	0.004917952899	6.642378943062	-1	0.219162131594	2882.981761228200
255	0.004883021715	7.442596257163	-1	0.219323754301	3597.584665612465
260	0.004853707415	8.628524457882	-1	0.219178463205	4781.519528637066
265	0.004829345985	10.465433321221	-1	0.218760881743	6923.931162772816
270	0.004809314840	13.567963828570	-1	0.218103507722	11409.327741541107
275	0.004793059513	19.734896598882	-1	0.217235991802	23580.239612353904

280	0.004780066480	37.384135996871	-1	0.216185737083	82403.953007832330
285	0.004790497363	300.948303767577	+1	0.214392263133	5151951.031142308400
290	0.004803429911	158.181302984765	+1	0.214695670547	1426264.037877178300
295	0.004756237714	19.851232392729	+1	0.212178034996	23327.450515436332
300	0.004752087064	12.663154084811	+1	0.210625427881	9668.903361889421
310	0.004747588823	7.114398377413	+1	0.207298707966	3164.837848302141
320	0.004746425571	4.813548601839	+1	0.203768847158	1501.696424461274
330	0.004746915061	3.568744997856	+1	0.200126455989	855.317711761552
340	0.004747771119	2.796260750514	+1	0.196442734725	544.008913031614
350	0.004748031921	2.274710391988	+1	0.192773014825	372.888322638287
360	0.004747018304	1.901780941549	+1	0.189158491843	269.921421544465
370	0.004744307381	1.623560380092	+1	0.185625587599	203.678344727222
380	0.004739631602	1.409224583274	+1	0.182192952749	158.832767335080
390	0.004732828331	1.239954639200	+1	0.178874179757	127.236473447147
400	0.004723818347	1.103625650336	+1	0.175678900779	104.249395691275
410	0.004712600814	0.992046351266	+1	0.172612569529	87.074782684920
420	0.004699278980	0.899397981705	+1	0.169674570457	73.938218364406
430	0.004683982041	0.821526445090	+1	0.166862541366	63.687546994179
440	0.004666843031	0.755413321995	+1	0.164173841238	55.552904055969
450	0.004647995186	0.698813298064	+1	0.161605576799	49.004412169735
460	0.004627580254	0.650008866506	+1	0.159154130204	43.666463550600
470	0.004605770899	0.607627263771	+1	0.156813603771	39.263115649549
480	0.004582733150	0.570593106396	+1	0.154578092810	35.592162546735
490	0.004558616110	0.538062466948	+1	0.152442313533	32.503837136473
500	0.004533550582	0.509364387852	+1	0.150401503839	29.885340521876
510	0.004507662673	0.483953354994	+1	0.148451029695	27.649843566922
520	0.004481082523	0.461364469592	+1	0.146585399824	25.728154397315
530	0.004453930614	0.441214278996	+1	0.144799415863	24.065975304268
540	0.004426311653	0.423188304850	+1	0.143088499624	22.620630824267
550	0.004398315663	0.407026592395	+1	0.141448558821	21.358213532020
560	0.004370023961	0.392509889610	+1	0.139875759639	20.251285762415
570	0.004341519004	0.379444498970	+1	0.138365995210	19.276843009177
580	0.004312873187	0.367665091267	+1	0.136915410272	18.416004417811

590	0.004284148392	0.357032094990	+1	0.135520579065	17.653338700116
600	0.004255399449	0.347426937805	+1	0.134178457233	16.976126872383
610	0.004226672271	0.338747031584	+1	0.132886180048	16.373721593248
620	0.004198012400	0.330899898417	+1	0.131640836639	15.836900694311
630	0.004169460129	0.323804813326	+1	0.130439710665	15.357854554456
640	0.004141049231	0.317391907343	+1	0.129280351150	14.930003294703
650	0.004112807581	0.311600564664	+1	0.128160510501	14.547776672838
660	0.004084760393	0.306377523515	+1	0.127078177708	14.206407464525
670	0.004056930082	0.301674165095	+1	0.126031285539	13.901671552772
680	0.004029335933	0.297447424023	+1	0.125017904986	13.629915141345
690	0.004001994473	0.293659319233	+1	0.124036299133	13.387988756224
700	0.003974918671	0.290276194892	+1	0.123084863821	13.173163399370
710	0.003948120280	0.287268173576	+1	0.122162137979	12.983064523648
720	0.003921607973	0.284607777715	+1	0.121266640523	12.815559316515
730	0.003895389934	0.282270261583	+1	0.120397026712	12.668767663850
740	0.003869472107	0.280233668745	+1	0.119552031569	12.541048691500
750	0.003843859355	0.278478016898	+1	0.118730515859	12.430945137650
760	0.003818554935	0.276985452104	+1	0.117931380089	12.337173036379
770	0.003793560633	0.275739539323	+1	0.117153606744	12.258579356011
780	0.003768878264	0.274725591452	+1	0.116396187477	12.194139528082
790	0.003744507692	0.273930159745	+1	0.115658214984	12.142941443733
800	0.003720448322	0.273340872844	+1	0.114938837634	12.104161935595
810	0.003696700537	0.272946501255	+1	0.114237258633	12.077061583322
820	0.003673262411	0.272736996115	+1	0.113552717162	12.060992004683
830	0.003650130887	0.272703093211	+1	0.112884471077	12.055366030406
840	0.003627304831	0.272836185437	+1	0.112231864090	12.059646647034
850	0.003604781065	0.273128378214	+1	0.111594239893	12.073350886360
860	0.003582556731	0.273572426636	+1	0.110971011254	12.096045486291
870	0.003560628105	0.274161803541	+1	0.110361594421	12.127345294553
880	0.003538991638	0.274890592597	+1	0.109765471417	12.166910639300
890	0.003517642771	0.275753332235	+1	0.109182142026	12.214436354412
900	0.003496577874	0.276744641434	+1	0.108611098025	12.269620918535
910	0.003475792942	0.277859682266	+1	0.108051897264	12.332204456396

920	0.003455283295	0.279094370189	+1	0.107504109095	12.401974051969
930	0.003435044956	0.280444846908	+1	0.106967313448	12.478729893422
940	0.003415073996	0.281907384327	+1	0.106441126933	12.562285356752
950	0.003395365964	0.283478671690	+1	0.105925162780	12.652479176165
960	0.003375917218	0.285155288087	+1	0.105419077008	12.749147706830
970	0.003356722980	0.286934400485	+1	0.104922513765	12.852162720113
980	0.003337778767	0.288813473823	+1	0.104435183834	12.961421013312
990	0.003319080585	0.290789888321	+1	0.103956763256	13.076808677335
1000	0.003300623531	0.292861154313	+1	0.103486948087	13.198225543224
1025	0.003255509221	0.298441040509	+1	0.102348348436	13.527679367321
1050	0.003211808833	0.304577127823	+1	0.101258082958	13.893748292030
1075	0.003169456375	0.311249139923	+1	0.100212655302	14.296080542624
1100	0.003128393013	0.318437315587	+1	0.099208819526	14.734376629277
1125	0.003088562353	0.326124348097	+1	0.098243604108	15.208517296736
1150	0.003049905915	0.334303234678	+1	0.097314535455	15.719089925923
1175	0.003012368586	0.342969560295	+1	0.096419383183	16.266899742149
1200	0.002975901084	0.352118291139	+1	0.095556029407	16.852747391331
1225	0.002940455654	0.361745452866	+1	0.094722483551	17.477550781340
1250	0.002905986159	0.371854000239	+1	0.093917079459	18.142754400486
1275	0.002872448809	0.382448561551	+1	0.093138297526	18.849995386491
1300	0.002839803526	0.393532967405	+1	0.092384645523	19.600920760202
1325	0.002808012587	0.405111944418	+1	0.091654735371	20.397318602260
1350	0.002777039456	0.417195709060	+1	0.090947415165	21.241470780789
1375	0.002746848510	0.429795828734	+1	0.090261558070	22.135864466358
1400	0.002717408577	0.442923705479	+1	0.089596120727	23.083087767591
1425	0.002688688110	0.456591569513	+1	0.088950088517	24.085926275895
1450	0.002660659007	0.470816027771	+1	0.088322605288	25.147631275749
1475	0.002633293433	0.485615050806	+1	0.087712843195	26.271730428402
1500	0.002606565929	0.501007078617	+1	0.087120028777	27.461969163576
1550	0.002554929708	0.533651718923	+1	0.085982265138	30.057425888093
1600	0.002505569089	0.568941862873	+1	0.084904091177	32.971869248295
1650	0.002458324317	0.607095955352	+1	0.083880750597	36.249660495299
1700	0.002413048358	0.648375516099	+1	0.082908137898	39.944256940752

1750	0.002369610695	0.693079061904	+1	0.081982483455	44.118956003614
1800	0.002327850349	0.741617943694	+1	0.081101929963	48.857598309692
1850	0.002287694601	0.794364862986	+1	0.080262287248	54.248517431437
1900	0.002249052802	0.851794204860	+1	0.079460608608	60.403430628341
1950	0.002211835320	0.914469257694	+1	0.078694380366	67.459821988762
2000	0.002175960453	0.983043831259	+1	0.077961229875	75.585713288558
2100	0.002107944561	1.141152610175	+1	0.076585759261	95.933240577750
2200	0.002044472568	1.334522013775	+1	0.075319892799	123.872131214460
2300	0.001985089223	1.575567081320	+1	0.074151427329	163.398485771022
2400	0.001929401824	1.883319693325	+1	0.073069530281	221.434964621230
2500	0.001877070064	2.288523194158	+1	0.072064544677	310.788675129892
2600	0.001827795878	2.844347076214	+1	0.071127987996	457.266152182269
2700	0.001781319262	3.651708843419	+1	0.070252822354	719.271548818422
2800	0.001737408046	4.928044238353	+1	0.069432999370	1252.415956033192
2900	0.001695855510	7.243466915411	+1	0.068663155322	2591.484579371398
3000	0.001656475455	12.723827563703	+1	0.067938609213	7671.165512036016
3100	0.001619101366	41.741003797650	+1	0.067255230274	79322.101360775763
3200	0.001583584730	36.961064130199	-1	0.066609216562	63128.454666139281
3300	0.001549792054	12.747374556958	-1	0.065997219801	7977.595452615369
3400	0.001517601569	7.648679957826	-1	0.065416265508	3046.403963080427
3500	0.001486901837	5.437512011419	-1	0.064863788744	1630.490032223204
3600	0.001457590471	4.203092017215	-1	0.064337503995	1030.166226475028
3700	0.001429576968	3.415998998519	-1	0.063835226407	718.500131768833
3800	0.001402777570	2.870835158465	-1	0.063355022233	535.083263991445
3900	0.001377115467	2.471201877700	-1	0.062895183295	417.493093997431
4000	0.001352519067	2.165860050288	-1	0.062454246677	337.257188690514
4100	0.001328922556	1.925077798677	-1	0.062030909885	279.852311403055
4200	0.001306266530	1.730473295773	-1	0.061623859353	237.233512254411
4300	0.001284496477	1.570030975147	-1	0.061231903943	204.632971616880
4400	0.001263561580	1.435554977625	-1	0.060853996713	179.072515864853
4500	0.001243413735	1.321259132744	-1	0.060489264561	158.610835302256
4600	0.001224008362	1.222952649737	-1	0.060136891537	141.938622902296
4700	0.001205305842	1.137544859371	-1	0.059796077544	128.148640657217

4800	0.001187268633	1.062692014803	-1	0.059466025530	116.592849690706
4900	0.001169862879	0.996584458718	-1	0.059145995790	106.797768482086
5000	0.001153057529	0.937803738906	-1	0.058835217995	98.410626107850
5500	0.001076989067	0.720671657552	-1	0.057406767442	70.047953180363
6000	0.001012033902	0.581809095565	-1	0.056149752921	54.043687130354
6500	0.000955901154	0.485851644784	-1	0.055026161648	43.933988387113
7000	0.000906890530	0.415864566040	-1	0.054009025331	37.034324828223
7500	0.000863714176	0.362740551540	-1	0.053078644128	32.053112337851
8000	0.000825378513	0.321156386417	-1	0.052220244494	28.300284128722
8500	0.000791105094	0.287798615509	-1	0.051422482295	25.376939638802
9000	0.000760274920	0.260500331509	-1	0.050676454920	23.037879176822
9500	0.000732389296	0.237786873698	-1	0.049975075049	21.124783194908
10000	0.000707042273	0.218621202722	-1	0.049312597289	19.531194769317
10500	0.000683898637	0.202251593597	-1	0.048684449189	18.182949322538
11000	0.000662682664	0.188129032629	-1	0.048086309342	17.027464762735
11500	0.000643159152	0.175828073285	-1	0.047515347443	16.025451716030
12000	0.000625132404	0.165030161214	-1	0.046968520472	15.148049264584
12500	0.000608434467	0.155481603345	-1	0.046443625209	14.372880534705
13000	0.000592922539	0.146985360365	-1	0.045938444535	13.682846665636
13500	0.000578472586	0.139380021787	-1	0.045451398246	13.064247322173
14000	0.000564977940	0.132537679335	-1	0.044980785551	12.506337949703
14500	0.000552345361	0.126351398166	-1	0.044525398009	12.000299705296
15000	0.000540493671	0.120734878081	-1	0.044083935916	11.539073918102
16000	0.000518854167	0.110929473475	-1	0.043238915566	10.728379930892
17000	0.000499580775	0.102666812607	-1	0.042438620989	10.037981622246
18000	0.000482296140	0.095618626399	-1	0.041677404007	9.442079326333
19000	0.000466698274	0.089542518045	-1	0.040950604640	8.921831081508
20000	0.000452543041	0.084255602301	-1	0.040254460196	8.463148941328
21000	0.000365338300	0.061429200804	-1	0.047629963400	8.922500518689
22000	0.000351424220	0.057462248481	-1	0.047463756063	8.612788778016
23000	0.000338091777	0.053644363918	-1	0.047351102966	8.306804024150
24000	0.000325503978	0.050079438736	-1	0.047286504823	8.016021298546
25000	0.000313805206	0.046864773461	-1	0.047252389007	7.751515205071

26000	0.000303080712	0.044063254241	-1	0.047223196105	7.521036159224
27000	0.000293228403	0.041624371659	-1	0.047188380148	7.320714731735
28000	0.000284112224	0.039475071206	-1	0.047146958074	7.144164766180
29000	0.000275608720	0.037548214318	-1	0.047103345641	6.985393822792
30000	0.000267605201	0.035782159475	-1	0.047067007549	6.838777006501
31000	0.000260011161	0.034128689624	-1	0.047048852478	6.699890457380
32000	0.000252794035	0.032576564115	-1	0.047049098823	6.567978620838
33000	0.000245936588	0.031123567249	-1	0.047064535962	6.443182496936
34000	0.000239423472	0.029767685751	-1	0.047091471524	6.325643144742
35000	0.000233240913	0.028507049508	-1	0.047125744193	6.215501191372
36000	0.000227374063	0.027338537474	-1	0.047163422217	6.112742318583
37000	0.000221799726	0.026253787327	-1	0.047203280623	6.016741387538
38000	0.000216494033	0.025243611023	-1	0.047245347539	5.926749590295
39000	0.000211434765	0.024299381318	-1	0.047290270812	5.842047926964
40000	0.000206601227	0.023412998164	-1	0.047339328122	5.761946207491
41000	0.000201975005	0.022577515523	-1	0.047393867031	5.685855599368
42000	0.000197542921	0.021789006477	-1	0.047453465927	5.613492353711
43000	0.000193293676	0.021044396300	-1	0.047517306591	5.544651258077
44000	0.000189216753	0.020340771020	-1	0.047584694811	5.479132711436
45000	0.000185302349	0.019675362231	-1	0.047655056748	5.416739870927
46000	0.000181541207	0.019045534353	-1	0.047727968127	5.357283331344
47000	0.000177924502	0.018448779425	-1	0.047803084122	5.300574622207
48000	0.000174443928	0.017882721621	-1	0.047880169667	5.246429203420
49000	0.000171091607	0.017345079871	-1	0.047959174466	5.194667043614
50000	0.000167860146	0.016833684570	-1	0.048040195010	5.145111230272
55000	0.000153300313	0.014611920276	-1	0.048473246394	4.925822332397
60000	0.000140954862	0.012835113972	-1	0.048939632918	4.745148749691
65000	0.000130349889	0.011387383404	-1	0.049429157372	4.593808866467
70000	0.000121138860	0.010188949776	-1	0.049935820507	4.465346765580
75000	0.000113062581	0.009183944662	-1	0.050450630581	4.354924636592
80000	0.000105922573	0.008330971465	-1	0.050973212671	4.259197406392
85000	0.000099564962	0.007599787288	-1	0.051499747353	4.175489347814
90000	0.000093867953	0.006967481043	-1	0.052027171243	4.101733646848

95000	0.000088733963	0.006416337252	-1	0.052554020828	4.036341840116
100000	0.000084083867	0.005932546256	-1	0.053078929563	3.978040258908
105000	0.000079852608	0.005505124524	-1	0.053601126570	3.925792643624
110000	0.000075986780	0.005125478779	-1	0.054119000437	3.878796069172
115000	0.000072440761	0.004786312021	-1	0.054633327257	3.836344668341
120000	0.000069176227	0.004481841311	-1	0.055144478774	3.797941604423
125000	0.000066168362	0.004208226935	-1	0.055639307713	3.762596299569
130000	0.000063383784	0.003960712595	-1	0.056127164218	3.730301816718
135000	0.000060798471	0.003735885146	-1	0.056608905972	3.700725715178
140000	0.000058388336	0.003530519252	-1	0.057092198740	3.673882447395
145000	0.000056140692	0.003342866043	-1	0.057567129950	3.649138543626
150000	0.000054039777	0.003170870556	-1	0.058034114110	3.626307183392
155000	0.000052071878	0.003012757149	-1	0.058493508662	3.605197674623
160000	0.000050225077	0.002867039580	-1	0.058945139534	3.585648260039
165000	0.000048488762	0.002732406025	-1	0.059389103527	3.567507483227
170000	0.000046853606	0.002607737767	-1	0.059825311419	3.550651246388
175000	0.000045311245	0.002492038988	-1	0.060253890006	3.534961156385
180000	0.000043854246	0.002384451351	-1	0.060674681520	3.520331556800
185000	0.000042475913	0.002284207211	-1	0.061087728762	3.506664216241
190000	0.000041170354	0.002190655544	-1	0.061492798959	3.493885055781
195000	0.000039932159	0.002103196921	-1	0.061890006728	3.481921863865
200000	0.000038756222	0.002021250009	-1	0.062280208829	3.470688816692
205000	0.000037637894	0.001944293099	-1	0.062664435252	3.460108246202
210000	0.000036573340	0.001871954416	-1	0.063042018375	3.450142012860
215000	0.000035559121	0.001803910950	-1	0.063411987188	3.440757959882
220000	0.000034592027	0.001739856562	-1	0.063773630039	3.431923742933
225000	0.000033669075	0.001679499989	-1	0.064126490484	3.423602287735
230000	0.000032787489	0.001622566483	-1	0.064470353234	3.415754870495
235000	0.000031944673	0.001568795824	-1	0.064805248429	3.408340791131
240000	0.000031138202	0.001517941442	-1	0.065131506349	3.401318428915
245000	0.000030365830	0.001469772707	-1	0.065449605466	3.394642032654
250000	0.000029625493	0.001424078563	-1	0.065759953225	3.388258531228
255000	0.000028914460	0.001380563795	-1	0.066068204956	3.382247165692

260000	0.000028231066	0.001339089279	-1	0.066374530334	3.376602454775
265000	0.000027574432	0.001299610897	-1	0.066674756542	3.371221330904
270000	0.000026943151	0.001262012371	-1	0.066968523027	3.366089696919
275000	0.000026335897	0.001226182702	-1	0.067255585904	3.361193664514
280000	0.000025751492	0.001192024570	-1	0.067535274110	3.356504680105
285000	0.000025189451	0.001159517739	-1	0.067802521905	3.351883828910
290000	0.000024647725	0.001128454115	-1	0.068063915102	3.347472106323
295000	0.000024125314	0.001098748267	-1	0.068319306426	3.343243536403
300000	0.000023621236	0.001070313830	-1	0.068568958310	3.339178958449

Electron Elastic Scattering Sampling Data
Solution for Z = 60

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.016639393714	0.229258688553	+1	0.045792455673	0.799494988953
52	0.015717271580	0.183353023966	+1	0.042777008187	0.607364903186
54	0.014901202440	0.146495993280	+1	0.040193743765	0.465080455628
56	0.014176180453	0.117358289642	+1	0.038017390117	0.360453017874
58	0.013530286805	0.094567413422	+1	0.036214039629	0.283619879660
60	0.012953822630	0.076881983130	+1	0.034747175614	0.227134718208
62	0.012438745204	0.063250971636	+1	0.033581291298	0.185562290303
64	0.011978126511	0.052811423252	+1	0.032683366165	0.154980323355
66	0.011566130024	0.044880937235	+1	0.032024311382	0.132605556926
68	0.011197623024	0.038924053218	+1	0.031578730767	0.116458268196
70	0.010868039208	0.034526625253	+1	0.031324723962	0.105137871073
72	0.010573410293	0.031377166373	+1	0.031243956200	0.097678701153
74	0.010310109607	0.029241869020	+1	0.031320918781	0.093424151756
76	0.010074948405	0.027951145565	+1	0.031542678702	0.091958894486
78	0.009865032227	0.027385949305	+1	0.031898669136	0.093057488177
80	0.009677727678	0.027465614176	+1	0.032380070821	0.096643673076
82	0.009510690379	0.028141467858	+1	0.032979744996	0.102775211465
84	0.009361755040	0.029388178846	+1	0.033691783136	0.111623608115
86	0.009228973911	0.031200454244	+1	0.034511421507	0.123474305354
88	0.009110570134	0.033588261280	+1	0.035434786456	0.138723170086
90	0.009004913524	0.036573713634	+1	0.036458719056	0.157880140440
92	0.008910530781	0.040189692332	+1	0.037580663713	0.181581292630
94	0.008826062056	0.044476861825	+1	0.038798515475	0.210596120419
96	0.008750270081	0.049483790789	+1	0.040110566856	0.245850538743
98	0.008682024031	0.055265613049	+1	0.041515382671	0.288446591686
100	0.008620282587	0.061883679031	+1	0.043011747075	0.339691239743
105	0.008488362080	0.082543401723	+1	0.047146542588	0.516483710169
110	0.008378651839	0.110079231540	+1	0.051832627851	0.790641853592

115	0.008281011169	0.145999096413	+1	0.057055720463	1.212502514907
120	0.008187585684	0.192170144418	+1	0.062798591484	1.859704427756
125	0.008092341197	0.250979281027	+1	0.069038132750	2.854109499737
130	0.007991031883	0.325541176552	+1	0.075744291625	4.390332242364
135	0.007880792097	0.420033598551	+1	0.082877366593	6.785973253690
140	0.007760137143	0.540212923088	+1	0.090388530114	10.572472307852
145	0.007628610859	0.694232918569	+1	0.098218043457	16.665644115068
150	0.007486740572	0.894068943896	+1	0.106297733698	26.703354140861
155	0.007335721294	1.157959877495	+1	0.114550124825	43.747315216448
160	0.007177326549	1.515173323563	+1	0.122892890842	73.864492214077
165	0.007013647547	2.015524340867	+1	0.131238851771	129.997087708998
170	0.006846963162	2.751389724051	+1	0.139501712031	242.723802155290
175	0.006679573584	3.914370099122	+1	0.147596012896	495.357683281339
180	0.006513694791	5.977306224342	+1	0.155442138816	1170.807648599532
185	0.006351346990	10.503938481117	+1	0.162966946241	3680.782599819356
190	0.006218725044	24.259096184434	+1	0.169646485445	20006.932709182332
195	0.006043819965	83.083862047041	-1	0.176821736772	246798.586713633940
200	0.006104409493	423.475079489525	+1	0.177898698372	6333456.321226492500
205	0.006183800931	443.044595405628	+1	0.179829239442	6932617.438094351400
210	0.006257635241	461.782808544117	+1	0.181617718466	7531778.554988796800
215	0.006328008023	479.787574254939	+1	0.183315573829	8130939.671905741100
220	0.006394529496	520.493241608487	+1	0.184935888955	9570097.126407863600
225	0.006457881876	559.623575161064	+1	0.186470846215	11064186.221598350000
230	0.006518165705	596.186316292849	+1	0.187923856006	12558275.316853942000
235	0.006575456092	630.628237947027	+1	0.189298667878	14052364.412159981000
240	0.006629191590	705.600228592190	+1	0.190609181040	17594945.938709576000
245	0.006680240564	776.666148456567	+1	0.191845124203	21320632.934125036000
250	0.006728863976	827.367538662478	+1	0.193007293951	24197549.788170308000
255	0.006775461122	832.833353181497	+1	0.194094864165	24518619.474647213000
260	0.006819525768	834.395948172301	+1	0.195118720705	24610807.325219907000
265	0.006861075994	836.116477472924	+1	0.196082136789	24712531.918955356000
270	0.006899548334	839.954498716657	+1	0.196991476347	24943002.545388252000
275	0.006936357074	839.954498563699	+1	0.197840305155	24943002.545388252000

280	0.006970899149	839.954495792763	+1	0.198635289807	24943002.545388252000
285	0.007003249482	839.997156875717	+1	0.199378517319	24945545.010231644000
290	0.007033226321	844.648642861130	+1	0.200074105849	25223699.352477904000
295	0.007061414081	844.648781231479	+1	0.200719517986	25223709.102477904000
300	0.007087609603	844.753229571658	+1	0.201319183177	25230066.264586423000
310	0.007059510313	400.804647029929	+1	0.202704991961	5759216.309912785000
320	0.004724990067	7.465990888340	+1	0.208944371932	3516.744370275807
330	0.004723992722	5.030424474339	+1	0.205713122088	1655.316828218936
340	0.004725056041	3.721957777969	+1	0.202343466497	939.101651038481
350	0.004726921042	2.912973239107	+1	0.198905706930	595.909887862538
360	0.004728634943	2.367822422705	+1	0.195454213170	407.763189320809
370	0.004729518183	1.978154056593	+1	0.192027985539	294.652016045299
380	0.004729076608	1.687516974285	+1	0.188656415630	221.942676023438
390	0.004726963358	1.463707314838	+1	0.185362054391	172.770369302900
400	0.004722946552	1.287043068477	+1	0.182161903256	138.165078859230
410	0.004716901362	1.144791992817	+1	0.179067530316	113.010987747775
420	0.004708827390	1.028262770748	+1	0.176083449008	94.212960573812
430	0.004698769317	0.931427052698	+1	0.173211562845	79.834323443306
440	0.004686794374	0.850001507615	+1	0.170452674557	68.619545487977
450	0.004672985075	0.780862185668	+1	0.167806730201	59.727008301390
460	0.004657445281	0.721661254869	+1	0.165272440721	52.573999334829
470	0.004640323318	0.670559072052	+1	0.162845590515	46.742341824359
480	0.004621766536	0.626134942744	+1	0.160521717404	41.931294312891
490	0.004601912195	0.587285832990	+1	0.158296646179	37.921454977685
500	0.004580884890	0.553143295351	+1	0.156166599149	34.549863102499
510	0.004558805705	0.523007598908	+1	0.154127688458	31.692717324076
520	0.004535809687	0.496289260796	+1	0.152174850790	29.252755334464
530	0.004512022702	0.472506460827	+1	0.150303300241	27.154582513980
540	0.004487553040	0.451266438318	+1	0.148508706889	25.339482317783
550	0.004462499625	0.432246297352	+1	0.146787274270	23.761188053672
560	0.004436950783	0.415175510690	+1	0.145135361835	22.382604877767
570	0.004410997426	0.399816225218	+1	0.143548877674	21.172902256468
580	0.004384723473	0.385966982493	+1	0.142023990567	20.107000925304

590	0.004358200397	0.373458263683	+1	0.140557313578	19.164533072980
600	0.004331491264	0.362146635700	+1	0.139145795491	18.328810321796
610	0.004304650874	0.351908800487	+1	0.137786596676	17.585969614073
620	0.004277734050	0.342633588914	+1	0.136476690782	16.924047936885
630	0.004250792324	0.334224558041	+1	0.135213328299	16.332991372632
640	0.004223864629	0.326598450535	+1	0.133993948496	15.804375333510
650	0.004196989570	0.319683527488	+1	0.132816312406	15.331108868200
660	0.004170198175	0.313416692547	+1	0.131678296594	14.907134717509
670	0.004143521740	0.307740531849	+1	0.130577779492	14.527116362258
680	0.004116985712	0.302604129000	+1	0.129512722534	14.186446724997
690	0.004090612600	0.297962884007	+1	0.128481308393	13.881181381339
700	0.004064422886	0.293777479860	+1	0.127481898198	13.607918413349
710	0.004038432490	0.290012896417	+1	0.126512924026	13.363696637045
720	0.004012655919	0.286637207819	+1	0.125572870177	13.145882923603
730	0.003987106781	0.283621456439	+1	0.124660272708	12.952138553057
740	0.003961795526	0.280940015339	+1	0.123773817608	12.780437209662
750	0.003936731698	0.278569927264	+1	0.122912298979	12.628997447352
760	0.003911921787	0.276490371105	+1	0.122074563271	12.496239112416
770	0.003887371753	0.274682587719	+1	0.121259500991	12.380758491292
780	0.003863087064	0.273129411337	+1	0.120466071116	12.281295684932
790	0.003839070925	0.271815205733	+1	0.119693311054	12.196729993288
800	0.003815327042	0.270725961277	+1	0.118940310470	12.126066622126
810	0.003791855992	0.269848710687	+1	0.118206214191	12.068411251556
820	0.003768660238	0.269171772823	+1	0.117490214411	12.022961835959
830	0.003745738709	0.268684559317	+1	0.116791546790	11.989011121799
840	0.003723092956	0.268377083077	+1	0.116109476832	11.965895614861
850	0.003700720715	0.268240262179	+1	0.115443320619	11.953032442831
860	0.003678622530	0.268265798577	+1	0.114792439850	11.949888700951
870	0.003656795960	0.268446324054	+1	0.114156233204	11.956005162605
880	0.003635238048	0.268774934495	+1	0.113534107145	11.970958269650
890	0.003613948358	0.269245374437	+1	0.112925545928	11.994367067700
900	0.003592923790	0.269851681307	+1	0.112330016630	12.025878712190
910	0.003572160628	0.270588318958	+1	0.111747009561	12.065172897089

920	0.003551657636	0.271450511779	+1	0.111176107862	12.111977174404
930	0.003531410728	0.272433493317	+1	0.110616839375	12.166025765387
940	0.003511416957	0.273533212947	+1	0.110068806499	12.227099603258
950	0.003491672651	0.274745427692	+1	0.109531609101	12.294973649540
960	0.003472175436	0.276066356368	+1	0.109004863388	12.369447117635
970	0.003452920837	0.277492753203	+1	0.108488197297	12.450358694580
980	0.003433906081	0.279021634012	+1	0.107981300378	12.537564435558
990	0.003415126595	0.280650058983	+1	0.107483786878	12.630920621134
1000	0.003396580054	0.282375243438	+1	0.106995384106	12.730299188557
1025	0.003351207208	0.287096220489	+1	0.105812224706	13.004430815553
1050	0.003307204732	0.292377928275	+1	0.104679952236	13.314483134520
1075	0.003264516072	0.298194957052	+1	0.103594831520	13.659653582651
1100	0.003223088026	0.304523232951	+1	0.102553381738	14.039250570562
1125	0.003182869875	0.311341434544	+1	0.101552447054	14.452779512839
1150	0.003143807941	0.318638932865	+1	0.100589382295	14.900459480753
1175	0.003105850816	0.326407695509	+1	0.099661787889	15.382717288403
1200	0.003068951559	0.334639375005	+1	0.098767379547	15.899987442300
1225	0.003033066450	0.343326801223	+1	0.097904032806	16.452808821435
1250	0.002998150536	0.352469791269	+1	0.097069987112	17.042244466084
1275	0.002964162597	0.362069594021	+1	0.096263602293	17.669499608407
1300	0.002931063790	0.372126848025	+1	0.095483294500	18.335793797454
1325	0.002898818493	0.382642910781	+1	0.094727609848	19.042451765552
1350	0.002867390408	0.393624711110	+1	0.093995281104	19.791260111707
1375	0.002836745413	0.405080422883	+1	0.093285175481	20.584188671252
1400	0.002806851723	0.417017706488	+1	0.092596145887	21.423247242567
1425	0.002777680317	0.429445051631	+1	0.091927143539	22.310598433257
1450	0.002749202277	0.442375050379	+1	0.091277253285	23.248822948768
1475	0.002721390131	0.455821702110	+1	0.090645612142	24.240731553461
1500	0.002694219365	0.469798910139	+1	0.090031407529	25.289258658106
1550	0.002641705485	0.499407833358	+1	0.088852216911	27.569215461549
1600	0.002591481398	0.531352539990	+1	0.087734211028	30.118505935694
1650	0.002543385859	0.565805001907	+1	0.086672473582	32.971877259308
1700	0.002497273981	0.602971911109	+1	0.085662759781	36.170894942035

1750	0.002453014332	0.643088444931	+1	0.084701178757	39.764368258754
1800	0.002410488018	0.686431119691	+1	0.083784305615	43.810674618013
1850	0.002369543792	0.733374797231	+1	0.082910509599	48.386446072518
1900	0.002330120745	0.784257443784	+1	0.082075791644	53.571673786902
1950	0.002292134352	0.839505652565	+1	0.081277421521	59.466980460735
2000	0.002255502366	0.899615598341	+1	0.080512977112	66.194399920106
2100	0.002186006281	1.036859950042	+1	0.079077270642	82.777061999475
2200	0.002121097093	1.202199811163	+1	0.077754184300	105.009767926258
2300	0.002060317371	1.404528732957	+1	0.076531377414	135.565755044869
2400	0.002003272512	1.656937750906	+1	0.075397838611	178.847301835350
2500	0.001949620835	1.979531461649	+1	0.074343741496	242.498476180931
2600	0.001899063299	2.404910946614	+1	0.073360405226	340.715753037126
2700	0.001851338891	2.989946061453	+1	0.072440669587	502.321687104666
2800	0.001806215554	3.843230200315	+1	0.071578360725	793.075811375282
2900	0.001763485199	5.201037601880	+1	0.070768005920	1390.369223591830
3000	0.001722961215	7.693181647543	+1	0.070004814398	2916.814563038639
3100	0.001684475385	13.746224953688	+1	0.069284523966	8943.098036133541
3200	0.001648558122	47.938106139955	+1	0.068575365011	104599.306537710790
3300	0.001613038731	33.987510081157	-1	0.067957563973	53664.827467940544
3400	0.001579830738	12.600236092595	-1	0.067344344920	7820.036953907475
3500	0.001548142944	7.683694490148	-1	0.066760950307	3078.373726774944
3600	0.001517873017	5.502269413222	-1	0.066205003088	1668.598827310740
3700	0.001488928591	4.271317929002	-1	0.065674254400	1061.348284151119
3800	0.001461225620	3.481410499203	-1	0.065166688533	743.207387776735
3900	0.001434686402	2.931909250196	-1	0.064680539838	554.865935004463
4000	0.001409238455	2.527788159393	-1	0.064214265855	433.612901670312
4100	0.001384815024	2.218247273030	-1	0.063766515623	350.626805587049
4200	0.001361356045	1.973731526302	-1	0.063335916743	291.134368675593
4300	0.001338805974	1.775829482123	-1	0.062921214766	246.897305307375
4400	0.001317112994	1.612461864267	-1	0.062521320131	213.015633693352
4500	0.001296228983	1.475370738579	-1	0.062135318937	186.421269421421
4600	0.001276107984	1.358729079651	-1	0.061762368024	165.112800365991
4700	0.001256709495	1.258333976934	-1	0.061401586974	147.741851289945

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4900	0.001219930902	1.094514015673	-1	0.060713461875	121.318429075636
5000	0.001202480861	1.026861369374	-1	0.060384841450	111.099904900777
5500	0.001123454373	0.780482787392	-1	0.058872537639	77.289828516096
6000	0.001055898915	0.625702684826	-1	0.057541409594	58.755251284743
6500	0.000997463491	0.519994108914	-1	0.056351463968	47.272141324474
7000	0.000946399054	0.443532477763	-1	0.055274261518	39.544316050377
7500	0.000901379221	0.385851154266	-1	0.054289020953	34.024452105336
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8500	0.000825593297	0.305002271317	-1	0.052535681479	26.710455047860
9000	0.000793383052	0.275703441003	-1	0.051746236413	24.172343790697
9500	0.000764232505	0.251386642646	-1	0.051004341084	22.106467362849
10000	0.000737720798	0.230911027629	-1	0.050303934580	20.392776311041
10500	0.000713501227	0.213453557885	-1	0.049640196938	18.948180407126
11000	0.000691287507	0.198415257289	-1	0.049008555213	17.714090385131
11500	0.000670836065	0.185333704313	-1	0.048406021859	16.646966349562
12000	0.000651943921	0.173863607295	-1	0.047829366607	15.714945821594
12500	0.000634436739	0.163730611276	-1	0.047276275351	14.893434022955
13000	0.000618166362	0.154722186874	-1	0.046744377667	14.163688280731
13500	0.000603003881	0.146664539624	-1	0.046232002593	13.510753039023
14000	0.000588838598	0.139420224391	-1	0.045737337810	12.922922153520
14500	0.000575573203	0.132874453806	-1	0.045259087901	12.390621119570
15000	0.000563123870	0.126934808834	-1	0.044795874132	11.906193138265
16000	0.000540382248	0.116572424210	-1	0.043910422166	11.056458975325
17000	0.000520115953	0.107847385710	-1	0.043073351932	10.334597814476
18000	0.000501931540	0.100409611706	-1	0.042278607202	9.712895771198
19000	0.000485514580	0.094001088047	-1	0.041521162524	9.171165460361
20000	0.000470610265	0.088427370469	-1	0.040796966620	8.694362901070
21000	0.000383593100	0.065239704904	-1	0.047796383168	9.090487908774
22000	0.000369037483	0.061047155562	-1	0.047587752847	8.766770221873
23000	0.000355095456	0.057012243548	-1	0.047431862183	8.447398277448
24000	0.000341934046	0.053244449054	-1	0.047324189097	8.144243293319
25000	0.000329700743	0.049846365161	-1	0.047248443355	7.868718186310

26000	0.000318481781	0.046884390445	-1	0.047180304398	7.628763032584
27000	0.000308170773	0.044305219086	-1	0.047109262538	7.420279658302
28000	0.000298626701	0.042031745533	-1	0.047033944915	7.236591241048
29000	0.000289721688	0.039993086431	-1	0.046958263361	7.071453148826
30000	0.000281339161	0.038124128263	-1	0.046891074316	6.919018613559
31000	0.000273385558	0.036373934753	-1	0.046842673034	6.774692091175
32000	0.000265826781	0.034730638124	-1	0.046813194301	6.637677704020
33000	0.000258644578	0.033191929869	-1	0.046799490861	6.508106941734
34000	0.000251822647	0.031755706106	-1	0.046797956397	6.386110672142
35000	0.000245346338	0.030420019073	-1	0.046804551257	6.271822742045
36000	0.000239199952	0.029181603490	-1	0.046815441353	6.165216501099
37000	0.000233359261	0.028031643174	-1	0.046829389766	6.065638428654
38000	0.000227799368	0.026960443788	-1	0.046846349242	5.972307397316
39000	0.000222497156	0.025958912272	-1	0.046866873119	5.884475935398
40000	0.000217431066	0.025018490219	-1	0.046892147197	5.801427327674
41000	0.000212581978	0.024131848015	-1	0.046923405028	5.722547557787
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43000	0.000203481540	0.022504241656	-1	0.047001731947	5.576193976677
44000	0.000199207353	0.021756970188	-1	0.047047263150	5.508294579692
45000	0.000195103236	0.021050105985	-1	0.047096241653	5.443639481693
46000	0.000191159525	0.020380871751	-1	0.047148218459	5.382029163005
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50000	0.000176811812	0.018029240610	-1	0.047380860546	5.162181524278
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60000	0.000148583105	0.013771581168	-1	0.048103980622	4.747680342018
65000	0.000137451053	0.012227582030	-1	0.048514838680	4.590749166875
70000	0.000127780110	0.010948361231	-1	0.048947494162	4.457437995971
75000	0.000119297219	0.009874640772	-1	0.049392773476	4.342791188484
80000	0.000111797069	0.008962706589	-1	0.049849329669	4.243284682288
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90000	0.000099128837	0.007503470284	-1	0.050780068710	4.079360560654

95000	0.000093731636	0.006913066895	-1	0.051249091741	4.011158313156
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125000	0.000069989507	0.004543464962	-1	0.054031528123	3.724458818116
130000	0.000067054797	0.004277065034	-1	0.054479147901	3.690622460475
135000	0.000064332791	0.004035430574	-1	0.054915939046	3.659372042608
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150000	0.000057219207	0.003428381182	-1	0.056201663402	3.579964842038
155000	0.000055145242	0.003258148940	-1	0.056620870993	3.557475477767
160000	0.000053198681	0.003101234360	-1	0.057032987936	3.536592410605
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170000	0.000049644360	0.002821919147	-1	0.057836342408	3.499059959760
175000	0.000048017993	0.002697251504	-1	0.058227518628	3.482159803263
180000	0.000046481402	0.002581297686	-1	0.058611689716	3.466360511662
185000	0.000045027526	0.002473231764	-1	0.058988991569	3.451566336513
190000	0.000043650184	0.002372359583	-1	0.059359035343	3.437696291530
195000	0.000042343718	0.002278041867	-1	0.059721751730	3.424669647686
200000	0.000041102766	0.002189652742	-1	0.060078009300	3.412400379853
205000	0.000039922473	0.002106631540	-1	0.060428836617	3.400809469177
210000	0.000038798782	0.002028577577	-1	0.060773644304	3.389860251999
215000	0.000037728063	0.001955144512	-1	0.061111506943	3.379521623194
220000	0.000036706936	0.001886002687	-1	0.061441759730	3.369759895181
225000	0.000035732272	0.001820840923	-1	0.061763922180	3.360536816735
230000	0.000034801133	0.001759362953	-1	0.062077812096	3.351814295527
235000	0.000033910790	0.001701287347	-1	0.062383535686	3.343551621356
240000	0.000033058681	0.001646349091	-1	0.062681412718	3.335707843200
245000	0.000032242404	0.001594294762	-1	0.062972119796	3.328241590926
250000	0.000031459718	0.001544886479	-1	0.063256537562	3.321109857871
255000	0.000030708568	0.001497912915	-1	0.063535460921	3.314275199524

260000	0.000029987297	0.001453232340	-1	0.063808269022	3.307710890750
265000	0.000029294275	0.001410707906	-1	0.064074749371	3.301411084685
270000	0.000028626821	0.001370060195	-1	0.064342073758	3.295540505711
275000	0.000027984685	0.001331320220	-1	0.064603144090	3.289921225834
280000	0.000027366549	0.001294372537	-1	0.064857887107	3.284538231085
285000	0.000026771168	0.001259108195	-1	0.065106268225	3.279375459430
290000	0.000026197362	0.001225422036	-1	0.065348405864	3.274416071179
295000	0.000025644393	0.001193259587	-1	0.065581903164	3.269580657024
300000	0.000025111218	0.001162525492	-1	0.065806835884	3.264846044211

Electron Elastic Scattering Sampling Data
Solution for Z = 61

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.017814798817	0.316548138909	+1	0.045640596469	1.099173321904
52	0.016816352812	0.251937276475	+1	0.042297373974	0.814673135419
54	0.015929767112	0.199643076282	+1	0.039383790401	0.606737438494
56	0.015138752174	0.158118985158	+1	0.036887677965	0.456379461366
58	0.014430601537	0.125547676621	+1	0.034781417762	0.347846314024
60	0.013795137625	0.100210302941	+1	0.033030490724	0.269286193316
62	0.013224036430	0.080622398609	+1	0.031598793754	0.212165781598
64	0.012710201529	0.065552471343	+1	0.030451363651	0.170436824610
66	0.012247685081	0.054018032777	+1	0.029556537639	0.139871528586
68	0.011831276328	0.045241728002	+1	0.028886218798	0.117499712914
70	0.011456347583	0.038616125971	+1	0.028415866881	0.101230395572
72	0.011118873714	0.033676985071	+1	0.028124719064	0.089605092647
74	0.010815172662	0.030069389506	+1	0.027995104530	0.081601759659
76	0.010541991138	0.027528842139	+1	0.028012301146	0.076523173627
78	0.010296376924	0.025860521477	+1	0.028164068966	0.073908572513
80	0.010075633769	0.024924164603	+1	0.028440279175	0.073476833017
82	0.009877355871	0.024623422716	+1	0.028832653309	0.075092040025
84	0.009699305689	0.024895044236	+1	0.029334418938	0.078734930894
86	0.009539471798	0.025702750507	+1	0.029940091464	0.084490534004
88	0.009396010980	0.027031027496	+1	0.030645251825	0.092538290282
90	0.009267225905	0.028880588949	+1	0.031446328743	0.103148129633
92	0.009151580744	0.031265860423	+1	0.032340495817	0.116684350281
94	0.009047648583	0.034211205953	+1	0.033325466381	0.133606067817
96	0.008954132970	0.037750156188	+1	0.034399439456	0.154479357219
98	0.008869840433	0.041923593903	+1	0.035560972493	0.179987475059
100	0.008793674519	0.046778820514	+1	0.036808924643	0.210946409096
105	0.008632404181	0.062259423465	+1	0.040301175129	0.318972873617
110	0.008502180851	0.083307235226	+1	0.044316941310	0.488071081095

115	0.008392002315	0.111108751735	+1	0.048847530195	0.749207850309
120	0.008293056238	0.147096501125	+1	0.053883099921	1.149234575603
125	0.008198342050	0.193054157723	+1	0.059410347636	1.760067006661
130	0.008102564090	0.251235652400	+1	0.065410663608	2.693524433295
135	0.008001780134	0.324580055728	+1	0.071858247409	4.126809672579
140	0.007893399387	0.417000946959	+1	0.078719393886	6.346266646578
145	0.007775869657	0.533855891178	+1	0.085950995598	9.826007754130
150	0.007648674647	0.682691440953	+1	0.093501489387	15.373935404355
155	0.007512051630	0.874463993378	+1	0.101309892484	24.414740560402
160	0.007366942796	1.125729288941	+1	0.109308482276	39.572499027508
165	0.007214750366	1.462620539822	+1	0.117422650502	65.945456809400
170	0.007057245696	1.928999854577	+1	0.125575088519	114.167665366178
175	0.006896381821	2.604125521034	+1	0.133685932620	208.576841382663
180	0.006734201016	3.647294267459	+1	0.141676789189	412.684281158707
185	0.006572695220	5.431858792997	+1	0.149472165251	928.043060791161
190	0.006413682581	9.089685415501	+1	0.157006000310	2646.270591296533
195	0.006258818857	20.385544625684	+1	0.164216970811	13600.818339877809
200	0.006248587935	38.323863463365	+1	0.168434187005	48548.063581181115
205	0.005967551836	23.035930276746	-1	0.177434640998	19895.484264576873
210	0.005833251410	12.416338869589	-1	0.183364121879	6374.950242281498
215	0.005707273502	8.906350510412	-1	0.188818391824	3577.992253428130
220	0.005589927825	7.210643901932	-1	0.193790035658	2531.671959238606
225	0.005481367939	6.255162292732	-1	0.198277110831	2036.437240689177
230	0.005381613113	5.681825721110	-1	0.202282535557	1779.298979652186
235	0.005290577275	5.339407598315	-1	0.205813187938	1649.292203092522
240	0.005208089108	5.155493435900	-1	0.208879459596	1600.485723259006
245	0.005133911766	5.094131250723	-1	0.211494441692	1613.629432752100
250	0.005067756745	5.139484285413	-1	0.213673420533	1683.402159149644
255	0.005009254534	5.288684623892	-1	0.215435669462	1814.067219288609
260	0.004957841701	5.547722671607	-1	0.216810606747	2018.265272564973
265	0.004912921284	5.934477237188	-1	0.217829333607	2321.361605935693
270	0.004873923112	6.483647172591	-1	0.218521996135	2770.261891314657
275	0.004840302848	7.256899682229	-1	0.218917464637	3452.884322450351

280	0.004811551277	8.365607172332	-1	0.219043079544	4545.337402851264
285	0.004787187440	10.025121051459	-1	0.218924742766	6440.512665019866
290	0.004766766310	12.704636911921	-1	0.218586631750	10169.121347821594
295	0.004749876527	17.646003127508	-1	0.218051355724	19225.267136018858
300	0.004736136133	29.545528981667	-1	0.217339883909	52665.892584127861
310	0.004716652693	73.865411390504	+1	0.215467136179	320490.186576796640
320	0.004705488539	15.270518661145	+1	0.213118018875	14233.845927959956
330	0.004700256352	8.144756392154	+1	0.210419230217	4203.209594436490
340	0.004699024081	5.401476581433	+1	0.207474704573	1917.348374633921
350	0.004700255897	3.963669899792	+1	0.204368880420	1070.151732702830
360	0.004702738799	3.086464892889	+1	0.201169244284	672.244839426716
370	0.004705522646	2.499902420948	+1	0.197927944105	456.694796851998
380	0.004707875696	2.082865426002	+1	0.194686035059	328.186380663131
390	0.004709246623	1.773063929800	+1	0.191475804946	246.100970140211
400	0.004709235087	1.535243734910	+1	0.188322476195	190.864396067682
410	0.004707572669	1.347940046250	+1	0.185244513679	152.138430540211
420	0.004704130920	1.197246551841	+1	0.182252501781	124.050658243860
430	0.004698848393	1.073879344474	+1	0.179353388573	103.101514200446
440	0.004691707446	0.971438251691	+1	0.176552198198	87.110737912362
450	0.004682722417	0.885370837742	+1	0.173852272170	74.665041115522
460	0.004671943290	0.812335527666	+1	0.171255134971	64.814916654408
470	0.004659475952	0.749776905259	+1	0.168758902015	56.898191609160
480	0.004645437899	0.695754785859	+1	0.166360923937	50.449055370437
490	0.004629940659	0.648783847554	+1	0.164058614252	45.134166145583
500	0.004613092133	0.607708153745	+1	0.161849457698	40.709946716508
510	0.004595001968	0.571607002440	+1	0.159730580976	36.994255702020
520	0.004575799749	0.539715871112	+1	0.157697678340	33.846468037308
530	0.004555609262	0.511415639894	+1	0.155746489306	31.158953111174
540	0.004534541533	0.486205736657	+1	0.153873197671	28.848835013252
550	0.004512694298	0.463677668971	+1	0.152074348649	26.851495267681
560	0.004490161810	0.443490991419	+1	0.150346663808	25.115581025231
570	0.004467040084	0.425349446587	+1	0.148686184936	23.598946755266
580	0.004443419897	0.409003535240	+1	0.147089222551	22.267607694498

590	0.004419380414	0.394244465913	+1	0.145552467477	21.094160051093
600	0.004394989389	0.380896648992	+1	0.144072934099	20.056336167807
610	0.004370311166	0.368809286814	+1	0.142647885654	19.135714398063
620	0.004345410374	0.357847444196	+1	0.141274308647	18.316552588244
630	0.004320345790	0.347893950364	+1	0.139949389046	17.585666390174
640	0.004295168327	0.338848684535	+1	0.138670603735	16.932101974467
650	0.004269922826	0.330625341024	+1	0.137435681708	16.346676117789
660	0.004244647958	0.323148542183	+1	0.136242509555	15.821600318621
670	0.004219377146	0.316349538078	+1	0.135088730597	15.350023744926
680	0.004194140693	0.310167784411	+1	0.133972155508	14.926074863321
690	0.004168961581	0.304550223891	+1	0.132890766458	14.544742463386
700	0.004143862760	0.299450563365	+1	0.131842779438	14.201740168899
710	0.004118865616	0.294827617390	+1	0.130826561208	13.893345858729
720	0.004094004309	0.290643771421	+1	0.129840895644	13.616251830993
730	0.004069312314	0.286865430658	+1	0.128884708818	13.367567670378
740	0.004044818923	0.283462763589	+1	0.127957008468	13.144778994493
750	0.004020549050	0.280409294085	+1	0.127056895164	12.945700496457
760	0.003996517519	0.277681067964	+1	0.126183321420	12.768398490124
770	0.003972710939	0.275255392868	+1	0.125334417287	12.611084601387
780	0.003949108784	0.273111653810	+1	0.124508233012	12.472167461700
790	0.003925692700	0.271231160191	+1	0.123702965154	12.350228978568
800	0.003902445641	0.269596962052	+1	0.122916917447	12.244002797162
810	0.003879359398	0.268193872463	+1	0.122148791111	12.152376669576
820	0.003856459790	0.267008699140	+1	0.121398303633	12.074388984091
830	0.003833776566	0.266029763718	+1	0.120665467249	12.009209236894
840	0.003811337379	0.265246202266	+1	0.119950283315	11.956079577753
850	0.003789166573	0.264648358633	+1	0.119252739339	11.914336195707
860	0.003767279825	0.264227205812	+1	0.118572647511	11.883373384024
870	0.003745669808	0.263973753260	+1	0.117909147892	11.862597929526
880	0.003724323917	0.263879641173	+1	0.117261244302	11.851464291657
890	0.003703230010	0.263937114421	+1	0.116627993642	11.849474590443
900	0.003682377465	0.264138778418	+1	0.116008504954	11.856160204732
910	0.003661757759	0.264478075698	+1	0.115402004113	11.871111736990

920	0.003641369443	0.264949558708	+1	0.114808022657	11.893998477143
930	0.003621213889	0.265548434218	+1	0.114226182803	11.924531658407
940	0.003601291288	0.266270201915	+1	0.113656126497	11.962448924628
950	0.003581601535	0.267110679079	+1	0.113097503550	12.007510788354
960	0.003562144199	0.268065749988	+1	0.112549951331	12.059484081197
970	0.003542916374	0.269131453781	+1	0.112013098421	12.118153925253
980	0.003523916205	0.270303931347	+1	0.111486578543	12.183310127329
990	0.003505139903	0.271579542728	+1	0.110969995862	12.254759098123
1000	0.003486584600	0.272954775442	+1	0.110463020240	12.332320394629
1025	0.003441145627	0.276809493211	+1	0.109235499850	12.552002750698
1050	0.003397021405	0.281232892502	+1	0.108061540135	12.807352546738
1075	0.003354164369	0.286195401380	+1	0.106937143259	13.097172754739
1100	0.003312528290	0.291669471166	+1	0.105858613289	13.420433404169
1125	0.003272068846	0.297631028407	+1	0.104822581587	13.776344842769
1150	0.003232737977	0.304065462299	+1	0.103826230096	14.164757429240
1175	0.003194489483	0.310960837210	+1	0.102866966818	14.585720950922
1200	0.003157280557	0.318305263561	+1	0.101942350902	15.039314113055
1225	0.003121070225	0.326088277884	+1	0.101050144099	15.525736104843
1250	0.003085817473	0.334306580289	+1	0.100188450445	16.045687338372
1275	0.003051482325	0.342958540067	+1	0.099355514516	16.600024411335
1300	0.003018028047	0.352041976358	+1	0.098549668175	17.189608223119
1325	0.002985420853	0.361555369745	+1	0.097769358700	17.815381838705
1350	0.002953626042	0.371502619334	+1	0.097013247043	18.478717311763
1375	0.002922611470	0.381888744400	+1	0.096280117641	19.181130747564
1400	0.002892346186	0.392718292285	+1	0.095568768785	19.924171034180
1425	0.002862802436	0.403996284017	+1	0.094878078382	20.709481440823
1450	0.002833951310	0.415732227782	+1	0.094207088580	21.539125299593
1475	0.002805766630	0.427936444586	+1	0.093554908154	22.415315644473
1500	0.002778222800	0.440619333850	+1	0.092920664096	23.340376376623
1550	0.002724965696	0.467467731882	+1	0.091702731727	25.347293627201
1600	0.002674003596	0.496394628753	+1	0.090547620974	27.583447991653
1650	0.002625177804	0.527533275972	+1	0.089450168817	30.076040124649
1700	0.002578344110	0.561047087618	+1	0.088405995135	32.857640559225

1750	0.002533370981	0.597120935031	+1	0.087411064350	35.966127572670
1800	0.002490140538	0.635972497078	+1	0.086461861590	39.446480777494
1850	0.002448544197	0.677850300915	+1	0.085555185623	43.351667064880
1900	0.002408438554	0.723104450982	+1	0.084689736183	47.752355821092
1950	0.002369776079	0.772027383641	+1	0.083861489393	52.719258261413
2000	0.002332476948	0.824995715513	+1	0.083067936540	58.341909969541
2100	0.002261671956	0.944911861516	+1	0.081576066732	72.011201859120
2200	0.002195485623	1.087511562592	+1	0.080199478494	89.961694257395
2300	0.002133459063	1.259293149442	+1	0.078925716311	114.028503538152
2400	0.002075196398	1.469491917030	+1	0.077743638037	147.105358584736
2500	0.002020355067	1.731695686904	+1	0.076643218515	193.956276415661
2600	0.001968636287	2.066808641060	+1	0.075615634588	262.861113444597
2700	0.001919778997	2.508995626023	+1	0.074653624648	369.270926172674
2800	0.001873550416	3.117923292170	+1	0.073750904083	544.634232148364
2900	0.001829742442	4.007898977368	+1	0.072901931863	860.997328100873
3000	0.001788167654	5.428981563678	+1	0.072101819207	1513.987585100479
3100	0.001748657724	8.053489692607	+1	0.071346233319	3197.818157834605
3200	0.001711063738	14.515718098731	+1	0.070631181833	9986.426819950975
3300	0.001676649033	51.009132899972	+1	0.069894028742	118704.035465257020
3400	0.001641096520	33.171664794631	-1	0.069308894353	51353.559745658444
3500	0.001608487591	12.710181477096	-1	0.068695754748	7978.432239562872
3600	0.001577320714	7.812786331121	-1	0.068111252272	3185.440492186786
3700	0.001547503802	5.615889166129	-1	0.067553065592	1736.698417060941
3800	0.001518952136	4.369559187472	-1	0.067019113778	1107.895844537643
3900	0.001491587166	3.567135168693	-1	0.066507554422	777.011880047859
4000	0.001465335846	3.007622011080	-1	0.066016804371	580.567002265882
4100	0.001440130811	2.595425872565	-1	0.065545456621	453.854294458318
4200	0.001415911188	2.279350799828	-1	0.065092076611	367.035297451852
4300	0.001392621163	2.029450935421	-1	0.064655375940	304.746052425531
4400	0.001370208293	1.827024128541	-1	0.064234220452	258.399600836494
4500	0.001348623233	1.659788015187	-1	0.063827624925	222.882807535790
4600	0.001327820304	1.519349969437	-1	0.063434730208	194.993341863838
4700	0.001307757940	1.399810533632	-1	0.063054634315	172.645001947729

4800	0.001288397846	1.296881846827	-1	0.062686485684	154.425471855422
4900	0.001269703108	1.207363131638	-1	0.062329555634	139.348481401288
5000	0.001251639888	1.128818108066	-1	0.061983239461	126.707861055606
5500	0.001169765971	0.847229070000	-1	0.060390031303	85.888008514037
6000	0.001099701882	0.673891136488	-1	0.058986949554	64.228080754977
6500	0.001039036682	0.557047037895	-1	0.057732522488	51.092604266413
7000	0.000985978378	0.473301914383	-1	0.056596863241	42.386706753554
7500	0.000939163948	0.410552029379	-1	0.055558142644	36.239375930737
8000	0.000897539722	0.361919254613	-1	0.054599987077	31.688135378547
8500	0.000860277326	0.323213098503	-1	0.053709823144	28.192669809928
9000	0.000826716988	0.291738830278	-1	0.052877825544	25.428502373665
9500	0.000796326948	0.265687597517	-1	0.052096128598	23.190058527481
10000	0.000768672615	0.243801327894	-1	0.051358394243	21.341318160258
10500	0.000743395859	0.225177023482	-1	0.050659535675	19.788790899378
11000	0.000720200947	0.209159901983	-1	0.049994776818	18.466919344704
11500	0.000698836023	0.195246510233	-1	0.049360978933	17.327272820892
12000	0.000679091049	0.183062020804	-1	0.048754732150	16.334550908770
12500	0.000660785702	0.172309496898	-1	0.048173599431	15.461631917098
13000	0.000643766356	0.162759281849	-1	0.047615105809	14.687912097471
13500	0.000627899488	0.154224211538	-1	0.047077436527	13.997007589679
14000	0.000613070747	0.146556294798	-1	0.046558744718	13.376128022437
14500	0.000599179260	0.139632413760	-1	0.046057598373	12.814842095427
15000	0.000586137599	0.133353311402	-1	0.045572588870	12.304836756160
16000	0.000562302962	0.122407126034	-1	0.044646480965	11.412104364479
17000	0.000541050335	0.113198537311	-1	0.043772338034	10.655634159602
18000	0.000521971076	0.105354236025	-1	0.042943665700	10.005574390419
19000	0.000504738310	0.098599325815	-1	0.042155161922	9.440249087232
20000	0.000489087152	0.092727334376	-1	0.041402394794	8.943553201708
21000	0.000402138928	0.069181878358	-1	0.048051861237	9.280900919501
22000	0.000386939522	0.064756521751	-1	0.047801552687	8.942053269813
23000	0.000372385513	0.060497699103	-1	0.047603417028	8.608240972425
24000	0.000358647762	0.056520673184	-1	0.047453844857	8.291762363486
25000	0.000345876841	0.052933555656	-1	0.047337656292	8.004387701456

26000	0.000334160147	0.049806359051	-1	0.047231630027	7.754250800013
27000	0.000323387017	0.047082861335	-1	0.047125255736	7.537004940879
28000	0.000313411529	0.044681727881	-1	0.047016802507	7.345658701421
29000	0.000304101434	0.042528179426	-1	0.046909724735	7.173695252608
30000	0.000295336330	0.040553490133	-1	0.046812333955	7.015028020820
31000	0.000287019566	0.038703896418	-1	0.046734394478	6.864880939276
32000	0.000279115571	0.036966900951	-1	0.046675944355	6.722413651187
33000	0.000271605059	0.035340097107	-1	0.046633874540	6.587744706932
34000	0.000264470783	0.033821285597	-1	0.046604670398	6.460995779770
35000	0.000257697259	0.032408454007	-1	0.046584371050	6.342290562260
36000	0.000251267931	0.031098175342	-1	0.046569239026	6.231588007895
37000	0.000245157503	0.029881176648	-1	0.046558006405	6.128204776921
38000	0.000239340136	0.028747243132	-1	0.046550560517	6.031324130828
39000	0.000233791756	0.027686776316	-1	0.046547394528	5.940167785605
40000	0.000228489989	0.026690768679	-1	0.046549576336	5.853989755456
41000	0.000223414944	0.025751482778	-1	0.046558263487	5.772152193379
42000	0.000218552199	0.024864561139	-1	0.046572985156	5.694345445971
43000	0.000213889422	0.024026603552	-1	0.046592899265	5.620342568783
44000	0.000209415066	0.023234373821	-1	0.046617302853	5.549924944820
45000	0.000205118419	0.022484802821	-1	0.046645601421	5.482877387579
46000	0.000200989362	0.021774961364	-1	0.046677345065	5.418992245095
47000	0.000197018270	0.021102072467	-1	0.046712147157	5.358065043494
48000	0.000193196055	0.020463484572	-1	0.046749754282	5.299895593546
49000	0.000189514148	0.019856668108	-1	0.046790061156	5.244289211362
50000	0.000185964494	0.019279205683	-1	0.046833117051	5.191055005254
55000	0.000169964878	0.016767134333	-1	0.047086027175	4.955479707261
60000	0.000156389951	0.014753856775	-1	0.047386429551	4.761313081020
65000	0.000144721587	0.013110184945	-1	0.047721662897	4.598550919859
70000	0.000134581846	0.011747142651	-1	0.048083438681	4.460216500672
75000	0.000125685539	0.010601935076	-1	0.048463248225	4.341225313048
80000	0.000117817216	0.009628800162	-1	0.048855470542	4.237802088087
85000	0.000110807440	0.008793321699	-1	0.049258506312	4.147218407996
90000	0.000104522837	0.008069771812	-1	0.049668795096	4.067278408269

95000	0.000098857106	0.007438407583	-1	0.050082458140	3.996201536828
100000	0.000093722962	0.006883555288	-1	0.050498603299	3.932684484227
105000	0.000089049329	0.006392845931	-1	0.050915745191	3.875607543440
110000	0.000084777741	0.005956585973	-1	0.051331760406	3.824104846617
115000	0.000080858505	0.005566561730	-1	0.051746510533	3.777405879232
120000	0.000077250364	0.005216323451	-1	0.052158806152	3.734926226032
125000	0.000073917864	0.004900378175	-1	0.052568546436	3.696147256179
130000	0.000070830731	0.004614246910	-1	0.052975433970	3.660673166160
135000	0.000067962658	0.004354063239	-1	0.053380028123	3.628146705942
140000	0.000065298080	0.004117600303	-1	0.053769629095	3.597826017610
145000	0.000062811743	0.003901307505	-1	0.054153891850	3.569786732263
150000	0.000060486749	0.003702909008	-1	0.054532381267	3.543802546370
155000	0.000058304409	0.003519920670	-1	0.054912988925	3.519941503910
160000	0.000056255423	0.003351155067	-1	0.055288144109	3.497770446150
165000	0.000054328637	0.003195173063	-1	0.055656810975	3.477089635145
170000	0.000052513643	0.003050679503	-1	0.056019023020	3.457775537647
175000	0.000050801172	0.002916525419	-1	0.056374933703	3.439706051719
180000	0.000049183026	0.002791722500	-1	0.056724459447	3.422773592285
185000	0.000047651816	0.002675386638	-1	0.057067696797	3.406878040220
190000	0.000046200978	0.002566770453	-1	0.057404364803	3.391943356727
195000	0.000044824535	0.002465186326	-1	0.057734487202	3.377892348137
200000	0.000043516911	0.002369967213	-1	0.058058782751	3.364631860257
205000	0.000042273054	0.002280514644	-1	0.058378137772	3.352076121862
210000	0.000041088707	0.002196399008	-1	0.058691985836	3.340187181149
215000	0.000039960052	0.002117249074	-1	0.058999436100	3.328933111606
220000	0.000038883532	0.002042711717	-1	0.059299840088	3.318279999917
225000	0.000037855845	0.001972451458	-1	0.059592795453	3.308190699344
230000	0.000036873912	0.001906151230	-1	0.059878108916	3.298626001397
235000	0.000035934861	0.001843508888	-1	0.060155878096	3.289544702760
240000	0.000035036005	0.001784239198	-1	0.060426434625	3.280905048465
245000	0.000034174811	0.001728069803	-1	0.060690430877	3.272665607540
250000	0.000033348928	0.001674743764	-1	0.060948762559	3.264783079141
255000	0.000032556173	0.001624030959	-1	0.061202315713	3.257222338897

260000	0.000031794741	0.001575772034	-1	0.061450809801	3.249964936153
265000	0.000031062996	0.001529829643	-1	0.061693709589	3.242995801798
270000	0.000030359419	0.001486074692	-1	0.061930454788	3.236295269789
275000	0.000029682629	0.001444391276	-1	0.062160236922	3.229835864805
280000	0.000029030506	0.001404556833	-1	0.062387427980	3.223705283232
285000	0.000028401768	0.001366460131	-1	0.062612076235	3.217888853386
290000	0.000027795742	0.001330063614	-1	0.062830926722	3.212290702330
295000	0.000027211252	0.001295259013	-1	0.063044222336	3.206894263640
300000	0.000026647188	0.001261942715	-1	0.063252318081	3.201682177057

Electron Elastic Scattering Sampling Data
Solution for Z = 62

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.018999805914	0.443732060934	+1	0.046663510028	1.619628203804
52	0.017926849684	0.353426844100	+1	0.042995009385	1.177653745222
54	0.016972572004	0.279285700027	+1	0.039733896337	0.856503023534
56	0.016118835582	0.219959227335	+1	0.036890101267	0.627542777178
58	0.015351741518	0.173210589158	+1	0.034448980152	0.465133252049
60	0.014660387457	0.136722463721	+1	0.032382268856	0.349648460472
62	0.014036022591	0.108425208440	+1	0.030655916149	0.267039529221
64	0.013471312916	0.086575634603	+1	0.029234368099	0.207497839862
66	0.012960176645	0.069771956467	+1	0.028084026200	0.164285588092
68	0.012497332804	0.056897396960	+1	0.027174148599	0.132750096772
70	0.012078113310	0.047073710775	+1	0.026477429559	0.109666088651
72	0.011698462708	0.039622380701	+1	0.025970343001	0.092798681753
74	0.011354678216	0.034018402354	+1	0.025632675904	0.080581453680
76	0.011043482803	0.029863093772	+1	0.025447399258	0.071924444881
78	0.010761891773	0.026855634103	+1	0.025400269907	0.066072291090
80	0.010507179336	0.024771757605	+1	0.025479397104	0.062511013991
82	0.010276900385	0.023448781131	+1	0.025675029098	0.060910326482
84	0.010068775296	0.022770455480	+1	0.025979116288	0.061077099253
86	0.009880753556	0.022658053079	+1	0.026385106092	0.062930981544
88	0.009710940432	0.023062015984	+1	0.026887731265	0.066486288243
90	0.009557589326	0.023955237518	+1	0.027482737928	0.071839725989
92	0.009419117334	0.025328973196	+1	0.028166738282	0.079166944050
94	0.009294046517	0.027188153757	+1	0.028937024551	0.088718388216
96	0.009181027026	0.029549484393	+1	0.029791500920	0.100824040804
98	0.009078820148	0.032438953533	+1	0.030728528789	0.115897228749
100	0.008986279455	0.035890134616	+1	0.031746852726	0.134442123524
105	0.008790491262	0.047250397363	+1	0.034642424510	0.200245120741
110	0.008634291768	0.063142559637	+1	0.038030263297	0.304734174114

115	0.008505973699	0.084517889290	+1	0.041904779589	0.467345149227
120	0.008395948038	0.112509095304	+1	0.046261018436	0.717093894166
125	0.008296440716	0.148494017459	+1	0.051092546629	1.097719396379
130	0.008201307822	0.194163495152	+1	0.056389362735	1.675735080696
135	0.008105732248	0.251662159071	+1	0.062136314691	2.553950492668
140	0.008006184931	0.323760432784	+1	0.068311961537	3.893772644863
145	0.007900164624	0.414140189773	+1	0.074887154537	5.953862540755
150	0.007786201657	0.527811513979	+1	0.081825084909	9.158316001503
155	0.007663611468	0.671782189107	+1	0.089080337919	14.222007535071
160	0.007532485447	0.856163505090	+1	0.096600070045	22.390973236475
165	0.007393460028	1.096064742501	+1	0.104323799919	35.927451154726
170	0.007247674909	1.415136617289	+1	0.112186180139	59.159235417193
175	0.007096573829	1.852400241755	+1	0.120116892726	100.926348073827
180	0.006941844044	2.477115084348	+1	0.128043850487	180.946458943901
185	0.006785257925	3.424732781030	+1	0.135894438046	348.855369181319
190	0.006628567366	5.001892858867	+1	0.143601797330	754.428048056574
195	0.006473459863	8.075335071098	+1	0.151100638217	2002.140380966488
200	0.006321608010	16.393609693146	+1	0.158323138145	8431.385601763406
205	0.006277178298	34.399489086550	+1	0.163339408475	37636.442293694323
210	0.006033235384	29.043228812831	-1	0.171719272941	29803.714120481833
215	0.005898617475	13.672229164783	-1	0.177828857101	7312.586125248718
220	0.005771277098	9.358955893979	-1	0.183516548334	3754.050186409892
225	0.005651666012	7.378656091655	-1	0.188767353568	2531.098432977532
230	0.005540085203	6.281307227058	-1	0.193571546323	1970.694190552636
235	0.005436705880	5.619090619863	-1	0.197924052630	1679.023868622060
240	0.005341586081	5.209853283594	-1	0.201824110189	1523.341925153940
245	0.005254693588	4.967510848852	-1	0.205274590458	1449.528073777972
250	0.005175918715	4.848374842517	-1	0.208281611313	1433.778498134837
255	0.005105042291	4.830103865055	-1	0.210856562147	1466.402315411128
260	0.005041622603	4.901232075618	-1	0.213022913453	1545.104341820218
265	0.004985157719	5.059666589064	-1	0.214807114915	1674.188616272420
270	0.004935152746	5.312072115302	-1	0.216235590753	1865.258020469004
275	0.004891122675	5.674803612426	-1	0.217334239539	2139.999049577799

280	0.004852599860	6.177443199142	-1	0.218128208844	2536.751767715662
285	0.004819136817	6.870604850597	-1	0.218641773645	3124.847873768950
290	0.004790309116	7.842545939964	-1	0.218898012472	4037.657669503044
295	0.004765715531	9.256853091293	-1	0.218918885407	5557.400226919541
300	0.004744981406	11.449291544378	-1	0.218725081360	8370.041203013436
310	0.004713598315	23.123686058586	-1	0.217774479299	32792.980089539058
320	0.004701758031	204.292308787077	+1	0.216002671614	2446086.430007723200
330	0.004741662595	127.326664249309	+1	0.217268723493	951997.336323582100
340	0.004674851762	9.266418058635	+1	0.211755326864	5441.401336080479
350	0.004673091790	5.964373325889	+1	0.209086168968	2338.912179260291
360	0.004674212128	4.310150605693	+1	0.206233346529	1266.285548282915
370	0.004676997219	3.324966062393	+1	0.203262203224	780.760005835202
380	0.004680475159	2.676076782580	+1	0.200225752625	523.742426735545
390	0.004683886516	2.219474272193	+1	0.197166518468	372.912520129920
400	0.004686650931	1.882805474914	+1	0.194118440447	277.666270002057
410	0.004688344035	1.625746281964	+1	0.191107521628	214.112328782342
420	0.004688689859	1.423967069862	+1	0.188151259720	169.814844195489
430	0.004687502728	1.262055082011	+1	0.185262575965	137.841180915628
440	0.004684659618	1.129814128093	+1	0.182451392668	114.097070090473
450	0.004680091623	1.020233973168	+1	0.179725224471	96.043720986370
460	0.004673778213	0.928321034377	+1	0.177088915540	82.039466720518
470	0.004665769285	0.850370704231	+1	0.174543439238	70.979261144589
480	0.004656135365	0.783630122607	+1	0.172088510818	62.107042430856
490	0.004644952041	0.726028015417	+1	0.169723511639	54.894223752697
500	0.004632298521	0.675976000605	+1	0.167447515722	48.962376024012
510	0.004618265027	0.632227053535	+1	0.165258979407	44.033888268432
520	0.004602965863	0.593764017454	+1	0.163154610790	39.898797505443
530	0.004586515455	0.559772360899	+1	0.161130984954	36.398825842129
540	0.004569017514	0.529599843287	+1	0.159184976770	33.413709415521
550	0.004550567102	0.502718196811	+1	0.157313737593	30.850738215822
560	0.004531255618	0.478690879644	+1	0.155514424065	28.637095705314
570	0.004511184084	0.457141774739	+1	0.153783396284	26.713777164400
580	0.004490446211	0.437756338836	+1	0.152117152234	25.033683784250

590	0.004469125242	0.420273184480	+1	0.150512588645	23.559188568064
600	0.004447295512	0.404473436600	+1	0.148966931251	22.259931734059
610	0.004425024438	0.390170179103	+1	0.147477501103	21.110997983095
620	0.004402383656	0.377197330970	+1	0.146041320359	20.091300757167
630	0.004379436651	0.365411440025	+1	0.144655558862	19.183317117303
640	0.004356240767	0.354690539623	+1	0.143317687593	18.372575364272
650	0.004332845535	0.344929857524	+1	0.142025434437	17.647015377979
660	0.004309295498	0.336038313335	+1	0.140776684381	16.996465990986
670	0.004285635587	0.327932771362	+1	0.139569145098	16.412013289345
680	0.004261906304	0.320540573447	+1	0.138400712363	15.886084420875
690	0.004238142164	0.313798298776	+1	0.137269425375	15.412236805962
700	0.004214374615	0.307650611459	+1	0.136173566648	14.984983045103
710	0.004190630771	0.302048679473	+1	0.135111522997	14.599597359571
720	0.004166936468	0.296947151540	+1	0.134081576203	14.251834600771
730	0.004143315841	0.292306043769	+1	0.133082167463	13.938028790301
740	0.004119789453	0.288089738352	+1	0.132111877670	13.654993007747
750	0.004096374661	0.284266695338	+1	0.131169374995	13.399958683871
760	0.004073087013	0.280808686762	+1	0.130253432440	13.170499361014
770	0.004049940949	0.277689575056	+1	0.129362813446	12.964422048739
780	0.004026949363	0.274885864905	+1	0.128496353772	12.779791589476
790	0.004004123795	0.272376398846	+1	0.127652978999	12.614898420071
800	0.003981471790	0.270142135743	+1	0.126831695660	12.468239837784
810	0.003959003741	0.268165941687	+1	0.126031592739	12.338475554782
820	0.003936724336	0.266431812682	+1	0.125251713541	12.224387847368
830	0.003914641360	0.264925290027	+1	0.124491219711	12.124888169160
840	0.003892758397	0.263633153037	+1	0.123749267705	12.039002581461
850	0.003871080368	0.262543315920	+1	0.123025135857	11.965857582309
860	0.003849610699	0.261644764440	+1	0.122318077314	11.904664584142
870	0.003828351479	0.260927562303	+1	0.121627424032	11.854727484592
880	0.003807305628	0.260382474669	+1	0.120952537278	11.815406600519
890	0.003786474451	0.260001099507	+1	0.120292802498	11.786130243475
900	0.003765859119	0.259775597273	+1	0.119647648574	11.766375225569
910	0.003745459694	0.259698800579	+1	0.119016521912	11.755671148941

920	0.003725277271	0.259764102337	+1	0.118398922148	11.753589950286
930	0.003705310135	0.259965409158	+1	0.117794311472	11.759743934001
940	0.003685557563	0.260296995098	+1	0.117202218796	11.773776362605
950	0.003666018680	0.260753502806	+1	0.116622191995	11.795358795124
960	0.003646692907	0.261330049873	+1	0.116053807268	11.824195629858
970	0.003627578111	0.262022184899	+1	0.115496636560	11.860023299982
980	0.003608673820	0.262825784924	+1	0.114950299418	11.902599574304
990	0.003589978190	0.263736914061	+1	0.114414429814	11.951701418689
1000	0.003571489893	0.264751882239	+1	0.113888664424	12.007120192678
1025	0.003526162833	0.267722952368	+1	0.112616328991	12.172192991277
1050	0.003482080955	0.271281100000	+1	0.111400369928	12.373516662800
1075	0.003439208002	0.275390078187	+1	0.110236514474	12.609350252387
1100	0.003397505893	0.280016915328	+1	0.109120815304	12.878210824927
1125	0.003356937963	0.285132876173	+1	0.108049719129	13.178911781970
1150	0.003317461918	0.290719375670	+1	0.107020191379	13.510940267183
1175	0.003279037516	0.296761033107	+1	0.106029472085	13.874013092881
1200	0.003241626364	0.303242857296	+1	0.105074962903	14.267898824159
1225	0.003205192385	0.310151715463	+1	0.104154290868	14.692505173886
1250	0.003169697902	0.317481231014	+1	0.103265418840	15.148206183808
1275	0.003135105168	0.325226887092	+1	0.102406504526	15.635543553408
1300	0.003101380834	0.333383660275	+1	0.101575742116	16.155040337864
1325	0.003068493304	0.341947260658	+1	0.100771490329	16.707305799693
1350	0.003036408962	0.350918990186	+1	0.099992325373	17.293371484469
1375	0.003005097818	0.360300950203	+1	0.099236972978	17.914372986790
1400	0.002974530123	0.370095050084	+1	0.098504147213	18.571478518965
1425	0.002944679817	0.380303427707	+1	0.097792680110	19.265919880320
1450	0.002915518577	0.390932669042	+1	0.097101541951	19.999315092732
1475	0.002887020678	0.401990180323	+1	0.096429789598	20.773411578969
1500	0.002859162069	0.413483124074	+1	0.095776494514	21.590009899694
1550	0.002805271965	0.437809139908	+1	0.094521901927	23.358717029432
1600	0.002753675177	0.463999407808	+1	0.093331801344	25.324018382559
1650	0.002704216370	0.492155439790	+1	0.092200825023	27.507245350346
1700	0.002656751790	0.522405486109	+1	0.091124382755	29.934013613867

1750	0.002611153595	0.554894307563	+1	0.090098293329	32.633847340255
1800	0.002567302410	0.589793611195	+1	0.089118927283	35.641708885401
1850	0.002525091905	0.627297621198	+1	0.088182976957	38.998261706852
1900	0.002484420868	0.667638709972	+1	0.087287599071	42.752279219353
1950	0.002445156831	0.711129150886	+1	0.086431539769	46.967244588124
2000	0.002407263168	0.758016069590	+1	0.085610843386	51.704838439599
2100	0.002335286933	0.863383620149	+1	0.084066536272	63.082956209583
2200	0.002267954137	0.987282757377	+1	0.082639902720	77.755846868056
2300	0.002204803197	1.134544244547	+1	0.081318376483	97.011665060699
2400	0.002145437779	1.311822901186	+1	0.080090680599	122.806133493100
2500	0.002089515044	1.528553827594	+1	0.078946644267	158.215783046593
2600	0.002036737823	1.798623986714	+1	0.077877249830	208.299405064977
2700	0.001986844076	2.143599137863	+1	0.076875167678	281.884094916914
2800	0.001939601142	2.598641094848	+1	0.075934048288	395.425297085689
2900	0.001894800892	3.225114007175	+1	0.075048296010	582.397603585171
3000	0.001852255668	4.140609935069	+1	0.074212945216	919.481343918562
3100	0.001811796511	5.602376142054	+1	0.073423592399	1614.846913766195
3200	0.001773274853	8.301453550069	+1	0.072676190826	3406.592713246922
3300	0.001736556305	14.945219284920	+1	0.071967079725	10623.335419384066
3400	0.001703046734	51.987862284957	+1	0.071228830106	123839.697845243470
3500	0.001668045138	34.144249847054	-1	0.070651328418	54598.647551542163
3600	0.001636036233	13.081750664637	-1	0.070039327581	8466.366097785911
3700	0.001605397926	8.043406442923	-1	0.069454700952	3376.422899287195
3800	0.001576045613	5.783534862765	-1	0.068895295057	1839.025497877653
3900	0.001547899858	4.501389359609	-1	0.068359215866	1172.068402769623
4000	0.001520887487	3.675766672864	-1	0.067844826756	821.243968029346
4100	0.001494940584	3.099975926275	-1	0.067350674015	613.042384522840
4200	0.001469997920	2.675812027229	-1	0.066875269513	478.828595123520
4300	0.001446003250	2.350563176841	-1	0.066417289474	386.920090444535
4400	0.001422903749	2.093383952086	-1	0.065975550122	321.006961174089
4500	0.001400649631	1.885018981981	-1	0.065549032278	271.979887085211
4600	0.001379194165	1.712838624878	-1	0.065136839896	234.420221657773
4700	0.001358495920	1.568248637816	-1	0.064738024231	204.941647395016

4800	0.001338515607	1.445172419801	-1	0.064351717321	181.331105439113
4900	0.001319216491	1.339186390466	-1	0.063977149931	162.089794501383
5000	0.001300563938	1.246989085779	-1	0.063613707664	146.171636123522
5500	0.001215945591	0.922423468425	-1	0.061941983651	96.181802890683
6000	0.001143452786	0.727209830080	-1	0.060469102182	70.617566340541
6500	0.001080622017	0.597535768127	-1	0.059152069455	55.478171668125
7000	0.001025621657	0.505533178027	-1	0.057959604026	45.610360137415
7500	0.000977056196	0.437106418470	-1	0.056868847213	38.728866032531
8000	0.000933844061	0.384373724289	-1	0.055862661790	33.683231998821
8500	0.000895134829	0.342591262684	-1	0.054927905885	29.838100201207
9000	0.000860250390	0.308737489371	-1	0.054054287401	26.816835329470
9500	0.000828642696	0.280799203337	-1	0.053233614861	24.383329970583
10000	0.000799865100	0.257385375881	-1	0.052459247099	22.382698372248
10500	0.000773547393	0.237502532877	-1	0.051725868785	20.709303277235
11000	0.000749385662	0.220433419911	-1	0.051028508297	19.289480241970
11500	0.000727119586	0.205628938153	-1	0.050363850592	18.069164546776
12000	0.000706532545	0.192681279550	-1	0.049728355013	17.009100240186
12500	0.000687438024	0.181268604322	-1	0.049119452095	16.079287643151
13000	0.000669677796	0.171142388665	-1	0.048534569997	15.256988636952
13500	0.000653113794	0.162100735861	-1	0.047971799219	14.524210989313
14000	0.000637627560	0.153984318056	-1	0.047429165583	13.866941860521
14500	0.000623114922	0.146660685877	-1	0.046905214179	13.273791192827
15000	0.000609485604	0.140023358198	-1	0.046398433307	12.735691527789
16000	0.000584565308	0.128462341293	-1	0.045431661774	11.795807139472
17000	0.000562331382	0.118745714248	-1	0.044520334211	11.001447379460
18000	0.000542360894	0.110475166886	-1	0.043657556009	10.320379273621
19000	0.000524314741	0.103357881648	-1	0.042837695525	9.729282181339
20000	0.000507918071	0.097174205393	-1	0.042056065500	9.210876096399
21000	0.000420965781	0.073270810905	-1	0.048376678050	9.492523976942
22000	0.000405120648	0.068604202240	-1	0.048085348221	9.137387975451
23000	0.000389952438	0.064113412478	-1	0.047845846936	8.788056282665
24000	0.000375635888	0.059919766628	-1	0.047655381608	8.457280603960
25000	0.000362324570	0.056137114497	-1	0.047499761058	8.157209380034

26000	0.000350107026	0.052839174873	-1	0.047356748640	7.896175559876
27000	0.000338868536	0.049966676614	-1	0.047215801781	7.669559357345
28000	0.000328458288	0.047433843690	-1	0.047074869117	7.470031143607
29000	0.000318739747	0.045161830305	-1	0.046936985485	7.290780525716
30000	0.000309588690	0.043078153292	-1	0.046809961954	7.125464846016
31000	0.000300905409	0.041126108164	-1	0.046703077392	6.969114529257
32000	0.000292652805	0.039292532236	-1	0.046616285135	6.820841955137
33000	0.000284810646	0.037574918409	-1	0.046546514749	6.680750853154
34000	0.000277360686	0.035970977531	-1	0.046490310675	6.548952261358
35000	0.000270286630	0.034478624567	-1	0.046443786325	6.425557874971
36000	0.000263571080	0.033094267867	-1	0.046403287542	6.310510963860
37000	0.000257187736	0.031808162764	-1	0.046367507179	6.203093324877
38000	0.000251109714	0.030609546677	-1	0.046336289165	6.102453748126
39000	0.000245312076	0.029488326508	-1	0.046310028531	6.007778788521
40000	0.000239771589	0.028435001725	-1	0.046289722589	5.918291929965
41000	0.000234467601	0.027441424128	-1	0.046276438282	5.833329056918
42000	0.000229385139	0.026503019856	-1	0.046269671101	5.752564877570
43000	0.000224511246	0.025616206809	-1	0.046268581674	5.675762307164
44000	0.000219833944	0.024777594292	-1	0.046272433550	5.602689450660
45000	0.000215342032	0.023983945380	-1	0.046280642398	5.533121878205
46000	0.000211024981	0.023232187251	-1	0.046292734342	5.466842074190
47000	0.000206872720	0.022519395587	-1	0.046308309906	5.403636882669
48000	0.000202875811	0.021842779004	-1	0.046327103520	5.343296975655
49000	0.000199025329	0.021199681961	-1	0.046348970418	5.285618910912
50000	0.000195312856	0.020587553566	-1	0.046373948173	5.230405137063
55000	0.000178576001	0.017922961232	-1	0.046541266257	4.986092466691
60000	0.000164370826	0.015785176271	-1	0.046763041152	4.784725915799
65000	0.000152156943	0.014038137327	-1	0.047025318393	4.615899116665
70000	0.000141540116	0.012588037848	-1	0.047318870182	4.472358661341
75000	0.000132222649	0.011368643326	-1	0.047634541979	4.348837803993
80000	0.000123979562	0.010331629367	-1	0.047966179847	4.241422956805
85000	0.000116634187	0.009440671641	-1	0.048311491421	4.147274616801
90000	0.000110047383	0.008668570814	-1	0.048666428173	4.064106952287

95000	0.000104107451	0.007994358216	-1	0.049027548210	3.990128843858
100000	0.000098723829	0.007401519292	-1	0.049392983409	3.923944481245
105000	0.000093822110	0.006876928769	-1	0.049761181769	3.864407300690
110000	0.000089341120	0.006410299993	-1	0.050129997333	3.810629673739
115000	0.000085228969	0.005992922142	-1	0.050499059871	3.761813029325
120000	0.000081442589	0.005617960945	-1	0.050866917284	3.717347021389
125000	0.000077945016	0.005279601108	-1	0.051233074524	3.676687055474
130000	0.000074704859	0.004973113314	-1	0.051596753650	3.639408883651
135000	0.000071694721	0.004694397183	-1	0.051958138459	3.605135280329
140000	0.000068890774	0.004440029746	-1	0.052317702195	3.573590660782
145000	0.000066276376	0.004207627598	-1	0.052668749011	3.544250561214
150000	0.000063833758	0.003994737558	-1	0.053010219734	3.516866371682
155000	0.000061544563	0.003798841165	-1	0.053346748607	3.491390551470
160000	0.000059394342	0.003618031821	-1	0.053679669609	3.467700894077
165000	0.000057368414	0.003450389321	-1	0.054014617382	3.445824292419
170000	0.000055460111	0.003295099925	-1	0.054343070750	3.425334779795
175000	0.000053659466	0.003150901418	-1	0.054665648911	3.406124382883
180000	0.000051957801	0.003016728124	-1	0.054982394403	3.388088699956
185000	0.000050347365	0.002891631904	-1	0.055293420298	3.371125501531
190000	0.000048821256	0.002774810652	-1	0.055598502648	3.355158521984
195000	0.000047373207	0.002665529236	-1	0.055897636839	3.340108218176
200000	0.000045997378	0.002563072707	-1	0.056191523883	3.325879526327
205000	0.000044688489	0.002466802438	-1	0.056480940839	3.312382944029
210000	0.000043442057	0.002376257880	-1	0.056765353947	3.299580285066
215000	0.000042254078	0.002291042064	-1	0.057043910545	3.287439340157
220000	0.000041120817	0.002210775592	-1	0.057316021431	3.275925717081
225000	0.000040038812	0.002135100889	-1	0.057581253477	3.265000879129
230000	0.000039004835	0.002063677404	-1	0.057839454567	3.254625508885
235000	0.000038015874	0.001996182160	-1	0.058090683774	3.244756763258
240000	0.000037069109	0.001932308562	-1	0.058335270839	3.235351887731
245000	0.000036161901	0.001871765335	-1	0.058573827328	3.226368063689
250000	0.000035291773	0.001814276765	-1	0.058807192011	3.217761106009
255000	0.000034456445	0.001759595206	-1	0.059036234808	3.209494197163

260000	0.000033654018	0.001707549197	-1	0.059260707974	3.201549210125
265000	0.000032882742	0.001657988397	-1	0.059480228248	3.193914838818
270000	0.000032140998	0.001610770506	-1	0.059694428334	3.186574844885
275000	0.000031427251	0.001565759650	-1	0.059903028019	3.179513315066
280000	0.000030740075	0.001522827564	-1	0.060105751332	3.172709767691
285000	0.000030078144	0.001481855103	-1	0.060302275433	3.166140965056
290000	0.000029440296	0.001442739117	-1	0.060491874396	3.159770008293
295000	0.000028823903	0.001405170174	-1	0.060683303130	3.153774395212
300000	0.000028228949	0.001369198543	-1	0.060870114538	3.147981292807

Electron Elastic Scattering Sampling Data
Solution for Z = 63

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.020199195688	0.624836050685	+1	0.048594112726	2.516369391881
52	0.019050766088	0.500843224140	+1	0.044647283558	1.809506572004
54	0.018029702206	0.396451906757	+1	0.041053377184	1.291284526445
56	0.017115286426	0.311835122263	+1	0.037855208847	0.924560091762
58	0.016291881118	0.244690291039	+1	0.035059922087	0.668342305942
60	0.015547464910	0.192053243623	+1	0.032652271313	0.489427388283
62	0.014872595884	0.151089657811	+1	0.030604770399	0.363775824648
64	0.014259538445	0.119349150933	+1	0.028884184831	0.274738439585
66	0.013701991275	0.094840017466	+1	0.027456598632	0.211050334851
68	0.013194558461	0.075967342245	+1	0.026289504037	0.165078629146
70	0.012732523609	0.061471415034	+1	0.025353070111	0.131630188876
72	0.012311814023	0.050373505906	+1	0.024621013851	0.107162323802
74	0.011928718309	0.041910690169	+1	0.024070381286	0.089222846268
76	0.011579961855	0.035496805520	+1	0.023681580310	0.076111430599
78	0.011262559618	0.030682535970	+1	0.023438003950	0.066640146303
80	0.010973774231	0.027126068548	+1	0.023325678504	0.059978998800
82	0.010711172061	0.024570520865	+1	0.023332847258	0.055553741476
84	0.010472396864	0.022828657231	+1	0.023450319789	0.052986732109
86	0.010255430488	0.021759899047	+1	0.023669744908	0.052025644743
88	0.010058337073	0.021268431339	+1	0.023984823572	0.052539106332
90	0.009879340752	0.021289008387	+1	0.024390293962	0.054481312339
92	0.009716821222	0.021782265577	+1	0.024881998651	0.057884954208
94	0.009569264947	0.022727774364	+1	0.025456568943	0.062849370188
96	0.009435285889	0.024121159710	+1	0.026111373265	0.069540273892
98	0.009313604593	0.025970535347	+1	0.026844369768	0.078188481743
100	0.009203037759	0.028293935585	+1	0.027653974338	0.089091771410
105	0.008968257566	0.036363613668	+1	0.030006069541	0.128834955094
110	0.008781224612	0.048142639599	+1	0.032818601113	0.193290424874

115	0.008629644083	0.064392605631	+1	0.036086802945	0.294797446456
120	0.008503258597	0.086030051548	+1	0.039808698328	0.451699430554
125	0.008393769610	0.114141769084	+1	0.043981377350	0.691194591183
130	0.008294255162	0.150046241597	+1	0.048601831980	1.054061786599
135	0.008199227138	0.195358342885	+1	0.053662425484	1.601898579310
140	0.008104395398	0.252106873527	+1	0.059151058718	2.429084251834
145	0.008006460882	0.322917987482	+1	0.065049808273	3.682805666492
150	0.007903132538	0.411255973118	+1	0.071334151831	5.596776687047
155	0.007792898440	0.521819251229	+1	0.077972237061	8.550841516985
160	0.007675040049	0.661139083638	+1	0.084925043360	13.178827812364
165	0.007549434739	0.838572045831	+1	0.092146123774	20.573176564808
170	0.007416531714	1.068013518005	+1	0.099583030837	32.693533420077
175	0.007277181254	1.370948775912	+1	0.107177228020	53.231471709087
180	0.007132584463	1.782411157224	+1	0.114866075743	89.593896706198
185	0.006984142728	2.363543560369	+1	0.122584133706	157.926026493987
190	0.006833384694	3.231945364862	+1	0.130268120513	297.757934238860
195	0.006681868982	4.644314445697	+1	0.137853841561	623.132768140281
200	0.006531210026	7.281899960684	+1	0.145272222996	1559.224166464496
205	0.006382938304	13.757164693974	+1	0.152458365345	5685.100753976710
210	0.006299448747	32.625704908797	+1	0.158293230060	32546.406209212684
215	0.006098423027	38.231738046080	-1	0.165961130417	48643.371546047463
220	0.005964118110	15.034201708315	-1	0.172209626716	8358.648138729262
225	0.005836123564	9.783385396976	-1	0.178085965181	3893.999397838733
230	0.005714999049	7.510475670761	-1	0.183568807347	2500.399974167074
235	0.005601165014	6.278599871533	-1	0.188641665473	1886.389790612695
240	0.005494915072	5.537154230210	-1	0.193292690984	1569.762424189906
245	0.005396430039	5.071255158675	-1	0.197514215912	1396.725523523001
250	0.005305796967	4.781247967819	-1	0.201302573926	1306.114029632151
255	0.005222970950	4.615685378440	-1	0.204660260067	1270.397967797885
260	0.005147664922	4.545019685537	-1	0.207603253441	1276.116120183408
265	0.005079512900	4.553433995299	-1	0.210151677804	1317.854104678405
270	0.005018130735	4.634256385711	-1	0.212326601205	1395.593774764012
275	0.004963122501	4.787664505314	-1	0.214149352616	1513.905227160352

280	0.004914094445	5.020175819496	-1	0.215641393453	1682.569953756962
285	0.004870656983	5.345609014672	-1	0.216823928314	1918.759701226574
290	0.004832433706	5.787802191825	-1	0.217717622117	2251.714597903507
295	0.004799049317	6.386124099656	-1	0.218342763713	2732.385525226203
300	0.004770161346	7.207021946278	-1	0.218718561262	3454.775052315110
310	0.004724404244	10.090505127781	-1	0.218801521640	6603.271917041462
320	0.004692054001	17.945044963701	-1	0.218131034248	20119.987434975596
330	0.004670327073	98.033830632057	-1	0.216855410782	572950.351263878870
340	0.004656874818	26.595657508956	+1	0.215101196091	42990.085782558745
350	0.004649742400	11.100338838463	+1	0.212975351430	7780.924595153638
360	0.004647283148	6.794407442803	+1	0.210568116667	3025.519060861104
370	0.004648041355	4.791935246796	+1	0.207957477913	1560.546654593677
380	0.004650812647	3.644235370924	+1	0.205208231488	935.229232704109
390	0.004654632235	2.905721629747	+1	0.202373273990	615.753075318541
400	0.004658740438	2.394056515165	+1	0.199495483442	432.648963664096
410	0.004662551016	2.020839904718	+1	0.196608879258	318.927455442501
420	0.004665628606	1.737973858600	+1	0.193738564886	243.938876145119
430	0.004667646056	1.517199541832	+1	0.190904093409	192.156575607730
440	0.004668365174	1.340872539312	+1	0.188120996727	155.068532441601
450	0.004667615046	1.197419206176	+1	0.185401397020	127.705923761942
460	0.004665296413	1.078915056273	+1	0.182754124123	107.013311601052
470	0.004661384214	0.979699252715	+1	0.180183552587	91.023997297817
480	0.004655888901	0.895681536014	+1	0.177692322443	78.439240037036
490	0.004648837218	0.823850362832	+1	0.175282220110	68.377217482364
500	0.004640269624	0.761941175704	+1	0.172954358886	60.222819587534
510	0.004630244249	0.708208000283	+1	0.170708855318	53.535326152348
520	0.004618852615	0.661255355853	+1	0.168543748944	47.989189551513
530	0.004606190393	0.619982150553	+1	0.166456711183	43.343585149349
540	0.004592348107	0.583515989496	+1	0.164445555216	39.418303866043
550	0.004577409207	0.551157608768	+1	0.162508214542	36.076413096439
560	0.004561460466	0.522334550919	+1	0.160642477671	33.211755910255
570	0.004544599389	0.496560072871	+1	0.158845147539	30.739664229067
580	0.004526919318	0.473430621265	+1	0.157113111843	28.593336442851

590	0.004508504382	0.452612960909	+1	0.155443554201	26.719899713976
600	0.004489428775	0.433829864106	+1	0.153833958493	25.077095474996
610	0.004469764475	0.416846089615	+1	0.152281884342	23.630541716459
620	0.004449586744	0.401453847366	+1	0.150784436598	22.351422873146
630	0.004428964462	0.387475313476	+1	0.149338867606	21.216031114118
640	0.004407960431	0.374759576364	+1	0.147942731215	20.204890724765
650	0.004386628361	0.363177902837	+1	0.146593809175	19.301898635150
660	0.004365018351	0.352618435742	+1	0.145290024437	18.493524591134
670	0.004343181083	0.342979977408	+1	0.144029083151	17.768035775140
680	0.004321162922	0.334174017516	+1	0.142808838369	17.115488755336
690	0.004299005288	0.326123855461	+1	0.141627345246	16.527489289222
700	0.004276743028	0.318762849635	+1	0.140482867614	15.996930922307
710	0.004254408524	0.312032083950	+1	0.139373731196	15.517690969611
720	0.004232034699	0.305877375490	+1	0.138298238513	15.084333643823
730	0.004209649381	0.300250916659	+1	0.137254740786	14.692170772066
740	0.004187277607	0.295110161488	+1	0.136241751367	14.337136339418
750	0.004164942740	0.290417702286	+1	0.135257958020	14.015724738525
760	0.004142662067	0.286140305463	+1	0.134302052032	13.724885139774
770	0.004120456875	0.282246820083	+1	0.133372778895	13.461838435796
780	0.004098343017	0.278709310953	+1	0.132468900908	13.224145863717
790	0.004076334879	0.275502936400	+1	0.131589307881	13.009678052806
800	0.004054445031	0.272605298578	+1	0.130732964980	12.816553087498
810	0.004032685593	0.269996255780	+1	0.129898916225	12.643106180747
820	0.004011066306	0.267657154151	+1	0.129086199032	12.487829695506
830	0.003989596248	0.265571004891	+1	0.128293900828	12.349373887684
840	0.003968283324	0.263722315237	+1	0.127521150555	12.226529048408
850	0.003947133809	0.262097296425	+1	0.126767173757	12.118236915215
860	0.003926153899	0.260683163920	+1	0.126031240068	12.023534369001
870	0.003905347769	0.259468155402	+1	0.125312600292	11.941548469306
880	0.003884721672	0.258441373212	+1	0.124610566130	11.871479410235
890	0.003864277335	0.257593037868	+1	0.123924489816	11.812628801100
900	0.003844019113	0.256913984316	+1	0.123253775512	11.764347801706
910	0.003823949073	0.256395885805	+1	0.122597837398	11.726057352126

920	0.003804067662	0.256031130187	+1	0.121956115751	11.697238738929
930	0.003784377406	0.255812654067	+1	0.121328080645	11.677411516244
940	0.003764878145	0.255734047904	+1	0.120713240157	11.666153234150
950	0.003745570573	0.255789233598	+1	0.120111110810	11.663066170674
960	0.003726454886	0.255972577602	+1	0.119521248181	11.667789903783
970	0.003707531473	0.256278871681	+1	0.118943221791	11.679994304400
980	0.003688798896	0.256703384367	+1	0.118376603661	11.699386567253
990	0.003670258224	0.257241436890	+1	0.117821009071	11.725678027855
1000	0.003651909144	0.257888783463	+1	0.117276079714	11.758614798712
1025	0.003606863645	0.259960968606	+1	0.115958046062	11.868611219018
1050	0.003562981877	0.262643172469	+1	0.114699312506	12.015961193520
1075	0.003520237816	0.265892980471	+1	0.113495308946	12.198392348516
1100	0.003478604143	0.269672588703	+1	0.112341876353	12.413989166735
1125	0.003438051601	0.273949152984	+1	0.111235229426	12.661192831717
1150	0.003398546494	0.278699770488	+1	0.110172150832	12.939108337369
1175	0.003360053686	0.283905096686	+1	0.109149701859	13.247102995046
1200	0.003322541347	0.289546686048	+1	0.108165129267	13.584621079693
1225	0.003285978336	0.295608204538	+1	0.107215892978	13.951260602982
1250	0.003250329948	0.302080533261	+1	0.106299857572	14.347118326184
1275	0.003215562920	0.308956336620	+1	0.105415032507	14.772430144467
1300	0.003181646155	0.316228087276	+1	0.104559518053	15.227443175136
1325	0.003148551314	0.323889068268	+1	0.103731573668	15.712479687883
1350	0.003116246962	0.331937929279	+1	0.102929691137	16.228258654786
1375	0.003084704011	0.340374214783	+1	0.102152507885	16.775600310335
1400	0.003053896151	0.349197003403	+1	0.101398679208	17.355318488072
1425	0.003023797431	0.358405947208	+1	0.100666948208	17.968308652669
1450	0.002994382017	0.368005101609	+1	0.099956260311	18.615822688186
1475	0.002965624446	0.377999308859	+1	0.099265557368	19.299213917233
1500	0.002937501594	0.388393291347	+1	0.098593900595	20.019895252634
1550	0.002883074307	0.410403303826	+1	0.097304090228	21.579314728156
1600	0.002830930467	0.434100315549	+1	0.096080553780	23.308722850034
1650	0.002780920700	0.459559261363	+1	0.094917693312	25.224797535765
1700	0.002732903524	0.486879294433	+1	0.093810692796	27.347703496571

1750	0.002686752394	0.516172407361	+1	0.092755202118	29.700532899904
1800	0.002642349615	0.547573507664	+1	0.091747442942	32.310578262418
1850	0.002599590812	0.581234426909	+1	0.090783988687	35.209289374865
1900	0.002558376227	0.617337174522	+1	0.089861872139	38.434131531817
1950	0.002518611240	0.656091388841	+1	0.088978537663	42.029256873333
2000	0.002480181449	0.697758759944	+1	0.088132431504	46.049615619295
2100	0.002407148048	0.790798510767	+1	0.086539022239	55.601639206315
2200	0.002338775905	0.899143315299	+1	0.085065474977	67.724659767665
2300	0.002274601529	1.026439502812	+1	0.083699125032	83.340819259555
2400	0.002214228901	1.177571406648	+1	0.082428572774	103.804092596261
2500	0.002157316221	1.359236969856	+1	0.081243451821	131.161070566924
2600	0.002103566227	1.580933784596	+1	0.080134564311	168.623199488578
2700	0.002052717723	1.856823565868	+1	0.079094506088	221.495808028867
2800	0.002004538564	2.208772351577	+1	0.078116910693	299.002604387377
2900	0.001958819260	2.672319874763	+1	0.077196123124	418.283551392066
3000	0.001915372828	3.309342515270	+1	0.076327159676	614.086143771353
3100	0.001874029867	4.237965506326	+1	0.075505535823	965.617000659130
3200	0.001834642024	5.714941280409	+1	0.074727128867	1686.223265065066
3300	0.001797075287	8.424029450218	+1	0.073988258704	3523.358161434302
3400	0.001761206207	14.996156010707	+1	0.073285634998	10752.120541102644
3500	0.001727894179	51.009392994868	+1	0.072576470061	119945.169606223290
3600	0.001694119399	37.125547833088	-1	0.071977913128	64692.027491127381
3700	0.001662705020	13.748653048680	-1	0.071367790126	9356.949935766381
3800	0.001632594243	8.388693002728	-1	0.070783816506	3668.849867677973
3900	0.001603708005	6.012097270213	-1	0.070224060338	1982.258746660197
4000	0.001575972196	4.671048272708	-1	0.069686831702	1257.091247533183
4100	0.001549319014	3.810228265482	-1	0.069170628385	877.718257305976
4200	0.001523686983	3.211258058682	-1	0.068673927789	653.461801847791
4300	0.001499019191	2.770719016563	-1	0.068195350376	509.317768032517
4400	0.001475262591	2.433280205954	-1	0.067733685304	410.824684377592
4500	0.001452366925	2.166655944276	-1	0.067287872744	340.308941651823
4600	0.001430285807	1.950753729298	-1	0.066856977056	287.932297723789
4700	0.001408976512	1.772453473335	-1	0.066440019849	247.862830374869

4800	0.001388399977	1.622795813654	-1	0.066036109658	216.452497441096
4900	0.001368518607	1.495446581222	-1	0.065644450115	191.320006341941
5000	0.001349297661	1.385798109077	-1	0.065264376524	170.854998417820
5500	0.001262026894	1.007934095132	-1	0.063516477667	108.630430473725
6000	0.001187176587	0.786645963966	-1	0.061975845342	78.126012247961
6500	0.001122237211	0.642060091063	-1	0.060598036986	60.534093284094
7000	0.001065341079	0.540627641533	-1	0.059350381467	49.276569343373
7500	0.001015062103	0.465801860508	-1	0.058209022912	41.531636587712
8000	0.000970293980	0.408494366523	-1	0.057156077032	35.911973063283
8500	0.000930164721	0.363306978336	-1	0.056177854293	31.664945153469
9000	0.000893978359	0.326836981034	-1	0.055263602252	28.350597612994
9500	0.000861172510	0.296835695698	-1	0.054404814460	25.696215344381
10000	0.000831287726	0.271759899806	-1	0.053594542909	23.524564621219
10500	0.000803943807	0.250513548187	-1	0.052827290092	21.715712030825
11000	0.000778827617	0.232308798076	-1	0.052097875911	20.186558070298
11500	0.000755670943	0.216545421492	-1	0.051402835036	18.876514302840
12000	0.000734250947	0.202779012196	-1	0.050738481215	17.741778485612
12500	0.000714375399	0.190659800698	-1	0.050102158603	16.749032821812
13000	0.000695881019	0.179918698135	-1	0.049491143512	15.873131028164
13500	0.000678625814	0.170337441781	-1	0.048903472771	15.094242589747
14000	0.000662487288	0.161744088225	-1	0.048337100764	14.396972597654
14500	0.000647357851	0.153996168826	-1	0.047790468486	13.768847023117
15000	0.000633144711	0.146979257747	-1	0.047262017781	13.199957298910
16000	0.000607144148	0.134768086264	-1	0.046254671996	12.208489777485
17000	0.000583932942	0.124515743775	-1	0.045306118148	11.372763813167
18000	0.000563073717	0.115796634276	-1	0.044409147601	10.657901697521
19000	0.000544215526	0.108298741759	-1	0.043557773901	10.038757709982
20000	0.000527073785	0.101788261986	-1	0.042747069719	9.496754784535
21000	0.000440073790	0.077522613368	-1	0.048756356347	9.724733078291
22000	0.000423580941	0.072605054095	-1	0.048424584501	9.352098046925
23000	0.000407796349	0.067873115704	-1	0.048144463522	8.986122802574
24000	0.000392898541	0.063454447381	-1	0.047913947233	8.640038717644
25000	0.000379044065	0.059468850549	-1	0.047719749935	8.326391602756

26000	0.000366322686	0.055993908367	-1	0.047540496663	8.053719748261
27000	0.000354615663	0.052967096028	-1	0.047365625084	7.817107669510
28000	0.000343767418	0.050297994771	-1	0.047192747008	7.608857111539
29000	0.000333637111	0.047903475697	-1	0.047024534227	7.421844720311
30000	0.000324096750	0.045707138753	-1	0.046868335101	7.249454534149
31000	0.000315043557	0.043649193200	-1	0.046732998409	7.086510697160
32000	0.000306439023	0.041715792479	-1	0.046618387966	6.932072452716
33000	0.000298261821	0.039904321263	-1	0.046521463270	6.786230034415
34000	0.000290492884	0.038212406906	-1	0.046438804007	6.649077967039
35000	0.000283115031	0.036637871435	-1	0.046366604940	6.520716008408
36000	0.000276110033	0.035176984305	-1	0.046301258943	6.401072091157
37000	0.000269450586	0.033819471648	-1	0.046241456040	6.289388857801
38000	0.000263108806	0.032554029074	-1	0.046186958568	6.184776445213
39000	0.000257058832	0.031370026127	-1	0.046138107272	6.086386208138
40000	0.000251276604	0.030257471045	-1	0.046095801856	5.993408018847
41000	0.000245740740	0.029207788098	-1	0.046061032869	5.905150128141
42000	0.000240435641	0.028216166597	-1	0.046033266884	5.821270122336
43000	0.000235347818	0.027278850599	-1	0.046011652609	5.741518934881
44000	0.000230464775	0.026392271314	-1	0.045995455233	5.665653167005
45000	0.000225774864	0.025553037263	-1	0.045984064384	5.593436955046
46000	0.000221267138	0.024757917734	-1	0.045976993474	5.524641671524
47000	0.000216931133	0.024003842545	-1	0.045973822481	5.459043974306
48000	0.000212756961	0.023287876250	-1	0.045974268958	5.396426782984
49000	0.000208735387	0.022607217101	-1	0.045978193610	5.336577689140
50000	0.000204857690	0.021959200270	-1	0.045985561286	5.279288437074
55000	0.000187372194	0.019136590237	-1	0.046069633157	5.025838428844
60000	0.000172526579	0.016869654224	-1	0.046215048508	4.816964908143
65000	0.000159758011	0.015015235235	-1	0.046406650961	4.641834939062
70000	0.000148655179	0.013474737660	-1	0.046633311427	4.492881126085
75000	0.000138909698	0.012177956410	-1	0.046887788215	4.364697113840
80000	0.000130284312	0.011074327583	-1	0.047160874283	4.253182442895
85000	0.000122597792	0.010125459183	-1	0.047450625580	4.155359477928
90000	0.000115702805	0.009302643211	-1	0.047752090234	4.068890472289

95000	0.000109483420	0.008583563424	-1	0.048062965647	3.991957848551
100000	0.000103845657	0.007950973287	-1	0.048379380010	3.923039865738
105000	0.000098711354	0.007390874690	-1	0.048700468933	3.860999416058
110000	0.000094016677	0.006892371334	-1	0.049024046604	3.804920746064
115000	0.000089707658	0.006446265969	-1	0.049349248779	3.753962125704
120000	0.000085739311	0.006045316154	-1	0.049674491641	3.707493374068
125000	0.000082073030	0.005683346950	-1	0.049999221513	3.664954624983
130000	0.000078676078	0.005355349200	-1	0.050322471625	3.625904162264
135000	0.000075520015	0.005056991281	-1	0.050644039214	3.589940760404
140000	0.000072580501	0.004784714590	-1	0.050963356151	3.556744037472
145000	0.000069835965	0.004535386238	-1	0.051280712129	3.526032963324
150000	0.000067267658	0.004306392020	-1	0.051596163738	3.497585796488
155000	0.000064865444	0.004096349086	-1	0.051898076727	3.470779475789
160000	0.000062609575	0.003902538907	-1	0.052195497545	3.445760765396
165000	0.000060487354	0.003723264690	-1	0.052488326765	3.422356202281
170000	0.000058485291	0.003556771493	-1	0.052781092136	3.400586849943
175000	0.000056594116	0.003401888149	-1	0.053072520432	3.380275338804
180000	0.000054806896	0.003257767649	-1	0.053358250831	3.361162865043
185000	0.000053115329	0.003123373746	-1	0.053638707600	3.343156418062
190000	0.000051512173	0.002997846964	-1	0.053913691329	3.326178349610
195000	0.000049990864	0.002880399861	-1	0.054183196818	3.310146178681
200000	0.000048545264	0.002770264892	-1	0.054447941769	3.294965112312
205000	0.000047169805	0.002666755128	-1	0.054708764808	3.280548557380
210000	0.000045859819	0.002569381026	-1	0.054965106339	3.266855513232
215000	0.000044611084	0.002477715981	-1	0.055216179543	3.253853613404
220000	0.000043419704	0.002391356897	-1	0.055461376842	3.241506670521
225000	0.000042282057	0.002309920852	-1	0.055700284098	3.229774558792
230000	0.000041194757	0.002233044154	-1	0.055932728712	3.218616649543
235000	0.000040154663	0.002160381878	-1	0.056158747164	3.207988367799
240000	0.000039158824	0.002091605929	-1	0.056378642699	3.197845602075
245000	0.000038204486	0.002026405113	-1	0.056592951013	3.188142406035
250000	0.000037289062	0.001964483979	-1	0.056802469504	3.178833080348
255000	0.000036410174	0.001905578346	-1	0.057007970103	3.169878337024

260000	0.000035565805	0.001849501965	-1	0.057209299846	3.161262313869
265000	0.000034754130	0.001796093932	-1	0.057406081462	3.152972112366
270000	0.000033973427	0.001745200609	-1	0.057598021526	3.144994516976
275000	0.000033222082	0.001696674961	-1	0.057784897784	3.137313389880
280000	0.000032498561	0.001650375926	-1	0.057966600310	3.129913386790
285000	0.000031801435	0.001606169124	-1	0.058143090263	3.122776640951
290000	0.000031129357	0.001563927218	-1	0.058314370037	3.115883331924
295000	0.000030481079	0.001523530929	-1	0.058480432039	3.109210186599
300000	0.000029855434	0.001484869907	-1	0.058641209035	3.102731411651

Electron Elastic Scattering Sampling Data
Solution for Z = 64

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.023838128513	4.025195001015	+1	0.047074743336	40.941665999845
52	0.022637510030	1.912177784145	+1	0.040573811630	10.172554337251
54	0.021542256336	1.092281788779	+1	0.035041281070	3.771191471347
56	0.020535301911	0.679638167117	+1	0.030456568373	1.711110555289
58	0.019605959358	0.443345484303	+1	0.026727423384	0.879052332328
60	0.018747178199	0.297580109347	+1	0.023733904107	0.491514945951
62	0.017953835703	0.203454539245	+1	0.021354916736	0.292337418286
64	0.017221626402	0.140883086688	+1	0.019480695785	0.182288204686
66	0.016546780785	0.098537564937	+1	0.018018525094	0.118084202128
68	0.015925657533	0.069564728523	+1	0.016892391611	0.079018166802
70	0.015354667372	0.049613211532	+1	0.016041231783	0.054453933996
72	0.014830403211	0.035832639906	+1	0.015416862715	0.038615848338
74	0.014349453703	0.026304752046	+1	0.014981372514	0.028209458177
76	0.013908617031	0.019724454651	+1	0.014705092303	0.021286614369
78	0.013504812998	0.015196406029	+1	0.014564878253	0.016659247947
80	0.013135100664	0.012105372617	+1	0.014542640637	0.013586530252
82	0.012796764580	0.010031655993	+1	0.014624318741	0.011602696571
84	0.012487203311	0.008691060202	+1	0.014799001253	0.010415587408
86	0.012204022156	0.007895426050	+1	0.015058271753	0.009848828877
88	0.011944986145	0.007524003662	+1	0.015395701526	0.009806174160
90	0.011708002569	0.007503841955	+1	0.015806454120	0.010250530387
92	0.011491159177	0.007796095352	+1	0.016286903438	0.011191645621
94	0.011292651495	0.008386235325	+1	0.016834453626	0.012679249605
96	0.011110831014	0.009277395991	+1	0.017447244790	0.014800020350
98	0.010944179562	0.010485621855	+1	0.018124035536	0.017677148891
100	0.010791292492	0.012036254569	+1	0.018864010438	0.021471248618
105	0.010461018687	0.017635920040	+1	0.020988197336	0.036398561354
110	0.010191122746	0.026213753295	+1	0.023504326281	0.062895408497

115	0.009967290634	0.038513945875	+1	0.026416306038	0.107806442205
120	0.009777651138	0.055361806029	+1	0.029729683643	0.181321320270
125	0.009612547184	0.077683067444	+1	0.033449395146	0.298529926199
130	0.009464089872	0.106529631027	+1	0.037578308610	0.481765356603
135	0.009325894683	0.143149465501	+1	0.042115999929	0.764372446352
140	0.009192887704	0.189055243491	+1	0.047057806516	1.196546956435
145	0.009061088851	0.246147783079	+1	0.052393812413	1.854896759452
150	0.008927552180	0.316859392662	+1	0.058108296600	2.857924720406
155	0.008790166583	0.404386485763	+1	0.064178915072	4.392227983088
160	0.008647641198	0.513010523478	+1	0.070576743834	6.757392818737
165	0.008499315129	0.648611321690	+1	0.077265778954	10.446091450196
170	0.008345144603	0.819483665947	+1	0.084204011270	16.292188590432
175	0.008185529571	1.037677414639	+1	0.091343133931	25.756482364028
180	0.008021277124	1.321350699260	+1	0.098629880560	41.509832946243
185	0.007853456650	1.699163395897	+1	0.106007202820	68.708020135238
190	0.007683338778	2.219375692202	+1	0.113418338410	118.057331278000
195	0.007512285007	2.969147984184	+1	0.120804201024	213.945502566720
200	0.007341759879	4.121294316765	+1	0.128099543761	419.292436945736
205	0.007173207491	6.076211290235	+1	0.135241337401	930.744840598104
210	0.007007898006	10.036817882992	+1	0.142182787829	2601.785808043281
215	0.006846932347	21.985972160813	+1	0.148884199785	12823.572169920348
220	0.006813559399	52.116557394161	+1	0.153440867810	73141.907923560007
225	0.006541688531	25.852233215438	-1	0.161427653477	20295.242433588617
230	0.006398873081	13.634740999723	-1	0.167210705356	6221.387333503449
235	0.006263339539	9.658582897569	-1	0.172635876222	3408.235855039749
240	0.006135488089	7.740197030169	-1	0.177684434956	2367.982719988921
245	0.006015606592	6.652838339997	-1	0.182341877088	1876.117484420860
250	0.005903876681	5.991044198915	-1	0.186597587313	1617.898900648933
255	0.005800344900	5.583037288945	-1	0.190447315721	1482.043611854150
260	0.005704807744	5.342700510363	-1	0.193900510556	1420.737366072159
265	0.005616967041	5.224814970719	-1	0.196971273647	1412.325192235709
270	0.005536494287	5.205902819495	-1	0.199675222770	1447.858930199460
275	0.005463037743	5.275394705182	-1	0.202028913142	1525.885924548293

280	0.005396234635	5.431946627754	-1	0.204049557222	1650.895085341051
285	0.005335719983	5.682417714743	-1	0.205754632636	1833.823626599566
290	0.005281128196	6.042901917704	-1	0.207161659972	2094.631762083639
295	0.005232099399	6.542121282312	-1	0.208288063630	2468.123905691583
300	0.005188284756	7.228783701956	-1	0.209150887688	3016.447250953685
310	0.005114803416	9.562938882291	-1	0.210158408154	5228.032781998185
320	0.005057459670	15.126187126365	-1	0.210340398922	12782.641748323100
330	0.005013301393	40.658933199349	-1	0.209841336976	89278.161503712210
340	0.004979795803	52.570635335424	+1	0.208787137761	148494.907119512270
350	0.004954795537	14.962509311972	+1	0.207286128800	12542.586819096154
360	0.004936459571	8.386067479285	+1	0.205431804015	4102.270932171278
370	0.004923119922	5.679987822343	+1	0.203307455309	1957.097102281400
380	0.004913373770	4.218064355858	+1	0.200983763329	1121.294192649807
390	0.004906075849	3.309965826721	+1	0.198519287584	716.716229518750
400	0.004900301129	2.695439648278	+1	0.195962302068	492.999072779271
410	0.004895312694	2.254674364089	+1	0.193352022710	357.564819256440
420	0.004890532110	1.924842208865	+1	0.190718882210	269.970922802473
430	0.004885506331	1.669972728399	+1	0.188087369827	210.397404328500
440	0.004879883203	1.468041029929	+1	0.185477229788	168.249724054126
450	0.004873397703	1.304825131400	+1	0.182904436778	137.467007353812
460	0.004865863888	1.170718570441	+1	0.180381156468	114.384508927892
470	0.004857182545	1.058947118085	+1	0.177914895450	96.677681984525
480	0.004847296836	0.964662058777	+1	0.175511017422	82.829091660081
490	0.004836180360	0.884317128833	+1	0.173173653885	71.817749866121
500	0.004823817827	0.815265213366	+1	0.170906040188	62.937840673542
510	0.004810235051	0.755473280159	+1	0.168709959317	55.686654395984
520	0.004795484866	0.703332416349	+1	0.166585039400	49.696356564980
530	0.004779635225	0.657577750145	+1	0.164530338782	44.696215194046
540	0.004762749656	0.617211271161	+1	0.162544820314	40.484696641026
550	0.004744892510	0.581434753472	+1	0.160627444194	36.909236673732
560	0.004726130609	0.549597551384	+1	0.158776834346	33.852146274301
570	0.004706547682	0.521148895462	+1	0.156990569914	31.220006265347
580	0.004686225286	0.495633755090	+1	0.155266150199	28.939392559958

590	0.004665236798	0.472677255597	+1	0.153601311331	26.952382329979
600	0.004643649707	0.451967717755	+1	0.151994049684	25.212770375044
610	0.004621526664	0.433241338656	+1	0.150442307788	23.683090936449
620	0.004598939532	0.416265699626	+1	0.148943546690	22.332033506141
630	0.004575952171	0.400842555286	+1	0.147495309007	21.133932935044
640	0.004552624054	0.386803598751	+1	0.146095384232	20.067723968905
650	0.004529004953	0.374005703761	+1	0.144741815909	19.116054605414
660	0.004505142725	0.362324512467	+1	0.143432703688	18.264351835935
670	0.004481087219	0.351647874683	+1	0.142165903900	17.500020132978
680	0.004456884056	0.341878008455	+1	0.140939424155	16.812421477998
690	0.004432571150	0.332930139649	+1	0.139751400350	16.192585256265
700	0.004408185217	0.324730687989	+1	0.138600215348	15.632916164785
710	0.004383755600	0.317214859298	+1	0.137484303060	15.126910567605
720	0.004359315372	0.310322727225	+1	0.136402000130	14.668765540467
730	0.004334891709	0.304001468565	+1	0.135351716725	14.253490922491
740	0.004310509571	0.298204388439	+1	0.134332004189	13.876777175770
750	0.004286190564	0.292890302524	+1	0.133341581407	13.534909155560
760	0.004261954491	0.288022529407	+1	0.132379208570	13.224642205469
770	0.004237819695	0.283567029162	+1	0.131443647730	12.943056295898
780	0.004213805567	0.279493239510	+1	0.130533731472	12.687575451169
790	0.004189927452	0.275773838239	+1	0.129648388948	12.455947769688
800	0.004166198703	0.272384495758	+1	0.128786628778	12.246201948577
810	0.004142630256	0.269303314378	+1	0.127947529645	12.056599175884
820	0.004119229018	0.266509455078	+1	0.127129998732	11.885523365771
830	0.004095999318	0.263984552157	+1	0.126333043239	11.731572127210
840	0.004072947379	0.261711603042	+1	0.125555721752	11.593468273178
850	0.004050075041	0.259675315864	+1	0.124797134264	11.470087379356
860	0.004027388167	0.257861909621	+1	0.124056555580	11.360429823335
870	0.004004902521	0.256258613088	+1	0.123333555270	11.263584135642
880	0.003982635158	0.254853813991	+1	0.122627797818	11.178733594170
890	0.003960601599	0.253637054660	+1	0.121938995453	11.105154777755
900	0.003938813858	0.252598675960	+1	0.121266853090	11.042195058155
910	0.003917277916	0.251729710951	+1	0.120610930671	10.989257009986

920	0.003895975924	0.251021437276	+1	0.119970095247	10.945765990817
930	0.003874884226	0.250465656070	+1	0.119343103471	10.911192526290
940	0.003853981651	0.250054735665	+1	0.118728772230	10.885047049137
950	0.003833249645	0.249781583643	+1	0.118126010411	10.866879658728
960	0.003812675154	0.249639771976	+1	0.117533969142	10.856292660186
970	0.003792274304	0.249623881137	+1	0.116952636500	10.852951791724
980	0.003772065504	0.249729163787	+1	0.116382203642	10.856578036996
990	0.003752068094	0.249951116784	+1	0.115822848131	10.866905689427
1000	0.003732297621	0.250285587934	+1	0.115274727805	10.883700272047
1025	0.003683908914	0.251589050707	+1	0.113952998948	10.952585335972
1050	0.003636932497	0.253516705794	+1	0.112695318983	11.057525226502
1075	0.003591275460	0.256020210536	+1	0.111495183668	11.195966851104
1100	0.003546856513	0.259056672980	+1	0.110346776573	11.365739104038
1125	0.003503607984	0.262589180434	+1	0.109245124372	11.565070931851
1150	0.003461497836	0.266591651493	+1	0.108187051733	11.792880570851
1175	0.003420499514	0.271042403480	+1	0.107169955349	12.048390370106
1200	0.003380588672	0.275920985751	+1	0.106191370087	12.330911115394
1225	0.003341733910	0.281209651170	+1	0.105248969066	12.639949052436
1250	0.003303897724	0.286896798741	+1	0.104340515405	12.975388708426
1275	0.003267037273	0.292972862645	+1	0.103463857730	13.337272881131
1300	0.003231116126	0.299428106179	+1	0.102616950255	13.725636731008
1325	0.003196099028	0.306253982157	+1	0.101797923811	14.140611028500
1350	0.003161951874	0.313447096662	+1	0.101005247580	14.582678791112
1375	0.003128642197	0.321005056119	+1	0.100237501050	15.052414398366
1400	0.003096139281	0.328925302883	+1	0.099493312413	15.550406742322
1425	0.003064415683	0.337205487882	+1	0.098771401522	16.077278527867
1450	0.003033441729	0.345847693637	+1	0.098070666405	16.633986453387
1475	0.003003189595	0.354854652534	+1	0.097390049046	17.221564928030
1500	0.002973632790	0.364228732388	+1	0.096728551310	17.841071840716
1550	0.002916507763	0.384092133649	+1	0.095459211518	19.180599811866
1600	0.002861877769	0.405482831204	+1	0.094256218937	20.663813084144
1650	0.002809572727	0.428454291552	+1	0.093113824575	22.303523579853
1700	0.002759435555	0.453082699055	+1	0.092027050662	24.115340124059

1750	0.002711325262	0.479454745408	+1	0.090991400453	26.117050181376
1800	0.002665107926	0.507675390624	+1	0.090003034991	28.329601494832
1850	0.002620666976	0.537861982818	+1	0.089058508683	30.776884578372
1900	0.002577890627	0.570157952553	+1	0.088154788631	33.487344162587
1950	0.002536680661	0.604722252164	+1	0.087289107004	36.493588614400
2000	0.002496946552	0.641724692420	+1	0.086458775382	39.832512914643
2100	0.002421575902	0.723859903509	+1	0.084894923437	47.689059026896
2200	0.002351177812	0.818653665681	+1	0.083448485502	57.518349215534
2300	0.002285236630	0.928860842255	+1	0.082107090650	69.970937068465
2400	0.002223242311	1.058250586624	+1	0.080862196338	86.000386117395
2500	0.002164893822	1.211508678279	+1	0.079700929697	106.948277721021
2600	0.002109868235	1.395219908010	+1	0.078614180527	134.858011729544
2700	0.002057880822	1.618888556652	+1	0.077594739382	172.954334669553
2800	0.002008679145	1.896547072542	+1	0.076636459155	226.529554955792
2900	0.001962037710	2.249720560034	+1	0.075733857136	304.725648139546
3000	0.001917755644	2.713194882944	+1	0.074882068533	424.408549304979
3100	0.001875652151	3.347090044913	+1	0.074076716434	619.450529621573
3200	0.001835569864	4.264866927174	+1	0.073313808242	966.003288176325
3300	0.001797366189	5.709635751965	+1	0.072589761577	1665.307269909810
3400	0.001760910959	8.313469055413	+1	0.071901364857	3400.441308097880
3500	0.001726085678	14.394240709049	+1	0.071245796114	9830.919790666512
3600	0.001692781768	44.816202599434	+1	0.070620525667	92014.548111132943
3700	0.001660902088	45.457594872128	-1	0.070023176814	95580.237997811477
3800	0.001630357734	15.040506593609	-1	0.069451608785	11026.393962475768
3900	0.001601066343	8.959312377845	-1	0.068903917686	4117.649187952190
4000	0.001572951727	6.354625197348	-1	0.068378458872	2177.370277015487
4100	0.001545942557	4.908671317773	-1	0.067873736714	1364.006912814292
4200	0.001519975936	3.989524088782	-1	0.067388273518	944.859741561541
4300	0.001494992816	3.354051576741	-1	0.066920709007	699.547808964717
4400	0.001470938436	2.888739218778	-1	0.066469852063	542.976050995977
4500	0.001447760925	2.533465824468	-1	0.066034661794	436.547990968387
4600	0.001425412741	2.253437546389	-1	0.065614198402	360.661971943679
4700	0.001403850217	2.027157162952	-1	0.065207523037	304.491275791118

4800	0.001383032793	1.840603685013	-1	0.064813730246	261.641796418702
4900	0.001362922319	1.684225413973	-1	0.064432044103	228.130399662850
5000	0.001343483006	1.551292496944	-1	0.064061821290	201.368163461785
5500	0.001255254521	1.104926472602	-1	0.062361291464	123.075973305489
6000	0.001179606755	0.851601158203	-1	0.060867084126	86.534617081750
6500	0.001114002739	0.689252972333	-1	0.059533231548	66.087534144156
7000	0.001056553061	0.576863669353	-1	0.058326158028	53.269702761541
7500	0.001005795539	0.494720059951	-1	0.057223478570	44.579847917282
8000	0.000960607906	0.432246250101	-1	0.056207446864	38.344501628659
8500	0.000920106623	0.383253650868	-1	0.055264498735	33.673367870975
9000	0.000883587901	0.343885787381	-1	0.054384028365	30.053830622477
9500	0.000850482332	0.311617506934	-1	0.053557584278	27.171983311800
10000	0.000820326114	0.284728345540	-1	0.052778368811	24.825826356752
10500	0.000792735586	0.262004406247	-1	0.052040934413	22.879812945668
11000	0.000767394385	0.242576976897	-1	0.051340192397	21.240664946054
11500	0.000744032651	0.225787856889	-1	0.050672740384	19.840806996566
12000	0.000722425333	0.211151007184	-1	0.050034959257	18.631626973110
12500	0.000702378945	0.198285550352	-1	0.049424237274	17.576330571713
13000	0.000683729115	0.186899045566	-1	0.048837912049	16.647250288639
13500	0.000666332608	0.176755113835	-1	0.048274058486	15.822664950178
14000	0.000650066374	0.167667849029	-1	0.047730678836	15.085753350875
14500	0.000634821792	0.159483673354	-1	0.047206237691	14.422943834875
15000	0.000620505163	0.152079318997	-1	0.046699191125	13.823472040788
16000	0.000594331673	0.139212061386	-1	0.045732522063	12.780550334779
17000	0.000570988657	0.128427953245	-1	0.044821934327	11.903214612259
18000	0.000550034839	0.119271600422	-1	0.043960383815	11.153960651877
19000	0.000531115968	0.111409806052	-1	0.043142082139	10.505853262410
20000	0.000513944344	0.104593417886	-1	0.042362218519	9.939052694510
21000	0.000438043465	0.081428451239	-1	0.047683858839	10.061362818195
22000	0.000421642391	0.076258436609	-1	0.047348921905	9.670598477382
23000	0.000405948321	0.071287599154	-1	0.047063397414	9.287360801159
24000	0.000391138223	0.066648903805	-1	0.046825602507	8.925353248529
25000	0.000377366662	0.062466669643	-1	0.046623169409	8.597525644807

26000	0.000364721492	0.058820876595	-1	0.046436002723	8.312645240831
27000	0.000353084127	0.055645320552	-1	0.046253998741	8.065507887895
28000	0.000342299806	0.052844976785	-1	0.046074776517	7.848049958488
29000	0.000332228846	0.050332707181	-1	0.045900742854	7.652824203402
30000	0.000322744375	0.048028577843	-1	0.045738732398	7.472928972222
31000	0.000313744681	0.045870101445	-1	0.045597023914	7.302970616053
32000	0.000305191469	0.043842678231	-1	0.045475440374	7.141953528809
33000	0.000297063433	0.041943408547	-1	0.045371088232	6.989953322465
34000	0.000289341410	0.040169677674	-1	0.045280700883	6.847053795595
35000	0.000282008180	0.038519073681	-1	0.045200672053	6.713344540480
36000	0.000275045456	0.036987570190	-1	0.045127585700	6.588737377419
37000	0.000268426103	0.035564387006	-1	0.045060168035	6.472438401769
38000	0.000262122340	0.034237668727	-1	0.044998168513	6.363518490686
39000	0.000256108534	0.032996283218	-1	0.044941881742	6.261090355436
40000	0.000250360818	0.031829781113	-1	0.044892133271	6.164309754267
41000	0.000244857971	0.030729188513	-1	0.044849836743	6.072455002882
42000	0.000239584466	0.029689457384	-1	0.044814466826	5.985167795467
43000	0.000234526928	0.028706641560	-1	0.044785198637	5.902185237438
44000	0.000229672903	0.027776988234	-1	0.044761322592	5.823251701848
45000	0.000225010805	0.026896942107	-1	0.044742244310	5.748120695451
46000	0.000220529738	0.026063108344	-1	0.044727496231	5.676552600177
47000	0.000216219315	0.025272270947	-1	0.044716667710	5.608314153079
48000	0.000212069730	0.024521352975	-1	0.044709474800	5.543177250694
49000	0.000208071774	0.023807424322	-1	0.044705767797	5.480921269251
50000	0.000204216801	0.023127688459	-1	0.044705520745	5.421329540599
55000	0.000186833074	0.020166381827	-1	0.044751474256	5.157688065882
60000	0.000172072235	0.017787197945	-1	0.044859030942	4.940392030935
65000	0.000159375193	0.015840230749	-1	0.045013085110	4.758152292582
70000	0.000148332947	0.014222214782	-1	0.045202591612	4.603100042044
75000	0.000138639084	0.012859842350	-1	0.045419234321	4.469575122936
80000	0.000130059508	0.011699703756	-1	0.045656701027	4.353392268596
85000	0.000122411598	0.010701851827	-1	0.045911174459	4.251438111694
90000	0.000115550584	0.009836378528	-1	0.046176895841	4.161221352099

95000	0.000109361709	0.009080005134	-1	0.046450555907	4.080812235439
100000	0.000103750227	0.008414168779	-1	0.046731898424	4.008800199673
105000	0.000098639229	0.007824425364	-1	0.047018404426	3.943920941536
110000	0.000093965371	0.007299400541	-1	0.047307481460	3.885207364533
115000	0.000089674823	0.006829421083	-1	0.047598489135	3.831805091581
120000	0.000085722868	0.006406877824	-1	0.047889994915	3.783064796399
125000	0.000082071181	0.006025289498	-1	0.048181472432	3.738405475540
130000	0.000078687209	0.005679397923	-1	0.048472009327	3.697370667098
135000	0.000075542562	0.005364635094	-1	0.048761600825	3.659551436231
140000	0.000072612323	0.005077158385	-1	0.049050799847	3.624657938477
145000	0.000069880840	0.004814595340	-1	0.049330462171	3.592054107520
150000	0.000067325993	0.004573621297	-1	0.049605622372	3.561697338105
155000	0.000064930882	0.004351747122	-1	0.049877194391	3.533395617031
160000	0.000062679895	0.004146743318	-1	0.050147564793	3.507054920988
165000	0.000060560134	0.003956793084	-1	0.050417547804	3.482525251590
170000	0.000058562720	0.003780721351	-1	0.050682579462	3.459506129524
175000	0.000056677409	0.003617132706	-1	0.050942948909	3.437871718781
180000	0.000054895219	0.003464835152	-1	0.051198646434	3.417508139009
185000	0.000053208093	0.003322768422	-1	0.051449723018	3.398307148623
190000	0.000051608906	0.003190035681	-1	0.051695896698	3.380182353579
195000	0.000050091146	0.003065813066	-1	0.051937108377	3.363047491406
200000	0.000048648737	0.002949298360	-1	0.052173949952	3.346802337787
205000	0.000047276154	0.002839769894	-1	0.052407166985	3.331355253018
210000	0.000045968754	0.002736712251	-1	0.052636237032	3.316663554119
215000	0.000044722331	0.002639676444	-1	0.052860434449	3.302695059032
220000	0.000043533006	0.002548237211	-1	0.053079203385	3.289412320150
225000	0.000042397172	0.002461991375	-1	0.053292170251	3.276774682603
230000	0.000041311471	0.002380555734	-1	0.053499179006	3.264739352230
235000	0.000040272759	0.002303566846	-1	0.053700290329	3.253262781056
240000	0.000039278121	0.002230679716	-1	0.053895767725	3.242297227551
245000	0.000038324815	0.002161567436	-1	0.054086107632	3.231796083958
250000	0.000037410265	0.002095918093	-1	0.054272071599	3.221712298876
255000	0.000036532113	0.002033453854	-1	0.054454374035	3.212004663672

260000	0.000035688361	0.001973979161	-1	0.054632845168	3.202655404685
265000	0.000034877186	0.001917323815	-1	0.054807153219	3.193651973347
270000	0.000034096873	0.001863325981	-1	0.054977019562	3.184980558147
275000	0.000033345824	0.001811830591	-1	0.055142237901	3.176623656779
280000	0.000032622508	0.001762688548	-1	0.055302719693	3.168565930934
285000	0.000031925507	0.001715758604	-1	0.055458411758	3.160788001528
290000	0.000031253478	0.001670905831	-1	0.055609338737	3.153269915263
295000	0.000030605165	0.001628002537	-1	0.055755563787	3.145989693300
300000	0.000029979386	0.001586928841	-1	0.055897151237	3.138923361214

Electron Elastic Scattering Sampling Data
Solution for Z = 65

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.022675789837	1.202734153256	+1	0.054096661771	6.533637557659
52	0.021359448921	1.002421042277	+1	0.049945581287	4.837104947217
54	0.020196197547	0.809248279733	+1	0.045908367967	3.419230743973
56	0.019158156646	0.641871422713	+1	0.042116324516	2.373173943336
58	0.018224246384	0.504675446985	+1	0.038648676606	1.645184075123
60	0.017378551790	0.395395225590	+1	0.035542741344	1.150006853366
62	0.016608969620	0.309609759205	+1	0.032805930680	0.814514189603
64	0.015906054753	0.242718911824	+1	0.030425524508	0.585756884951
66	0.015262427413	0.190745335038	+1	0.028378173162	0.428112649854
68	0.014672072582	0.150427663517	+1	0.026634904118	0.318086488176
70	0.014129945088	0.119174716259	+1	0.025165063030	0.240278478465
72	0.013631816407	0.094971570006	+1	0.023939111080	0.184583810637
74	0.013173925548	0.076243117143	+1	0.022929513850	0.144271575196
76	0.012752995696	0.061771635729	+1	0.022111668917	0.114825073117
78	0.012366076172	0.050611432665	+1	0.021463917260	0.093165129824
80	0.012010457253	0.042029670595	+1	0.020967545279	0.077168850333
82	0.011683720622	0.035460687449	+1	0.020606506145	0.065358486785
84	0.011383593384	0.030467829030	+1	0.020367188456	0.056695478877
86	0.011108012036	0.026717587680	+1	0.020238170994	0.050450456099
88	0.010855061285	0.023956299808	+1	0.020209880684	0.046111652493
90	0.010622953866	0.021993244158	+1	0.020274368680	0.043325714816
92	0.010410057465	0.020687755532	+1	0.020425089924	0.041858322265
94	0.010214825918	0.019937823787	+1	0.020656677416	0.041565426790
96	0.010035838613	0.019672649977	+1	0.020964800003	0.042376550333
98	0.009871781286	0.019845556500	+1	0.021345937708	0.044281463162
100	0.009721421618	0.020429540394	+1	0.021797343321	0.047324386934
105	0.009398123607	0.023639064290	+1	0.023220240314	0.060637815239
110	0.009137510049	0.029475795705	+1	0.025048035809	0.084546166001

115	0.008926416641	0.038338531181	+1	0.027271174222	0.123922408494
120	0.008753653198	0.050806656685	+1	0.029886875136	0.186263218985
125	0.008609905205	0.067604277423	+1	0.032896185389	0.282706195264
130	0.008487344275	0.089579621037	+1	0.036300984494	0.429539304142
135	0.008379448006	0.117738055510	+1	0.040102844465	0.650680772425
140	0.008280810294	0.153274264029	+1	0.044301278888	0.981392560869
145	0.008186984936	0.197655380269	+1	0.048892916959	1.474320704558
150	0.008094424628	0.252711303873	+1	0.053870398780	2.208960900212
155	0.008000329129	0.320796095229	+1	0.059221802751	3.307430304133
160	0.007902647930	0.404989242551	+1	0.064929846835	4.960499952419
165	0.007799924675	0.509433343494	+1	0.070971586765	7.472950314510
170	0.007691318348	0.639828396694	+1	0.077318333906	11.343947428275
175	0.007576452057	0.804245390546	+1	0.083935400130	17.416438909350
180	0.007455415606	1.014469274221	+1	0.090782439806	27.166637439209
185	0.007328637158	1.288422393294	+1	0.097814115679	43.301760893315
190	0.007196878177	1.654855176131	+1	0.104982893349	71.093436422204
195	0.007061082240	2.162567718251	+1	0.112236977276	121.596584624110
200	0.006922340295	2.900561178702	+1	0.119517373496	220.328385529658
205	0.006781855297	4.051311024588	+1	0.126764335534	435.092319132605
210	0.006640895481	6.062451150888	+1	0.133928510272	990.425446609384
215	0.006500672977	10.392332808524	+1	0.140964401125	2969.283127275423
220	0.006362311603	26.030857780414	+1	0.147828581389	19063.842996375810
225	0.006226829605	96.681099753970	-1	0.154480231951	275383.804160249890
230	0.006296093051	305.382506600226	+1	0.156162434394	2732932.537842588500
235	0.006399672689	318.516146160673	+1	0.158363068820	2973206.935921079900
240	0.006499842043	349.072608901981	+1	0.160510286895	3571452.524983918300
245	0.006597586046	377.198181806537	+1	0.162588805986	4170613.641510955500
250	0.006692817808	403.363639169812	+1	0.164599886327	4769774.758126907100
255	0.006785475538	427.929029824773	+1	0.166544621494	5368935.874810664900
260	0.006875553718	451.155998379601	+1	0.168424737008	5968096.991547850000
265	0.006962239886	504.435529543121	+1	0.170255512859	7462186.086300002400
270	0.007046633719	552.594392774978	+1	0.172020477257	8956275.181226439800
275	0.007128655660	596.874121586246	+1	0.173722952878	10450364.276273083000

280	0.007207766603	669.683844813212	+1	0.175373401553	13157527.101464763000
285	0.007284343998	758.276186215489	+1	0.176967315689	16871770.004703723000
290	0.007358750748	837.770392621778	+1	0.178501049572	20597456.999948665000
295	0.007431179771	887.948818259278	+1	0.179974239817	23140587.843203478000
300	0.007501800163	892.811035176956	+1	0.181386910596	23394900.327532001000
310	0.007636038178	897.645998240972	+1	0.184057764301	23649212.811861038000
320	0.007759023620	907.323570092186	+1	0.186544133211	24170554.104739994000
330	0.007875202486	910.742242071498	+1	0.188830130351	24353341.015352547000
340	0.007982690866	915.025616198971	+1	0.190938060120	24583811.641777586000
350	0.008081915119	919.067187507347	+1	0.192875428471	24802361.339249983000
360	0.008172910838	927.458589676354	+1	0.194652452288	25259329.615784265000
370	0.008256798458	927.458457930842	+1	0.196271444493	25259329.615784269000
380	0.008333353290	927.458372193465	+1	0.197743467868	25259329.615784269000
390	0.008374366283	618.935562529642	+1	0.199188360404	11301909.301002409000
400	0.004599635317	4.649643313485	+1	0.208731468977	1499.644390740136
410	0.004603318434	3.593144799214	+1	0.206289795327	927.545045991378
420	0.004607996128	2.897581560816	+1	0.203766462813	624.330261438268
430	0.004613042207	2.407626544369	+1	0.201195802828	445.895874019513
440	0.004617955853	2.045656261948	+1	0.198605913758	332.819585943430
450	0.004622347760	1.768610142746	+1	0.196019695330	257.088568348235
460	0.004625920909	1.550679210168	+1	0.193455285994	204.139654664714
470	0.004628468163	1.375404603548	+1	0.190925647866	165.806344606833
480	0.004629840413	1.231871883652	+1	0.188440867840	137.251669355611
490	0.004629932314	1.112580215943	+1	0.186008892349	115.472304149136
500	0.004628675609	1.012209171130	+1	0.183636103675	98.527021956012
510	0.004626036602	0.926868307889	+1	0.181327014886	85.115494131781
520	0.004622029879	0.853613019726	+1	0.179083430088	74.336316639622
530	0.004616686069	0.790210329121	+1	0.176906240585	65.555611705959
540	0.004610042999	0.734945981270	+1	0.174795951097	58.318843568197
550	0.004602145522	0.686483380616	+1	0.172752800669	52.293467042213
560	0.004593046296	0.643757894566	+1	0.170776390621	47.230832516348
570	0.004582822436	0.605893463165	+1	0.168865061954	42.940043857337
580	0.004571546450	0.572180632278	+1	0.167016900718	39.274965816041

590	0.004559293926	0.542043067424	+1	0.165230179581	36.122663537576
600	0.004546128935	0.515009064504	+1	0.163503262474	33.394938065169
610	0.004532119081	0.490684519482	+1	0.161834412010	31.021586605141
620	0.004517339890	0.468729042341	+1	0.160221279291	28.945340883062
630	0.004501863497	0.448855216663	+1	0.158661502869	27.119957145049
640	0.004485754122	0.430822122232	+1	0.157152973454	25.508107516172
650	0.004469072050	0.414425970778	+1	0.155693791550	24.079339615001
660	0.004451871405	0.399491946142	+1	0.154282104716	22.808499909119
670	0.004434212488	0.385863718769	+1	0.152915768338	21.674153599873
680	0.004416149332	0.373406034970	+1	0.151592664519	20.658396964409
690	0.004397731577	0.362002724384	+1	0.150310938443	19.746309192005
700	0.004379002875	0.351553395058	+1	0.149068907622	18.925367654894
710	0.004360003610	0.341970207231	+1	0.147864943540	18.184931808501
720	0.004340775737	0.333173095436	+1	0.146697315372	17.515682908238
730	0.004321356418	0.325091255056	+1	0.145564325453	16.909620809867
740	0.004301780102	0.317662894803	+1	0.144464462301	16.359926116640
750	0.004282076244	0.310833758964	+1	0.143396353520	15.860755827350
760	0.004262273167	0.304555680422	+1	0.142358716783	15.407042588289
770	0.004242397728	0.298784015586	+1	0.141350170236	14.994245191147
780	0.004222474252	0.293478914694	+1	0.140369418291	14.618403803529
790	0.004202525937	0.288604993063	+1	0.139415270777	14.276069365726
800	0.004182570736	0.284130866087	+1	0.138486654199	13.964250788491
810	0.004162627309	0.280028128990	+1	0.137582546481	13.680292888654
820	0.004142712315	0.276270490450	+1	0.136701910550	13.421801603703
830	0.004122841642	0.272834207746	+1	0.135843725840	13.186649300400
840	0.004103028819	0.269697708474	+1	0.135007086619	12.972950585557
850	0.004083285292	0.266841948359	+1	0.134191151174	12.779060759703
860	0.004063622000	0.264249290768	+1	0.133395108881	12.603488909213
870	0.004044050066	0.261903451858	+1	0.132618176111	12.444882308596
880	0.004024577614	0.259789546386	+1	0.131859561878	12.302026630346
890	0.004005212552	0.257894019015	+1	0.131118584828	12.173838372425
900	0.003985962489	0.256204611293	+1	0.130394568844	12.059345464759
910	0.003966833839	0.254709933074	+1	0.129686899237	11.957666262075

920	0.003947830665	0.253399604280	+1	0.128994943698	11.868008123960
930	0.003928960114	0.252263843943	+1	0.128318127067	11.789631900730
940	0.003910224432	0.251293906944	+1	0.127655865114	11.721890324204
950	0.003891628708	0.250481609125	+1	0.127007655586	11.664184661983
960	0.003873175066	0.249819451056	+1	0.126373004647	11.615979003215
970	0.003854867174	0.249300362588	+1	0.125751416166	11.576769224644
980	0.003836707491	0.248917951128	+1	0.125142453925	11.546109916169
990	0.003818696078	0.248666217284	+1	0.124545678440	11.523593938454
1000	0.003800836169	0.248539500276	+1	0.123960665839	11.508833262610
1025	0.003756852778	0.248737285960	+1	0.122547128304	11.503728150071
1050	0.003713828231	0.249616452453	+1	0.121199012878	11.540556912309
1075	0.003671764598	0.251118595965	+1	0.119911170506	11.615661581475
1100	0.003630658799	0.253193192400	+1	0.118679018200	11.726017298533
1125	0.003590500788	0.255797388558	+1	0.117498404321	11.869176363872
1150	0.003551274056	0.258898068478	+1	0.116365666422	12.043366459348
1175	0.003512959591	0.262467205177	+1	0.115277497964	12.247190723547
1200	0.003475537649	0.266479097647	+1	0.114230807292	12.479439011715
1225	0.003438988545	0.270911256206	+1	0.113222796672	12.739134811432
1250	0.003403286973	0.275748205680	+1	0.112251022245	13.025778665528
1275	0.003368408027	0.280976665540	+1	0.111313247325	13.339037783275
1300	0.003334329141	0.286583925966	+1	0.110407362960	13.678632020912
1325	0.003301027129	0.292558575464	+1	0.109531402147	14.044385895737
1350	0.003268477733	0.298894454117	+1	0.108683683891	14.436486721706
1375	0.003236655718	0.305586598650	+1	0.107862636389	14.855230433300
1400	0.003205539372	0.312629858832	+1	0.107066774394	15.300916046704
1425	0.003175107104	0.320019752628	+1	0.106294692112	15.773908942930
1450	0.003145335696	0.327755738931	+1	0.105545172210	16.274872333033
1475	0.003116203907	0.335838223565	+1	0.104817087269	16.804561320669
1500	0.003087691460	0.344267165980	+1	0.104109368062	17.363737534015
1550	0.003032445479	0.362168888066	+1	0.102750970855	18.574068832853
1600	0.002979443301	0.381488571784	+1	0.101463018021	19.914687304817
1650	0.002928544893	0.402261464245	+1	0.100239251349	21.395691250026
1700	0.002879618825	0.424542818422	+1	0.099074390247	23.029561714377

1750	0.002832545719	0.448395827224	+1	0.097963640149	24.830436238531
1800	0.002787213431	0.473901227157	+1	0.096902881461	26.815100852827
1850	0.002743520345	0.501150043435	+1	0.095888376921	29.002653968038
1900	0.002701370067	0.530255969917	+1	0.094916950265	31.415885230301
1950	0.002660676437	0.561343406732	+1	0.093985642742	34.080617060099
2000	0.002621360411	0.594542537130	+1	0.093091613444	37.025632974027
2100	0.002546513225	0.667962473078	+1	0.091407311754	43.903543260317
2200	0.002476317959	0.752167499556	+1	0.089847933775	52.408748634092
2300	0.002410338436	0.849294736620	+1	0.088399692137	63.035803376973
2400	0.002348179940	0.962097501509	+1	0.087050817524	76.474375971871
2500	0.002289504459	1.094137504679	+1	0.085790462522	93.699157270226
2600	0.002234019063	1.250161580150	+1	0.084608966243	116.127097988238
2700	0.002181462688	1.436869849457	+1	0.083498831083	145.916023085454
2800	0.002131602149	1.663816548739	+1	0.082453675430	186.449346085739
2900	0.002084228534	1.945019592179	+1	0.081467834003	243.250871425400
3000	0.002039152875	2.301907791135	+1	0.080536208464	325.817896225031
3100	0.001996207195	2.768957153578	+1	0.079654252771	451.568562918428
3200	0.001955243630	3.405332341349	+1	0.078817769494	655.190462503290
3300	0.001916127926	4.321911439135	+1	0.078022960996	1013.887949214660
3400	0.001878738607	5.753647389657	+1	0.077266468170	1728.681016655438
3500	0.001842962383	8.300620883905	+1	0.076545293335	3465.846230823061
3600	0.001808696059	14.087469203791	+1	0.075856765237	9628.397629036808
3700	0.001775847697	40.020862152618	+1	0.075198369063	75036.883001254784
3800	0.001744331590	55.065498003487	-1	0.074567807745	142362.658042225110
3900	0.001714068321	16.310239566735	-1	0.073963081483	13133.431467998382
4000	0.001684985142	9.518701986068	-1	0.073382414302	4697.903581998954
4100	0.001657012533	6.694331879159	-1	0.072824234325	2437.514345780557
4200	0.001630089371	5.147805523486	-1	0.072286950974	1510.322581407244
4300	0.001604158636	4.172500189498	-1	0.071769101192	1038.567992287759
4400	0.001579166434	3.501634591430	-1	0.071269420382	764.788515922528
4500	0.001555062263	3.012125066286	-1	0.070786770792	591.100826195885
4600	0.001531798946	2.639336065631	-1	0.070320162244	473.583754386610
4700	0.001509333935	2.346126229604	-1	0.069868554780	390.113330338242

4800	0.001487627189	2.109592044694	-1	0.069431006759	328.523987285679
4900	0.001466641413	1.914835054255	-1	0.069006674782	281.662775706872
5000	0.001446339958	1.751737545989	-1	0.068594827265	245.092883472208
5500	0.001354014648	1.220043254982	-1	0.066700229854	142.768313813340
6000	0.001274627064	0.928841653403	-1	0.065030777991	97.639050454000
6500	0.001205618989	0.746088949264	-1	0.063536615284	73.224579683454
7000	0.001145051119	0.621252944766	-1	0.062183247432	58.257624233861
7500	0.001091444130	0.530896621369	-1	0.060944910363	48.275517586732
8000	0.001043645653	0.462673271222	-1	0.059802235134	41.201578633878
8500	0.001000744885	0.409470457264	-1	0.058740439237	35.954111439172
9000	0.000962013318	0.366908690287	-1	0.057747964975	31.920407168959
9500	0.000926860895	0.332147642121	-1	0.056815610850	28.730137674018
10000	0.000894804521	0.303266582329	-1	0.055935956629	26.147539310526
10500	0.000865444573	0.278919246895	-1	0.055103049592	24.015843271823
11000	0.000838450460	0.258146829501	-1	0.054311353854	22.227938565106
11500	0.000813539921	0.240226691849	-1	0.053557136697	20.706812117595
12000	0.000790477644	0.224626941464	-1	0.052836468837	19.397319281931
12500	0.000769060110	0.210932309460	-1	0.052146468464	18.257969953780
13000	0.000749115368	0.198825001403	-1	0.051484240232	17.257688314541
13500	0.000730492442	0.188048771761	-1	0.050847660885	16.372197227562
14000	0.000713061802	0.178402589632	-1	0.050234504264	15.582740360864
14500	0.000696709795	0.169720687457	-1	0.049643108145	14.874240556626
15000	0.000681337571	0.161870315201	-1	0.049071772919	14.234779362648
16000	0.000653190448	0.148236476611	-1	0.047983937831	13.125462744120
17000	0.000628033636	0.136816491474	-1	0.046961303379	12.195591012143
18000	0.000605401859	0.127123314815	-1	0.045995959873	11.404060721314
19000	0.000584921445	0.118801296381	-1	0.045081412629	10.721457098226
20000	0.000566289094	0.111585131361	-1	0.044212223209	10.126185421366
21000	0.000479132414	0.086568749652	-1	0.049642419725	10.249924504744
22000	0.000461338655	0.081115760634	-1	0.049231330365	9.838389157462
23000	0.000444315155	0.075869840943	-1	0.048871944241	9.435512266246
24000	0.000428247663	0.070972195438	-1	0.048563539787	9.055575015647
25000	0.000413298874	0.066555320898	-1	0.048294394506	8.711974342719

26000	0.000399561024	0.062704918629	-1	0.048044600784	8.413673934068
27000	0.000386907575	0.059351328049	-1	0.047803503655	8.155082775019
28000	0.000375173558	0.056394048019	-1	0.047568147086	7.927685471089
29000	0.000364209878	0.053740751231	-1	0.047340522757	7.723657362820
30000	0.000353881028	0.051306583582	-1	0.047127186117	7.535778283023
31000	0.000344078073	0.049025169079	-1	0.046936206866	7.358420877786
32000	0.000334759646	0.046881165089	-1	0.046767299617	7.190526389096
33000	0.000325902530	0.044871742880	-1	0.046617437558	7.032145856978
34000	0.000317485794	0.042994324762	-1	0.046483274673	6.883341570313
35000	0.000309490590	0.041246556171	-1	0.046361114474	6.744183053839
36000	0.000301897105	0.039624354367	-1	0.046247446678	6.614555264369
37000	0.000294675997	0.038116380107	-1	0.046140901333	6.493619259515
38000	0.000287797369	0.036710132074	-1	0.046041134854	6.380399497775
39000	0.000281233572	0.035393863175	-1	0.045948344329	6.273967256713
40000	0.000274958818	0.034156508742	-1	0.045863292540	6.173441242967
41000	0.000268950302	0.032988588615	-1	0.045786817357	6.078066957612
42000	0.000263191136	0.031884798027	-1	0.045718334777	5.987467415463
43000	0.000257666874	0.030841014739	-1	0.045656957710	5.901362995926
44000	0.000252363998	0.029853309448	-1	0.045601924591	5.819484072271
45000	0.000247269952	0.028917955686	-1	0.045552587240	5.741569917683
46000	0.000242372921	0.028031383735	-1	0.045508443685	5.667368577217
47000	0.000237661605	0.027190217815	-1	0.045469033241	5.596635595499
48000	0.000233125370	0.026391223588	-1	0.045434032404	5.529132799805
49000	0.000228754239	0.025631309145	-1	0.045403250857	5.464627608199
50000	0.000224538779	0.024907520780	-1	0.045376647412	5.402896779713
55000	0.000205521736	0.021751038527	-1	0.045300245100	5.129934477752
60000	0.000189364458	0.019210758762	-1	0.045298894811	4.905101480882
65000	0.000175458865	0.017128679918	-1	0.045354969878	4.716623952055
70000	0.000163359885	0.015395856300	-1	0.045455487344	4.556307309385
75000	0.000152734876	0.013934730286	-1	0.045591426021	4.418276254281
80000	0.000143326304	0.012689001195	-1	0.045753981138	4.298173290189
85000	0.000134936604	0.011616628506	-1	0.045936973040	4.192692329627
90000	0.000127408043	0.010685246229	-1	0.046137741337	4.099387302515

95000	0.000120614342	0.009870292100	-1	0.046351701458	4.016259018892
100000	0.000114452860	0.009152281357	-1	0.046576532284	3.941767743256
105000	0.000108839611	0.008515872870	-1	0.046808952519	3.874597813363
110000	0.000103705191	0.007948874588	-1	0.047046562405	3.813772939664
115000	0.000098990658	0.007440914688	-1	0.047288904323	3.758432337440
120000	0.000094647178	0.006983895138	-1	0.047534159146	3.707898771921
125000	0.000090632951	0.006570921893	-1	0.047781289429	3.661561705473
130000	0.000086912427	0.006196389066	-1	0.048029022290	3.618943906595
135000	0.000083454724	0.005855436500	-1	0.048276871868	3.579613792352
140000	0.000080233441	0.005544075969	-1	0.048524000662	3.543225431994
145000	0.000077225420	0.005258819330	-1	0.048770107181	3.509462016055
150000	0.000074410541	0.004996759185	-1	0.049014587115	3.478065809297
155000	0.000071770914	0.004755318535	-1	0.049257361920	3.448803545522
160000	0.000069290678	0.004532291494	-1	0.049498519625	3.421497668979
165000	0.000066955556	0.004325698614	-1	0.049738737600	3.395993644597
170000	0.000064759578	0.004134832841	-1	0.049966218047	3.371749368201
175000	0.000062686432	0.003957413877	-1	0.050190081606	3.348938653031
180000	0.000060726352	0.003792173750	-1	0.050410125523	3.327439530525
185000	0.000058869786	0.003637870527	-1	0.050627855965	3.307191250038
190000	0.000057106625	0.003493221374	-1	0.050848075397	3.288274357631
195000	0.000055433450	0.003357869366	-1	0.051063136823	3.270347086310
200000	0.000053843316	0.003230907079	-1	0.051274095988	3.253324953501
205000	0.000052330076	0.003111538740	-1	0.051481837804	3.237119551150
210000	0.000050888563	0.002999201357	-1	0.051685918318	3.221691583352
215000	0.000049514145	0.002893406611	-1	0.051885655477	3.207008014432
220000	0.000048202535	0.002793693135	-1	0.052080510450	3.193031910350
225000	0.000046949764	0.002699623208	-1	0.052270130600	3.179722463975
230000	0.000045752140	0.002610782555	-1	0.052454327838	3.167035754993
235000	0.000044606217	0.002526776981	-1	0.052633148211	3.154926853422
240000	0.000043508784	0.002447231790	-1	0.052806849139	3.143348181230
245000	0.000042456837	0.002371792612	-1	0.052975878022	3.132251300339
250000	0.000041447551	0.002300120347	-1	0.053140963689	3.121587890028
255000	0.000040478341	0.002231913712	-1	0.053302778045	3.111315774179

260000	0.000039546998	0.002166960277	-1	0.053461148785	3.101417120786
265000	0.000038651526	0.002105075399	-1	0.053615754603	3.091878418205
270000	0.000037790027	0.002046082978	-1	0.053766328819	3.082686172772
275000	0.000036960725	0.001989813874	-1	0.053912695573	3.073824423382
280000	0.000036161953	0.001936106771	-1	0.054054745871	3.065275905076
285000	0.000035392131	0.001884806360	-1	0.054192476769	3.057022846630
290000	0.000034649778	0.001835764809	-1	0.054325954913	3.049045941961
295000	0.000033933486	0.001788840237	-1	0.054455339218	3.041325866927
300000	0.000033241924	0.001743896307	-1	0.054580897102	3.033842811622

Electron Elastic Scattering Sampling Data
Solution for Z = 66

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.023978936448	1.590915960558	+1	0.057077269724	10.161707993423
52	0.022563130903	1.385766470905	+1	0.053093028497	8.034496609844
54	0.021317835922	1.147240557279	+1	0.049044138123	5.835229059712
56	0.020211164731	0.921645809162	+1	0.045102105837	4.056914604411
58	0.019218578297	0.728807802717	+1	0.041388660810	2.777217872031
60	0.018321362495	0.572202885202	+1	0.037978925543	1.903592996063
62	0.017505306919	0.448225923391	+1	0.034910195783	1.318291439706
64	0.016759450695	0.351203427386	+1	0.032191159797	0.926293304526
66	0.016075385158	0.275669856792	+1	0.029812595099	0.661583104912
68	0.015446412013	0.216964944952	+1	0.027753887797	0.480541199003
70	0.014867069271	0.171339677576	+1	0.025988456050	0.354913606566
72	0.014332888893	0.135878816033	+1	0.024488118184	0.266497022756
74	0.013839980701	0.108309170751	+1	0.023224847221	0.203413382560
76	0.013385020275	0.086879722936	+1	0.022172516045	0.157855289150
78	0.012965036769	0.070233613582	+1	0.021307432757	0.124606365560
80	0.012577345257	0.057317059013	+1	0.020608543416	0.100129704502
82	0.012219546974	0.047314851568	+1	0.020057553055	0.082001594831
84	0.011889391418	0.039592310922	+1	0.019638657330	0.068534122520
86	0.011584844089	0.033658742823	+1	0.019338385119	0.058544162031
88	0.011304013332	0.029135025921	+1	0.019145324367	0.051195458690
90	0.011045128214	0.025729573375	+1	0.019049846870	0.045895352466
92	0.010806568488	0.023220817862	+1	0.019043926083	0.042227749865
94	0.010586796938	0.021441382785	+1	0.019120889167	0.039904386147
96	0.010384395520	0.020267504763	+1	0.019275233551	0.038734592661
98	0.010198043841	0.019609809049	+1	0.019502471464	0.038603538901
100	0.010026507803	0.019406010419	+1	0.019798960513	0.039457377133
105	0.009655098549	0.020655730056	+1	0.020825416713	0.045996378827
110	0.009353057148	0.024298926752	+1	0.022237202810	0.059960295849

115	0.009106945787	0.030509501908	+1	0.024019186946	0.084196530110
120	0.008905224233	0.039699571112	+1	0.026165666144	0.123436944573
125	0.008738243224	0.052444257884	+1	0.028676511869	0.184865923776
130	0.008597797017	0.069438099690	+1	0.031554130122	0.279016018387
135	0.008477003859	0.091500559658	+1	0.034801821483	0.421235353973
140	0.008370053133	0.119587096461	+1	0.038422023705	0.633854794129
145	0.008272090946	0.154843469930	+1	0.042415562983	0.949666521214
150	0.008179120466	0.198660318761	+1	0.046780392738	1.417208829163
155	0.008087871762	0.252781331751	+1	0.051511098418	2.109386594016
160	0.007995779352	0.319429079267	+1	0.056598115729	3.137228992875
165	0.007900868573	0.401513239048	+1	0.062027145320	4.673001726537
170	0.007801753595	0.502920889688	+1	0.067778982117	6.989475851988
175	0.007697516531	0.628982084184	+1	0.073829117285	10.529562268058
180	0.007587715272	0.787183241550	+1	0.080147590296	16.033316020769
185	0.007472276277	0.988404496224	+1	0.086699479231	24.783132993993
190	0.007351510070	1.249128276748	+1	0.093446571517	39.105121039249
195	0.007225954946	1.595385632957	+1	0.100345867099	63.455508081848
200	0.007096319395	2.070352135464	+1	0.107347104106	106.963586772012
205	0.006963492193	2.751780782684	+1	0.114397724668	190.190636765532
210	0.006828575702	3.797099484576	+1	0.121451402283	366.253499644716
215	0.006692695764	5.577743587860	+1	0.128463359194	802.659053433291
220	0.006556943595	9.226763350672	+1	0.135389272587	2238.780042492791
225	0.006422354641	20.637778185368	+1	0.142186007559	11451.563357794366
230	0.006327820305	226.273779492990	-1	0.148691734174	1410554.675294143800
235	0.006419287172	244.769246183462	+1	0.150591388099	1650829.073019415400
240	0.006527572032	261.958699124038	+1	0.152810392958	1891103.470841799600
245	0.006632270811	300.568104758547	+1	0.154992552314	2490264.586783351400
250	0.006735155501	334.747071580169	+1	0.157103496134	3089425.702995038600
255	0.006835900957	365.740872552978	+1	0.159148009339	3688586.819380369000
260	0.006934372251	394.301903133298	+1	0.161129390602	4287747.935886816100
265	0.007030503339	420.926018193268	+1	0.163049979136	4886909.052482575200
270	0.007123259523	480.160079540583	+1	0.164927882880	6360398.781759002200
275	0.007213984373	533.540811324327	+1	0.166742252784	7854487.876507647300

280	0.007302530496	582.039645207402	+1	0.168496937402	9348576.971423121200
285	0.007388816263	626.791526851285	+1	0.170194596184	10842666.066455727000
290	0.007471951320	725.616570824318	+1	0.171849919511	14534020.785833614000
295	0.007553105235	813.133488266491	+1	0.173446219475	18253985.734998338000
300	0.007632122909	891.824827018268	+1	0.174987244737	21960599.243928071000
310	0.007784804184	913.932282383202	+1	0.177896588068	23063681.869683098000
320	0.007928409687	922.419409602081	+1	0.180610684633	23494424.102509644000
330	0.008063049678	928.508283793518	+1	0.183139328378	23805957.045809515000
340	0.008187525329	938.875606835574	+1	0.185498944891	24346371.825006962000
350	0.008304890130	941.009222230829	+1	0.187680108325	24457633.161900569000
360	0.008413990462	945.878368780307	+1	0.189698880404	24711945.646228954000
370	0.008514243823	945.923603144786	+1	0.191566678380	24718302.808338627000
380	0.008607246321	953.454954587114	+1	0.193284061605	25115666.440103188000
390	0.008693430854	953.456101322329	+1	0.194855759599	25115730.877603177000
400	0.007049878942	32.988971950276	+1	0.201374878141	39823.230971154553
410	0.004575509787	5.457141770854	+1	0.210329836218	2041.919597959152
420	0.004578800223	4.110868447379	+1	0.208078558302	1200.156289848120
430	0.004583382353	3.260474812758	+1	0.205728901480	781.435830667656
440	0.004588627037	2.677711882546	+1	0.203315644221	545.198986254562
450	0.004594029554	2.255486662528	+1	0.200867453249	399.910273130901
460	0.004599186824	1.936921903753	+1	0.198407619621	304.744166797934
470	0.004603787134	1.688979638146	+1	0.195954150056	239.318092523131
480	0.004607589360	1.491238437597	+1	0.193521553083	192.587785475369
490	0.004610406812	1.330422452094	+1	0.191121574056	158.166229424526
500	0.004612103991	1.197534127204	+1	0.188763749987	132.159162324125
510	0.004612588965	1.086248280358	+1	0.186455334305	112.084390034700
520	0.004611822961	0.991953425338	+1	0.184200649340	96.295801130397
530	0.004609790475	0.911248884951	+1	0.182002713268	83.676144597421
540	0.004606491541	0.841582609211	+1	0.179863829162	73.447931304218
550	0.004601938944	0.781003938631	+1	0.177785730390	65.057164392552
560	0.004596161063	0.727988267329	+1	0.175769347736	58.099553605017
570	0.004589211279	0.681307080865	+1	0.173814062419	52.272165729393
580	0.004581148285	0.639980143948	+1	0.171918935972	47.347448146104

590	0.004572030145	0.603220502979	+1	0.170082978862	43.152440971076
600	0.004561912053	0.570390594453	+1	0.168305236111	39.553970453258
610	0.004550853746	0.540964019110	+1	0.166584544894	36.447624617859
620	0.004538924734	0.514492008713	+1	0.164918974759	33.749541658945
630	0.004526192865	0.490599578649	+1	0.163306517845	31.392866747429
640	0.004512721676	0.468974016932	+1	0.161745369587	29.324107373829
650	0.004498566692	0.449353080316	+1	0.160233924147	27.500119343667
660	0.004483784216	0.431512758346	+1	0.158770518771	25.885503052232
670	0.004468434638	0.415254576097	+1	0.157353151853	24.450465811393
680	0.004452575769	0.400407981370	+1	0.155979840405	23.170328941945
690	0.004436257541	0.386826927323	+1	0.154648796820	22.024659458349
700	0.004419527168	0.374386203876	+1	0.153358465517	20.996449053039
710	0.004402427018	0.362976391447	+1	0.152107293413	20.071319886242
720	0.004385002864	0.352498316372	+1	0.150893534356	19.236770452807
730	0.004367296203	0.342865093407	+1	0.149715543043	18.482175758891
740	0.004349343220	0.334000820231	+1	0.148571789745	17.798502710732
750	0.004331178672	0.325839381544	+1	0.147460955875	17.178063727359
760	0.004312832700	0.318321997668	+1	0.146381720673	16.614208952217
770	0.004294335514	0.311394467667	+1	0.145332704497	16.101024975221
780	0.004275717673	0.305008518745	+1	0.144312602147	15.633364526988
790	0.004257003235	0.299121544133	+1	0.143320199343	15.206788526993
800	0.004238214429	0.293695589138	+1	0.142354395986	14.817429490313
810	0.004219372688	0.288696894876	+1	0.141414175100	14.461909610570
820	0.004200498979	0.284093711767	+1	0.140498454469	14.137151392835
830	0.004181610530	0.279857712022	+1	0.139606178601	13.840458604808
840	0.004162725838	0.275963234218	+1	0.138736435362	13.569440419719
850	0.004143857186	0.272387595920	+1	0.137888329174	13.322018204364
860	0.004125020158	0.269109969090	+1	0.137061060876	13.096317657932
870	0.004106226621	0.266111084787	+1	0.136253792729	12.890645007347
880	0.004087487387	0.263373194931	+1	0.135465709487	12.703471045395
890	0.004068814759	0.260880358949	+1	0.134696087815	12.533436962895
900	0.004050215517	0.258618104720	+1	0.133944248365	12.379341725918
910	0.004031699450	0.256573191839	+1	0.133209530672	12.240091481905

920	0.004013274609	0.254733308580	+1	0.132491304736	12.114691841286
930	0.003994945791	0.253086997629	+1	0.131788919706	12.002237444047
940	0.003976721632	0.251623931249	+1	0.131101829362	11.901914757790
950	0.003958606241	0.250334608536	+1	0.130429463206	11.812992425012
960	0.003940604401	0.249210282155	+1	0.129771327295	11.734808518928
970	0.003922720655	0.248242742212	+1	0.129126892289	11.666746548624
980	0.003904958273	0.247424468134	+1	0.128495703224	11.608256073775
990	0.003887320054	0.246748406668	+1	0.127877292162	11.558826583399
1000	0.003869810398	0.246208139811	+1	0.127271246590	11.517995982517
1025	0.003826606769	0.245413657968	+1	0.125807511763	11.450891970768
1050	0.003784241383	0.245350299043	+1	0.124412373516	11.429385388737
1075	0.003742732174	0.245950020842	+1	0.123080428624	11.448947350189
1100	0.003702087853	0.247154669900	+1	0.121806829706	11.505862358244
1125	0.003662309860	0.248915179417	+1	0.120587297566	11.597128040404
1150	0.003623391299	0.251192516225	+1	0.119417936840	11.720457143924
1175	0.003585323059	0.253953188313	+1	0.118295234062	11.873983952948
1200	0.003548092218	0.257167395587	+1	0.117215945429	12.056136096401
1225	0.003511685447	0.260809114503	+1	0.116177134699	12.265619577696
1250	0.003476082850	0.264859273730	+1	0.115176209249	12.501618379524
1275	0.003441266618	0.269301436211	+1	0.114210807253	12.763505967829
1300	0.003407216638	0.274120249428	+1	0.113278690438	13.050755168698
1325	0.003373914329	0.279301930966	+1	0.112377791741	13.362953922299
1350	0.003341338884	0.284837890466	+1	0.111506347147	13.700049138489
1375	0.003309468552	0.290720956339	+1	0.110662688856	14.062101743145
1400	0.003278283057	0.296943861362	+1	0.109845220701	14.449183505521
1425	0.003247764028	0.303500222231	+1	0.109052480303	14.861439564519
1450	0.003217890916	0.310387529457	+1	0.108283180304	15.299296924646
1475	0.003188643304	0.317604166889	+1	0.107536138049	15.763273122352
1500	0.003160002221	0.325148302273	+1	0.106810198211	16.253891069069
1550	0.003104470271	0.341215611071	+1	0.105417429044	17.317524422203
1600	0.003051148842	0.358601786756	+1	0.104097457234	18.496838676353
1650	0.002999905996	0.377326423976	+1	0.102843717563	19.799545687314
1700	0.002950615699	0.397427435623	+1	0.101650624107	21.235363078047

1750	0.002903165094	0.418949406738	+1	0.100513172142	22.815286487125
1800	0.002857444386	0.441953453032	+1	0.099427009600	24.552529613940
1850	0.002813355608	0.466508780912	+1	0.098388223894	26.462038438619
1900	0.002770804666	0.492704622391	+1	0.097393508119	28.561728041925
1950	0.002729706967	0.520637859901	+1	0.096439782405	30.871714967680
2000	0.002689984793	0.550406684033	+1	0.095524042288	33.414002013004
2100	0.002614367494	0.615946222042	+1	0.093796790353	39.303526760978
2200	0.002543365912	0.690688603174	+1	0.092197733526	46.511771801609
2300	0.002476581685	0.776278564101	+1	0.090711794218	55.406915646082
2400	0.002413623239	0.874822399336	+1	0.089326958491	66.494183183539
2500	0.002354154685	0.988972615001	+1	0.088032059395	80.467066574542
2600	0.002297887544	1.122169947109	+1	0.086817131424	98.301667342259
2700	0.002244560290	1.279198107110	+1	0.085674630012	121.441288864156
2800	0.002193939001	1.466682556675	+1	0.084598200704	152.062607609206
2900	0.002145814053	1.693978170118	+1	0.083582144509	193.552527635231
3000	0.002099996919	1.974736821716	+1	0.082621352344	251.403735733568
3100	0.002056319749	2.329693555776	+1	0.081711230788	334.982998220622
3200	0.002014634628	2.791922039442	+1	0.080847539897	461.287390691985
3300	0.001974808435	3.417646241055	+1	0.080026476425	663.734867482517
3400	0.001936719575	4.310839870203	+1	0.079244635056	1015.415232794672
3500	0.001900254539	5.687594473853	+1	0.078498975835	1701.885964680628
3600	0.001865311154	8.082885927604	+1	0.077786795484	3313.631629173998
3700	0.001831797049	13.281494659971	+1	0.077105525597	8635.388944281229
3800	0.001799627275	33.098692364039	+1	0.076452865792	51822.675742711275
3900	0.001768722385	83.591156886675	-1	0.075826759898	327436.636021089100
4000	0.001739008882	18.576770348803	-1	0.075225444484	16981.801603158245
4100	0.001710417870	10.388482125247	-1	0.074647268048	5570.319835256286
4200	0.001682888015	7.182401213341	-1	0.074090640795	2789.714996066503
4300	0.001656362398	5.473051957275	-1	0.073554055833	1695.317667512149
4400	0.001630787436	4.411234745759	-1	0.073036224863	1151.402257031399
4500	0.001606112052	3.687917769955	-1	0.072535972570	840.513651333559
4600	0.001582289076	3.163695088479	-1	0.072052295586	645.394697123134
4700	0.001559275998	2.766524757465	-1	0.071584114394	514.457887073861

4800	0.001537032113	2.455367133188	-1	0.071130466613	422.047781979422
4900	0.001515520273	2.205121304901	-1	0.070690488046	354.207799397497
5000	0.001494704011	1.999565715673	-1	0.070263433756	302.802644455199
5500	0.001399959383	1.353678338041	-1	0.068298560091	166.599757761466
6000	0.001318386859	1.014855753836	-1	0.066567352084	110.461647620349
6500	0.001247410766	0.807388391862	-1	0.065017443525	81.247400791397
7000	0.001185060403	0.667897342557	-1	0.063613453604	63.784916828521
7500	0.001129832916	0.568047073168	-1	0.062328635399	52.345067198714
8000	0.001080555395	0.493270397807	-1	0.061142935109	44.345979465042
8500	0.001036298992	0.435323087419	-1	0.060041032618	38.473857063957
9000	0.000996320483	0.389196790782	-1	0.059010955140	33.997701665430
9500	0.000960016413	0.351676688278	-1	0.058043188725	30.481847743233
10000	0.000926893064	0.320607717507	-1	0.057130048413	27.652131232703
10500	0.000896540982	0.294489462071	-1	0.056265399824	25.327975338082
11000	0.000868621906	0.272259491564	-1	0.055443533034	23.386964063960
11500	0.000842846439	0.253121361788	-1	0.054660588085	21.741731170733
12000	0.000818973007	0.236491007032	-1	0.053912524684	20.330068958167
12500	0.000796793556	0.221914560030	-1	0.053196355888	19.105432835655
13000	0.000776131046	0.209045399009	-1	0.052509093353	18.033112685307
13500	0.000756830733	0.197605059851	-1	0.051848548565	17.086112044630
14000	0.000738759670	0.187375593965	-1	0.051212421165	16.243647596809
14500	0.000721800950	0.178177653144	-1	0.050599015743	15.489079049827
15000	0.000705853100	0.169867967371	-1	0.050006557218	14.809279210333
16000	0.000676638384	0.155452806168	-1	0.048878952911	13.632844721578
17000	0.000650512359	0.143394317092	-1	0.047819547138	12.649582517715
18000	0.000626996022	0.133170274288	-1	0.046820191607	11.814730503808
19000	0.000605704883	0.124400589739	-1	0.045874086258	11.096376658198
20000	0.000586326420	0.116802073542	-1	0.044975607090	10.471172315731
21000	0.000499082843	0.091390712151	-1	0.050134853167	10.543159460009
22000	0.000480636066	0.085650939590	-1	0.049684834852	10.110054360906
23000	0.000462990193	0.080130090366	-1	0.049286703728	9.686772134667
24000	0.000446334611	0.074976631337	-1	0.048940333681	9.288161238877
25000	0.000430834890	0.070329810025	-1	0.048634680930	8.928076155502

26000	0.000416584583	0.066279618177	-1	0.048350459424	8.615700484658
27000	0.000403453449	0.062752448483	-1	0.048076966602	8.345058744385
28000	0.000391271914	0.059642326957	-1	0.047810980501	8.107179501004
29000	0.000379886793	0.056851941785	-1	0.047554189384	7.893848964258
30000	0.000369158867	0.054291888388	-1	0.047312803219	7.697515377686
31000	0.000358976168	0.051892225290	-1	0.047094561641	7.512301372716
32000	0.000349295960	0.049636843840	-1	0.046899068460	7.337081020967
33000	0.000340094004	0.047522766626	-1	0.046723330716	7.171885802497
34000	0.000331348523	0.045547311708	-1	0.046564014064	7.016756301366
35000	0.000323039875	0.043708026356	-1	0.046417456761	6.871742280782
36000	0.000315147391	0.042000630549	-1	0.046280206624	6.736708019612
37000	0.000307640730	0.040413211218	-1	0.046150857601	6.610767480784
38000	0.000300489045	0.038932638570	-1	0.046028999479	6.492896284145
39000	0.000293663778	0.037546556547	-1	0.045914781582	6.382122887150
40000	0.000287138330	0.036243338660	-1	0.045808887911	6.277525350029
41000	0.000280889101	0.035013014749	-1	0.045712096016	6.178316814449
42000	0.000274898656	0.033850026487	-1	0.045623788811	6.084099559710
43000	0.000269151982	0.032750047292	-1	0.045543064264	5.994577889787
44000	0.000263635032	0.031708967640	-1	0.045469137239	5.909468840834
45000	0.000258334850	0.030722866720	-1	0.045401363720	5.828496754788
46000	0.000253239132	0.029788013875	-1	0.045339203321	5.751397623068
47000	0.000248336238	0.028900862005	-1	0.045282192458	5.677914068514
48000	0.000243615117	0.028058013554	-1	0.045229990516	5.607796550680
49000	0.000239065398	0.027256225388	-1	0.045182389069	5.540803263194
50000	0.000234677361	0.026492400448	-1	0.045139311972	5.476698935715
55000	0.000214877360	0.023159332060	-1	0.044985333152	5.193333713697
60000	0.000198048766	0.020474289418	-1	0.044913205302	4.960026214947
65000	0.000183560745	0.018271473402	-1	0.044904052703	4.764487144149
70000	0.000170951237	0.016436489367	-1	0.044943991843	4.598176387017
75000	0.000159874902	0.014887904075	-1	0.045023182863	4.454975130835
80000	0.000150064165	0.013566520292	-1	0.045132397382	4.330358047802
85000	0.000141313628	0.012428141737	-1	0.045264974059	4.220893664672
90000	0.000133459525	0.011438722702	-1	0.045417774366	4.124032537965

95000	0.000126370529	0.010572386561	-1	0.045586002524	4.037704103049
100000	0.000119940107	0.009808667624	-1	0.045766721020	3.960297693507
105000	0.000114080483	0.009131291032	-1	0.045957072678	3.890481972872
110000	0.000108719569	0.008527426095	-1	0.046154354668	3.827236699794
115000	0.000103796265	0.007986161771	-1	0.046357630207	3.769654608429
120000	0.000099259679	0.007498936052	-1	0.046565028484	3.717038594494
125000	0.000095066228	0.007058448626	-1	0.046775511185	3.668763709406
130000	0.000091178957	0.006658774125	-1	0.046987729211	3.624334830437
135000	0.000087565778	0.006294779785	-1	0.047201024522	3.583302451032
140000	0.000084199143	0.005962241455	-1	0.047414496301	3.545309665699
145000	0.000081054895	0.005657465106	-1	0.047627757078	3.510030732882
150000	0.000078112165	0.005377375634	-1	0.047840108797	3.477195926525
155000	0.000075352446	0.005119255180	-1	0.048051264031	3.446557671870
160000	0.000072759426	0.004880798941	-1	0.048260855918	3.417918417132
165000	0.000070318478	0.004659944822	-1	0.048468945827	3.391098994138
170000	0.000068016355	0.004454876023	-1	0.048676137008	3.365974938388
175000	0.000065844555	0.004264484476	-1	0.048877163000	3.342224066892
180000	0.000063793540	0.004087508107	-1	0.049070150134	3.319668302453
185000	0.000061851386	0.003922313163	-1	0.049259842969	3.298353972760
190000	0.000060009954	0.003767877560	-1	0.049445891295	3.278189716371
195000	0.000058259840	0.003622969308	-1	0.049632342202	3.259220774194
200000	0.000056594635	0.003486752260	-1	0.049818976529	3.241315757597
205000	0.000055010002	0.003358685818	-1	0.050002331076	3.224242948479
210000	0.000053500408	0.003238146942	-1	0.050182272411	3.207970125434
215000	0.000052060954	0.003124608367	-1	0.050358238706	3.192467381590
220000	0.000050687144	0.003017574134	-1	0.050529758269	3.177697283898
225000	0.000049374817	0.002916576519	-1	0.050696516228	3.163619793773
230000	0.000048120115	0.002821172783	-1	0.050858332974	3.150189709553
235000	0.000046919442	0.002730941514	-1	0.051015255941	3.137360621845
240000	0.000045769441	0.002645483758	-1	0.051167515866	3.125084803586
245000	0.000044666984	0.002564419969	-1	0.051315544049	3.113311388673
250000	0.000043609125	0.002487389930	-1	0.051459995366	3.101991232086
255000	0.000042593173	0.002414070620	-1	0.051601514560	3.091079855898

260000	0.000041616827	0.002344235527	-1	0.051739931271	3.080558705767
265000	0.000040677981	0.002277687703	-1	0.051874934733	3.070415301950
270000	0.000039774665	0.002214238546	-1	0.052006267815	3.060634000970
275000	0.000038905014	0.002153707257	-1	0.052133776114	3.051199984507
280000	0.000038067298	0.002095921581	-1	0.052257343033	3.042094062590
285000	0.000037259856	0.002040715814	-1	0.052376962510	3.033299130699
290000	0.000036481146	0.001987931307	-1	0.052492698933	3.024794568615
295000	0.000035729699	0.001937416232	-1	0.052604708401	3.016560584904
300000	0.000035004124	0.001889025004	-1	0.052713234310	3.008576817670

Electron Elastic Scattering Sampling Data
Solution for Z = 67

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.025346866801	1.967480923549	+1	0.059814969669	14.292227793415
52	0.023817993629	1.838740299620	+1	0.056201084040	12.746276739736
54	0.022479292483	1.592960359378	+1	0.052330472932	9.923421315367
56	0.021295334374	1.312441676864	+1	0.048396417489	7.096956375264
58	0.020238055851	1.050680600213	+1	0.044556149945	4.866322810417
60	0.019285614376	0.829185393185	+1	0.040923613447	3.292310368164
62	0.018421229260	0.650635096131	+1	0.037571475613	2.234767134299
64	0.017631967998	0.509902199420	+1	0.034537017113	1.534946953983
66	0.016907950619	0.400087346584	+1	0.031832449115	1.071166209473
68	0.016241462156	0.314671183719	+1	0.029451622412	0.760578630386
70	0.015626357289	0.248226690825	+1	0.027376973674	0.549529638450
72	0.015057721967	0.196495173399	+1	0.025585278969	0.403886321444
74	0.014531407653	0.156158122478	+1	0.024050505774	0.301790455955
76	0.014043940374	0.124674532566	+1	0.022746682444	0.229176334913
78	0.013592284204	0.100086023513	+1	0.021649076682	0.176843482521
80	0.013173730360	0.080878582925	+1	0.020734934772	0.138682022291
82	0.012785886812	0.065883207176	+1	0.019983962240	0.110581957533
84	0.012426529296	0.054188262533	+1	0.019378243817	0.089726954953
86	0.012093646683	0.045085786543	+1	0.018902254145	0.074167721420
88	0.011785376565	0.038023854375	+1	0.018542623831	0.062536180841
90	0.011499974609	0.032572738792	+1	0.018287941285	0.053863288777
92	0.011235845252	0.028399948561	+1	0.018128545355	0.047460216838
94	0.010991465525	0.025248354739	+1	0.018056285451	0.042835209002
96	0.010765434981	0.022921614071	+1	0.018064339395	0.039641003393
98	0.010556439563	0.021271410855	+1	0.018147051976	0.037637352433
100	0.010363255516	0.020187296497	+1	0.018299733719	0.036664872974
105	0.009942053965	0.019486638801	+1	0.018964257300	0.038246958919
110	0.009596337881	0.021204468655	+1	0.020002165304	0.045618258249

115	0.009312493708	0.025226252301	+1	0.021390734809	0.060144676357
120	0.009078731316	0.031766033717	+1	0.023119528312	0.084670386956
125	0.008885132620	0.041245424734	+1	0.025185737957	0.123781589614
130	0.008723185211	0.054221644827	+1	0.027590804257	0.184320153305
135	0.008585705835	0.071367008582	+1	0.030338303060	0.276259990941
140	0.008466559499	0.093461598096	+1	0.033432185097	0.414000346464
145	0.008360564405	0.121423080740	+1	0.036875794798	0.618412672273
150	0.008263355101	0.156338555510	+1	0.040670699478	0.919887324573
155	0.008171289779	0.199537372787	+1	0.044816173325	1.363204170683
160	0.008081389913	0.252668511607	+1	0.049308257311	2.015048743049
165	0.007991244822	0.317840679557	+1	0.054139493497	2.976379400018
170	0.007899015576	0.397792599896	+1	0.059298206536	4.402496625778
175	0.007803317266	0.496178083433	+1	0.064768363655	6.537467656110
180	0.007703229063	0.617965249386	+1	0.070529024109	9.773718416583
185	0.007598210926	0.770115887596	+1	0.076554696144	14.761133568386
190	0.007488132643	0.962704616633	+1	0.082816140297	22.614818834202
195	0.007373119225	1.210803252123	+1	0.089279373100	35.330356363829
200	0.007253467393	1.537770741534	+1	0.095903620413	56.660423666140
205	0.007129703920	1.982115367308	+1	0.102644924396	94.160688383992
210	0.007002685892	2.612828282337	+1	0.109462112465	164.541077631065
215	0.006873368549	3.565998643613	+1	0.116313728648	309.674422541340
220	0.006742719336	5.151741769299	+1	0.123157405463	655.748786024336
225	0.006611701080	8.262231888734	+1	0.129950586732	1717.402816442642
230	0.006481248407	16.940638393521	+1	0.136651224302	7374.465693585027
235	0.006453590032	38.340286420742	+1	0.141512234962	38278.739118778765
240	0.006225546508	25.094257192721	-1	0.149613365135	18390.791792596516
245	0.006101891748	12.127526859516	-1	0.155799098324	4785.946336393374
250	0.005981973890	8.251198907106	-1	0.161741799265	2447.511959482895
255	0.005866382421	6.416403005585	-1	0.167412672560	1621.559256886962
260	0.005755561939	5.365545429223	-1	0.172794465943	1232.496575878088
265	0.005649846571	4.699563628644	-1	0.177875242729	1019.984268652839
270	0.005549489016	4.252757909092	-1	0.182646128226	894.544493519036
275	0.005454666021	3.944312776353	-1	0.187101024823	818.438808414755

280	0.005365488516	3.730461272661	-1	0.191236355307	773.537944030339
285	0.005282010652	3.585805706920	-1	0.195050815356	750.402938654876
290	0.005204239665	3.495009613131	-1	0.198545149921	743.956633569103
295	0.005132139663	3.448734727037	-1	0.201721806749	751.576612582414
300	0.005065641206	3.441542333825	-1	0.204584814486	772.213849089504
310	0.004948842158	3.534459154323	-1	0.209402778034	853.548217725494
320	0.004851927971	3.770054366939	-1	0.213102685819	998.907760798187
330	0.004772771791	4.175352272653	-1	0.215800274399	1239.994670966894
340	0.004709333620	4.821126179965	-1	0.217607371574	1649.698083429345
350	0.004659715042	5.865105465415	-1	0.218629012812	2406.551746922981
360	0.004622093217	7.689452692278	-1	0.218966035419	4034.161335535933
370	0.004594508462	11.452585164989	-1	0.218724945875	8650.228011524494
380	0.004575178673	23.068950638068	-1	0.218002846329	33678.402673646196
390	0.004577649156	219.371605463685	+1	0.216494278463	2904786.950313431200
400	0.004555398427	21.129619727619	+1	0.215440887305	28058.718418678116
410	0.004552514694	10.283904260865	+1	0.213736566024	6897.697827020450
420	0.004552864293	6.637494313990	+1	0.211828282092	2978.932463824614
430	0.004555539444	4.819860890619	+1	0.209765209925	1627.086565673840
440	0.004559786765	3.737239020816	+1	0.207588611844	1012.531787235758
450	0.004564991220	3.022468800884	+1	0.205332923312	685.030479144716
460	0.004570647651	2.517659521772	+1	0.203026736200	491.362549102872
470	0.004576334926	2.143708708000	+1	0.200693404756	368.067125904910
480	0.004581711650	1.856688640598	+1	0.198352226534	285.129699529754
490	0.004586507793	1.630281520251	+1	0.196019090367	226.907053092728
500	0.004590514083	1.447772568755	+1	0.193707080594	184.617837668203
510	0.004593572504	1.298027171160	+1	0.191426467646	153.031359503913
520	0.004595584091	1.173306607918	+1	0.189184468156	128.873598077065
530	0.004596477238	1.068110209605	+1	0.186986581284	110.023563736237
540	0.004596208148	0.978433374091	+1	0.184837245924	95.061929599596
550	0.004594751949	0.901292914432	+1	0.182740010643	83.010956683171
560	0.004592103528	0.834413234879	+1	0.180697293066	73.178614928964
570	0.004588288732	0.776006535703	+1	0.178709865701	65.061341065674
580	0.004583341917	0.724671234921	+1	0.176777901012	58.289464593459

590	0.004577301236	0.679300327980	+1	0.174901437678	52.587786429401
600	0.004570208041	0.639007039034	+1	0.173080336776	47.747936643572
610	0.004562106576	0.603069528351	+1	0.171314135749	43.609468579618
620	0.004553057964	0.570881305934	+1	0.169601457174	40.045722625756
630	0.004543122390	0.541941443836	+1	0.167940799001	36.957212902783
640	0.004532357540	0.515835710557	+1	0.166330785276	34.265282687261
650	0.004520816115	0.492219198706	+1	0.164770152702	31.907143659312
660	0.004508550405	0.470799854353	+1	0.163257583470	29.831899660261
670	0.004495620072	0.451321846939	+1	0.161791247182	27.997243323234
680	0.004482082057	0.433566647470	+1	0.160369350694	26.368464753157
690	0.004467987881	0.417348652646	+1	0.158990273925	24.917080963012
700	0.004453383351	0.402509073931	+1	0.157652582520	23.619534191052
710	0.004438314926	0.388909990693	+1	0.156354856999	22.456050807401
720	0.004422828765	0.376427368948	+1	0.155095397504	21.409623287195
730	0.004406970035	0.364952763149	+1	0.153872606461	20.465860878395
740	0.004390777065	0.354392196753	+1	0.152685014161	19.612638193580
750	0.004374287260	0.344663752668	+1	0.151531336277	18.839660416312
760	0.004357533158	0.335695109004	+1	0.150410292165	18.138092812982
770	0.004340549784	0.327419966329	+1	0.149320498951	17.500128225397
780	0.004323368158	0.319779317390	+1	0.148260624809	16.919012182077
790	0.004306016816	0.312721313141	+1	0.147229455372	16.388935496814
800	0.004288522931	0.306200104686	+1	0.146225926237	15.904873936838
810	0.004270908673	0.300174552857	+1	0.145248968986	15.462431616767
820	0.004253196650	0.294606665448	+1	0.144297479471	15.057665840995
830	0.004235410251	0.289462057819	+1	0.143370417231	14.687087403703
840	0.004217569480	0.284710056267	+1	0.142466830015	14.347647653023
850	0.004199690035	0.280323426303	+1	0.141585807732	14.036686404952
860	0.004181787719	0.276277358311	+1	0.140726538656	13.751834687742
870	0.004163878723	0.272548713445	+1	0.139888127044	13.490927189302
880	0.004145978069	0.269116593616	+1	0.139069794920	13.252048456089
890	0.004128096846	0.265961956850	+1	0.138270729528	13.033485921747
900	0.004110247830	0.263067684418	+1	0.137490268769	12.833723401635
910	0.004092439246	0.260418220914	+1	0.136727720013	12.651408498102

920	0.004074682790	0.257998882995	+1	0.135982405577	12.485283060346
930	0.004056987080	0.255796247223	+1	0.135253689835	12.334222158901
940	0.004039359095	0.253798058140	+1	0.134540950853	12.197214353505
950	0.004021807610	0.251993151876	+1	0.133843653916	12.073348787173
960	0.004004337015	0.250371321915	+1	0.133161245912	11.961810190885
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980	0.003969665163	0.247639021998	+1	0.131839014290	11.772731659100
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1000	0.003935383862	0.245533136453	+1	0.130570379410	11.624727200312
1025	0.003893127897	0.243694239163	+1	0.129054656281	11.490938743831
1050	0.003851578085	0.242648273113	+1	0.127610754733	11.407597430139
1075	0.003810766761	0.242315526415	+1	0.126233005035	11.369103560369
1100	0.003770717539	0.242628898420	+1	0.124916392898	11.370913067284
1125	0.003731442375	0.243532006117	+1	0.123656432742	11.409354035148
1150	0.003692946400	0.244978786237	+1	0.122449020733	11.481523383333
1175	0.003655228587	0.246929971236	+1	0.121290434165	11.585051612770
1200	0.003618286845	0.249350804898	+1	0.120177279998	11.717927691898
1225	0.003582114069	0.252211374430	+1	0.119106474256	11.878509244533
1250	0.003546695988	0.255488734321	+1	0.118075261622	12.065641505632
1275	0.003512020985	0.259163053304	+1	0.117081174587	12.278397025741
1300	0.003478074483	0.263216001142	+1	0.116121853459	12.515975433119
1325	0.003444841465	0.267631406988	+1	0.115195128281	12.777736584605
1350	0.003412304546	0.272398200122	+1	0.114299121940	13.063389965201
1375	0.003380445501	0.277506743773	+1	0.113432068134	13.372758547688
1400	0.003349247024	0.282947990840	+1	0.112592321873	13.705722969755
1425	0.003318696217	0.288713144519	+1	0.111778288414	14.062174413537
1450	0.003288770892	0.294798240773	+1	0.110988645521	14.442376426144
1475	0.003259454151	0.301199625752	+1	0.110222124536	14.846613243401
1500	0.003230729395	0.307913554091	+1	0.109477523968	15.275186410794
1550	0.003174991281	0.322269193223	+1	0.108049641713	16.206979563356
1600	0.003121422004	0.337863733035	+1	0.106697180171	17.242558241523
1650	0.003069899665	0.354702956069	+1	0.105413192097	18.387639553815
1700	0.003020304609	0.372810071896	+1	0.104191809857	19.649711425610

1750	0.002972528440	0.392214057430	+1	0.103027711904	21.037258466261
1800	0.002926466868	0.412959382871	+1	0.101916368377	22.560642870878
1850	0.002882026624	0.435096694138	+1	0.100853623120	24.231495420231
1900	0.002839115444	0.458696252232	+1	0.099836073083	26.064033602748
1950	0.002797650476	0.483832559047	+1	0.098860470598	28.073971623249
2000	0.002757557896	0.510578267170	+1	0.097923651019	30.278145722466
2100	0.002681212985	0.569261306301	+1	0.096155598221	35.350343761413
2200	0.002609483788	0.635839546506	+1	0.094517820985	41.498807872128
2300	0.002541949463	0.711633322441	+1	0.092995877981	49.006307525399
2400	0.002478240766	0.798255673214	+1	0.091576829420	58.246844381038
2500	0.002418037223	0.897691109736	+1	0.090248881975	69.720392756132
2600	0.002361023905	1.012496955338	+1	0.089002402573	84.117992825616
2700	0.002306970394	1.146126621384	+1	0.087829112110	102.425349618162
2800	0.002255631152	1.303304407454	+1	0.086722892889	126.090335081102
2900	0.002206796504	1.490473090795	+1	0.085678036862	157.273922044360
3000	0.002160278712	1.716678531163	+1	0.084689410504	199.315410508511
3100	0.002115908253	1.995037379392	+1	0.083752346625	257.586206884027
3200	0.002073539034	2.345319237859	+1	0.082862602743	341.155119157209
3300	0.002033037658	2.798781055629	+1	0.082016340830	466.284698608530
3400	0.001994282705	3.407942579617	+1	0.081210137981	664.462207502026
3500	0.001957161910	4.268378081721	+1	0.080440914715	1003.139351486773
3600	0.001921572300	5.574162559745	+1	0.079705928739	1648.517697570381
3700	0.001887422297	7.788481262473	+1	0.079002598810	3104.999809435078
3800	0.001854626248	12.358308924552	+1	0.078328577822	7550.809951798186
3900	0.001823106374	27.284407823377	+1	0.077681812094	35587.472480459459
4000	0.001801962990	173.570372027294	+1	0.076662732905	1393613.417245851100
4100	0.001776380766	33.458121245577	-1	0.075896522979	53209.303124320802
4200	0.001735489708	11.565669447576	-1	0.075887528089	6864.784037051662
4300	0.001708390843	7.806204821232	-1	0.075332776985	3272.643447208193
4400	0.001682253354	5.874502993564	-1	0.074797307458	1937.492941351603
4500	0.001657026113	4.698801137952	-1	0.074279962282	1294.536152722486
4600	0.001632662046	3.908239171580	-1	0.073779683022	934.382201770366
4700	0.001609118137	3.340502740647	-1	0.073295393678	711.542799168531

4800	0.001586353836	2.913239566393	-1	0.072826084547	563.572677118852
4900	0.001564331644	2.580198919404	-1	0.072370886486	459.983430518358
5000	0.001543015007	2.313398353087	-1	0.071929041710	384.421270147617
5500	0.001445914275	1.512527832435	-1	0.069895741379	197.225604034445
6000	0.001362208928	1.113751600386	-1	0.068104167261	126.128632841823
6500	0.001289300423	0.876412536053	-1	0.066500233768	90.746976625701
7000	0.001225198262	0.719682732721	-1	0.065046974112	70.192155186210
7500	0.001168374983	0.608869783087	-1	0.063716938298	56.990658767895
8000	0.001117638516	0.526629364922	-1	0.062489375504	47.894119853638
8500	0.001072043927	0.463336045903	-1	0.061348426096	41.291556778857
9000	0.001030832578	0.413226804339	-1	0.060281724731	36.303856147358
9500	0.000993389354	0.372645411304	-1	0.059279440369	32.415064402472
10000	0.000959209126	0.339162639879	-1	0.058333637931	29.304455402944
10500	0.000927873917	0.311100495177	-1	0.057437982800	26.762962030923
11000	0.000899037627	0.287277249617	-1	0.056586611818	24.649995472412
11500	0.000872403586	0.266812699168	-1	0.055775539600	22.866056976667
12000	0.000847725012	0.249063853168	-1	0.055000602764	21.340680171899
12500	0.000824788123	0.233533108636	-1	0.054258723535	20.021474024490
13000	0.000803411901	0.219841642044	-1	0.053546842252	18.869531444924
13500	0.000783437697	0.207686150086	-1	0.052862705313	17.854738522781
14000	0.000764729287	0.196829908261	-1	0.052203950752	16.954004229985
14500	0.000747166219	0.187078640046	-1	0.051568796379	16.148911649991
15000	0.000730644767	0.178277331179	-1	0.050955449301	15.424965607225
16000	0.000700365377	0.163027899291	-1	0.049788449191	14.175279554419
17000	0.000673271421	0.150289446127	-1	0.048692569173	13.133937338806
18000	0.000648871163	0.139501627358	-1	0.047659352844	12.252081012755
19000	0.000626768929	0.130257448883	-1	0.046681795567	11.495028070844
20000	0.000606643554	0.122254588855	-1	0.045754033560	10.837488346809
21000	0.000519319044	0.096431415060	-1	0.050653083559	10.857284723172
22000	0.000500217494	0.090390529171	-1	0.050164602533	10.401068615518
23000	0.000481947295	0.084581290738	-1	0.049728281899	9.955962769428
24000	0.000464701338	0.079159815043	-1	0.049344536358	9.537416889450
25000	0.000448648148	0.074272398274	-1	0.049002940217	9.159761137282

26000	0.000433882620	0.070013425604	-1	0.048684788479	8.832400513164
27000	0.000420270809	0.066305116791	-1	0.048379306518	8.548946322530
28000	0.000407638736	0.063035665339	-1	0.048083036757	8.299932361730
29000	0.000395829045	0.060102494323	-1	0.047797392251	8.076731729942
30000	0.000384698827	0.057411393255	-1	0.047528260752	7.871436435750
31000	0.000374133146	0.054888697045	-1	0.047283061537	7.677903039536
32000	0.000364087858	0.052517445200	-1	0.047061335137	7.494935526338
33000	0.000354537765	0.050294533520	-1	0.046860066604	7.322538707665
34000	0.000345460263	0.048217160692	-1	0.046675941712	7.160730497742
35000	0.000336834894	0.046282758627	-1	0.046505345829	7.009541081411
36000	0.000328640208	0.044486852101	-1	0.046344839746	6.868806386394
37000	0.000320844843	0.042816919149	-1	0.046193000378	6.737592920981
38000	0.000313417014	0.041259162278	-1	0.046049364891	6.614824443709
39000	0.000306327194	0.039800589723	-1	0.045914027167	6.499483934071
40000	0.000299548019	0.038428989899	-1	0.045787600189	6.390606470179
41000	0.000293055110	0.037133886376	-1	0.045670792729	6.287369879509
42000	0.000286830439	0.035909441825	-1	0.045562966904	6.189354684745
43000	0.000280858424	0.034751124893	-1	0.045463200682	6.096248949922
44000	0.000275124615	0.033654630023	-1	0.045370692651	6.007752115283
45000	0.000269615519	0.032615844662	-1	0.045284785672	5.923575449503
46000	0.000264318445	0.031630858570	-1	0.045204926400	5.843440867922
47000	0.000259221310	0.030695950663	-1	0.045130628878	5.767077870183
48000	0.000254312676	0.029807554862	-1	0.045061542232	5.694225383232
49000	0.000249581849	0.028962279619	-1	0.044997423619	5.624629557318
50000	0.000245018751	0.028156862133	-1	0.044938191513	5.558044586228
55000	0.000224424036	0.024640307869	-1	0.044708155871	5.263824831674
60000	0.000206913581	0.021804751191	-1	0.044566719584	5.021697028131
65000	0.000191833602	0.019476250169	-1	0.044493861718	4.818824283285
70000	0.000178705012	0.017534830857	-1	0.044474706509	4.646301978023
75000	0.000167168688	0.015895141390	-1	0.044498008544	4.497743954226
80000	0.000156949517	0.014494658316	-1	0.044555980853	4.368480181185
85000	0.000147830854	0.013287250518	-1	0.044639642476	4.254925000397
90000	0.000139646040	0.012237161172	-1	0.044745877837	4.154395146356

95000	0.000132256303	0.011317040743	-1	0.044869728389	4.064781650569
100000	0.000125551709	0.010505367126	-1	0.045008040430	3.984401515919
105000	0.000119441057	0.009785021445	-1	0.045157691792	3.911877792031
110000	0.000113849407	0.009142480782	-1	0.045315815467	3.846151624938
115000	0.000108713286	0.008566227549	-1	0.045481350447	3.786283481151
120000	0.000103979778	0.008047230452	-1	0.045652303513	3.731550691333
125000	0.000099603566	0.007577787487	-1	0.045827496946	3.681307582478
130000	0.000095546224	0.007151639381	-1	0.046005497303	3.635040936034
135000	0.000091774397	0.006763359942	-1	0.046185565795	3.592285828682
140000	0.000088259401	0.006408482809	-1	0.046366733796	3.552673674520
145000	0.000084976088	0.006083098454	-1	0.046548547114	3.515868370134
150000	0.000081902777	0.005783955772	-1	0.046730227288	3.481589310147
155000	0.000079020254	0.005508183249	-1	0.046911376782	3.449579401616
160000	0.000076311607	0.005253346717	-1	0.047091485180	3.419629319260
165000	0.000073761715	0.005017275214	-1	0.047270380698	3.391547049906
170000	0.000071357226	0.004798112429	-1	0.047447837613	3.365177232951
175000	0.000069085992	0.004594166956	-1	0.047624158650	3.340383823889
180000	0.000066936698	0.004403895300	-1	0.047800463249	3.317081650398
185000	0.000064906350	0.004227043062	-1	0.047964799256	3.294752809754
190000	0.000062981058	0.004061661155	-1	0.048126066811	3.273615790465
195000	0.000061153072	0.003906747928	-1	0.048284132484	3.253576730874
200000	0.000059415202	0.003761326468	-1	0.048439411118	3.234525011006
205000	0.000057757904	0.003624067720	-1	0.048598779734	3.216566434144
210000	0.000056178451	0.003494776685	-1	0.048756179830	3.199471211790
215000	0.000054672397	0.003372990541	-1	0.048909692694	3.183162816830
220000	0.000053234925	0.003258163207	-1	0.049059101661	3.167610971225
225000	0.000051861665	0.003149792291	-1	0.049204129221	3.152775070268
230000	0.000050548570	0.003047401666	-1	0.049344678236	3.138611582882
235000	0.000049291886	0.002950542239	-1	0.049480772650	3.125072349893
240000	0.000048088117	0.002858787889	-1	0.049612630167	3.112107956427
245000	0.000046933981	0.002771732854	-1	0.049740682292	3.099668722950
250000	0.000045826437	0.002688993541	-1	0.049865512149	3.087700830621
255000	0.000044762664	0.002610225645	-1	0.049987716042	3.076159781766

260000	0.000043740268	0.002535186723	-1	0.050107147126	3.065026216029
265000	0.000042757040	0.002463666254	-1	0.050223510035	3.054287861133
270000	0.000041810937	0.002395463922	-1	0.050336541045	3.043927540150
275000	0.000040900000	0.002330385419	-1	0.050446114419	3.033930898224
280000	0.000040022432	0.002268248185	-1	0.050552085819	3.024277376513
285000	0.000039176496	0.002208873515	-1	0.050654484364	3.014949778605
290000	0.000038360580	0.002152092766	-1	0.050753354902	3.005927370013
295000	0.000037573157	0.002097744198	-1	0.050848828980	2.997189354670
300000	0.000036812774	0.002045671497	-1	0.050941144124	2.988714474682

Electron Elastic Scattering Sampling Data
Solution for Z = 68

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.026795309573	2.204029341619	+1	0.062063792388	16.983852498015
52	0.025139389362	2.268298143774	+1	0.058997415582	18.035422916972
54	0.023694237958	2.116406788447	+1	0.055499876416	15.978289297010
56	0.022421855780	1.828156394176	+1	0.051759174750	12.310729312189
58	0.021291113487	1.501629714730	+1	0.047950348277	8.701019061993
60	0.020277089550	1.199352367903	+1	0.044218020152	5.898727223450
62	0.019360181613	0.945420247234	+1	0.040669857782	3.950988830038
64	0.018525118532	0.741753441760	+1	0.037375800413	2.658564705294
66	0.017760148736	0.581882846733	+1	0.034375564277	1.812839769063
68	0.017056146911	0.457404216210	+1	0.031684104814	1.257415206966
70	0.016405968522	0.360615801773	+1	0.029298620870	0.888122175755
72	0.015803985052	0.285283917961	+1	0.027205737864	0.638762409050
74	0.015245599139	0.226503324337	+1	0.025385024855	0.467489876795
76	0.014727042598	0.180533778068	+1	0.023813354085	0.347904317567
78	0.014245107470	0.144511690469	+1	0.022466791180	0.263101964894
80	0.013797000401	0.116240485276	+1	0.021322064311	0.202101230272
82	0.013380291951	0.094036630148	+1	0.020357635189	0.157670573257
84	0.012992756059	0.076592418011	+1	0.019553892056	0.124950776555
86	0.012632399541	0.062893912935	+1	0.018893439397	0.100636542648
88	0.012297379762	0.052149257045	+1	0.018361020625	0.082442243933
90	0.011985985950	0.043738367830	+1	0.017943388060	0.068766019178
92	0.011696644469	0.037177001156	+1	0.017629163533	0.058475222003
94	0.011427861895	0.032085527495	+1	0.017408609378	0.050759355761
96	0.011178255605	0.028168694037	+1	0.017273463862	0.045037687504
98	0.010946536452	0.025197678335	+1	0.017216754294	0.040893733533
100	0.010731488470	0.022996604617	+1	0.017232644217	0.038031490903
105	0.010259461875	0.020065994082	+1	0.017560054300	0.035298096257
110	0.009868417332	0.019907567439	+1	0.018257782159	0.037889359673

115	0.009544691189	0.022023416837	+1	0.019293546019	0.045954827069
120	0.009276337345	0.026376017703	+1	0.020650414060	0.060970550501
125	0.009053242723	0.033208805288	+1	0.022321410176	0.085752862740
130	0.008866652298	0.042938469511	+1	0.024305606396	0.124710911563
135	0.008709139741	0.056107579110	+1	0.026605636715	0.184362803933
140	0.008574296193	0.073357409522	+1	0.029225637060	0.274111752150
145	0.008456674822	0.095437673597	+1	0.032170184486	0.407478965942
150	0.008351615348	0.123220038514	+1	0.035443031559	0.603902294109
155	0.008255171422	0.157745407431	+1	0.039046553017	0.891566185873
160	0.008164031292	0.200272935255	+1	0.042980840143	1.311658218064
165	0.008075439481	0.252372648171	+1	0.047243378330	1.925199004813
170	0.007987176009	0.316033490456	+1	0.051828385032	2.823790767793
175	0.007897467602	0.393841476152	+1	0.056726497704	4.147429031881
180	0.007804983131	0.489215720376	+1	0.061924249007	6.114097846484
185	0.007708768555	0.606802279724	+1	0.067404161434	9.071577923647
190	0.007608289533	0.753077083196	+1	0.073145079216	13.590487514267
195	0.007503274563	0.937322558683	+1	0.079121416674	20.638844638804
200	0.007393616270	1.173221216410	+1	0.085301708827	31.923287317068
205	0.007279467840	1.481932631357	+1	0.091650938950	50.611939928475
210	0.007161398141	1.898211020545	+1	0.098134276502	82.995863245283
215	0.007040122403	2.483103654548	+1	0.104715288825	142.686600427041
220	0.006916420986	3.354290524200	+1	0.111355541507	262.801010937675
225	0.006791107954	4.771418940328	+1	0.118015444406	538.924603632095
230	0.006665014840	7.441857492343	+1	0.124654728347	1333.406708884175
235	0.006538967659	14.214629633190	+1	0.131233193599	4963.609754872916
240	0.006474730867	36.220907323278	+1	0.136712886668	32762.412903747543
245	0.006290187065	31.538109070105	-1	0.144050838027	27284.059040043834
250	0.006168936291	13.222157018260	-1	0.150215310606	5355.399665496859
255	0.006050671391	8.624761128279	-1	0.156172266115	2523.851104551227
260	0.005935959948	6.557298824245	-1	0.161898683996	1603.160748369961
265	0.005825280476	5.398976985232	-1	0.167376108544	1185.297134910498
270	0.005719026672	4.671537127742	-1	0.172589014573	960.845725124835
275	0.005617516171	4.183627857130	-1	0.177524584786	828.600671455063

280	0.005520995282	3.843993131109	-1	0.182172646654	747.135097524102
285	0.005429649602	3.603852507400	-1	0.186525535273	696.882066567485
290	0.005343603134	3.435049509511	-1	0.190577862920	667.698089004483
295	0.005262931024	3.320498183493	-1	0.194326360290	654.036957184090
300	0.005187666169	3.249567542590	-1	0.197769658836	652.847451806405
310	0.005053108542	3.213669696172	-1	0.203754486860	682.298271587675
320	0.004938669180	3.297471068719	-1	0.208603158448	752.611810232347
330	0.004842710164	3.497937629144	-1	0.212406256160	871.974878945947
340	0.004763544958	3.835270921229	-1	0.215256927821	1062.802016546338
350	0.004699515872	4.360180972299	-1	0.217247058007	1373.801067913844
360	0.004648945400	5.178718725614	-1	0.218469476648	1915.123539614588
370	0.004609916494	6.520129235687	-1	0.219028788213	2969.321098141757
380	0.004580642359	8.980253881310	-1	0.219023143605	5462.240998882961
390	0.004559560347	14.703512484091	-1	0.218539182467	14097.475427203104
400	0.004545316620	41.486425365745	-1	0.217652818349	107395.802444106430
410	0.004536706210	49.637747537502	+1	0.216431515435	152343.356034343680
420	0.004532554997	14.868374068896	+1	0.214938995034	14187.328284790688
430	0.004531840029	8.496887198380	+1	0.213230989696	4804.032443196725
440	0.004533698465	5.835923183269	+1	0.211354798549	2347.578078752607
450	0.004537413883	4.382950846850	+1	0.209350393482	1370.573165960268
460	0.004542382157	3.472026391633	+1	0.207251568152	889.606352471493
470	0.004548079480	2.850304553228	+1	0.205087132224	619.735624057805
480	0.004554059570	2.400809511762	+1	0.202881461677	454.242164991095
490	0.004559965848	2.062004071106	+1	0.200654796632	345.997529953465
500	0.004565511600	1.798456793969	+1	0.198423956338	271.644099420661
510	0.004570471723	1.588322352931	+1	0.196202631684	218.561581461578
520	0.004574676021	1.417371274653	+1	0.194001219672	179.454556945946
530	0.004577996116	1.275982257719	+1	0.191828076267	149.886610758331
540	0.004580331906	1.157433370659	+1	0.189690059876	127.041372820485
550	0.004581617378	1.056886450734	+1	0.187592762609	109.062864207163
560	0.004581807257	0.970764804627	+1	0.185540416898	94.688161871691
570	0.004580893936	0.896341979185	+1	0.183535401953	83.030515459272
580	0.004578881124	0.831530417202	+1	0.181579303682	73.457916520898

590	0.004575782443	0.774710336106	+1	0.179673324319	65.511195669574
600	0.004571615923	0.724607629610	+1	0.177818356421	58.850665901256
610	0.004566412003	0.680200655269	+1	0.176014815993	53.219926768418
620	0.004560217148	0.640647115420	+1	0.174262063188	48.420934802980
630	0.004553076873	0.605260420808	+1	0.172559210559	44.300754351333
640	0.004545041214	0.573478727050	+1	0.170905437551	40.740162979970
650	0.004536155982	0.544838153378	+1	0.169299946109	37.645192965031
660	0.004526466711	0.518950179051	+1	0.167741795102	34.940706484544
670	0.004516030443	0.495478518232	+1	0.166229481796	32.565128255037
680	0.004504899510	0.474138396039	+1	0.164761462478	30.468518056845
690	0.004493124583	0.454689173226	+1	0.163336346252	28.610228356295
700	0.004480751994	0.436926397906	+1	0.161952898657	26.956939194760
710	0.004467825080	0.420673729358	+1	0.160609860830	25.480966231285
720	0.004454393063	0.405773791286	+1	0.159305644622	24.158708188118
730	0.004440500852	0.392089716971	+1	0.158038744482	22.970368802629
740	0.004426190600	0.379503386417	+1	0.156807784136	21.899354592614
750	0.004411498466	0.367912461074	+1	0.155611503831	20.931694461284
760	0.004396460791	0.357226820020	+1	0.154448734623	20.055455189143
770	0.004381115218	0.347364346843	+1	0.153318095710	19.260174493922
780	0.004365495526	0.338252325700	+1	0.152218257112	18.536859218252
790	0.004349632617	0.329826975606	+1	0.151148039831	17.877812274017
800	0.004333554015	0.322032204855	+1	0.150106364467	17.276417211564
810	0.004317286776	0.314817887739	+1	0.149092219851	16.726907506333
820	0.004300857263	0.308137499149	+1	0.148104466740	16.224110729961
830	0.004284289451	0.301949589039	+1	0.147142039443	15.763519998588
840	0.004267606334	0.296216917652	+1	0.146203969649	15.341180217503
850	0.004250826378	0.290906707279	+1	0.145289354849	14.953667151904
860	0.004233969250	0.285989065421	+1	0.144397385978	14.597931642833
870	0.004217051952	0.281436312812	+1	0.143527146377	14.271218780478
880	0.004200091865	0.277223240887	+1	0.142677783115	13.971070273598
890	0.004183104305	0.273327226995	+1	0.141848526782	13.695320317493
900	0.004166102066	0.269727869618	+1	0.141038664066	13.442052342866
910	0.004149096974	0.266406730528	+1	0.140247513462	13.209559784470

920	0.004132102169	0.263346245006	+1	0.139474356605	12.996253415797
930	0.004115128398	0.260530466508	+1	0.138718522053	12.800717363421
940	0.004098185430	0.257944990276	+1	0.137979394685	12.621691140845
950	0.004081281168	0.255576591682	+1	0.137256365776	12.458037408517
960	0.004064424804	0.253413205326	+1	0.136548922625	12.308733744927
970	0.004047624472	0.251443420544	+1	0.135856516591	12.172830791025
980	0.004030885340	0.249656918734	+1	0.135178580399	12.049480711253
990	0.004014215134	0.248044106638	+1	0.134514662449	11.937908683735
1000	0.003997618296	0.246596179979	+1	0.133864282344	11.837415597078
1025	0.003956481219	0.243645949994	+1	0.132294715694	11.630602561050
1050	0.003915902917	0.241564318920	+1	0.130800280276	11.480527827546
1075	0.003875935837	0.240257699521	+1	0.129375003763	11.380251681955
1100	0.003836615885	0.239648480506	+1	0.128013678127	11.324227407249
1125	0.003797968658	0.239671784559	+1	0.126711699672	11.307979481513
1150	0.003760010078	0.240273387490	+1	0.125464720196	11.327876001220
1175	0.003722752426	0.241406911991	+1	0.124268796401	11.380915613169
1200	0.003686199363	0.243032411062	+1	0.123120374332	11.464624202842
1225	0.003650353098	0.245115333421	+1	0.122016255845	11.576944812638
1250	0.003615207352	0.247628349356	+1	0.120953531981	11.716337511521
1275	0.003580754515	0.250547771073	+1	0.119929565135	11.881541379426
1300	0.003546986806	0.253852198353	+1	0.118941905915	12.071474970285
1325	0.003513893452	0.257522735739	+1	0.117988270470	12.285247754019
1350	0.003481461677	0.261545613450	+1	0.117066701424	12.522323274931
1375	0.003449676873	0.265908785362	+1	0.116175316025	12.782294560516
1400	0.003418526077	0.270600961005	+1	0.115312409448	13.064825491305
1425	0.003387995693	0.275611917361	+1	0.114476318989	13.369657638667
1450	0.003358070045	0.280935244561	+1	0.113665647567	13.696807491862
1475	0.003328733170	0.286565521839	+1	0.112879025957	14.046367225776
1500	0.003299970424	0.292497343892	+1	0.112115168819	14.418446745729
1550	0.003244109693	0.305249216234	+1	0.110651108775	15.231036248320
1600	0.003190367390	0.319176316742	+1	0.109265278216	16.137759818322
1650	0.003138630289	0.334272056631	+1	0.107950370936	17.142670177665
1700	0.003088788202	0.350546948760	+1	0.106700195576	18.251406919693

1750	0.003040740229	0.368017040754	+1	0.105509163036	19.470442647432
1800	0.002994387269	0.386712330945	+1	0.104372474718	20.807814913651
1850	0.002949638676	0.406668738413	+1	0.103285811907	22.272619884657
1900	0.002906406775	0.427939636903	+1	0.102245554509	23.876047280113
1950	0.002864611712	0.450582089730	+1	0.101248318814	25.630452342456
2000	0.002824181728	0.474648310448	+1	0.100290772455	27.548741368435
2100	0.002747153637	0.527322283511	+1	0.098483371702	31.939020496984
2200	0.002674768495	0.586810026819	+1	0.096807590570	37.213910475105
2300	0.002606533040	0.654216812402	+1	0.095250979135	43.597510759763
2400	0.002542118749	0.730774624721	+1	0.093799140832	51.368857624354
2500	0.002481201939	0.817995644810	+1	0.092440087040	60.896246044631
2600	0.002423503904	0.917751039906	+1	0.091163039696	72.669967283707
2700	0.002368763784	1.032624688896	+1	0.089960374256	87.385901737557
2800	0.002316745284	1.166046376713	+1	0.088825738795	106.032178939963
2900	0.002267237985	1.322573277750	+1	0.087753399903	130.034988435772
3000	0.002220054352	1.508397306085	+1	0.086738171482	161.510341220045
3100	0.002175025455	1.732159483810	+1	0.085775323360	203.702063024719
3200	0.002132005011	2.006312369994	+1	0.084860599262	261.781132060011
3300	0.002090860759	2.349475739561	+1	0.083990160925	344.384711242639
3400	0.002051470325	2.790773795990	+1	0.083160528665	466.789605915162
3500	0.002013723118	3.378480273002	+1	0.082368634657	658.059217731325
3600	0.001977515304	4.198837955721	+1	0.081611669436	979.001757388412
3700	0.001942756267	5.422377004836	+1	0.080887037509	1574.469730396261
3800	0.001909361043	7.440446532402	+1	0.080192382556	2862.095009949147
3900	0.001877250183	11.393848157134	+1	0.079525621774	6486.871531461553
4000	0.001846350821	22.614748322467	+1	0.078884913685	24725.198959876579
4100	0.001822673349	95.364128058881	+1	0.078001781093	425770.115969822800
4200	0.001788291722	28.112575405823	-1	0.077661053413	38466.234210886876
4300	0.001760266301	13.196809461153	-1	0.077102550173	8876.317330662179
4400	0.001733585469	8.611913153632	-1	0.076549948286	3951.331607492730
4500	0.001707824479	6.372754959476	-1	0.076015973197	2259.504005674707
4600	0.001682936479	5.046358705546	-1	0.075499554532	1478.125437355549
4700	0.001658877751	4.169556548784	-1	0.074999581392	1051.782260654442

4800	0.001635608366	3.547199005333	-1	0.074515031104	792.711126394113
4900	0.001613090639	3.082762517741	-1	0.074045010332	622.933013687383
5000	0.001591287726	2.723030799121	-1	0.073588741955	505.262987632450
5500	0.001491890621	1.704228141208	-1	0.071488781310	237.485652707876
6000	0.001406100528	1.228529743076	-1	0.069638184282	145.536882337475
6500	0.001331293421	0.954648870235	-1	0.067981775471	102.100751673452
7000	0.001265467895	0.777463631913	-1	0.066480537007	77.669691166981
7500	0.001207072452	0.653908594066	-1	0.065106480487	62.320850495903
8000	0.001154896341	0.563122366344	-1	0.063838177574	51.913585809207
8500	0.001107978832	0.493777787326	-1	0.062659222298	44.452137581466
9000	0.001065548186	0.439201529849	-1	0.061556855115	38.870336867076
9500	0.001026976629	0.395211936061	-1	0.060520919287	34.552724378143
10000	0.000991749449	0.359058467644	-1	0.059543261177	31.121795353002
10500	0.000959439238	0.328856521661	-1	0.058617345060	28.334173426220
11000	0.000929692661	0.303287433375	-1	0.057737139585	26.027642856348
11500	0.000902206513	0.281375135764	-1	0.056898543946	24.088355000889
12000	0.000876727768	0.262409576611	-1	0.056097283581	22.436194894317
12500	0.000853038303	0.245843920475	-1	0.055330195356	21.011953733432
13000	0.000830952260	0.231263007194	-1	0.054594151779	19.771883227245
13500	0.000810307519	0.218336124969	-1	0.053886791652	18.682298323117
14000	0.000790964268	0.206805215970	-1	0.053205739684	17.717453255878
14500	0.000772799175	0.196459444404	-1	0.052549169736	16.856908491112
15000	0.000755705991	0.187131035500	-1	0.051915200997	16.084623373357
16000	0.000724364492	0.170989232898	-1	0.050709238425	14.754954439027
17000	0.000696304201	0.157525655960	-1	0.049577189912	13.650409103776
18000	0.000671020217	0.146138099204	-1	0.048510336218	12.717556782957
19000	0.000648106925	0.136390406240	-1	0.047501452276	11.918618174591
20000	0.000627233311	0.127959193383	-1	0.046544485850	11.226160615083
21000	0.000539838738	0.101704716314	-1	0.051193265394	11.192908239786
22000	0.000520080961	0.095347186601	-1	0.050666769558	10.711923107747
23000	0.000501184765	0.089235022224	-1	0.050192779738	10.243473461952
24000	0.000483346425	0.083532338089	-1	0.049772223321	9.803642359438
25000	0.000466737423	0.078392816310	-1	0.049395231028	9.407256973662

26000	0.000451453988	0.073915394883	-1	0.049043628880	9.063949154335
27000	0.000437358709	0.070017790003	-1	0.048706570338	8.766874102435
28000	0.000424273059	0.066582014676	-1	0.048380378167	8.506039264345
29000	0.000412035731	0.063499927634	-1	0.048066198923	8.272369793641
30000	0.000400500109	0.060672249145	-1	0.047769619292	8.057577826531
31000	0.000389548309	0.058021390258	-1	0.047497770133	7.855237669803
32000	0.000379134792	0.055529495159	-1	0.047250108973	7.664074895333
33000	0.000369233437	0.053193311038	-1	0.047023619907	7.484067376811
34000	0.000359820760	0.051009899621	-1	0.046815004620	7.315208213569
35000	0.000350875535	0.048976570822	-1	0.046620672377	7.157502680383
36000	0.000342375519	0.047088633531	-1	0.046437223112	7.010760246528
37000	0.000334288365	0.045332927096	-1	0.046263199139	6.873993181195
38000	0.000326581304	0.043694958988	-1	0.046098078840	6.746070839499
39000	0.000319223910	0.042161068915	-1	0.045941908308	6.625926938650
40000	0.000312188026	0.040718428773	-1	0.045795231857	6.512550953859
41000	0.000305448494	0.039356024761	-1	0.045658701640	6.405083263738
42000	0.000298986716	0.038067743813	-1	0.045531642761	6.303081131556
43000	0.000292786560	0.036848833329	-1	0.045413120457	6.206214699692
44000	0.000286833084	0.035694774046	-1	0.045302325060	6.114166416061
45000	0.000281112340	0.034601265423	-1	0.045198572904	6.026631968416
46000	0.000275611208	0.033564203891	-1	0.045101299746	5.943318600074
47000	0.000270317202	0.032579684453	-1	0.045010007564	5.863941791315
48000	0.000265218484	0.031643977725	-1	0.044924315748	5.788228198345
49000	0.000260304008	0.030753522394	-1	0.044843964990	5.715911356471
50000	0.000255563367	0.029904900257	-1	0.044768852904	5.646734881238
55000	0.000234162217	0.026197686944	-1	0.044464117433	5.341191512988
60000	0.000215959385	0.023205541757	-1	0.044254850113	5.089879538747
65000	0.000200277943	0.020746212409	-1	0.044119693725	4.879389411178
70000	0.000186621639	0.018693890266	-1	0.044042865414	4.700429010342
75000	0.000174618069	0.016959035604	-1	0.044012423354	4.546347553307
80000	0.000163982767	0.015476126630	-1	0.044019805227	4.412267085695
85000	0.000154491015	0.014196493380	-1	0.044056664851	4.294497361914
90000	0.000145967940	0.013083040653	-1	0.044116964879	4.190190257170

95000	0.000138271950	0.012106608987	-1	0.044197822601	4.097203178334
100000	0.000131287990	0.011244739346	-1	0.044294774717	4.013767303555
105000	0.000124921628	0.010479326088	-1	0.044405074633	3.938471186846
110000	0.000119094933	0.009796149866	-1	0.044525632057	3.870215789540
115000	0.000113741922	0.009183131824	-1	0.044654808992	3.808015943062
120000	0.000108807678	0.008630744063	-1	0.044790548783	3.751123978597
125000	0.000104245126	0.008130841105	-1	0.044931715816	3.698877302046
130000	0.000100014349	0.007676816702	-1	0.045076820914	3.650745330105
135000	0.000096080674	0.007262941759	-1	0.045225026811	3.606246891397
140000	0.000092414299	0.006884506366	-1	0.045375229453	3.564998007581
145000	0.000088989126	0.006537387257	-1	0.045526800896	3.526646523477
150000	0.000085782583	0.006218138150	-1	0.045679003766	3.490907011065
155000	0.000082774691	0.005923714017	-1	0.045831452897	3.457515555212
160000	0.000079947882	0.005651543876	-1	0.045983550259	3.426254204020
165000	0.000077286497	0.005399338242	-1	0.046134981261	3.396920387379
170000	0.000074776710	0.005165141943	-1	0.046285356684	3.369349127856
175000	0.000072406083	0.004947195621	-1	0.046434560635	3.343387127720
180000	0.000070163463	0.004743957477	-1	0.046582585870	3.318908033662
185000	0.000068038505	0.004553999123	-1	0.046730060018	3.295811450187
190000	0.000066024478	0.004376511787	-1	0.046872951884	3.273878141705
195000	0.000064114920	0.004210680388	-1	0.047007874120	3.252905627783
200000	0.000062299317	0.004054970021	-1	0.047140461633	3.232955639396
205000	0.000060570835	0.003908443176	-1	0.047271256200	3.213926325780
210000	0.000058923354	0.003770379161	-1	0.047400439839	3.195790822959
215000	0.000057348786	0.003639759009	-1	0.047533430998	3.178709050702
220000	0.000055846064	0.003516620113	-1	0.047662129346	3.162391187639
225000	0.000054410419	0.003400393831	-1	0.047786683260	3.146809318568
230000	0.000053037582	0.003290564448	-1	0.047907084430	3.131920910776
235000	0.000051723614	0.003186648663	-1	0.048023421258	3.117679296316
240000	0.000050464844	0.003088189418	-1	0.048135926922	3.104034950721
245000	0.000049257862	0.002994754427	-1	0.048244996968	3.090936223415
250000	0.000048099499	0.002905933716	-1	0.048351193015	3.078328412954
255000	0.000046986818	0.002821360091	-1	0.048455076569	3.066165874254

260000	0.000045917321	0.002740775131	-1	0.048556490566	3.054427942990
265000	0.000044888708	0.002663954699	-1	0.048655150115	3.043101848153
270000	0.000043898830	0.002590683284	-1	0.048750835901	3.032171481349
275000	0.000042945668	0.002520755709	-1	0.048843379816	3.021619608381
280000	0.000042027322	0.002453974852	-1	0.048932690176	3.011427583786
285000	0.000041142007	0.002390152417	-1	0.049018745273	3.001575581133
290000	0.000040288019	0.002329106742	-1	0.049101610552	2.992043806678
295000	0.000039463782	0.002270665198	-1	0.049181406179	2.982809741427
300000	0.000038667781	0.002214661323	-1	0.049258344757	2.973851793779

Electron Elastic Scattering Sampling Data
Solution for Z = 69

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.028337797690	2.196559700828	+1	0.063663092818	16.382475538814
52	0.026542429389	2.512692522004	+1	0.061259856219	21.139391952797
54	0.024977682825	2.596062395271	+1	0.058300205080	22.575292997064
56	0.023604386425	2.426515522028	+1	0.054937606194	20.004153256763
58	0.022389291314	2.095378781737	+1	0.051339741714	15.334254827548
60	0.021304851434	1.718873475739	+1	0.047664887363	10.749982985976
62	0.020328768386	1.371241782325	+1	0.044046821270	7.222983579846
64	0.019443289934	1.080196173444	+1	0.040586087155	4.795625659059
66	0.018634433610	0.847801013493	+1	0.037353252819	3.202403576743
68	0.017891394143	0.665907087482	+1	0.034388652886	2.169359810398
70	0.017205652654	0.524488060807	+1	0.031710322101	1.496149766694
72	0.016570583760	0.414611987366	+1	0.029320079754	1.051702589019
74	0.015980875585	0.329010034706	+1	0.027207818856	0.753225400242
76	0.015432270767	0.262100139059	+1	0.025356909106	0.549200565069
78	0.014921253055	0.209623519799	+1	0.023746981738	0.407285189302
80	0.014444826984	0.168341655424	+1	0.022356250659	0.306929774867
82	0.014000457289	0.135796906909	+1	0.021163288921	0.234900044797
84	0.013585863154	0.110096967993	+1	0.020147686514	0.182495877115
86	0.013199031584	0.089784888604	+1	0.019290721048	0.143918085190
88	0.012838130281	0.073727607689	+1	0.018575548124	0.115230435747
90	0.012501464124	0.061038551078	+1	0.017987219571	0.093718588013
92	0.012187490711	0.051023563334	+1	0.017512661209	0.077487769221
94	0.011894736374	0.043135875646	+1	0.017140550990	0.065196263102
96	0.011621848101	0.036945078886	+1	0.016861082878	0.055884263697
98	0.011367560724	0.032113229634	+1	0.016665887417	0.048861001622
100	0.011130677127	0.028375478922	+1	0.016547847919	0.043626897225
105	0.010607376978	0.022575641238	+1	0.016553124024	0.036247172471
110	0.010169917572	0.020326488349	+1	0.016935291451	0.034777649180

115	0.009804692887	0.020614507877	+1	0.017650778231	0.038182229392
120	0.009499702421	0.023071125617	+1	0.018674524329	0.046837627674
125	0.009244715749	0.027716551229	+1	0.019993873152	0.062286027908
130	0.009030801155	0.034806501449	+1	0.021604264402	0.087279801641
135	0.008850339536	0.044752355571	+1	0.023506148702	0.126053395269
140	0.008696701081	0.058073721738	+1	0.025702788695	0.184786070687
145	0.008564216984	0.075387456532	+1	0.028198826485	0.272349420669
150	0.008447984014	0.097406101486	+1	0.030999037586	0.401394067168
155	0.008343813229	0.124964880762	+1	0.034107625319	0.590033238884
160	0.008248120421	0.159051146467	+1	0.037527365438	0.864324207929
165	0.008157871087	0.200866883065	+1	0.041259256765	1.262170548025
170	0.008070539660	0.251895707910	+1	0.045301763902	1.839265443208
175	0.007984031286	0.314022740356	+1	0.049650678920	2.678736657435
180	0.007896673166	0.389675920289	+1	0.054298399671	3.906518027765
185	0.007807160819	0.482068256314	+1	0.059234024466	5.717363609778
190	0.007714598487	0.595534668044	+1	0.064443206577	8.419172362425
195	0.007618357678	0.736078658509	+1	0.069907763879	12.512254983631
200	0.007517959602	0.912218736844	+1	0.075604645160	18.835384861955
205	0.007413203155	1.136502803332	+1	0.081507353961	28.852373728009
210	0.007304343189	1.428224646447	+1	0.087587771536	45.247635506841
215	0.007191828905	1.818583514328	+1	0.093815259325	73.260411741215
220	0.007076201054	2.361473548653	+1	0.100156686662	123.983342889150
225	0.006958077771	3.158586728076	+1	0.106576910834	223.637102416143
230	0.006838126158	4.427324369622	+1	0.113039378512	444.790784836569
235	0.006717045616	6.730189335163	+1	0.119506516958	1044.232333704101
240	0.006595551575	12.109004095859	+1	0.125940561303	3445.058930941282
245	0.006485797617	35.481605301745	+1	0.132129550176	30189.172723822554
250	0.006354130212	44.108585455038	-1	0.138560231401	50048.270902467630
255	0.006235555234	14.753324449242	-1	0.144675157725	6265.420157896931
260	0.006119267758	9.121849965449	-1	0.150621949154	2659.384460995522
265	0.006005845687	6.755135690284	-1	0.156377338991	1607.216513728816
270	0.005895791154	5.468116942219	-1	0.161920516278	1152.224872059204
275	0.005789537796	4.671451954524	-1	0.167233093382	913.679543092003

280	0.005687445244	4.139962851310	-1	0.172299163304	774.436728311274
285	0.005589815668	3.769224441174	-1	0.177105292236	688.285588413477
290	0.005496885820	3.504390731087	-1	0.181640432081	633.898165872707
295	0.005408836973	3.314126579977	-1	0.185895741811	600.350395542046
300	0.005325801078	3.179455788874	-1	0.189864549849	581.657059563473
310	0.005174912590	3.032324947925	-1	0.196936399439	576.451341772460
320	0.005043694283	3.006039562048	-1	0.202889863398	604.669754861956
330	0.004931108774	3.078376140619	-1	0.207785197578	664.507277072655
340	0.004835920266	3.247506694660	-1	0.211691624889	762.285010140057
350	0.004756792758	3.528655864750	-1	0.214683101480	914.021394859338
360	0.004692284916	3.958074510401	-1	0.216839594336	1152.570331424003
370	0.004640601097	4.604716258592	-1	0.218259407501	1545.545694823429
380	0.004600017630	5.609828663220	-1	0.219037856749	2250.486026314724
390	0.004568994963	7.299409073557	-1	0.219260884515	3706.718866997532
400	0.004546172664	10.607972925410	-1	0.219005232123	7561.001522388247
410	0.004530306429	19.682296252623	-1	0.218340763783	24986.260174369127
420	0.004523852589	126.858030042397	-1	0.217359523907	991273.834655506300
430	0.004514566313	26.921846285161	+1	0.216052779905	45682.486120350586
440	0.004512625472	11.813146277216	+1	0.214542957523	9120.706927936197
450	0.004513515607	7.394674023728	+1	0.212851628689	3702.307731121246
460	0.004516548758	5.295987448651	+1	0.211017482519	1965.613196964737
470	0.004521092578	4.075925691423	+1	0.209074844110	1204.218918415072
480	0.004526609312	3.281783576267	+1	0.207053069006	806.933491031850
490	0.004532654610	2.725964598202	+1	0.204976917296	575.131916198090
500	0.004538864309	2.316751806371	+1	0.202867084410	428.903298653951
510	0.004544942090	2.004010011026	+1	0.200740856764	331.170540830854
520	0.004550645196	1.758002515619	+1	0.198612125879	262.864737395739
530	0.004555777524	1.560023715747	+1	0.196492384722	213.399969056761
540	0.004560186069	1.397733274409	+1	0.194391204751	176.530219612722
550	0.004563752356	1.262665721544	+1	0.192316475904	148.383114613107
560	0.004566390341	1.148813249708	+1	0.190274483599	126.455918121871
570	0.004568049511	1.051769692118	+1	0.188269486782	109.070465317252
580	0.004568698767	0.968257908082	+1	0.186304696360	95.074244926890

590	0.004568320491	0.895799074772	+1	0.184382777704	83.656721292262
600	0.004566908031	0.832483355096	+1	0.182505807639	74.234617775415
610	0.004564470226	0.776810423712	+1	0.180675233683	66.378966746314
620	0.004561031207	0.727570611399	+1	0.178891326755	59.766831219002
630	0.004556625153	0.683792626852	+1	0.177154014727	54.153650286628
640	0.004551285112	0.644692582295	+1	0.175463141536	49.352263680892
650	0.004545047084	0.609630740257	+1	0.173818502783	45.217427648119
660	0.004537948266	0.578076932502	+1	0.172219661428	41.634710327659
670	0.004530037178	0.549579192977	+1	0.170665496635	38.511936728993
680	0.004521362562	0.523758599999	+1	0.169154841455	35.775290149548
690	0.004511969341	0.500297386010	+1	0.167686608042	33.365360978935
700	0.004501902516	0.478927505616	+1	0.166259837797	31.233916575565
710	0.004491202178	0.459419254794	+1	0.164873475335	29.341278689979
720	0.004479916161	0.441569813784	+1	0.163526116528	27.654043997787
730	0.004468090423	0.425204170799	+1	0.162216365143	26.144437066425
740	0.004455764557	0.410172104503	+1	0.160942970740	24.789383348031
750	0.004442979678	0.396343522239	+1	0.159704824542	23.569511996081
760	0.004429769008	0.383605001974	+1	0.158500777438	22.468465159849
770	0.004416174001	0.371853479871	+1	0.157329563245	21.471989407416
780	0.004402228687	0.360998168836	+1	0.156189855664	20.567919029138
790	0.004387967671	0.350959822755	+1	0.155080549421	19.745900212600
800	0.004373420438	0.341668960472	+1	0.154000602608	18.997078794311
810	0.004358614966	0.333063547813	+1	0.152949020777	18.313771614834
820	0.004343580580	0.325086779736	+1	0.151924671986	17.689164352410
830	0.004328343898	0.317687897256	+1	0.150926490480	17.117326337982
840	0.004312929617	0.310821758691	+1	0.149953490936	16.593099708548
850	0.004297358095	0.304448416732	+1	0.149004789088	16.112015688601
860	0.004281652658	0.298531789891	+1	0.148079536635	15.670115806629
870	0.004265831199	0.293038275281	+1	0.147176833564	15.263841344438
880	0.004249915464	0.287937403489	+1	0.146295807421	14.890017580382
890	0.004233918558	0.283202221920	+1	0.145435702960	14.545902214443
900	0.004217862482	0.278807631116	+1	0.144595701532	14.228970267834
910	0.004201756062	0.274731959242	+1	0.143775217036	13.937102163144

920	0.004185615263	0.270954081203	+1	0.142973465431	13.668266265932
930	0.004169452976	0.267455152747	+1	0.142189773140	13.420683247817
940	0.004153282104	0.264217648200	+1	0.141423463890	13.192730267274
950	0.004137111071	0.261226224304	+1	0.140673981443	12.983009788908
960	0.004120952413	0.258466330506	+1	0.139940724974	12.790210284008
970	0.004104812973	0.255924715992	+1	0.139223146437	12.613170855527
980	0.004088702240	0.253589051406	+1	0.138520710471	12.450821129398
990	0.004072628569	0.251447973917	+1	0.137832882049	12.302188871033
1000	0.004056598382	0.249491243293	+1	0.137159219650	12.166415920391
1025	0.004016752265	0.245344716468	+1	0.135533961270	11.878195838898
1050	0.003977306686	0.242158867708	+1	0.133987189991	11.654764640729
1075	0.003938332683	0.239823816041	+1	0.132512648693	11.487539848609
1100	0.003899879894	0.238249310613	+1	0.131104943875	11.369722260095
1125	0.003861988001	0.237360143195	+1	0.129759321792	11.295830719362
1150	0.003824685894	0.237092605509	+1	0.128471186722	11.261352704451
1175	0.003787997155	0.237392387078	+1	0.127236397660	11.262565336625
1200	0.003751935751	0.238212977738	+1	0.126051239757	11.296401810005
1225	0.003716510369	0.239514845842	+1	0.124912403775	11.360352078270
1250	0.003681725165	0.241265442828	+1	0.123816828775	11.452417506321
1275	0.003647577878	0.243436910604	+1	0.122761724559	11.570970256529
1300	0.003614066055	0.246004265393	+1	0.121744516463	11.714611217843
1325	0.003581183932	0.248945717281	+1	0.120762850472	11.882187765180
1350	0.003548924599	0.252244405141	+1	0.119814629135	12.072883829607
1375	0.003517277025	0.255885734117	+1	0.118897911227	12.286063811360
1400	0.003486231790	0.259856010412	+1	0.118010838790	12.521162467110
1425	0.003455778419	0.264143132019	+1	0.117151720671	12.777739885099
1450	0.003425904526	0.268738675472	+1	0.116319056452	13.055609988434
1475	0.003396596274	0.273635413818	+1	0.115511442148	13.354685465044
1500	0.003367841542	0.278826272373	+1	0.114727527184	13.674897766278
1550	0.003311942156	0.290068009581	+1	0.113225935255	14.378932661187
1600	0.003258101430	0.302436466230	+1	0.111805609697	15.169420654680
1650	0.003206219166	0.315912995349	+1	0.110458827939	16.048912976159
1700	0.003156192607	0.330496915930	+1	0.109179076860	17.021515930411

1750	0.003107927020	0.346193026881	+1	0.107960482185	18.092054997306
1800	0.003061329782	0.363018930915	+1	0.106798020611	19.266688848996
1850	0.003016317066	0.380997292277	+1	0.105687111902	20.552386921365
1900	0.002972804176	0.400168378144	+1	0.104623991238	21.958031459072
1950	0.002930715023	0.420574860629	+1	0.103605088007	23.493331850997
2000	0.002889981848	0.442252119775	+1	0.102626865398	25.168115700605
2100	0.002812329577	0.489615081872	+1	0.100780523592	28.983703221971
2200	0.002739325040	0.542922949687	+1	0.099067953450	33.534511186166
2300	0.002670447407	0.603083075436	+1	0.097477189462	38.997407588244
2400	0.002605368340	0.671066668555	+1	0.095993675813	45.585995295342
2500	0.002543786637	0.748016096059	+1	0.094604458409	53.572953710119
2600	0.002485429514	0.835326547433	+1	0.093298288221	63.313941440677
2700	0.002430036415	0.934943615422	+1	0.092067445051	75.307700059734
2800	0.002377372129	1.049411334049	+1	0.090905593671	90.246025597686
2900	0.002327223686	1.182029262066	+1	0.089806951123	109.098199182812
3000	0.002279405072	1.337151962096	+1	0.088766259992	133.252550535864
3100	0.002233747221	1.520663514561	+1	0.087778703748	164.753219516591
3200	0.002190105083	1.740747751160	+1	0.086840014512	206.710653711603
3300	0.002148345823	2.009105919643	+1	0.085946341502	264.033970100182
3400	0.002108347754	2.343058391102	+1	0.085094190190	344.820972700002
3500	0.002069999910	2.769381576873	+1	0.084280453102	463.179033828888
3600	0.002033199175	3.331783357037	+1	0.083502284876	645.428918447575
3700	0.001997854978	4.106745457116	+1	0.082757069984	945.217987733155
3800	0.001963883201	5.241427188905	+1	0.082042453830	1485.873331731786
3900	0.001931203730	7.059858493484	+1	0.081356333391	2604.364107461601
4000	0.001899744481	10.442751450087	+1	0.080696843767	5510.915429747433
4100	0.001869435645	18.922685236319	+1	0.080062291878	17517.760691193664
4200	0.001842635549	65.709327165504	+1	0.079350887269	204659.671710770260
4300	0.001812030287	38.951913826999	-1	0.078861412329	73392.937226482201
4400	0.001784823615	15.551009250274	-1	0.078292145961	12227.515394752862
4500	0.001758545935	9.672823757203	-1	0.077741992227	4939.910386896893
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4700	0.001708590918	5.469798758540	-1	0.076694592488	1717.520753847291

4800	0.001684830813	4.481323691042	-1	0.076195186119	1200.471029099125
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5000	0.001639554297	3.279315729642	-1	0.075240384647	695.252314912749
5500	0.001537914985	1.939825477280	-1	0.073075360497	291.884494139086
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6500	0.001373409512	1.043984181855	-1	0.069459531814	115.816898327754
7000	0.001305886779	0.842289539852	-1	0.067911517684	86.463595999056
7500	0.001245939233	0.703814485981	-1	0.066494558403	68.471860848844
8000	0.001192340241	0.603186718330	-1	0.065186565325	56.487364182487
8500	0.001144114268	0.526960296044	-1	0.063970592250	48.009868571806
9000	0.001100475572	0.467353390483	-1	0.062833473691	41.734608600652
9500	0.001060785851	0.419556019274	-1	0.061764757216	36.921838698002
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10500	0.000991242009	0.347874469700	-1	0.059800584545	30.057127939383
11000	0.000960591310	0.320387329895	-1	0.058892212133	27.532113375061
11500	0.000932258051	0.296891025062	-1	0.058026697911	25.418445576010
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12500	0.000881545473	0.258908597811	-1	0.056407875158	22.083540599286
13000	0.000858752953	0.243363912089	-1	0.055648106013	20.745787869090
13500	0.000837440222	0.229603022490	-1	0.054917966092	19.573572574573
14000	0.000817464528	0.217344589883	-1	0.054214979900	18.538109470924
14500	0.000798699504	0.206359176601	-1	0.053537289677	17.616642642535
15000	0.000781035881	0.196464483158	-1	0.052882997381	16.791374103878
16000	0.000748634536	0.179366690547	-1	0.051638541018	15.374317859181
17000	0.000719608953	0.165128613010	-1	0.050470685092	14.200971486397
18000	0.000693441609	0.153102197994	-1	0.049370449819	13.212775274345
19000	0.000669716107	0.142819272850	-1	0.048330420641	12.368506466781
20000	0.000648093657	0.133933715571	-1	0.047344359749	11.638332143963
21000	0.000560644680	0.107225992156	-1	0.051752010751	11.550758978767
22000	0.000540229320	0.100534960460	-1	0.051187941913	11.043219932389
23000	0.000520705433	0.094104106670	-1	0.050676793566	10.549796094273
24000	0.000502272721	0.088105978435	-1	0.050219953010	10.087235583809
25000	0.000485105578	0.082701934108	-1	0.049808086122	9.670884732393

26000	0.000469301707	0.077995640943	-1	0.049423479356	9.310599984654
27000	0.000454720080	0.073899942451	-1	0.049055242671	8.999046349231
28000	0.000441177923	0.070290336583	-1	0.048699456670	8.725659614717
29000	0.000428509886	0.067052748095	-1	0.048357042831	8.480886698995
30000	0.000416565797	0.064082560318	-1	0.048033301313	8.256032185655
31000	0.000405224795	0.061298045537	-1	0.047735085903	8.044368465253
32000	0.000394439912	0.058680396035	-1	0.047461783304	7.844539024750
33000	0.000384184149	0.056226195946	-1	0.047210368957	7.656490513337
34000	0.000374433137	0.053932343900	-1	0.046977557855	7.480187368172
35000	0.000365164942	0.051796032786	-1	0.046759780472	7.315609153580
36000	0.000356356440	0.049812318539	-1	0.046553669198	7.162534687090
37000	0.000347974384	0.047967381463	-1	0.046357731361	7.019918763592
38000	0.000339984979	0.046245983716	-1	0.046171400578	6.886573319960
39000	0.000332357006	0.044633777161	-1	0.045994661069	6.761377249230
40000	0.000325061385	0.043117279027	-1	0.045827997939	6.643274088090
41000	0.000318072271	0.041684915062	-1	0.045672004621	6.531362396399
42000	0.000311370445	0.040330275381	-1	0.045525980966	6.425176067540
43000	0.000304939288	0.039048379396	-1	0.045388973908	6.324364712100
44000	0.000298763338	0.037834495625	-1	0.045260152917	6.228593429748
45000	0.000292828179	0.036684112948	-1	0.045138820120	6.137541033019
46000	0.000287120280	0.035592924630	-1	0.045024400779	6.050898528648
47000	0.000281626731	0.034556848658	-1	0.044916369543	5.968367675612
48000	0.000276335339	0.033571973017	-1	0.044814329651	5.889660658918
49000	0.000271234652	0.032634553511	-1	0.044718017897	5.814499475153
50000	0.000266313934	0.031741023493	-1	0.044627282804	5.742615027439
55000	0.000244094548	0.027835558715	-1	0.044249188098	5.425254753903
60000	0.000225188643	0.024680503937	-1	0.043973402402	5.164381545860
65000	0.000208896057	0.022084976934	-1	0.043777236600	4.945978955468
70000	0.000194703273	0.019917088102	-1	0.043644038524	4.760343261741
75000	0.000182224634	0.018082990928	-1	0.043561119123	4.600542348086
80000	0.000171165846	0.016514007400	-1	0.043519266554	4.461488138391
85000	0.000161293692	0.015159052712	-1	0.043509776721	4.339353668313
90000	0.000152426978	0.013979173899	-1	0.043526281071	4.231175403208

95000	0.000144419108	0.012943788327	-1	0.043565440654	4.134721131468
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105000	0.000130523712	0.011216593143	-1	0.043694884868	3.970024421037
110000	0.000124457370	0.010490785113	-1	0.043778996537	3.899179290711
115000	0.000118883372	0.009839176474	-1	0.043872902374	3.834590221716
120000	0.000113744605	0.009251703226	-1	0.043974598018	3.775490892622
125000	0.000108992117	0.008719759874	-1	0.044082962975	3.721201700831
130000	0.000104584469	0.008236389343	-1	0.044196385814	3.671171809311
135000	0.000100485745	0.007795559387	-1	0.044313861057	3.624899208171
140000	0.000096664986	0.007392297631	-1	0.044434227686	3.581986555470
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150000	0.000089752597	0.006681766790	-1	0.044680821572	3.504855933806
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160000	0.000083669295	0.006077149760	-1	0.044931101866	3.437487631090
165000	0.000080894029	0.005807875023	-1	0.045056355897	3.406897118288
170000	0.000078276573	0.005557749571	-1	0.045181099564	3.378127085113
175000	0.000075804053	0.005324915116	-1	0.045305127133	3.351016387886
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185000	0.000071248921	0.004904824224	-1	0.045550239822	3.301237284237
190000	0.000069146505	0.004714852448	-1	0.045671309486	3.278356259404
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205000	0.000063448821	0.004213039386	-1	0.046013966373	3.216013886654
210000	0.000061729284	0.004065275034	-1	0.046121657462	3.197022931578
215000	0.000060089012	0.003925969116	-1	0.046226841889	3.178897584489
220000	0.000058521559	0.003794310200	-1	0.046331887482	3.161687884203
225000	0.000057021845	0.003669680678	-1	0.046437563751	3.145381607426
230000	0.000055587797	0.003551915924	-1	0.046539099418	3.129781412976
235000	0.000054215180	0.003440480048	-1	0.046636814724	3.114846942934
240000	0.000052900140	0.003334878700	-1	0.046731018184	3.100529983773
245000	0.000051639112	0.003234648164	-1	0.046822109012	3.086777969456
250000	0.000050428771	0.003139349169	-1	0.046910649020	3.073536903522
255000	0.000049266076	0.003048590487	-1	0.046997150227	3.060758177228

260000	0.000048148406	0.002962095541	-1	0.047081488938	3.048422667020
265000	0.000047073378	0.002879625133	-1	0.047163381687	3.036515171587
270000	0.000046038735	0.002800950186	-1	0.047242610378	3.025020418391
275000	0.000045042385	0.002725851096	-1	0.047319030307	3.013920173056
280000	0.000044082336	0.002654117610	-1	0.047392549764	3.003195884595
285000	0.000043156731	0.002585548839	-1	0.047463135598	2.992826470017
290000	0.000042263806	0.002519951165	-1	0.047530852755	2.982791364625
295000	0.000041401910	0.002457140764	-1	0.047595802125	2.973067992770
300000	0.000040569469	0.002396939553	-1	0.047658186481	2.963633734832

Electron Elastic Scattering Sampling Data
Solution for Z = 70

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.029982984676	1.966345451564	+1	0.064557674464	13.034893657005
52	0.028039044704	2.457482709687	+1	0.062850691129	19.768737465773
54	0.026343237594	2.832373188274	+1	0.060532573246	25.868062591343
56	0.024856771727	2.948908036384	+1	0.057699168463	27.990478947327
58	0.023545474049	2.771270125911	+1	0.054485421070	24.989870292285
60	0.022380059261	2.399066963986	+1	0.051040314528	19.168762111168
62	0.021336012073	1.969147826843	+1	0.047507180479	13.382146904330
64	0.020393148801	1.570552438920	+1	0.044008910590	8.931283210018
66	0.019535517170	1.237128398919	+1	0.040640453783	5.886478496873
68	0.018750083320	0.971533079757	+1	0.037472077835	3.903779150359
70	0.018026780521	0.764063006458	+1	0.034545436622	2.627996231509
72	0.017357680179	0.603045964883	+1	0.031882464751	1.802830275851
74	0.016736492083	0.477970214385	+1	0.029488290773	1.261369973296
76	0.016158238320	0.380485643318	+1	0.027357184872	0.899772756351
78	0.015618887277	0.304169964515	+1	0.025476027476	0.653745697280
80	0.015115109411	0.244157179837	+1	0.023827342614	0.483244737811
82	0.014644136703	0.196791234762	+1	0.022391955244	0.363056215905
84	0.014203562730	0.159285809635	+1	0.021150120390	0.276975869091
86	0.013791297138	0.129520922417	+1	0.020082857371	0.214445374408
88	0.013405475673	0.105861895936	+1	0.019172398530	0.168445283634
90	0.013044398038	0.087038493792	+1	0.018402516404	0.134229368113
92	0.012706529342	0.072060249769	+1	0.017758692173	0.108541842070
94	0.012390419328	0.060146159928	+1	0.017228048293	0.089109282249
96	0.012094741047	0.050680685392	+1	0.016799292201	0.074326603487
98	0.011818245071	0.043177892506	+1	0.016462676623	0.063048378224
100	0.011559764950	0.037251673167	+1	0.016209699324	0.054445476165
105	0.010985285707	0.027489779843	+1	0.015898188834	0.041086599733
110	0.010500855668	0.022610515962	+1	0.015980252577	0.035386627775

115	0.010093021986	0.020905938051	+1	0.016399514107	0.034904791244
120	0.009749832732	0.021564981798	+1	0.017121264430	0.038979838358
125	0.009461013473	0.024317829199	+1	0.018125813396	0.048147527103
130	0.009217530065	0.029220479766	+1	0.019403659604	0.063971979933
135	0.009011620257	0.036536222011	+1	0.020951979022	0.089131276653
140	0.008836480042	0.046662780452	+1	0.022772094363	0.127668698048
145	0.008686261031	0.060100789169	+1	0.024867747532	0.185443356516
150	0.008555859509	0.077436945213	+1	0.027243721608	0.270793892708
155	0.008440885818	0.099354080116	+1	0.029905022724	0.395562132317
160	0.008337533354	0.126645297044	+1	0.032855995711	0.576575583186
165	0.008242544523	0.160254383779	+1	0.036099890208	0.837935647961
170	0.008153140087	0.201319238995	+1	0.039638213261	1.214427239202
175	0.008066972548	0.251250383755	+1	0.043470436302	1.756898184262
180	0.007982081241	0.311823698994	+1	0.047593488257	2.540626458216
185	0.007896873978	0.385329883171	+1	0.052001542442	3.678944046525
190	0.007810145743	0.474772635505	+1	0.056685821209	5.345532399827
195	0.007720955175	0.584193348587	+1	0.061634301066	7.812748136500
200	0.007628501920	0.719158939815	+1	0.066831167595	11.519139393174
205	0.007532262551	0.887561081818	+1	0.072257451479	17.193726685229
210	0.007432186108	1.100905866751	+1	0.077891506960	26.093507792713
215	0.007328437228	1.376677819919	+1	0.083708709896	40.490883430179
220	0.007221303795	1.742804003125	+1	0.089681704815	64.746066498737
225	0.007111171358	2.246769026087	+1	0.095780699731	107.893553687941
230	0.006998509170	2.976280138625	+1	0.101973877871	190.684934409372
235	0.006883847239	4.113150085878	+1	0.108227895939	368.245825320768
240	0.006767758642	6.105424213345	+1	0.114508365700	823.349922638460
245	0.006650841184	10.435145924312	+1	0.120780345223	2448.407369182133
250	0.006533706462	26.662971705978	+1	0.127008889295	16317.128692590339
255	0.006416972371	78.300856486618	-1	0.133160445220	147697.378518128880
260	0.006494096588	317.259340664739	+1	0.134731561460	2405382.132881649800
265	0.006609569591	332.721431542524	+1	0.136834849834	2645656.530821541800
270	0.006723545031	347.493862372081	+1	0.138900977111	2885930.928804850200
275	0.006835391009	381.446788169535	+1	0.140941859857	3477767.826267719700

280	0.006945834438	412.982581229470	+1	0.142942066366	4076928.942624862300
285	0.007054780433	442.272558398346	+1	0.144902038460	4676090.059096156600
290	0.007162141474	469.737362017230	+1	0.146822048937	5275251.175653980100
295	0.007266454396	600.858232584000	+1	0.148730857284	8632438.413314849100
300	0.007370257316	650.759161938635	+1	0.150574131918	10126527.508184206000
310	0.007573211376	697.092232253050	+1	0.154129777457	11620616.603168599000
320	0.007768826536	740.527537669232	+1	0.157529257057	13114705.698240155000
330	0.007957019735	781.548317982698	+1	0.160774918322	14608794.793380005000
340	0.008137167307	873.178492122154	+1	0.163877068753	18237207.008042090000
350	0.008309997297	950.454118649602	+1	0.166827082009	21610034.506179754000
360	0.008475935617	969.147167776127	+1	0.169622902443	22468976.506952908000
370	0.008633940234	976.609858368240	+1	0.172278225270	22818656.422888909000
380	0.008785114430	982.640017861520	+1	0.174791667128	23101579.136691835000
390	0.008929044332	984.596583258640	+1	0.177169769082	23193766.987257008000
400	0.009065596715	995.688942947752	+1	0.179418295464	23719876.651690852000
410	0.009195174367	999.014832816304	+1	0.181538213140	23878821.704390429000
420	0.009317703321	1003.812278820658	+1	0.183535852533	24109292.330805343000
430	0.009432552502	1011.048511288987	+1	0.185402118814	24458972.246746093000
440	0.009542014301	1017.977731539734	+1	0.187176799100	24796731.233735569000
450	0.009644641375	1017.977664470853	+1	0.188825488134	24796740.983735573000
460	0.009740882249	1017.977597620982	+1	0.190365824888	24796750.733735580000
470	0.009829297709	1019.902132131236	+1	0.191810441714	24896091.141675919000
480	0.009913273599	1019.880928283152	+1	0.193145741950	24895074.555738635000
490	0.009990952436	1014.752275587195	+1	0.194385183134	24646722.535894129000
500	0.009994364332	374.325596832018	+1	0.195755409500	3387733.243093480400
510	0.004518608576	2.638509744849	+1	0.204990433843	545.356854871785
520	0.004525015113	2.258749098466	+1	0.202970588492	412.379330481467
530	0.004531246662	1.965178317477	+1	0.200936951780	321.921799923930
540	0.004537092023	1.732151192098	+1	0.198902005995	257.810427672887
550	0.004542379018	1.543242678047	+1	0.196876195598	210.853641457790
560	0.004546975000	1.387439262913	+1	0.194868036830	175.520172635637
570	0.004550782242	1.257057552951	+1	0.192883939742	148.320070523935
580	0.004553729667	1.146603441156	+1	0.190929023060	126.972588864992

590	0.004555763810	1.052053610208	+1	0.189007579223	109.939497545136
600	0.004556849180	0.970395479664	+1	0.187123077059	96.153600123713
610	0.004556965409	0.899323134429	+1	0.185278177755	84.855352917291
620	0.004556117733	0.837024461561	+1	0.183474268408	75.489967413655
630	0.004554315027	0.782074285691	+1	0.181712256957	67.648083195680
640	0.004551575833	0.733339606506	+1	0.179992812316	61.022821378156
650	0.004547918982	0.689910209245	+1	0.178316418447	55.380841051221
660	0.004543371474	0.651042239200	+1	0.176683269200	50.541589570544
670	0.004537971780	0.616112202621	+1	0.175092788001	46.362444740714
680	0.004531758966	0.584603340562	+1	0.173544219495	42.730887825406
690	0.004524772822	0.556086454859	+1	0.172036948286	39.557549658342
700	0.004517049424	0.530202550705	+1	0.170570271741	36.770736067369
710	0.004508627098	0.506646761359	+1	0.169143450823	34.312144685368
720	0.004499551633	0.485152815709	+1	0.167755330477	32.133351071482
730	0.004489864358	0.465492776008	+1	0.166404723745	30.194528568069
740	0.004479606804	0.447471938107	+1	0.165090536252	28.462807304101
750	0.004468814938	0.430923289637	+1	0.163811814430	26.910928619941
760	0.004457526949	0.415701306037	+1	0.162567577957	25.515943450815
770	0.004445779964	0.401675279170	+1	0.161356573547	24.258132902295
780	0.004433611644	0.388730976716	+1	0.160177610120	23.120794141835
790	0.004421055829	0.376768648558	+1	0.159029599614	22.089768931384
800	0.004408144548	0.365701400024	+1	0.157911582185	21.153031480076
810	0.004394906434	0.355451956407	+1	0.156822580259	20.300209973854
820	0.004381372459	0.345949905484	+1	0.155761525067	19.522181186973
830	0.004367572393	0.337132280292	+1	0.154727353558	18.811013678603
840	0.004353532027	0.328943546078	+1	0.153719120183	18.159877248571
850	0.004339274510	0.321334569866	+1	0.152735921644	17.562853254293
860	0.004324823131	0.314261277666	+1	0.151776957373	17.014759402204
870	0.004310200644	0.307682578371	+1	0.150841306616	16.510921346268
880	0.004295428213	0.301561674928	+1	0.149928112122	16.047240676791
890	0.004280524102	0.295865462295	+1	0.149036514205	15.620105323440
900	0.004265508180	0.290564469363	+1	0.148165852340	15.226355424892
910	0.004250394256	0.285631874991	+1	0.147315385699	14.863180629330

920	0.004235200725	0.281042514123	+1	0.146484382034	14.528004880570
930	0.004219941199	0.276773542664	+1	0.145672135250	14.218543838840
940	0.004204629443	0.272804339218	+1	0.144877967722	13.932762171091
950	0.004189278303	0.269116156780	+1	0.144101287249	13.668845655819
960	0.004173899242	0.265692064419	+1	0.143341535061	13.425179188908
970	0.004158503331	0.262515971361	+1	0.142598085257	13.200261438961
980	0.004143100268	0.259573312467	+1	0.141870410122	12.992759033914
990	0.004127699738	0.256850653318	+1	0.141157957891	12.801456223747
1000	0.004112310497	0.254335952494	+1	0.140460283171	12.625280240455
1025	0.004073934461	0.248886363175	+1	0.138777516246	12.244697067994
1050	0.004035786381	0.244509368302	+1	0.137176582563	11.939176335850
1075	0.003997957386	0.241075426735	+1	0.135650980197	11.698062122821
1100	0.003960514067	0.238478930972	+1	0.134195178692	11.512969645958
1125	0.003923507506	0.236632459624	+1	0.132804281580	11.377184480894
1150	0.003886983023	0.235460901598	+1	0.131473447179	11.285096874898
1175	0.003850974996	0.234900797531	+1	0.130198304519	11.232119035595
1200	0.003815509184	0.234898204241	+1	0.128974972820	11.214483141985
1225	0.003780602551	0.235407488701	+1	0.127799995105	11.229112538850
1250	0.003746268096	0.236390361323	+1	0.126670173725	11.273496942534
1275	0.003712510226	0.237813928245	+1	0.125582553005	11.345565553854
1300	0.003679334460	0.239649262146	+1	0.124534500071	11.443564392512
1325	0.003646739352	0.241871145571	+1	0.123523556303	11.566035868217
1350	0.003614722257	0.244459464722	+1	0.122547510300	11.711877919225
1375	0.003583276932	0.247396614519	+1	0.121604298988	11.880186285072
1400	0.003552398562	0.250666517511	+1	0.120692012905	12.070176599435
1425	0.003522080229	0.254254942865	+1	0.119808871724	12.281206681833
1450	0.003492311729	0.258151282272	+1	0.118953286664	12.512889510143
1475	0.003463082810	0.262346365385	+1	0.118123776613	12.764946518496
1500	0.003434383906	0.266831492339	+1	0.117318963405	13.037146265017
1550	0.003378534876	0.276642947527	+1	0.115778219036	13.641480209987
1600	0.003324674994	0.287546107098	+1	0.114321957888	14.326277799992
1650	0.003272716227	0.299511228972	+1	0.112942058395	15.092789126258
1700	0.003222565961	0.312526851076	+1	0.111631672215	15.943761486476

1750	0.003174138931	0.326587320878	+1	0.110384647018	16.882599050983
1800	0.003127348793	0.341699569356	+1	0.109195669325	17.913911115941
1850	0.003082117755	0.357875472775	+1	0.108059959521	19.042997178647
1900	0.003038365435	0.375143750750	+1	0.106973520830	20.276837368662
1950	0.002996019152	0.393534950265	+1	0.105932648578	21.623051077244
2000	0.002955016311	0.413070609907	+1	0.104933567777	23.089046135968
2100	0.002876800319	0.455711384515	+1	0.103048215472	26.416740537457
2200	0.002803203975	0.503601098346	+1	0.101299846726	30.362872943761
2300	0.002733751906	0.557449538775	+1	0.099674879451	35.063976275111
2400	0.002668047545	0.618067225055	+1	0.098160434674	40.690096882834
2500	0.002605835534	0.686304053457	+1	0.096741952027	47.443664293716
2600	0.002546852843	0.763202191292	+1	0.095407629881	55.585738785590
2700	0.002490839730	0.850247192608	+1	0.094149645865	65.480350539405
2800	0.002437558017	0.949360296184	+1	0.092961625973	77.622734880694
2900	0.002386797492	1.062977008299	+1	0.091837721845	92.688315868952
3000	0.002338371423	1.194231342321	+1	0.090772597657	111.615697037121
3100	0.002292112305	1.347241340942	+1	0.089761327502	135.739712509830
3200	0.002247874463	1.527575607102	+1	0.088799603741	167.015508731797
3300	0.002205525036	1.742914776160	+1	0.087883580043	208.390130854683
3400	0.002164943424	2.004134408207	+1	0.087009760722	264.461395677785
3500	0.002126018673	2.327161793160	+1	0.086174969681	342.711892627737
3600	0.002088648503	2.736303717553	+1	0.085376349862	455.963550822607
3700	0.002052741828	3.270589421520	+1	0.084611257297	627.641304652405
3800	0.002018214494	3.996919187966	+1	0.083877334651	904.223417468151
3900	0.001984987092	5.040359551434	+1	0.083172463514	1388.664468429156
4000	0.001952986792	6.664899071071	+1	0.082494763181	2347.314035621510
4100	0.001922145036	9.540383164957	+1	0.081842529260	4654.402702666518
4200	0.001892400700	16.007565066666	+1	0.081214057942	12692.585679776395
4300	0.001863697024	43.931009137374	+1	0.080607781250	92685.019167932609
4400	0.001835981151	67.873987322694	-1	0.080022297631	221068.803706078880
4500	0.001809201497	19.172466389488	-1	0.079456385609	18418.296783770722
4600	0.001783311567	11.110373780913	-1	0.078908925978	6452.213909917828
4700	0.001758267752	7.796668698844	-1	0.078378773474	3311.504611554048

4800	0.001734030063	5.991501869050	-1	0.077864872487	2036.311142581319
4900	0.001710560703	4.856220009002	-1	0.077366308295	1391.738237554213
5000	0.001687822347	4.076564766028	-1	0.076882248588	1019.469236841249
5500	0.001583992998	2.235839014599	-1	0.074653686965	367.903370817471
6000	0.001494157865	1.523086317290	-1	0.072689203666	201.305812311999
6500	0.001415651934	1.146827032785	-1	0.070931406282	132.591262539106
7000	0.001346455394	0.915442175308	-1	0.069337841542	96.895116684829
7500	0.001284975463	0.759359263303	-1	0.067879036477	75.615823556303
8000	0.001229969438	0.647328446037	-1	0.066532337242	61.717770826417
8500	0.001180447637	0.563236773215	-1	0.065280296000	52.030427572543
9000	0.001135612060	0.497941447392	-1	0.064109321600	44.941365975061
9500	0.001094812907	0.445874921464	-1	0.063008662202	39.554266376364
10000	0.001057516054	0.403457071036	-1	0.061969647807	35.335610672465
10500	0.001023276919	0.368279146334	-1	0.060985380931	31.949779731230
11000	0.000991727808	0.338679706886	-1	0.060049518336	29.177456421739
11500	0.000962552181	0.313446446705	-1	0.059157703618	26.867551035133
12000	0.000935486538	0.291705293965	-1	0.058305473689	24.915144117298
12500	0.000910302884	0.272790326739	-1	0.057489484772	23.243791211584
13000	0.000886806990	0.256199380997	-1	0.056706467751	21.797581894994
13500	0.000864829047	0.241535647977	-1	0.055953948178	20.533940103681
14000	0.000844223066	0.228491362515	-1	0.055229418148	19.420584667138
14500	0.000824859636	0.216816453551	-1	0.054530966047	18.432110093591
15000	0.000806627453	0.206312738251	-1	0.053856652727	17.548710256154
16000	0.000773168197	0.188189256457	-1	0.052574238319	16.036094714081
17000	0.000743178282	0.173122937769	-1	0.051370960114	14.787806485916
18000	0.000716127910	0.160415089891	-1	0.050237658377	13.739519037712
19000	0.000691590087	0.149562634729	-1	0.049166711329	12.846165685542
20000	0.000669217464	0.140194617038	-1	0.048151711599	12.075260677437
21000	0.000581732423	0.113009257351	-1	0.052326898529	11.931729487320
22000	0.000560658250	0.105966517109	-1	0.051725725970	11.395716215733
23000	0.000540505259	0.099200004910	-1	0.051177940391	10.875565478650
24000	0.000521476421	0.092891113293	-1	0.050685363070	10.388727515574
25000	0.000503749072	0.087209230329	-1	0.050239135915	9.951086371939

26000	0.000487422387	0.082262912885	-1	0.049821971488	9.572727137512
27000	0.000472351919	0.077959781625	-1	0.049422917958	9.245777531493
28000	0.000458350571	0.074168339184	-1	0.049037863743	8.959059663880
29000	0.000445249125	0.070768266137	-1	0.048667497245	8.702505853950
30000	0.000432893693	0.067649284370	-1	0.048316861052	8.466987845101
31000	0.000421160526	0.064725283502	-1	0.047992562141	8.245454393103
32000	0.000410001290	0.061976463262	-1	0.047693903161	8.036459008527
33000	0.000399388123	0.059399213375	-1	0.047417856859	7.839913342649
34000	0.000389295778	0.056990272685	-1	0.047161141206	7.655751718528
35000	0.000379701512	0.054746679772	-1	0.046920206995	7.483924767768
36000	0.000370581556	0.052663244998	-1	0.046691708757	7.324175801878
37000	0.000361901580	0.050725434977	-1	0.046474123035	7.175400099850
38000	0.000353626908	0.048917230673	-1	0.046266839097	7.036345799090
39000	0.000345725370	0.047223556789	-1	0.046069787144	6.905837067220
40000	0.000338167104	0.045630237403	-1	0.045883398741	6.782765340245
41000	0.000330925530	0.044125127370	-1	0.045708195688	6.666186111374
42000	0.000323980841	0.042701495090	-1	0.045543459708	6.555607276285
43000	0.000317315881	0.041354122377	-1	0.045388217559	6.450657623026
44000	0.000310914700	0.040078050287	-1	0.045241621502	6.350982805453
45000	0.000304762398	0.038868543750	-1	0.045102965991	6.256244382311
46000	0.000298845076	0.037721101490	-1	0.044971647676	6.166115797390
47000	0.000293149363	0.036631437895	-1	0.044847129017	6.080283838444
48000	0.000287662671	0.035595450994	-1	0.044728998468	5.998446539995
49000	0.000282373229	0.034609221439	-1	0.044616965586	5.920311319766
50000	0.000277269961	0.033669002052	-1	0.044510870918	5.845596814273
55000	0.000254220615	0.029557402632	-1	0.044060695051	5.515904025606
60000	0.000234600993	0.026232936690	-1	0.043719582702	5.245077202564
65000	0.000217687645	0.023495582226	-1	0.043463750005	5.018450359088
70000	0.000202949671	0.021207285444	-1	0.043275477634	4.825890543665
75000	0.000189988091	0.019269721489	-1	0.043141334776	4.660166810218
80000	0.000178498443	0.017610902433	-1	0.043051540674	4.515975381803
85000	0.000168239272	0.016177259457	-1	0.042996987917	4.389334818000
90000	0.000159022866	0.014927953873	-1	0.042970908728	4.277167548779

95000	0.000150697460	0.013830867844	-1	0.042969655969	4.177146784816
100000	0.000143139419	0.012861237032	-1	0.042988252208	4.087368591419
105000	0.000136247164	0.011999031825	-1	0.043023598633	4.006315706758
110000	0.000129936872	0.011228535273	-1	0.043072300521	3.932806065677
115000	0.000124137598	0.010536389374	-1	0.043132314110	3.865782304988
120000	0.000118790225	0.009912021447	-1	0.043201414849	3.804441657539
125000	0.000113844097	0.009346385683	-1	0.043278242813	3.748072151804
130000	0.000109256205	0.008832146522	-1	0.043361146697	3.696105530702
135000	0.000104989209	0.008362939819	-1	0.043449077919	3.648027139639
140000	0.000101011039	0.007933524737	-1	0.043540806283	3.603424166746
145000	0.000097293587	0.007539303554	-1	0.043635586034	3.561920010693
150000	0.000093812428	0.007176431356	-1	0.043732569500	3.523210601877
155000	0.000090546004	0.006841508418	-1	0.043831258898	3.487014648174
160000	0.000087475461	0.006531668736	-1	0.043930947701	3.453096208792
165000	0.000084583972	0.006244355551	-1	0.044031220475	3.421237984206
170000	0.000081856620	0.005977383031	-1	0.044131569661	3.391260883034
175000	0.000079280002	0.005728786157	-1	0.044231729047	3.362998862338
180000	0.000076842207	0.005496861725	-1	0.044331383840	3.336309219904
185000	0.000074532503	0.005280080409	-1	0.044430351650	3.311059159772
190000	0.000072341312	0.005077137407	-1	0.044528326633	3.287146609654
195000	0.000070259794	0.004886812215	-1	0.044625355659	3.264475350918
200000	0.000068279548	0.004707879407	-1	0.044722309131	3.242943869097
205000	0.000066394403	0.004539493647	-1	0.044817586881	3.222376476473
210000	0.000064600928	0.004381381963	-1	0.044905479048	3.202550117746
215000	0.000062889950	0.004232282390	-1	0.044991285642	3.183620700869
220000	0.000061256224	0.004091570033	-1	0.045074554802	3.165544833216
225000	0.000059694876	0.003958653490	-1	0.045154926209	3.148274289532
230000	0.000058199112	0.003832590963	-1	0.045236874100	3.131908599876
235000	0.000056766344	0.003713120420	-1	0.045317381655	3.116297079782
240000	0.000055393699	0.003599905526	-1	0.045394445637	3.101316230259
245000	0.000054077383	0.003492436504	-1	0.045468616570	3.086917333865
250000	0.000052813897	0.003390239283	-1	0.045540496229	3.073047863350
255000	0.000051600070	0.003292893517	-1	0.045610605383	3.059658492497

260000	0.000050433160	0.003200104206	-1	0.045678820406	3.046729658536
265000	0.000049310673	0.003111615502	-1	0.045744882641	3.034246527897
270000	0.000048230276	0.003027182985	-1	0.045808589183	3.022192319802
275000	0.000047189763	0.002946571327	-1	0.045869813193	3.010549723664
280000	0.000046187077	0.002869557817	-1	0.045928443116	2.999298304134
285000	0.000045220277	0.002795927934	-1	0.045984457486	2.988417647046
290000	0.000044287539	0.002725476055	-1	0.046037890010	2.977884994176
295000	0.000043387129	0.002658003788	-1	0.046088876454	2.967678678167
300000	0.000042517419	0.002593323310	-1	0.046137565464	2.957774346938

Electron Elastic Scattering Sampling Data
Solution for Z = 71

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.033155510117	3.923195844970	-1	0.082551407967	50.735090196479
52	0.031109896118	2.803231906822	-1	0.079467561195	28.691886711549
54	0.029351408268	2.381279853143	-1	0.075285911913	21.697274784679
56	0.027831475480	2.277214445380	-1	0.070169023910	19.687568028803
58	0.026505754447	2.417851956080	-1	0.064383681347	20.900631667219
60	0.025335225355	2.879803048919	-1	0.058248524566	26.602989166138
62	0.024287414428	4.037995462036	-1	0.052074489380	44.923262358969
64	0.023335858298	8.024636852439	-1	0.046127897809	146.651553351587
66	0.022472258457	60.050945191750	+1	0.040465229044	6728.763602812069
68	0.021467302008	47.625274792386	+1	0.038579420764	4237.794732368966
70	0.020566189995	30.522391862421	+1	0.036708914554	1746.854403037320
72	0.019825451232	9.057509768005	+1	0.033792347871	157.578964329159
74	0.019486816022	0.917801769287	+1	0.024172894446	2.194754181061
76	0.018844265656	0.619444344873	+1	0.021429983443	1.144224458731
78	0.018235970395	0.431883552474	+1	0.019131304520	0.649577184482
80	0.017660313685	0.307214260939	+1	0.017216631828	0.391450895885
82	0.017116014575	0.221332449618	+1	0.015629804097	0.246547682925
84	0.016601883207	0.160756836462	+1	0.014320500419	0.160629351999
86	0.016116794241	0.117378415742	+1	0.013245254871	0.107502193729
88	0.015659592331	0.086025362748	+1	0.012367368113	0.073556272141
90	0.015229148165	0.063232767073	+1	0.011655628302	0.051281207765
92	0.014824237480	0.046632662769	+1	0.011084947223	0.036366034471
94	0.014443654025	0.034537202726	+1	0.010634242561	0.026210659761
96	0.014086188501	0.025735631331	+1	0.010286345933	0.019206731659
98	0.013750648239	0.019346872626	+1	0.010027243285	0.014329688796
100	0.013435854916	0.014725708060	+1	0.009845507842	0.010911851299
105	0.012732140891	0.008104853614	+1	0.009672897834	0.006189175363
110	0.012133714755	0.005388982113	+1	0.009827447730	0.004378638083

115	0.011625338675	0.004613087882	+1	0.010249371896	0.004080719216
120	0.011193160551	0.005058661590	+1	0.010906833417	0.004953380156
125	0.010825198963	0.006622554136	+1	0.011785091756	0.007265437876
130	0.010510910591	0.009514237847	+1	0.012880194062	0.011799338066
135	0.010241316089	0.014107648193	+1	0.014194161600	0.019910223816
140	0.010008615832	0.020865073428	+1	0.015732510531	0.033680152978
145	0.009806181680	0.030301315756	+1	0.017502332103	0.056163242520
150	0.009628277821	0.042969312985	+1	0.019511404999	0.091741496215
155	0.009470015269	0.059465523209	+1	0.021767319925	0.146646182986
160	0.009327176476	0.080442515793	+1	0.024276994276	0.229706624506
165	0.009196158335	0.106639728739	+1	0.027046271122	0.353474810896
170	0.009073887476	0.138913650172	+1	0.030079455870	0.535862272599
175	0.008957752972	0.178292057347	+1	0.033379077255	0.802658886702
180	0.008845555755	0.226030681568	+1	0.036945460342	1.191321893892
185	0.008735476786	0.283705980582	+1	0.040776631494	1.756959466839
190	0.008626089785	0.353321629520	+1	0.044868007809	2.581668469086
195	0.008516234877	0.437490511018	+1	0.049212231613	3.789942082115
200	0.008404914108	0.539685414350	+1	0.053798553743	5.574314102166
205	0.008291401312	0.664626291468	+1	0.058613393701	8.239656749117
210	0.008175424773	0.818834901937	+1	0.063640717623	12.281056787001
215	0.008056930226	1.011617301854	+1	0.068861715620	18.529794536772
220	0.007935994569	1.256730556515	+1	0.074254821868	28.439422255446
225	0.007812815569	1.575367005306	+1	0.079795859319	44.681690555097
230	0.007687683684	2.001940219790	+1	0.085458497052	72.490904696040
235	0.007560966763	2.596221962373	+1	0.091214523786	123.010522263727
240	0.007433094460	3.471849052893	+1	0.097034213295	222.800262954436
245	0.007304539209	4.874438500800	+1	0.102886788706	446.323445704068
250	0.007175803284	7.451121287683	+1	0.108740882223	1063.038578210550
255	0.007047421116	13.638416313741	+1	0.114565734903	3639.789880018225
260	0.006919987668	47.755293670198	+1	0.120334143991	45710.308470812910
265	0.006794087271	40.320731343959	-1	0.126020511624	35120.817887968609
270	0.006670259640	14.841341648175	-1	0.131600508886	5306.072185640518
275	0.006548996225	9.344274177867	-1	0.137051117437	2328.806722319489

280	0.006430744949	6.966485205855	-1	0.142350888116	1423.265202160768
285	0.006315901553	5.655309720512	-1	0.147480115425	1024.433872693787
290	0.006204811694	4.836573651967	-1	0.152420927762	813.102237426090
295	0.006097772409	4.286809933498	-1	0.157157272283	688.817965680416
300	0.005995034442	3.901168685090	-1	0.161675089257	611.417124024140
310	0.005803118027	3.422369346336	-1	0.170017252582	531.167428688936
320	0.005629647680	3.173128685166	-1	0.177415617421	504.477224967636
330	0.005474563877	3.064661084628	-1	0.183870036783	509.844592521910
340	0.005337422431	3.059491380768	-1	0.189397542845	540.808933259995
350	0.005217510564	3.144532442774	-1	0.194027959927	598.208503855720
360	0.005113842025	3.321815031831	-1	0.197805799909	688.713448802146
370	0.005024970278	3.605058206951	-1	0.200801924547	825.943799616351
380	0.004949403118	4.025681170001	-1	0.203091324618	1036.621239644531
390	0.004885736087	4.645541604404	-1	0.204745363657	1375.318063107243
400	0.004832675930	5.588107200622	-1	0.205830724875	1964.902866545492
410	0.004788974995	7.124800654630	-1	0.206411660539	3129.009999259737
420	0.004753329524	9.969839834152	-1	0.206555722544	5961.449790389368
430	0.004724531800	16.807468202652	-1	0.206325511730	16391.141644061594
440	0.004701532037	54.052006232699	-1	0.205776111047	163215.166987551320
450	0.004683414416	43.956059725712	+1	0.204955870186	108264.057448159420
460	0.004669370505	15.029629285565	+1	0.203907756235	13154.083749808906
470	0.004658623017	8.840163857632	+1	0.202672118759	4724.366897751381
480	0.004650490946	6.156323212714	+1	0.201284498176	2376.379358682727
490	0.004644397274	4.663864107552	+1	0.199775429163	1413.341705723367
500	0.004639852698	3.717511264316	+1	0.198171071006	929.842043552358
510	0.004636438351	3.066363467308	+1	0.196493869552	654.630479535228
520	0.004633787088	2.592606430139	+1	0.194763312702	483.933827643288
530	0.004631587125	2.233628765830	+1	0.192996073063	371.225081344470
540	0.004629577968	1.953101462196	+1	0.191206351018	293.170583967918
550	0.004627547100	1.728507700009	+1	0.189406166479	237.045322834825
560	0.004625320339	1.545148878644	+1	0.187605504002	195.441231102358
570	0.004622762913	1.393001774767	+1	0.185812342257	163.809882564783
580	0.004619765558	1.265026463291	+1	0.184033252905	139.243547123461

590	0.004616240527	1.156142926348	+1	0.182273797544	119.816540531053
600	0.004612123245	1.062593636537	+1	0.180538636057	104.213322085978
610	0.004607365389	0.981535597494	+1	0.178831509603	91.510449006682
620	0.004601943605	0.910761367702	+1	0.177154844092	81.042095418855
630	0.004595842984	0.848548364480	+1	0.175510506004	72.321737487003
640	0.004589058078	0.793537944225	+1	0.173900019594	64.988017475881
650	0.004581589667	0.744644415830	+1	0.172324660690	58.768130142027
660	0.004573444349	0.700986303151	+1	0.170785266476	53.452577028787
670	0.004564643665	0.661830585358	+1	0.169281955988	48.877145742403
680	0.004555211752	0.626572640445	+1	0.167814610625	44.913013117716
690	0.004545171451	0.594712420534	+1	0.166383067221	41.458371945021
700	0.004534548870	0.565832609026	+1	0.164987184464	38.431860650034
710	0.004523369435	0.539580429501	+1	0.163626625264	35.767636395061
720	0.004511666362	0.515649456726	+1	0.162300640857	33.411303787631
730	0.004499473673	0.493778177260	+1	0.161008394061	31.318249280317
740	0.004486821353	0.473743810315	+1	0.159749148694	29.451818324984
750	0.004473739662	0.455355300421	+1	0.158522221215	27.781624063385
760	0.004460256721	0.438447060711	+1	0.157326891700	26.282232910255
770	0.004446405369	0.422870812858	+1	0.156162180584	24.931834625726
780	0.004432215549	0.408497089240	+1	0.155027110598	23.712005730977
790	0.004417716495	0.395213443612	+1	0.153920792097	22.607181567119
800	0.004402935119	0.382921520380	+1	0.152842436627	21.604131432044
810	0.004387894082	0.371534434601	+1	0.151791245942	20.691508665663
820	0.004372621665	0.360972751157	+1	0.150766299382	19.859309142181
830	0.004357143222	0.351165701687	+1	0.149766673488	19.098873644777
840	0.004341480875	0.342050943187	+1	0.148791533243	18.402752523853
850	0.004325655553	0.333573366513	+1	0.147840148448	17.764505026772
860	0.004309690289	0.325682970986	+1	0.146911729082	17.178431748522
870	0.004293594618	0.318335906767	+1	0.146005626491	16.639664315477
880	0.004277399076	0.311489610774	+1	0.145120864505	16.143589263891
890	0.004261114058	0.305108060950	+1	0.144256729582	15.686387445683
900	0.004244757592	0.299158527788	+1	0.143412592727	15.264643661839
910	0.004228341797	0.293611297756	+1	0.142587777226	14.875330747955

920	0.004211882870	0.288438281463	+1	0.141781635052	14.515668940143
930	0.004195394025	0.283613880913	+1	0.140993484707	14.183176054573
940	0.004178887006	0.279115071089	+1	0.140222759326	13.875663312365
950	0.004162374266	0.274920977273	+1	0.139468892631	13.591170231281
960	0.004145864999	0.271012650470	+1	0.138731385778	13.327956897391
970	0.004129368024	0.267372544532	+1	0.138009661740	13.084433899129
980	0.004112895400	0.263984376082	+1	0.137303214158	12.859149468038
990	0.004096452063	0.260833583138	+1	0.136611535095	12.650832198954
1000	0.004080045943	0.257906817814	+1	0.135934183256	12.458328030765
1025	0.004039241744	0.251490076904	+1	0.134300475883	12.039490376042
1050	0.003998815690	0.246223002004	+1	0.132746315097	11.698659955132
1075	0.003958848199	0.241962705294	+1	0.131265491928	11.424461088874
1100	0.003919396690	0.238593277539	+1	0.129852729716	11.207975586716
1125	0.003880501239	0.236018942089	+1	0.128503372383	11.042081668799
1150	0.003842201461	0.234156648017	+1	0.127212750038	10.920774638978
1175	0.003804524268	0.232936358469	+1	0.125976628852	10.839153605779
1200	0.003767486496	0.232299000106	+1	0.124791289694	10.793225478571
1225	0.003731099324	0.232194728801	+1	0.123653406891	10.779725354759
1250	0.003695369975	0.232581175936	+1	0.122559836765	10.795951144512
1275	0.003660300618	0.233421935033	+1	0.121507726007	10.839662940907
1300	0.003625889047	0.234685409955	+1	0.120494430116	10.908986866719
1325	0.003592132456	0.236344091598	+1	0.119517621884	11.002358496065
1350	0.003559022753	0.238375374482	+1	0.118575086521	11.118549651023
1375	0.003526551621	0.240759468493	+1	0.117664810756	11.256538510537
1400	0.003494708688	0.243478590216	+1	0.116784906781	11.415455894871
1425	0.003463482928	0.246516965459	+1	0.115933621013	11.594576992827
1450	0.003432862411	0.249862572961	+1	0.115109431656	11.793429012130
1475	0.003402833852	0.253504988540	+1	0.114310879555	12.011652658209
1500	0.003373384829	0.257434344757	+1	0.113536611447	12.248938803580
1550	0.003316173477	0.266121236454	+1	0.112055897442	12.779941392340
1600	0.003261118247	0.275874196020	+1	0.110658151239	13.386069889942
1650	0.003208113613	0.286655251612	+1	0.109335261152	14.067836463015
1700	0.003157055022	0.298446461043	+1	0.108080579126	14.827278339768

1750	0.003107843873	0.311236052290	+1	0.106888083898	15.667054997297
1800	0.003060381039	0.325021943506	+1	0.105752279529	16.590713732016
1850	0.003014575933	0.339806910077	+1	0.104668249114	17.602401424616
1900	0.002970340597	0.355613706659	+1	0.103632234324	18.708059098016
1950	0.002927595101	0.372466728882	+1	0.102640722836	19.914163212532
2000	0.002886270530	0.390377550546	+1	0.101689880499	21.226593626393
2100	0.002807607264	0.429468595847	+1	0.099897401207	24.199936619417
2200	0.002733785609	0.473333666551	+1	0.098237280494	27.714207341542
2300	0.002664315791	0.522556814701	+1	0.096695378981	31.881390402630
2400	0.002598794673	0.577784036438	+1	0.095258220641	36.837637451114
2500	0.002536890392	0.639720065679	+1	0.093912777885	42.747655372476
2600	0.002478318865	0.709184953683	+1	0.092647346592	49.816507214473
2700	0.002422767447	0.787421791056	+1	0.091455512037	58.335847737142
2800	0.002369977752	0.876000177124	+1	0.090331331156	68.694176685940
2900	0.002319760193	0.976814709138	+1	0.089268101416	81.401896031832
3000	0.002271916004	1.092305970559	+1	0.088260603941	97.160075484779
3100	0.002226269500	1.225615479790	+1	0.087304073201	116.941657878380
3200	0.002182666495	1.380923400977	+1	0.086394449596	142.137232966798
3300	0.002140967990	1.563857072656	+1	0.085528106704	174.779452775775
3400	0.002101046559	1.782155318705	+1	0.084701728418	217.926157188937
3500	0.002062786732	2.046763742418	+1	0.083912292305	276.341276792376
3600	0.002026083162	2.373690226158	+1	0.083157082484	357.764512954200
3700	0.001990841821	2.787348143425	+1	0.082433604718	475.436728584552
3800	0.001956975051	3.326887321190	+1	0.081739645740	653.500964229439
3900	0.001924402649	4.059274315643	+1	0.081073231880	939.728312043544
4000	0.001893048657	5.109347122135	+1	0.080432567048	1439.545572768846
4100	0.001862844250	6.739460373753	+1	0.079816027735	2424.188768423393
4200	0.001833727234	9.610296094112	+1	0.079222024344	4775.566550649094
4300	0.001805639791	16.000485527119	+1	0.078649069165	12836.552615357799
4400	0.001778528307	42.582557081045	+1	0.078095858915	88237.700962829520
4500	0.001752341284	74.796003741264	-1	0.077561230020	271551.861464066080
4600	0.001727031522	19.956149027379	-1	0.077044113440	20178.880892850299
4700	0.001702555927	11.460074601907	-1	0.076543430478	6939.998322901873

4800	0.001678873572	8.012636331274	-1	0.076058196077	3534.941048880414
4900	0.001655947369	6.145284831314	-1	0.075587527204	2164.615682764781
5000	0.001633739912	4.974637488804	-1	0.075130632551	1475.427193994801
5500	0.001532385194	2.514966062011	-1	0.073028387673	453.780259025929
6000	0.001444747379	1.661792922827	-1	0.071177044398	234.282188650703
6500	0.001368197146	1.231170058010	-1	0.069521886145	149.804074966466
7000	0.001300731005	0.972742892250	-1	0.068023502563	107.540130102893
7500	0.001240801840	0.801132717259	-1	0.066652711715	82.943769392536
8000	0.001187204527	0.679329666714	-1	0.065386573273	67.147874283758
8500	0.001138956912	0.588628687756	-1	0.064209565387	56.270827023532
9000	0.001095279191	0.518631216817	-1	0.063108719319	48.385016833300
9500	0.001055537351	0.463085906667	-1	0.062073795657	42.436469489453
10000	0.001019209587	0.418012740398	-1	0.061096563016	37.805900791169
10500	0.000985862661	0.380756122857	-1	0.060170464887	34.107806405442
11000	0.000955137916	0.349494934491	-1	0.059289500368	31.092328294713
11500	0.000926726970	0.322909317138	-1	0.058449574434	28.588695092109
12000	0.000900373492	0.300051278803	-1	0.057646431508	26.478962343869
12500	0.000875855066	0.280201500036	-1	0.056876987185	24.677693736976
13000	0.000852982877	0.262819522877	-1	0.056138134281	23.122662712046
13500	0.000831591775	0.247479703211	-1	0.055427578784	21.766696937139
14000	0.000811539378	0.233852615387	-1	0.054742947240	20.574148217094
14500	0.000792700284	0.221671426026	-1	0.054082474846	19.517054436556
15000	0.000774966255	0.210724921462	-1	0.053444345691	18.573671817472
16000	0.000742434344	0.191866939044	-1	0.052229324680	16.961282757071
17000	0.000713295490	0.176220114509	-1	0.051087461956	15.633386871058
18000	0.000687033515	0.163045699623	-1	0.050010212790	14.520103043643
19000	0.000663232705	0.151812949954	-1	0.048990514797	13.572631389940
20000	0.000641554491	0.142131334385	-1	0.048022424830	12.755901678799
21000	0.000565274221	0.116335412866	-1	0.051764883387	12.534910474845
22000	0.000544912819	0.109053424668	-1	0.051182485368	11.966491620934
23000	0.000525431968	0.102062779942	-1	0.050652619576	11.415787016121
24000	0.000507031410	0.095550374734	-1	0.050176418100	10.901002628765
25000	0.000489885907	0.089689761273	-1	0.049744583099	10.438630645201

26000	0.000474093939	0.084591026721	-1	0.049339775496	10.039033376007
27000	0.000459516275	0.080157400227	-1	0.048951468833	9.693783138928
28000	0.000445971568	0.076252405270	-1	0.048575960106	9.391049798848
29000	0.000433295718	0.072751601549	-1	0.048214204447	9.120213005338
30000	0.000421339412	0.069541264263	-1	0.047871386770	8.871672207639
31000	0.000409982569	0.066532763755	-1	0.047554131815	8.638022112468
32000	0.000399178814	0.063705540789	-1	0.047261782103	8.417717070238
33000	0.000388901539	0.061055643437	-1	0.046991367055	8.210633939663
34000	0.000379126811	0.058579510565	-1	0.046739652824	8.016670940462
35000	0.000369832882	0.056273876082	-1	0.046503174314	7.835750653286
36000	0.000360997041	0.054133213879	-1	0.046278669571	7.667579473395
37000	0.000352586205	0.052142486327	-1	0.046064668789	7.510985038917
38000	0.000344566904	0.050285156800	-1	0.045860608117	7.364645411452
39000	0.000336908096	0.048545696593	-1	0.045666439722	7.227320541403
40000	0.000329580909	0.046909524526	-1	0.045482602037	7.097844449976
41000	0.000322559722	0.045364141768	-1	0.045309630814	6.975222730113
42000	0.000315825375	0.043902599451	-1	0.045146821817	6.858934245453
43000	0.000309361368	0.042519495642	-1	0.044993235458	6.748583936760
44000	0.000303152331	0.041209700400	-1	0.044848054270	6.643795466882
45000	0.000297183892	0.039968322418	-1	0.044710590670	6.544209031813
46000	0.000291442631	0.038790716737	-1	0.044580267946	6.449479990143
47000	0.000285915663	0.037672465054	-1	0.044456567067	6.359276683653
48000	0.000280590890	0.036609350876	-1	0.044339080431	6.273278920450
49000	0.000275456914	0.035597335337	-1	0.044227538989	6.191179344831
50000	0.000270503049	0.034632571280	-1	0.044121778565	6.112680544147
55000	0.000248121287	0.030414011711	-1	0.043671260121	5.766366098245
60000	0.000229060280	0.027003256732	-1	0.043327181361	5.481958114082
65000	0.000212620644	0.024194746185	-1	0.043066460459	5.244006935871
70000	0.000198289375	0.021846750579	-1	0.042871832813	5.041839540794
75000	0.000185680623	0.019858352531	-1	0.042730239587	4.867846145335
80000	0.000174498357	0.018155860683	-1	0.042631496595	4.716452142369
85000	0.000164511467	0.016684129365	-1	0.042567746826	4.583472050414
90000	0.000155537145	0.015401212060	-1	0.042532619493	4.465694962685

95000	0.000147427679	0.014274520194	-1	0.042521162608	4.360636958358
100000	0.000140064122	0.013278354553	-1	0.042530008626	4.266341335261
105000	0.000133347147	0.012392562837	-1	0.042554198237	4.181158699642
110000	0.000127195759	0.011600908314	-1	0.042590925215	4.103863150801
115000	0.000121541264	0.010889492771	-1	0.042639347981	4.033385966194
120000	0.000116326249	0.010247524223	-1	0.042697136810	3.968879406445
125000	0.000111501552	0.009665815027	-1	0.042762520135	3.909582605739
130000	0.000107025374	0.009136858832	-1	0.042833780876	3.854897191921
135000	0.000102861445	0.008654127513	-1	0.042909907114	3.804284795185
140000	0.000098978645	0.008212234393	-1	0.042989786009	3.757314255314
145000	0.000095349685	0.007806459374	-1	0.043072760160	3.713593445386
150000	0.000091950846	0.007432866446	-1	0.043157957924	3.672801202631
155000	0.000088761163	0.007087977872	-1	0.043244823840	3.634641204991
160000	0.000085762268	0.006768850975	-1	0.043332679767	3.598867278739
165000	0.000082937767	0.006472862934	-1	0.043421127736	3.565253683258
170000	0.000080273144	0.006197763767	-1	0.043509741891	3.533614666664
175000	0.000077755370	0.005941534776	-1	0.043598306580	3.503777431610
180000	0.000075372904	0.005702432921	-1	0.043686499604	3.475590995988
185000	0.000073115320	0.005478884525	-1	0.043774192624	3.448916226035
190000	0.000070973142	0.005269533901	-1	0.043861227782	3.423652883213
195000	0.000068937471	0.005073079992	-1	0.043948103076	3.399716731609
200000	0.000067003065	0.004888802858	-1	0.044030791284	3.376831188236
205000	0.000065162508	0.004715562780	-1	0.044109837917	3.354888114626
210000	0.000063407993	0.004552274146	-1	0.044187531234	3.333929817418
215000	0.000061734000	0.004398262639	-1	0.044263272164	3.313913191715
220000	0.000060135380	0.004252880684	-1	0.044336672336	3.294794131604
225000	0.000058604618	0.004115036717	-1	0.044412796658	3.276707603159
230000	0.000057140582	0.003984727510	-1	0.044485406904	3.259391295377
235000	0.000055738962	0.003861363173	-1	0.044554846124	3.242802434409
240000	0.000054395849	0.003744404731	-1	0.044621383279	3.226889204229
245000	0.000053107638	0.003633345581	-1	0.044685382736	3.211595197360
250000	0.000051870973	0.003527707162	-1	0.044747328314	3.196861501527
255000	0.000050682769	0.003427061734	-1	0.044807682360	3.182636598463

260000	0.000049540373	0.003331107234	-1	0.044866316155	3.168898667233
265000	0.000048441354	0.003239581361	-1	0.044922969530	3.155631579139
270000	0.000047383431	0.003152233525	-1	0.044977438512	3.142818021952
275000	0.000046364465	0.003068822352	-1	0.045029595264	3.130438851443
280000	0.000045382449	0.002989118892	-1	0.045079330146	3.118472602445
285000	0.000044435489	0.002912902206	-1	0.045126625704	3.106897576204
290000	0.000043521801	0.002839961403	-1	0.045171513898	3.095690878258
295000	0.000042639697	0.002770093513	-1	0.045214103792	3.084829081161
300000	0.000041787599	0.002703105071	-1	0.045254544672	3.074286391937

Electron Elastic Scattering Sampling Data
Solution for Z = 72

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.036087740064	1.145037021409	-1	0.122892201213	9.203848273970
52	0.033777268519	0.884805921193	-1	0.121547625827	6.608325285572
54	0.031824445731	0.736325423690	-1	0.118404852943	5.229191792178
56	0.030182011090	0.650276229891	-1	0.113268099169	4.408670757451
58	0.028802771318	0.605367574570	-1	0.106161140348	3.895234277720
60	0.027639621098	0.592594306149	-1	0.097349225049	3.583459057497
62	0.026646507933	0.610114219118	-1	0.087314513674	3.435357120946
64	0.025781001856	0.662609545992	-1	0.076661874532	3.458694334945
66	0.025005479390	0.763491881015	-1	0.066034411164	3.714120158810
68	0.024289737866	0.944044880370	-1	0.055984549004	4.374640407104
70	0.023611772320	1.282782621693	-1	0.046902534407	5.962285425774
72	0.022957100769	2.029465096690	-1	0.039004164228	10.625822296443
74	0.022317953037	4.600050615871	-1	0.032339777918	37.733610337295
76	0.021691266761	29.438317490738	+1	0.026848539021	1115.499167049365
78	0.020874747756	19.492141161970	+1	0.025565764666	491.767068088158
80	0.020254390714	4.528375946461	+1	0.022591490928	28.001491543931
82	0.019894280308	0.731691405726	+1	0.016025606759	1.017058073489
84	0.019330393995	0.445181258644	+1	0.013800429088	0.456910664257
86	0.018787724523	0.283178754088	+1	0.012051246427	0.231572769306
88	0.018267797375	0.184189854247	+1	0.010680099772	0.126583590364
90	0.017771585796	0.121018197700	+1	0.009608568207	0.072767698912
92	0.017299571431	0.079740546128	+1	0.008775200176	0.043311106889
94	0.016851803389	0.052451198172	+1	0.008131904930	0.026411417203
96	0.016427990297	0.034350175513	+1	0.007641588520	0.016385156441
98	0.016027604543	0.022370956682	+1	0.007275528334	0.010293302671
100	0.015649913496	0.014493443674	+1	0.007011587822	0.006531862773
105	0.014799121757	0.004882194483	+1	0.006695320709	0.002201927949
110	0.014069230366	0.001822468630	+1	0.006741962392	0.000868634593

115	0.013444754261	0.000983200250	+1	0.007056254398	0.000513293077
120	0.012910532321	0.000972514222	+1	0.007590067483	0.000569321274
125	0.012452936661	0.001550848232	+1	0.008322365409	0.001033884300
130	0.012059681832	0.002943181123	+1	0.009247919226	0.002257513626
135	0.011720272737	0.005572622512	+1	0.010369129033	0.004951581594
140	0.011425594927	0.009944140437	+1	0.011692272528	0.010281549690
145	0.011167959715	0.016590070514	+1	0.013225159492	0.020016115901
150	0.010940729482	0.026048482753	+1	0.014976290187	0.036739725137
155	0.010738279623	0.038864772910	+1	0.016953974004	0.064156312279
160	0.010555753126	0.055604264690	+1	0.019166043704	0.107521847047
165	0.010389018747	0.076878075821	+1	0.021619357162	0.174277297736
170	0.010234524321	0.103369790268	+1	0.024319567976	0.274962277354
175	0.010089247889	0.135877737558	+1	0.027270839158	0.424588200126
180	0.009950621672	0.175354569537	+1	0.030475476562	0.644654976060
185	0.009816486504	0.222973453246	+1	0.033933858057	0.966268977814
190	0.009685102507	0.280193973295	+1	0.037644216522	1.434851645445
195	0.009555021051	0.348878169165	+1	0.041602278935	2.117659975428
200	0.009424979926	0.431448933232	+1	0.045800849219	3.115912703799
205	0.009294002944	0.531112484662	+1	0.050230221892	4.584794348880
210	0.009161576581	0.652135392820	+1	0.054878431098	6.766537541447
215	0.009027426863	0.800357805179	+1	0.059730811865	10.048986749481
220	0.008891433216	0.984005259682	+1	0.064769977698	15.072293463531
225	0.008753615190	1.215025744926	+1	0.069975944552	22.932230099823
230	0.008614104564	1.511438228544	+1	0.075326381828	35.590686682357
235	0.008473132221	1.901715701596	+1	0.080796842436	56.764264830559
240	0.008331012717	2.433585534891	+1	0.086361084252	94.023639986954
245	0.008188122422	3.193537942566	+1	0.091991448128	164.355510631045
250	0.008044887314	4.356013622084	+1	0.097659172628	311.367656697821
255	0.007901782180	6.333460823120	+1	0.103335574347	672.088888908544
260	0.007759382506	10.394453043251	+1	0.108994482359	1852.828544352962
265	0.007618261123	23.268408684243	+1	0.114610728886	9522.415301859575
270	0.007507766222	224.785578678833	-1	0.120048588791	915385.161161926110
275	0.007614024163	252.542784477949	+1	0.121627278577	1155659.557994309100

280	0.007739785562	277.530788744790	+1	0.123460820388	1395933.955131488600
285	0.007862712393	331.662435853488	+1	0.125286380870	1994179.542519717500
290	0.007985119841	378.179984645350	+1	0.127066826051	2593340.657898853500
295	0.008106424423	419.565420242962	+1	0.128809204321	3192501.773655765200
300	0.008226322934	457.215583608941	+1	0.130516121246	3791662.889659595700
310	0.008460534496	582.872947992189	+1	0.133841341124	6163513.822838131300
320	0.008688611009	649.648300948473	+1	0.137017951039	7657602.917047562100
330	0.008909193241	710.164574942494	+1	0.140064649001	9151692.011524271200
340	0.009121175839	842.337885415900	+1	0.142993923415	12877379.005267803000
350	0.009326168717	895.833243308951	+1	0.145782451696	14566017.660670165000
360	0.009522466041	1003.665862922754	+1	0.148450837055	18285982.609300882000
370	0.009711167846	1063.028356719879	+1	0.150988237182	20514400.927845906000
380	0.009892208497	1077.660292732809	+1	0.153398743154	21083425.936446838000
390	0.010065226054	1085.586663884198	+1	0.155689017353	21394958.879705381000
400	0.010230227696	1091.532760772717	+1	0.157862175069	21630197.877677105000
410	0.010387210757	1100.072729770075	+1	0.159921250193	21970341.050421458000
420	0.010536389514	1105.939897155023	+1	0.161868547262	22205580.048395172000
430	0.010677909543	1108.111801362868	+1	0.163706944156	22292999.527372096000
440	0.010811547795	1122.025528433387	+1	0.165442174565	22857256.164407566000
450	0.010937181640	1123.519010156620	+1	0.167077309465	22920833.785483807000
460	0.011056326450	1126.235186397815	+1	0.168609189664	23032095.122364711000
470	0.011167845454	1138.752799361501	+1	0.170048102738	23548668.043599762000
480	0.011273042022	1138.756534916096	+1	0.171390199931	23548830.137349717000
490	0.011371450314	1138.754870090585	+1	0.172642546362	23548855.512349766000
500	0.011463143948	1138.803740674732	+1	0.173808912615	23551397.977193050000
510	0.004941926223	3.660675710222	+1	0.195129625132	832.856516490003
520	0.004932460593	3.040958114987	+1	0.193559741394	595.027614614560
530	0.004924016534	2.584679002488	+1	0.191932537791	444.738927633079
540	0.004916276032	2.235843830781	+1	0.190264182346	344.093579098959
550	0.004908970775	1.961333969961	+1	0.188568497357	273.614459738206
560	0.004901877251	1.740311341768	+1	0.186857172911	222.476276823807
570	0.004894813284	1.558994783142	+1	0.185139805237	184.278227764404
580	0.004887627868	1.407934863817	+1	0.183424469059	155.050287226634

590	0.004880196436	1.280445334476	+1	0.181718083130	132.228268297295
600	0.004872420187	1.171662863997	+1	0.180026466915	114.097448672098
610	0.004864222882	1.077962341938	+1	0.178354410804	99.476326177994
620	0.004855552397	0.996570356609	+1	0.176705374819	87.527551840199
630	0.004846372611	0.925346407644	+1	0.175082141631	77.647574890715
640	0.004836659442	0.862616784007	+1	0.173487006638	69.393326120638
650	0.004826385205	0.807057847655	+1	0.171922028397	62.434408779014
660	0.004815551981	0.757599178393	+1	0.170388602344	56.518775363242
670	0.004804161069	0.713361458979	+1	0.168887406862	51.451383299584
680	0.004792226158	0.673623532309	+1	0.167418873764	47.080309234830
690	0.004779759960	0.637791226329	+1	0.165983271975	43.286221344225
700	0.004766776452	0.605371996690	+1	0.164580844814	39.974479487613
710	0.004753295115	0.575950502889	+1	0.163211615951	37.068835127390
720	0.004739341931	0.549169174408	+1	0.161875142223	34.506824016155
730	0.004724944260	0.524723382778	+1	0.160570866618	32.237422986145
740	0.004710128354	0.502354865214	+1	0.159298302062	30.218913127354
750	0.004694918642	0.481842689962	+1	0.158056988768	28.416861305930
760	0.004679340442	0.462995571924	+1	0.156846368475	26.802511251693
770	0.004663422820	0.445643287735	+1	0.155665651317	25.351371813644
780	0.004647193408	0.429637759563	+1	0.154513982515	24.042824554090
790	0.004630679605	0.414850247635	+1	0.153390627680	22.859483392687
800	0.004613904384	0.401168686289	+1	0.152294884710	21.786636477696
810	0.004596892193	0.388494092888	+1	0.151226084633	20.811672873454
820	0.004579667746	0.376736416877	+1	0.150183340232	19.923542779643
830	0.004562255543	0.365816000190	+1	0.149165838171	19.112736964590
840	0.004544678089	0.355662387760	+1	0.148172793853	18.371053677282
850	0.004526954280	0.346213518630	+1	0.147203509046	17.691433505653
860	0.004509103095	0.337413711998	+1	0.146257305591	17.067700976721
870	0.004491144906	0.329211418442	+1	0.145333407948	16.494323282054
880	0.004473098279	0.321560619467	+1	0.144431054040	15.966464624997
890	0.004454980161	0.314419991066	+1	0.143549541403	15.479881047211
900	0.004436805304	0.307752695013	+1	0.142688257860	15.030864592746
910	0.004418587981	0.301525384008	+1	0.141846576975	14.616123182862

920	0.004400343498	0.295706885897	+1	0.141023842251	14.232664300860
930	0.004382084749	0.290268793855	+1	0.140219386800	13.877819265355
940	0.004363824251	0.285185618792	+1	0.139432624478	13.549232324944
950	0.004345573165	0.280434354533	+1	0.138663019987	13.244813847761
960	0.004327341129	0.275993893211	+1	0.137910034971	12.962683853968
970	0.004309137525	0.271844658574	+1	0.137173125607	12.701133376699
980	0.004290973514	0.267968669440	+1	0.136451781714	12.458615066153
990	0.004272855626	0.264349619856	+1	0.135745511888	12.233754620869
1000	0.004254790576	0.260972650168	+1	0.135053863895	12.025316430139
1025	0.004209910450	0.253500481758	+1	0.133385812237	11.568838971078
1050	0.004165512037	0.247263284616	+1	0.131799203293	11.192746869847
1075	0.004121676487	0.242103100484	+1	0.130287747945	10.884932566142
1100	0.004078458659	0.237892112493	+1	0.128846156621	10.635936498191
1125	0.004035901634	0.234524886138	+1	0.127469771698	10.438201926492
1150	0.003994040959	0.231909624319	+1	0.126153784067	10.285353985927
1175	0.003952904132	0.229968879643	+1	0.124893848763	10.172176406488
1200	0.003912506852	0.228637855579	+1	0.123686200834	10.094449830401
1225	0.003872859782	0.227861787829	+1	0.122527468627	10.048712688487
1250	0.003833966415	0.227593781468	+1	0.121414400633	10.032080313290
1275	0.003795827064	0.227793550946	+1	0.120344029007	10.042148998644
1300	0.003758439023	0.228426172539	+1	0.119313726341	10.076910180124
1325	0.003721794678	0.229461599669	+1	0.118321046622	10.134696543300
1350	0.003685883337	0.230874621897	+1	0.117363741709	10.214163290949
1375	0.003650695517	0.232643122922	+1	0.116439736809	10.314173031146
1400	0.003616216498	0.234747514965	+1	0.115547103596	10.433774013667
1425	0.003582434075	0.237170430489	+1	0.114684073569	10.572158089129
1450	0.003549332236	0.239898019492	+1	0.113848998095	10.728740211985
1475	0.003516897042	0.242918099460	+1	0.113040386291	10.903045653691
1500	0.003485113174	0.246219363080	+1	0.112256795455	11.094664210414
1550	0.003423437929	0.253627829291	+1	0.110759473441	11.528703380026
1600	0.003364178737	0.262065382070	+1	0.109347726057	12.029717581933
1650	0.003307211393	0.271486424592	+1	0.108013298372	12.597454692985
1700	0.003252413128	0.281863403575	+1	0.106749106872	13.232908614860

1750	0.003199670113	0.293175648118	+1	0.105548808321	13.937648690459
1800	0.003148870360	0.305414754048	+1	0.104406923363	14.714209371412
1850	0.003099910111	0.318577417473	+1	0.103318494789	15.565647350911
1900	0.003052688857	0.332675861078	+1	0.102279410317	16.496300629054
1950	0.003007113211	0.347723176787	+1	0.101285780092	17.510857264854
2000	0.002963103411	0.363721995719	+1	0.100333676728	18.613537080032
2100	0.002879479942	0.398629702356	+1	0.098541106011	21.104793342520
2200	0.002801180659	0.437748753616	+1	0.096883612825	24.035799083697
2300	0.002727651918	0.481541802139	+1	0.095346420309	27.491475543007
2400	0.002658440014	0.530506237331	+1	0.093915454726	31.572870036739
2500	0.002593171607	0.585164665406	+1	0.092577135505	36.399087586360
2600	0.002531528835	0.646111387899	+1	0.091319288422	42.115009802039
2700	0.002473195820	0.714255646874	+1	0.090134232407	48.922702236228
2800	0.002417896639	0.790748945500	+1	0.089015599143	57.087623108994
2900	0.002365351955	0.877030606367	+1	0.087958365210	66.961746254727
3000	0.002315372036	0.974815742414	+1	0.086956482733	79.001334483922
3100	0.002267745151	1.086318878407	+1	0.086005634574	93.830363689706
3200	0.002222258173	1.214518351481	+1	0.085103279294	112.330846966925
3300	0.002178805947	1.363069428100	+1	0.084244078826	135.703279463334
3400	0.002137248449	1.536948075292	+1	0.083424706309	165.697172762298
3500	0.002097458831	1.742909987519	+1	0.082642151788	204.901880507643
3600	0.002059322466	1.990361367001	+1	0.081893631272	257.273435165375
3700	0.002022734579	2.292854433839	+1	0.081176717977	329.103150151247
3800	0.001987602208	2.670602532678	+1	0.080489187173	430.859327268398
3900	0.001953836068	3.155161254505	+1	0.079829102517	580.986928175863
4000	0.001921355417	3.798647135570	+1	0.079194667371	814.393950974240
4100	0.001890085390	4.693742816014	+1	0.078584271688	1203.637315078258
4200	0.001859958287	6.022495234931	+1	0.077996321844	1919.990869751328
4300	0.001830912696	8.198516517293	+1	0.077429371729	3450.619843826209
4400	0.001802890816	12.407136797920	+1	0.076882125244	7670.507938984113
4500	0.001775837303	23.978854254725	+1	0.076353396550	27832.341142459500
4600	0.001752991088	118.558215962584	+1	0.075712838622	661200.744495456110
4700	0.001726912278	36.268424630701	-1	0.075244662931	63576.843592935278

4800	0.001700004133	15.137730053903	-1	0.074867872355	11609.333254322917
4900	0.001676357857	9.785816509508	-1	0.074402992158	5052.710287302873
5000	0.001653461816	7.210824673439	-1	0.073951890745	2854.800611631508
5500	0.001549060317	3.065655813827	-1	0.071878414775	622.167133095690
6000	0.001458907086	1.918753406245	-1	0.070055756395	288.763779418312
6500	0.001380240825	1.384148136102	-1	0.068429247966	175.383141218658
7000	0.001310968753	1.076314415751	-1	0.066959360552	122.174817669491
7500	0.001249477036	0.877020264581	-1	0.065616945557	92.405764694884
8000	0.001194500072	0.737936214916	-1	0.064380108898	73.790471017404
8500	0.001145033723	0.635648256017	-1	0.063232052253	61.220483446253
9000	0.001100280509	0.557473107705	-1	0.062158754546	52.244003683210
9500	0.001059576454	0.495900143974	-1	0.061150464090	45.552097181264
10000	0.001022380440	0.446229580420	-1	0.060199265087	40.391937539203
10500	0.000988244791	0.405371119718	-1	0.059298574383	36.303021101785
11000	0.000956799826	0.371225835834	-1	0.058442402627	32.990730283229
11500	0.000927728212	0.342286828724	-1	0.057626646954	30.256060894640
12000	0.000900766295	0.317478400575	-1	0.056847073466	27.962792105406
12500	0.000875685074	0.295989832984	-1	0.056100595342	26.013096975661
13000	0.000852290940	0.277214831078	-1	0.055384113101	24.336185951840
13500	0.000830413994	0.260678232294	-1	0.054695372971	22.878769988437
14000	0.000809908361	0.246013752359	-1	0.054032006225	21.600777981419
14500	0.000790645732	0.232925903398	-1	0.053392270637	20.470947365651
15000	0.000772514513	0.221181267366	-1	0.052774348686	19.465066488781
16000	0.000739260627	0.200985819857	-1	0.051598265691	17.751193070958
17000	0.000709482331	0.184265617876	-1	0.050493453825	16.344850177564
18000	0.000682652556	0.170213369744	-1	0.049451521631	15.169386680785
19000	0.000658346036	0.158251473634	-1	0.048465471630	14.171586383443
20000	0.000636217068	0.147956111356	-1	0.047529454640	13.313367991041
21000	0.000568856709	0.123006004290	-1	0.050761523500	12.978300886053
22000	0.000548345519	0.115277138325	-1	0.050179928590	12.380047346854
23000	0.000528726939	0.107866406120	-1	0.049648746163	11.801487057920
24000	0.000510201336	0.100969775643	-1	0.049169423209	11.261484652661
25000	0.000492943094	0.094768329550	-1	0.048733465489	10.777045374107

26000	0.000477049210	0.089375779676	-1	0.048324660241	10.358747361009
27000	0.000462378408	0.084688268864	-1	0.047932876263	9.997601293582
28000	0.000448747819	0.080560757356	-1	0.047554415228	9.681133490434
29000	0.000435992136	0.076861404850	-1	0.047190017146	9.398185276872
30000	0.000423961534	0.073470067051	-1	0.046844452819	9.138695890804
31000	0.000412535515	0.070293218388	-1	0.046523877044	8.894915189469
32000	0.000401667262	0.067308906052	-1	0.046227618895	8.665200273258
33000	0.000391329754	0.064512670436	-1	0.045952826879	8.449391808676
34000	0.000381498557	0.061900454315	-1	0.045696434628	8.247358287267
35000	0.000372151588	0.059468566442	-1	0.045455134769	8.058991172443
36000	0.000363265639	0.057210959938	-1	0.045225830014	7.883965588166
37000	0.000354807395	0.055111682686	-1	0.045007081000	7.721044786032
38000	0.000346743142	0.053153225810	-1	0.044798328310	7.568842722599
39000	0.000339041618	0.051319191525	-1	0.044599483539	7.426061222736
40000	0.000331673857	0.049594194584	-1	0.044410926845	7.291479541699
41000	0.000324614082	0.047965058710	-1	0.044233127694	7.164058892912
42000	0.000317843004	0.046424410369	-1	0.044065401831	7.043250603534
43000	0.000311343957	0.044966518089	-1	0.043906839410	6.928639489951
44000	0.000305101445	0.043585945989	-1	0.043756642544	6.819829373333
45000	0.000299101006	0.042277516644	-1	0.043614139979	6.716441752372
46000	0.000293329063	0.041036307475	-1	0.043478778593	6.618116531972
47000	0.000287772679	0.039857654377	-1	0.043350040551	6.524504880000
48000	0.000282419648	0.038737105709	-1	0.043227524913	6.435272893293
49000	0.000277258508	0.037670401573	-1	0.043110956417	6.350098727201
50000	0.000272278530	0.036653488737	-1	0.043000160649	6.268671540133
55000	0.000249779750	0.032206551125	-1	0.042524381985	5.909563830279
60000	0.000230619656	0.028610342037	-1	0.042155224195	5.614792861653
65000	0.000214095370	0.025648351434	-1	0.041869602770	5.368239942304
70000	0.000199690206	0.023171235948	-1	0.041650378246	5.158803850120
75000	0.000187016356	0.021072793149	-1	0.041484481476	4.978568914640
80000	0.000175776121	0.019275416413	-1	0.041361816350	4.821742235813
85000	0.000165737205	0.017721112209	-1	0.041274469833	4.683979505587
90000	0.000156715445	0.016365701116	-1	0.041216136831	4.561958471128

95000	0.000148562885	0.015174945979	-1	0.041181758244	4.453093366052
100000	0.000141159299	0.014121917597	-1	0.041167237525	4.355338451411
105000	0.000134405732	0.013185095861	-1	0.041169167790	4.267033228959
110000	0.000128220796	0.012347425568	-1	0.041184722958	4.186904486640
115000	0.000122535363	0.011594410350	-1	0.041212347806	4.113820683257
120000	0.000117291279	0.010914775549	-1	0.041249121772	4.046892131204
125000	0.000112439012	0.010298874618	-1	0.041292945012	3.985324835456
130000	0.000107936909	0.009738662940	-1	0.041342903542	3.928521649551
135000	0.000103748662	0.009227151125	-1	0.041398761260	3.875951722232
140000	0.000099842885	0.008758732790	-1	0.041459011568	3.827157727968
145000	0.000096192138	0.008328510506	-1	0.041522445257	3.781716859938
150000	0.000092772617	0.007932314859	-1	0.041588296410	3.739299402133
155000	0.000089563253	0.007566451298	-1	0.041656199412	3.699606138388
160000	0.000086545554	0.007227812805	-1	0.041725515646	3.662385412371
165000	0.000083703074	0.006913634262	-1	0.041795825081	3.627402159670
170000	0.000081021237	0.006621542495	-1	0.041866702273	3.594464153559
175000	0.000078486902	0.006349394609	-1	0.041938005156	3.563395218183
180000	0.000076088230	0.006095310028	-1	0.042009691347	3.534050686770
185000	0.000073815053	0.005857700216	-1	0.042081133560	3.506270322616
190000	0.000071661096	0.005635768569	-1	0.042147384753	3.479775581950
195000	0.000069614819	0.005427603946	-1	0.042212521886	3.454611141191
200000	0.000067668366	0.005231945346	-1	0.042276737787	3.430645424871
205000	0.000065814594	0.005047657780	-1	0.042340314511	3.407757229494
210000	0.000064045421	0.004873548057	-1	0.042406123782	3.386008030553
215000	0.000062356930	0.004709224592	-1	0.042471007683	3.365259992907
220000	0.000060744518	0.004554112559	-1	0.042533594270	3.345431674127
225000	0.000059203318	0.004407545671	-1	0.042593738355	3.326476992669
230000	0.000057728855	0.004268903557	-1	0.042651316530	3.308343872498
235000	0.000056316984	0.004137596248	-1	0.042706356841	3.290976941155
240000	0.000054963871	0.004013069438	-1	0.042758955255	3.274316306102
245000	0.000053665915	0.003894792608	-1	0.042809409455	3.258303287923
250000	0.000052419770	0.003782263725	-1	0.042858118201	3.242875169479
255000	0.000051222357	0.003675032654	-1	0.042905482005	3.227977345543

260000	0.000050071003	0.003572780592	-1	0.042951370026	3.213588027749
265000	0.000048963277	0.003475229313	-1	0.042995539553	3.199689435730
270000	0.000047896881	0.003382112969	-1	0.043037804749	3.186264020889
275000	0.000046869677	0.003293177664	-1	0.043078019560	3.173291012039
280000	0.000045879643	0.003208179305	-1	0.043116106891	3.160749237107
285000	0.000044924869	0.003126884573	-1	0.043152036158	3.148616344367
290000	0.000044003577	0.003049070199	-1	0.043185830163	3.136867588778
295000	0.000043114061	0.002974520890	-1	0.043217597615	3.125479869747
300000	0.000042254735	0.002903030214	-1	0.043247493306	3.114426573656

Electron Elastic Scattering Sampling Data
Solution for Z = 73

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.039123584072	1.045406913008	-1	0.161174780203	10.106129510340
52	0.036429861000	0.769637389874	-1	0.163084799897	7.029186106894
54	0.034118432134	0.603474267191	-1	0.163989187786	5.379782609979
56	0.032148567351	0.495874669895	-1	0.163439029790	4.367384931032
58	0.030484802552	0.423543004869	-1	0.160996478893	3.682949141644
60	0.029094583896	0.374543303909	-1	0.156285125848	3.185040521811
62	0.027945939620	0.342376221914	-1	0.149061619863	2.802570706914
64	0.027006870308	0.323617393550	-1	0.139262844744	2.498684514978
66	0.026242057403	0.316715289598	-1	0.127121912810	2.255173949857
68	0.025614268081	0.321726802304	-1	0.113159688534	2.065424157570
70	0.025085545566	0.340434743962	-1	0.098143295710	1.931163267950
72	0.024618571186	0.376897919791	-1	0.082998031135	1.862078301871
74	0.024181278209	0.439324777040	-1	0.068597720321	1.880445707971
76	0.023748536951	0.544128554519	-1	0.055634354997	2.035905873960
78	0.023304169515	0.727690270537	-1	0.044509301772	2.455830560093
80	0.022840654982	1.086982244251	-1	0.035333711812	3.556614786517
82	0.022357169120	1.988106316361	-1	0.028003289953	7.487907212020
84	0.021857564858	7.093502596829	-1	0.022282597322	58.581106289723
86	0.021348016945	5.317885907042	+1	0.017891406293	28.071425834266
88	0.020835372308	1.529887222114	+1	0.014556461926	2.687990232362
90	0.020326088721	0.735928147148	+1	0.012039202093	0.750641105914
92	0.019825660366	0.409500718777	+1	0.010145587021	0.292598590330
94	0.019338389162	0.242103179613	+1	0.008723873445	0.134256153549
96	0.018867461575	0.147006567594	+1	0.007658882796	0.067698011465
98	0.018415050864	0.090123726271	+1	0.006864582270	0.036209526373
100	0.017982513300	0.055242057646	+1	0.006277255562	0.020115730608
105	0.016991324781	0.015733882111	+1	0.005436408021	0.005055345352
110	0.016126271875	0.004260234399	+1	0.005173523521	0.001357804352

115	0.015377645752	0.001244460330	+1	0.005271950698	0.000422932159
120	0.014731978166	0.000589614339	+1	0.005627291294	0.000223337584
125	0.014175534983	0.000665585681	+1	0.006190684897	0.000288586481
130	0.013694980810	0.001315503346	+1	0.006944010608	0.000663484549
135	0.013278490565	0.002876852663	+1	0.007884297065	0.001704073608
140	0.012915607484	0.005855776400	+1	0.009015628275	0.004096012655
145	0.012597496926	0.010799145232	+1	0.010344697459	0.008944724632
150	0.012316504107	0.018244899504	+1	0.011879471960	0.017913364398
155	0.012066166232	0.028712774074	+1	0.013628008106	0.033418174859
160	0.011840885693	0.042714475052	+1	0.015598139416	0.058903952200
165	0.011635908732	0.060778901033	+1	0.017796968354	0.099242553802
170	0.011447131082	0.083476831189	+1	0.020230683478	0.161299292161
175	0.011271050824	0.111458227028	+1	0.022904235877	0.254772159987
180	0.011104661699	0.145484719802	+1	0.025821120341	0.393406570588
185	0.010945419388	0.186479726238	+1	0.028983208425	0.596831242026
190	0.010791223532	0.235572112929	+1	0.032390573281	0.893260989243
195	0.010640302728	0.294181833062	+1	0.036041168500	1.323734621600
200	0.010491091776	0.364135956315	+1	0.039930454666	1.948810485833
205	0.010342335967	0.447809043146	+1	0.044051717360	2.859205682316
210	0.010193257884	0.548266914546	+1	0.048396194690	4.192522865901
215	0.010043341316	0.669580965353	+1	0.052952542740	6.161797603166
220	0.009892258176	0.817295820073	+1	0.057706743390	9.104894189637
225	0.009739823073	0.999159714341	+1	0.062642324921	13.573266691330
230	0.009586002308	1.226310107812	+1	0.067740414237	20.498217959874
235	0.009430873878	1.515338234429	+1	0.072979919959	31.520398128872
240	0.009274620636	1.892056100314	+1	0.078337816775	49.686100212727
245	0.009117509017	2.398883575100	+1	0.083789391514	81.044068859874
250	0.008959873236	3.110686529117	+1	0.089308548671	138.712826221498
255	0.008802121788	4.173156985998	+1	0.094868800888	254.823159559902
260	0.008644789332	5.912928109382	+1	0.100445348498	523.448852409355
265	0.008488432421	9.243296627477	+1	0.106013850808	1311.595876781979
270	0.008333598707	18.050828505029	+1	0.111550064163	5138.200528148018
275	0.008234545700	61.355136380072	+1	0.116410445643	60710.431551071444

280	0.008030565719	32.164424959443	-1	0.122430783834	18383.900921545624
285	0.007883330850	14.469394848124	-1	0.127729781752	4125.198033884412
290	0.007739541032	9.580260360285	-1	0.132905819521	1991.993361319000
295	0.007599586673	7.312197640333	-1	0.137938892450	1270.090044038149
300	0.007463819247	6.019505511168	-1	0.142810418978	936.180893856977
310	0.007205944546	4.637345834146	-1	0.152010496539	645.681091482246
320	0.006967376458	3.950948009981	-1	0.160430429388	532.764231452196
330	0.006748839262	3.583363508653	-1	0.168026118201	488.193563072273
340	0.006550544154	3.398479247727	-1	0.174773499578	480.149653433271
350	0.006372293661	3.339169630119	-1	0.180665404608	498.200732638019
360	0.006213474959	3.381702127928	-1	0.185714182376	540.532385891958
370	0.006072857996	3.518586917516	-1	0.189964723974	610.263498219684
380	0.005949049518	3.756695763504	-1	0.193471563785	716.284064649143
390	0.005840665222	4.119088129741	-1	0.196290304250	876.600728645789
400	0.005746366342	4.652753744069	-1	0.198475860397	1126.884585951983
410	0.005664815814	5.448165195914	-1	0.200084265100	1542.467668055066
420	0.005594535865	6.687287265837	-1	0.201179575872	2301.287353457322
430	0.005534129174	8.796593902580	-1	0.201822975075	3915.749689721423
440	0.005482352122	13.050282988704	-1	0.202069821405	8423.647579413926
450	0.005438096631	25.700257277893	-1	0.201969810631	31762.728119619685
460	0.005424562195	215.796353072155	+1	0.200983070139	2157671.793378240000
470	0.005472729372	119.441211512410	+1	0.202442619251	663582.700871491220
480	0.005340577530	12.507515708616	+1	0.200035094585	7868.290091384473
490	0.005316890736	8.046997005317	+1	0.198978160754	3383.285337411865
500	0.005296420646	5.844891785868	+1	0.197769926726	1852.370131771246
510	0.005278589390	4.537924481280	+1	0.196437216422	1157.721068548272
520	0.005262868558	3.675908728478	+1	0.195004277335	787.007995951145
530	0.005248799594	3.066909832778	+1	0.193492364294	567.136168949071
540	0.005235990849	2.615309303773	+1	0.191919768366	426.645174034205
550	0.005224109903	2.268158582019	+1	0.190302253852	331.758713051778
560	0.005212876528	1.993775345654	+1	0.188653326952	264.860964487719
570	0.005202055363	1.772036852527	+1	0.186984370507	216.047787621888
580	0.005191444409	1.589576372378	+1	0.185305058024	179.417741321934

590	0.005180877377	1.437175423315	+1	0.183623750576	151.282095967927
600	0.005170216350	1.308274473307	+1	0.181947533351	129.241801123960
610	0.005159351734	1.198074851803	+1	0.180282365341	111.682556037321
620	0.005148200504	1.102970813797	+1	0.178632812940	97.484507419977
630	0.005136698134	1.020218003776	+1	0.177002607489	85.854537144115
640	0.005124792954	0.947696278324	+1	0.175394974264	76.219354658223
650	0.005112447027	0.883742381785	+1	0.173812631892	68.156378319784
660	0.005099633253	0.827029167203	+1	0.172257727420	61.348200209073
670	0.005086341609	0.776475653800	+1	0.170731576763	55.551645703283
680	0.005072564957	0.731203400582	+1	0.169235219266	50.579430489698
690	0.005058324703	0.690487608999	+1	0.167769093871	46.284761592992
700	0.005043603801	0.653739517633	+1	0.166334175813	42.553517771396
710	0.005028419457	0.620460229238	+1	0.164930772295	39.293588904892
720	0.005012790983	0.590224045657	+1	0.163558741155	36.430265942471
730	0.004996740448	0.562670788941	+1	0.162217846006	33.902985551628
740	0.004980286423	0.537495896211	+1	0.160907828407	31.662467667749
750	0.004963449942	0.514439336422	+1	0.159628420016	29.668186198333
760	0.004946251366	0.493277631632	+1	0.158379314810	27.886565050176
770	0.004928718431	0.473812540325	+1	0.157159838175	26.289110005803
780	0.004910876251	0.455872180075	+1	0.155969319860	24.851965670965
790	0.004892751227	0.439307337507	+1	0.154807108874	23.555059896049
800	0.004874364405	0.423988820067	+1	0.153672629599	22.381508821734
810	0.004855738207	0.409802457867	+1	0.152565300122	21.316866526110
820	0.004836900968	0.396644782564	+1	0.151484297218	20.348512665798
830	0.004817868263	0.384425272365	+1	0.150428932747	19.465736482101
840	0.004798670689	0.373062655393	+1	0.149398413516	18.659153205937
850	0.004779324483	0.362486185358	+1	0.148392104899	17.920803445233
860	0.004759847885	0.352632720029	+1	0.147409380384	17.243750131134
870	0.004740262725	0.343443568823	+1	0.146449473958	16.621766612789
880	0.004720586399	0.334866547624	+1	0.145511658143	16.049444688683
890	0.004700838436	0.326854873047	+1	0.144595276028	15.522038580636
900	0.004681033507	0.319366896363	+1	0.143699701247	15.035410754109
910	0.004661184869	0.312365060294	+1	0.142824354280	14.585912487765

920	0.004641310219	0.305814008744	+1	0.141968542710	14.170200130477
930	0.004621421378	0.299681979528	+1	0.141131633322	13.785340036195
940	0.004601533885	0.293940239482	+1	0.140313028961	13.428714984718
950	0.004581658234	0.288562837306	+1	0.139512186180	13.098015103596
960	0.004561804340	0.283526299795	+1	0.138728589072	12.791183948800
970	0.004541983347	0.278808577744	+1	0.137961663049	12.506329954244
980	0.004522205030	0.274389504924	+1	0.137210905626	12.241760429052
990	0.004502478672	0.270250842265	+1	0.136475826197	11.995962596355
1000	0.004482811333	0.266375957557	+1	0.135755978589	11.767583555830
1025	0.004433951372	0.257743752571	+1	0.134019960403	11.264958849708
1050	0.004385621103	0.250449891593	+1	0.132368904801	10.846919419387
1075	0.004337908227	0.244318555904	+1	0.130796320828	10.500301932390
1100	0.004290874152	0.239207763069	+1	0.129296791605	10.214843217329
1125	0.004244562877	0.235000673036	+1	0.127865504802	9.982372527552
1150	0.004199017292	0.231595101194	+1	0.126497481227	9.795973076499
1175	0.004154269063	0.228904967985	+1	0.125188199257	9.649997872665
1200	0.004110335891	0.226858749902	+1	0.123933761988	9.539904726707
1225	0.004067226646	0.225395977079	+1	0.122730644902	9.461968595337
1250	0.004024949220	0.224464492044	+1	0.121575473051	9.413051826889
1275	0.003983503923	0.224019398612	+1	0.120465115426	9.390534943365
1300	0.003942885905	0.224022337267	+1	0.119396821505	9.392256994680
1325	0.003903088606	0.224440103447	+1	0.118368074361	9.416403902599
1350	0.003864102340	0.225244436747	+1	0.117376503776	9.461477323822
1375	0.003825914379	0.226410711906	+1	0.116419902709	9.526219035216
1400	0.003788510434	0.227917061207	+1	0.115496255287	9.609557496037
1425	0.003751876520	0.229744286667	+1	0.114603714958	9.710590208455
1450	0.003715996221	0.231876651368	+1	0.113740577232	9.828623447782
1475	0.003680851690	0.234300186085	+1	0.112905217941	9.963076360497
1500	0.003646426828	0.237002211684	+1	0.112096167892	10.113453101149
1550	0.003579666937	0.243198791550	+1	0.110551518774	10.460475659382
1600	0.003515575996	0.250398269754	+1	0.109096751871	10.867767972337
1650	0.003454018556	0.258546621775	+1	0.107723185718	11.334323742471
1700	0.003394857287	0.267607997078	+1	0.106423342579	11.860301926406

1750	0.003337963590	0.277554205470	+1	0.105190558446	12.446421681241
1800	0.003283214302	0.288369073231	+1	0.104019001329	13.094233348268
1850	0.003230495010	0.300041906258	+1	0.102903470808	13.805759870880
1900	0.003179690294	0.312577041719	+1	0.101839580121	14.584146405864
1950	0.003130697915	0.325979332650	+1	0.100823268789	15.432768805388
2000	0.003083430030	0.340243544284	+1	0.099850372715	16.354506658452
2100	0.002993727677	0.371379747516	+1	0.098020954496	18.432655977116
2200	0.002909872954	0.406253725527	+1	0.096332048420	20.868297674257
2300	0.002831250495	0.445228489528	+1	0.094768009297	23.725488912651
2400	0.002757355085	0.488682435318	+1	0.093313926306	27.078821455237
2500	0.002687772611	0.536995185492	+1	0.091955473141	31.013808024175
2600	0.002622149221	0.590588756185	+1	0.090679795256	35.632153864586
2700	0.002560133160	0.650152923656	+1	0.089478928419	41.076884885334
2800	0.002501405620	0.716564012581	+1	0.088346425452	47.534072940303
2900	0.002445690752	0.790867697829	+1	0.087276324366	55.241069437209
3000	0.002392745722	0.874321578680	+1	0.086262988477	64.503624993616
3100	0.002342358393	0.968468919926	+1	0.085301303564	75.722061516022
3200	0.002294336197	1.075295281584	+1	0.084387089969	89.437450098990
3300	0.002248509953	1.197334526077	+1	0.083516664513	106.387357217220
3400	0.002204723762	1.337846953119	+1	0.082686648477	127.593795568324
3500	0.002162838958	1.501100575191	+1	0.081893928308	154.503141191720
3600	0.002122682838	1.693037869970	+1	0.081137491591	189.266685835649
3700	0.002084182224	1.921424483789	+1	0.080413317222	235.024639685345
3800	0.002047238278	2.197377929264	+1	0.079719019839	296.676841124026
3900	0.002011755409	2.537112206731	+1	0.079052561666	382.139227108696
4000	0.001977644418	2.965214030225	+1	0.078412177836	504.851010239087
4100	0.001944823992	3.520788873457	+1	0.077796184317	689.067046238737
4200	0.001913221109	4.269980901100	+1	0.077202978998	982.126834016436
4300	0.001882768191	5.334351886861	+1	0.076631127055	1486.620338648745
4400	0.001853403004	6.964284086660	+1	0.076079297313	2459.693397006474
4500	0.001825066086	9.771267401344	+1	0.075546302740	4704.086166201779
4600	0.001797702409	15.745545542519	+1	0.075031052505	11876.078702775880
4700	0.001771262940	37.156021133701	+1	0.074532505795	64346.544536133195

4800	0.001745700959	130.304920051956	-1	0.074049643701	782437.660665658420
4900	0.001720973122	23.855991697726	-1	0.073581597107	27319.311642892721
5000	0.001697038090	13.069541952218	-1	0.073127567969	8534.410164212972
5500	0.001588001821	3.930837288486	-1	0.071042842139	931.944975724638
6000	0.001493975124	2.275044755415	-1	0.069213735383	370.303484770332
6500	0.001412020836	1.585073010352	-1	0.067584599210	210.042163672229
7000	0.001339921748	1.208505353502	-1	0.066115149048	140.829526349312
7500	0.001275971379	0.972291058301	-1	0.064775547426	103.960368185927
8000	0.001218836432	0.810840089979	-1	0.063543385740	81.643866709072
8500	0.001167458612	0.693843041763	-1	0.062401474784	66.921261893469
9000	0.001120989736	0.605376050666	-1	0.061336463005	56.587771752221
9500	0.001078740580	0.536279437850	-1	0.060337778408	48.988445343939
10000	0.001040150615	0.480926153757	-1	0.059396473643	43.193473552624
10500	0.001004754782	0.435660071129	-1	0.058505391724	38.643923345878
11000	0.000972158471	0.398003899990	-1	0.057659216519	34.986250197808
11500	0.000942030441	0.366212270238	-1	0.056853733519	31.985795025031
12000	0.000914093914	0.339047432852	-1	0.056084658048	29.483553855474
12500	0.000888111185	0.315584500487	-1	0.055348815592	27.366446078206
13000	0.000863880042	0.295134854772	-1	0.054643091231	25.553270575237
13500	0.000841223036	0.277162244580	-1	0.053965151919	23.983362367076
14000	0.000819989092	0.261254738978	-1	0.053312645989	22.611355813011
14500	0.000800043925	0.247081587394	-1	0.052683764921	21.402077142479
15000	0.000781272059	0.234382334140	-1	0.052076703743	20.328409498821
16000	0.000746846672	0.212588062294	-1	0.050922247149	18.505560706641
17000	0.000716023363	0.194584872022	-1	0.049838867847	17.016057487678
18000	0.000688255375	0.179482836567	-1	0.048818111028	15.775514573006
19000	0.000663102074	0.166647760321	-1	0.047852918507	14.725679704852
20000	0.000640205491	0.155615946464	-1	0.046937413363	13.825091451249
21000	0.000579135211	0.131003639369	-1	0.049727118933	13.380147861876
22000	0.000558177145	0.122740633750	-1	0.049140048528	12.751827574007
23000	0.000538148823	0.114830147103	-1	0.048600703380	12.145301700747
24000	0.000519254684	0.107478828003	-1	0.048110970993	11.580045915678
25000	0.000501657530	0.100873390672	-1	0.047664147761	11.073643649450

26000	0.000485453683	0.095132136467	-1	0.047245341388	10.636851716526
27000	0.000470497789	0.090142944886	-1	0.046844775974	10.260082448378
28000	0.000456603172	0.085750806942	-1	0.046458613435	9.930197678268
29000	0.000443601600	0.081815183782	-1	0.046087247128	9.635480590125
30000	0.000431340835	0.078208320801	-1	0.045734873446	9.365397295734
31000	0.000419698845	0.074830896123	-1	0.045407062023	9.111843767661
32000	0.000408627585	0.071659322697	-1	0.045103112301	8.873079436179
33000	0.000398098973	0.068688504325	-1	0.044820316698	8.648905002592
34000	0.000388087663	0.065913838848	-1	0.044555766905	8.439154497043
35000	0.000378570616	0.063331122528	-1	0.044306346775	8.243690332495
36000	0.000369523829	0.060933744384	-1	0.044069110770	8.062152694958
37000	0.000360913158	0.058704625650	-1	0.043842673249	7.893241176307
38000	0.000352704198	0.056625142496	-1	0.043626436513	7.735504565414
39000	0.000344865108	0.054677860801	-1	0.043420260634	7.587585349512
40000	0.000337366396	0.052846431874	-1	0.043224457047	7.448209221395
41000	0.000330181844	0.051116865199	-1	0.043039420826	7.316291940131
42000	0.000323291734	0.049481315514	-1	0.042864456889	7.191257624248
43000	0.000316678984	0.047933652125	-1	0.042698684795	7.072670023900
44000	0.000310327752	0.046468083164	-1	0.042541319829	6.960113077176
45000	0.000304223238	0.045079082256	-1	0.042391716750	6.853191139111
46000	0.000298351589	0.043761437102	-1	0.042249301627	6.751526430138
47000	0.000292699587	0.042510163103	-1	0.042113585321	6.654754865352
48000	0.000287254743	0.041320529882	-1	0.041984165620	6.562528600282
49000	0.000282005387	0.040188010200	-1	0.041860768435	6.474512298148
50000	0.000276940554	0.039108303447	-1	0.041743208015	6.390383096013
55000	0.000254061620	0.034385992527	-1	0.041234422066	6.019525895145
60000	0.000234581962	0.030565815038	-1	0.040833485033	5.715282112414
65000	0.000217784652	0.027418065994	-1	0.040517259917	5.460910694251
70000	0.000203143605	0.024784490938	-1	0.040268431250	5.244886656795
75000	0.000190263808	0.022552551277	-1	0.040073795237	5.059005301386
80000	0.000178841728	0.020639953562	-1	0.039923248197	4.897277077557
85000	0.000168641034	0.018985276582	-1	0.039808777646	4.755207347233
90000	0.000159474326	0.017541704740	-1	0.039724026114	4.629362430688

95000	0.000151191068	0.016272954649	-1	0.039663882819	4.517071385867
100000	0.000143668934	0.015150485678	-1	0.039624203095	4.416223635952
105000	0.000136807263	0.014151440514	-1	0.039601721157	4.325114252091
110000	0.000130522986	0.013257823256	-1	0.039593162033	4.242417958791
115000	0.000124745890	0.012454322790	-1	0.039596572646	4.166957117237
120000	0.000119417530	0.011728799487	-1	0.039609993300	4.097838780616
125000	0.000114487690	0.011070882103	-1	0.039632151196	4.034273644596
130000	0.000109913427	0.010472202037	-1	0.039661186463	3.975622329832
135000	0.000105657598	0.009925510668	-1	0.039695715340	3.921302542988
140000	0.000101688530	0.009424812501	-1	0.039734398560	3.870845485490
145000	0.000097978495	0.008964824199	-1	0.039776493807	3.823830685399
150000	0.000094503287	0.008541045278	-1	0.039821701827	3.779937121162
155000	0.000091241418	0.008149511626	-1	0.039869949499	3.738871160888
160000	0.000088174043	0.007786953180	-1	0.039920359237	3.700363848205
165000	0.000085284300	0.007450441499	-1	0.039972337529	3.664167953514
170000	0.000082557149	0.007137382902	-1	0.040025900715	3.630101531702
175000	0.000079983357	0.006846397881	-1	0.040075773196	3.597791139239
180000	0.000077547673	0.006574750403	-1	0.040125739253	3.567233632342
185000	0.000075239476	0.006320688565	-1	0.040175519397	3.538278645557
190000	0.000073049298	0.006082718211	-1	0.040224737269	3.510809633687
195000	0.000070966413	0.005859006931	-1	0.040276317063	3.484825079436
200000	0.000068984910	0.005648665212	-1	0.040327519686	3.460083068168
205000	0.000067097760	0.005450534950	-1	0.040378209253	3.436446851429
210000	0.000065298619	0.005263719184	-1	0.040428091288	3.413862925895
215000	0.000063581790	0.005087442861	-1	0.040476714714	3.392288396599
220000	0.000061942031	0.004920977494	-1	0.040523682051	3.371674093627
225000	0.000060374487	0.004763631604	-1	0.040568723787	3.351968107551
230000	0.000058874662	0.004614749157	-1	0.040611679820	3.333114117999
235000	0.000057438366	0.004473707988	-1	0.040652514049	3.315054318419
240000	0.000056061724	0.004339917572	-1	0.040691308706	3.297726898988
245000	0.000054741098	0.004212814245	-1	0.040728306137	3.281070100690
250000	0.000053473098	0.004091864229	-1	0.040763851411	3.265019437329
255000	0.000052254601	0.003976587486	-1	0.040798308063	3.249519246316

260000	0.000051082911	0.003866644019	-1	0.040831535870	3.234545170651
265000	0.000049955550	0.003761736940	-1	0.040863306461	3.220079644486
270000	0.000048870181	0.003661580594	-1	0.040893460982	3.206105033989
275000	0.000047824630	0.003565903841	-1	0.040921854134	3.192599497955
280000	0.000046816842	0.003474445905	-1	0.040948410888	3.179541604861
285000	0.000045844887	0.003386957487	-1	0.040973103238	3.166908039406
290000	0.000044906947	0.003303199440	-1	0.040995953193	3.154674167922
295000	0.000044001306	0.003222942033	-1	0.041017046014	3.142814624262
300000	0.000043126349	0.003145965830	-1	0.041036511522	3.131302838090

Electron Elastic Scattering Sampling Data
Solution for Z = 74

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.043048854099	1.565713033582	-1	0.184623161628	20.257311877040
52	0.040054554910	1.074845912795	-1	0.186191995986	12.247940816579
54	0.037447199320	0.799965956169	-1	0.187577526367	8.557547674907
56	0.035175041385	0.626768208000	-1	0.188592313520	6.508322979969
58	0.033196334247	0.509485202476	-1	0.189023487748	5.226307340453
60	0.031477583241	0.426281274877	-1	0.188624351439	4.353274487399
62	0.029991511120	0.365463237374	-1	0.187119330506	3.718635186246
64	0.028717023545	0.320323975766	-1	0.184179105892	3.232065409497
66	0.027635265354	0.286743212651	-1	0.179486351565	2.842025789033
68	0.026729899902	0.262191423504	-1	0.172731470442	2.517764646469
70	0.025985531076	0.245170824101	-1	0.163659540145	2.240696877425
72	0.025384237437	0.234874352653	-1	0.152187091461	2.000255166548
74	0.024906320204	0.231179067707	-1	0.138424267600	1.791409071229
76	0.024527350821	0.234588345364	-1	0.122794383592	1.613360815621
78	0.024219353994	0.246456362505	-1	0.106016526703	1.468607228963
80	0.023952616968	0.269422193153	-1	0.089022459301	1.362694621182
82	0.023698155630	0.308244973887	-1	0.072806157304	1.305257452410
84	0.023432210910	0.371862716321	-1	0.058191559912	1.314372192756
86	0.023138352299	0.478126994602	-1	0.045700923489	1.429646585862
88	0.022808741465	0.667634615803	-1	0.035503636648	1.756775392716
90	0.022443085632	1.054889636263	-1	0.027481545404	2.669421282299
92	0.022046358499	2.130935200479	-1	0.021346565905	6.458563836205
94	0.021626435853	13.406527810762	-1	0.016746051514	148.883059702530
96	0.021192037171	3.243785146856	+1	0.013339638390	8.600064697114
98	0.020751411130	1.129708142357	+1	0.010835584064	1.244235440563
100	0.020311634181	0.563224185323	+1	0.009001579188	0.385896287185
105	0.019249278089	0.145853811460	+1	0.006302290005	0.054025181157
110	0.018276302566	0.044065883310	+1	0.005120152956	0.012722976060

115	0.017410573222	0.014353698586	+1	0.004706131483	0.003886481911
120	0.016651041036	0.005548884556	+1	0.004732631510	0.001567322986
125	0.015989096954	0.003112723095	+1	0.005052592766	0.000976093487
130	0.015413113765	0.002889510556	+1	0.005600560585	0.001042833206
135	0.014911388124	0.003950185723	+1	0.006349740628	0.001674580057
140	0.014472763100	0.006385531037	+1	0.007292549916	0.003215345816
145	0.014087459721	0.010599545527	+1	0.008429978433	0.006374723012
150	0.013746845059	0.017072808729	+1	0.009767017476	0.012289919615
155	0.013443565491	0.026287163852	+1	0.011310059600	0.022651834010
160	0.013171217026	0.038711237868	+1	0.013066013058	0.039891293871
165	0.012924346255	0.054816444368	+1	0.015041511309	0.067449029683
170	0.012698218289	0.075096548239	+1	0.017242644133	0.110154481421
175	0.012488784203	0.100102143383	+1	0.019674621673	0.174784191286
180	0.012292543163	0.130465969970	+1	0.022341497055	0.270852002216
185	0.012106509688	0.166946772381	+1	0.025246088495	0.411796845854
190	0.011928176582	0.210454734890	+1	0.028389706144	0.616669254449
195	0.011755400553	0.262124351944	+1	0.031771925231	0.912772219030
200	0.011586281677	0.323408748202	+1	0.035390248487	1.339771437405
205	0.011419246688	0.396177207851	+1	0.039240488575	1.956055060716
210	0.011253224825	0.482764485235	+1	0.043316368435	2.848093675103
215	0.011087437189	0.586197866037	+1	0.047609247950	4.146272671365
220	0.010921310584	0.710497896615	+1	0.052107965464	6.051157742031
225	0.010754444440	0.861124630445	+1	0.056799054786	8.878604474102
230	0.010586611988	1.045661676608	+1	0.061666691073	13.139776450604
235	0.010417718060	1.274951066665	+1	0.066692899191	19.690060486175
240	0.010247788666	1.565029668713	+1	0.071857709594	30.020346967514
245	0.010076956448	1.940640558006	+1	0.077139440872	46.864458410111
250	0.009905444395	2.441984823336	+1	0.082514689553	75.566513326555
255	0.009733563544	3.139086940805	+1	0.087959493455	127.496371352378
260	0.009561793735	4.165647011807	+1	0.093450775695	229.787518023034
265	0.009390663379	5.812289648963	+1	0.098965335487	458.803159106157
270	0.009220696047	8.851893455470	+1	0.104479627512	1093.357468180303
275	0.009052422157	16.247453095647	+1	0.109970077180	3790.545012675840

280	0.008886350096	59.739073205500	+1	0.115413287028	52805.161423350706
285	0.008722976238	43.810102238368	-1	0.120786370935	30650.468714031627
290	0.008562769754	16.751703082337	-1	0.126067046087	4967.126883810879
295	0.008406164447	10.640814360523	-1	0.131234038340	2207.336540708700
300	0.008253567179	7.966238976727	-1	0.136267049744	1354.139942056114
310	0.007961718941	5.551936550809	-1	0.145864934430	774.083206799654
320	0.007689167572	4.476925946789	-1	0.154767107047	579.446226534722
330	0.007437101000	3.912907904530	-1	0.162910183819	499.335915607230
340	0.007206144426	3.607722249365	-1	0.170250874739	469.938046458867
350	0.006996458658	3.462155651043	-1	0.176763660914	470.818526482830
360	0.006807713124	3.432731355946	-1	0.182444356476	495.423452702385
370	0.006638860299	3.499764031556	-1	0.187324243685	543.172738943190
380	0.006488618256	3.659938016857	-1	0.191446621097	618.346330274152
390	0.006355667822	3.924114356563	-1	0.194858020267	731.143986657640
400	0.006238692595	4.319889185679	-1	0.197606196586	901.557821595813
410	0.006136341912	4.900489402288	-1	0.199742053916	1168.962606660981
420	0.006047069332	5.764883287049	-1	0.201326794189	1615.920693389862
430	0.005969391773	7.117364141379	-1	0.202420227427	2441.738450996849
440	0.005901970900	9.447286623646	-1	0.203077167633	4236.456060321886
450	0.005843603847	14.270329483218	-1	0.203347462001	9463.264865982115
460	0.005793182785	29.712082990553	-1	0.203277432936	39957.517834775812
470	0.005761057144	192.769991514189	+1	0.202670662571	1638634.494511908900
480	0.005804580112	56.986136953201	+1	0.203431590859	144545.405716430800
490	0.005679108851	12.256704448173	+1	0.201466886928	7177.619178401900
500	0.005650559440	8.028108674585	+1	0.200454411525	3197.745237607036
510	0.005625551311	5.884918590203	+1	0.199289052515	1782.565738648939
520	0.005603461409	4.595010109406	+1	0.197997579056	1126.389005494042
530	0.005583741110	3.736721701187	+1	0.196603567463	771.412375280520
540	0.005565920764	3.126615760376	+1	0.195127567662	558.872265070329
550	0.005549598246	2.672112897308	+1	0.193587352845	422.109802759855
560	0.005534426033	2.321467124446	+1	0.191998328645	329.236634417332
570	0.005520104704	2.043495531179	+1	0.190373773818	263.469797796342
580	0.005506378192	1.818311133487	+1	0.188725186753	215.311952166239

590	0.005493029335	1.632640741451	+1	0.187062481596	179.069148830514
600	0.005479874168	1.477293520405	+1	0.185394172172	151.164167532364
610	0.005466763224	1.345699426080	+1	0.183727500350	129.259194912099
620	0.005453577049	1.233025241872	+1	0.182068224011	111.773589532679
630	0.005440219387	1.135652844039	+1	0.180421180840	97.611363289625
640	0.005426610929	1.050826890327	+1	0.178790557352	85.994715488567
650	0.005412686995	0.976411934267	+1	0.177179872158	76.359442532635
660	0.005398399685	0.910724614387	+1	0.175592076481	68.288049014475
670	0.005383719204	0.852409293649	+1	0.174029131986	61.465030670610
680	0.005368626374	0.800372925676	+1	0.172492589717	55.649966154080
690	0.005353110466	0.753728484954	+1	0.170983792308	50.657572776481
700	0.005337160105	0.711748394924	+1	0.169503840294	46.343237782965
710	0.005320776519	0.673827778908	+1	0.168053583828	42.592431062990
720	0.005303967787	0.639453125671	+1	0.166633221656	39.312879172552
730	0.005286749150	0.608192566999	+1	0.165242855633	36.430324802516
740	0.005269134753	0.579682112547	+1	0.163882539564	33.884676094794
750	0.005251137399	0.553612840108	+1	0.162552240849	31.626871715467
760	0.005232775137	0.529719573743	+1	0.161251850654	29.616399841465
770	0.005214070759	0.507769188975	+1	0.159980909156	27.819206201108
780	0.005195047902	0.487559890812	+1	0.158738882956	26.206862962119
790	0.005175729740	0.468917420042	+1	0.157525312513	24.755611133630
800	0.005156135492	0.451690704654	+1	0.156339702765	23.445476869742
810	0.005136285228	0.435747129863	+1	0.155181571860	22.259488262111
820	0.005116205914	0.420967123469	+1	0.154050257709	21.182918031310
830	0.005095919918	0.407245189956	+1	0.152945019289	20.203163105628
840	0.005075448720	0.394488607792	+1	0.151865210819	19.309443058860
850	0.005054813031	0.382615748970	+1	0.150810252936	18.492499855929
860	0.005034030498	0.371553896980	+1	0.149779549440	17.744307803439
870	0.005013123376	0.361236029974	+1	0.148772362375	17.057717361138
880	0.004992110188	0.351602499504	+1	0.147788001568	16.426523416877
890	0.004971010821	0.342600002163	+1	0.146825824949	15.845301617567
900	0.004949839693	0.334181043548	+1	0.145885213899	15.309326793449
910	0.004928614135	0.326302727815	+1	0.144965618530	14.814424027801

920	0.004907349064	0.318925279912	+1	0.144066358126	14.356832914332
930	0.004886060431	0.312012412739	+1	0.143186789103	13.933202724388
940	0.004864762220	0.305531725011	+1	0.142326303987	13.540589988506
950	0.004843467502	0.299453876141	+1	0.141484384729	13.176386215270
960	0.004822187591	0.293752264689	+1	0.140660501014	12.838267333130
970	0.004800932796	0.288402175463	+1	0.139854074575	12.524122666353
980	0.004779714800	0.283380767576	+1	0.139064590744	12.232044398312
990	0.004758544655	0.278667547979	+1	0.138291552139	11.960338809031
1000	0.004737428009	0.274243877329	+1	0.137534483423	11.707499622856
1025	0.004684930472	0.264340302078	+1	0.135708669574	11.149150082271
1050	0.004632958998	0.255897946841	+1	0.133972248745	10.681649210015
1075	0.004581614286	0.248720030692	+1	0.132318576201	10.290408384309
1100	0.004530968347	0.242648182105	+1	0.130742114094	9.964092176167
1125	0.004481076089	0.237551838768	+1	0.129237886918	9.693665792675
1150	0.004431981259	0.233317001393	+1	0.127800511806	9.471514371942
1175	0.004383715678	0.229847766635	+1	0.126425081417	9.291432778186
1200	0.004336297512	0.227064543338	+1	0.125107345850	9.148429402073
1225	0.004289740828	0.224900390880	+1	0.123843655364	9.038431164221
1250	0.004244075122	0.223297222445	+1	0.122630873484	8.957987324828
1275	0.004199325744	0.222205393333	+1	0.121466246916	8.904231916934
1300	0.004155507063	0.221582624337	+1	0.120347369578	8.874807585560
1325	0.004112618660	0.221392343520	+1	0.119271755238	8.867733040274
1350	0.004070616722	0.221602534293	+1	0.118236023323	8.881322482764
1375	0.004029450706	0.222184923018	+1	0.117236785986	8.914128385609
1400	0.003989075315	0.223114631874	+1	0.116270986716	8.964916221723
1425	0.003949458160	0.224369924319	+1	0.115336141496	9.032647463994
1450	0.003910613233	0.225933309199	+1	0.114431163379	9.116522025314
1475	0.003872560145	0.227789614627	+1	0.113555367712	9.215887696437
1500	0.003835312695	0.229925271820	+1	0.112708085769	9.330195346214
1550	0.003763208734	0.234988001908	+1	0.111094894210	9.601908090785
1600	0.003694073432	0.241041483168	+1	0.109579030834	9.928949036178
1650	0.003627670879	0.248020696647	+1	0.108148596735	10.309499784048
1700	0.003563865541	0.255881538525	+1	0.106795837576	10.742983074699

1750	0.003502540999	0.264589363362	+1	0.105514307671	11.229441505988
1800	0.003443561580	0.274120845120	+1	0.104297748218	11.769639067013
1850	0.003386794788	0.284458626161	+1	0.103140449571	12.364784366111
1900	0.003332119369	0.295600008293	+1	0.102037779019	13.017064273192
1950	0.003279422436	0.307543112373	+1	0.100985419518	13.728866842058
2000	0.003228608584	0.320275960441	+1	0.099978932908	14.502055888384
2100	0.003132259117	0.348104657206	+1	0.098088787056	16.243257969527
2200	0.003042290906	0.379287310008	+1	0.096346608502	18.278376478802
2300	0.002958029302	0.414107198253	+1	0.094735562687	20.656058773365
2400	0.002878920690	0.452850057903	+1	0.093239716581	23.431790399991
2500	0.002804511861	0.495787774446	+1	0.091843803342	26.667453200037
2600	0.002734415103	0.543215275542	+1	0.090534213606	30.435083011101
2700	0.002668241459	0.595661552417	+1	0.089302491148	34.837532583226
2800	0.002605639069	0.653798217603	+1	0.088141832579	40.007059753182
2900	0.002546304203	0.718410686939	+1	0.087045887309	46.108854092419
3000	0.002489971891	0.790420537292	+1	0.086008668053	53.350553625932
3100	0.002436408081	0.870936951462	+1	0.085024709586	61.997588589414
3200	0.002385403379	0.961376885799	+1	0.084089687111	72.401564818122
3300	0.002336768788	1.063513756001	+1	0.083199787130	85.029296259277
3400	0.002290335324	1.179569702827	+1	0.082351512179	100.507155637187
3500	0.002245949276	1.312369019790	+1	0.081541591438	119.690187505790
3600	0.002203473715	1.465564532436	+1	0.080767063493	143.769333228248
3700	0.002162783917	1.644012747264	+1	0.080025398760	174.449340659439
3800	0.002123765221	1.854274959209	+1	0.079314320282	214.230989378153
3900	0.002086313452	2.105417106594	+1	0.078631785595	266.893693385022
4000	0.002050299837	2.410653584048	+1	0.077977247087	338.447864132832
4100	0.002015653211	2.789033237918	+1	0.077348306390	438.636542661691
4200	0.001982308670	3.269748659704	+1	0.076742798227	584.252088977855
4300	0.001950192181	3.900229032353	+1	0.076159215023	806.321562954372
4400	0.001919236502	4.762628878782	+1	0.075596191496	1167.197565275265
4500	0.001889377502	6.012801365044	+1	0.075052538359	1807.499573296932
4600	0.001860555971	7.986651616167	+1	0.074527135796	3100.725850793248
4700	0.001832717964	11.565251943357	+1	0.074018886344	6326.680009936807

4800	0.001805813849	20.037325818053	+1	0.073526788033	18492.111099613692
4900	0.001780865870	60.401599306863	+1	0.073006758266	163723.369809710540
5000	0.001754621607	56.822978148828	-1	0.072587503356	146308.155591968850
5500	0.001640037662	5.376356970102	-1	0.070466268907	1582.017722791474
6000	0.001541354803	2.766915248282	-1	0.068608447204	497.342410088358
6500	0.001455435978	1.842263688085	-1	0.066956853802	257.801081908837
7000	0.001379918842	1.371168502177	-1	0.065469923245	164.834976892084
7500	0.001312991178	1.086797928669	-1	0.064116879995	118.181175909535
8000	0.001253238106	0.897148226432	-1	0.062874521639	91.004923757428
8500	0.001199540331	0.762040937209	-1	0.061725061641	73.551276845505
9000	0.001150999967	0.661151021975	-1	0.060654643220	61.542290227139
9500	0.001106889243	0.583102285979	-1	0.059652329334	52.845505520609
10000	0.001066611906	0.521036544873	-1	0.058709320265	46.293681963153
10500	0.001029674603	0.470571729938	-1	0.057818622982	41.200104850845
11000	0.000995668872	0.428800605152	-1	0.056973963272	37.139207700852
11500	0.000964256950	0.393703857604	-1	0.056169671553	33.832709563158
12000	0.000935138621	0.363823159997	-1	0.055402436589	31.091989873489
12500	0.000908062717	0.338093428754	-1	0.054669046303	28.785299613351
13000	0.000882816721	0.315727581748	-1	0.053966286301	26.818880071229
13500	0.000859215245	0.296116608619	-1	0.053291756968	25.123246308841
14000	0.000837098837	0.278794336875	-1	0.052643046238	23.646773035059
14500	0.000816327761	0.263388692282	-1	0.052018305731	22.349685471334
15000	0.000796780297	0.249607378570	-1	0.051415666986	21.201473282794
16000	0.000760937348	0.226004807533	-1	0.050270814636	19.259576981109
17000	0.000728848909	0.206553992422	-1	0.049197838304	17.680001087560
18000	0.000699943726	0.190269441538	-1	0.048188090858	16.369518810106
19000	0.000673762304	0.176451829956	-1	0.047234417286	15.264184120132
20000	0.000649931424	0.164591868034	-1	0.046330809455	14.318731910967
21000	0.000593396930	0.139979023614	-1	0.048740905087	13.770561846439
22000	0.000571858354	0.131127504678	-1	0.048142265737	13.110615739361
23000	0.000551271351	0.122660371616	-1	0.047589962525	12.474963884865
24000	0.000531845514	0.114796526240	-1	0.047086646684	11.883716612701
25000	0.000513761630	0.107736638136	-1	0.046625930932	11.354797338443

26000	0.000497121133	0.101605318778	-1	0.046193915119	10.899060946625
27000	0.000481767663	0.096279669505	-1	0.045781435386	10.506321105022
28000	0.000467503849	0.091592175126	-1	0.045384771583	10.162777198636
29000	0.000454157862	0.087392763337	-1	0.045003867423	9.856122745018
30000	0.000441574495	0.083545252191	-1	0.044642292960	9.575326632271
31000	0.000429629151	0.079943856088	-1	0.044304981398	9.311919655042
32000	0.000418272347	0.076563143268	-1	0.043991192751	9.064050949647
33000	0.000407474665	0.073397325000	-1	0.043698365664	8.831480158301
34000	0.000397209438	0.070441176756	-1	0.043423744141	8.614003594847
35000	0.000387452538	0.067689938466	-1	0.043164399731	8.411450698575
36000	0.000378178776	0.065136312774	-1	0.042917556333	8.223423112815
37000	0.000369353007	0.062762035972	-1	0.042681841740	8.048554567269
38000	0.000360939781	0.060547211463	-1	0.042456624089	7.885326471256
39000	0.000352906433	0.058473249244	-1	0.042241699452	7.732318928245
40000	0.000345222812	0.056522748829	-1	0.042037294471	7.588202183926
41000	0.000337861937	0.054680812210	-1	0.041843707265	7.451845239164
42000	0.000330803581	0.052939033777	-1	0.041660271126	7.322645188687
43000	0.000324030056	0.051290860572	-1	0.041486109454	7.200143889803
44000	0.000317525022	0.049730092024	-1	0.041320465047	7.083906530878
45000	0.000311273259	0.048250826214	-1	0.041162700565	6.973518094376
46000	0.000305260481	0.046847487289	-1	0.041012258400	6.868583921324
47000	0.000299473064	0.045514769102	-1	0.040868645616	6.768724944571
48000	0.000293898187	0.044247628793	-1	0.040731457358	6.673577667745
49000	0.000288523850	0.043041260944	-1	0.040600392555	6.582792509783
50000	0.000283338839	0.041891071704	-1	0.040475267282	6.496032568153
55000	0.000259921886	0.036859535524	-1	0.039929814347	6.113759837673
60000	0.000239989857	0.032787431350	-1	0.039494270323	5.800365642260
65000	0.000222806662	0.029430511851	-1	0.039145099708	5.538466345495
70000	0.000207832291	0.026620514224	-1	0.038864786550	5.316121520810
75000	0.000194661205	0.024237800503	-1	0.038639987354	5.124847983489
80000	0.000182982790	0.022195009076	-1	0.038460341532	4.958442862923
85000	0.000172554216	0.020426782645	-1	0.038317802709	4.812273796036
90000	0.000163183598	0.018883386222	-1	0.038205892389	4.682795836024

95000	0.000154716714	0.017526250188	-1	0.038119424041	4.567256298116
100000	0.000147028270	0.016325027734	-1	0.038054183295	4.463480574966
105000	0.000140015150	0.015255408262	-1	0.038006825265	4.369713036540
110000	0.000133592463	0.014298239337	-1	0.037974120783	4.284589667921
115000	0.000127688357	0.013437220333	-1	0.037954096306	4.206902059748
120000	0.000122242643	0.012659478836	-1	0.037944465706	4.135725830677
125000	0.000117203911	0.011954002955	-1	0.037943698051	4.070242615266
130000	0.000112528773	0.011311785683	-1	0.037950462427	4.009806575626
135000	0.000108179484	0.010725023007	-1	0.037963874422	3.953834747947
140000	0.000104123217	0.010187356172	-1	0.037982425052	3.901847637787
145000	0.000100331310	0.009693204213	-1	0.038005010810	3.853406211623
150000	0.000096779056	0.009237796876	-1	0.038031102024	3.808170506739
155000	0.000093444433	0.008816877181	-1	0.038060634775	3.765836361565
160000	0.000090308461	0.008427006905	-1	0.038092552701	3.726120951221
165000	0.000087357681	0.008065956782	-1	0.038122132942	3.688612755275
170000	0.000084573567	0.007730131594	-1	0.038152849816	3.653260798071
175000	0.000081942524	0.007417069808	-1	0.038184769421	3.619889164687
180000	0.000079452031	0.007124597262	-1	0.038217949142	3.588349421938
185000	0.000077089616	0.006850477735	-1	0.038254140679	3.558562546339
190000	0.000074848193	0.006593727926	-1	0.038289781532	3.530287495408
195000	0.000072718720	0.006352813791	-1	0.038324956807	3.503417644747
200000	0.000070692962	0.006126279384	-1	0.038359862040	3.477818118301
205000	0.000068763463	0.005912822034	-1	0.038394723995	3.453363259785
210000	0.000066923805	0.005711496224	-1	0.038429179734	3.429994763789
215000	0.000065168195	0.005521479373	-1	0.038462757649	3.407666767880
220000	0.000063491278	0.005341991954	-1	0.038495083271	3.386329111830
225000	0.000061888098	0.005172294617	-1	0.038525890031	3.365928106080
230000	0.000060354071	0.005011686007	-1	0.038555011938	3.346405678228
235000	0.000058884925	0.004859500852	-1	0.038582399064	3.327702271582
240000	0.000057476703	0.004715105688	-1	0.038608124805	3.309754735999
245000	0.000056125693	0.004577899258	-1	0.038632381574	3.292499773784
250000	0.000054828449	0.004447309748	-1	0.038655478674	3.275870785907
255000	0.000053581787	0.004322823355	-1	0.038677731633	3.259810454817

260000	0.000052382946	0.004204074863	-1	0.038699009418	3.244294073713
265000	0.000051229394	0.004090744882	-1	0.038719101097	3.229303379677
270000	0.000050118745	0.003982527058	-1	0.038737854890	3.214820012098
275000	0.000049048776	0.003879130707	-1	0.038755127599	3.200821795595
280000	0.000048017384	0.003780275003	-1	0.038770855618	3.187286911835
285000	0.000047022603	0.003685692044	-1	0.038785011661	3.174191228469
290000	0.000046062578	0.003595126762	-1	0.038797591251	3.161508997881
295000	0.000045135554	0.003508331835	-1	0.038808677265	3.149214649602
300000	0.000044239888	0.003425071830	-1	0.038818378346	3.137280379943

Electron Elastic Scattering Sampling Data
Solution for Z = 75

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.047614758561	3.630265597709	-1	0.201221561331	84.888584116813
52	0.044401723422	2.065692125601	-1	0.200254875793	34.194654760811
54	0.041604238240	1.403459854416	-1	0.199221863384	19.365171358530
56	0.039154523247	1.040261836887	-1	0.198102125310	12.886547299053
58	0.036997979101	0.812440521480	-1	0.196876762674	9.408311638366
60	0.035090703451	0.657280108836	-1	0.195521003405	7.288776480219
62	0.033397278513	0.545607836599	-1	0.194001258980	5.881277935017
64	0.031890572111	0.462112097754	-1	0.192245028117	4.886608326326
66	0.030548101842	0.397923349977	-1	0.190173153676	4.149419317160
68	0.029352884839	0.347635694754	-1	0.187662260146	3.581971317687
70	0.028292544627	0.307797527733	-1	0.184536383303	3.131081399705
72	0.027356873782	0.276083581641	-1	0.180598998494	2.762808292624
74	0.026539440909	0.250975821018	-1	0.175584871174	2.454451924332
76	0.025834531700	0.231439102150	-1	0.169221619161	2.190495813617
78	0.025237206291	0.216836546390	-1	0.161234449989	1.960272041859
80	0.024742114036	0.206867851399	-1	0.151392442869	1.756704182018
82	0.024340995932	0.201521526496	-1	0.139608902321	1.575749966198
84	0.024022654097	0.201168640267	-1	0.125984788689	1.415900822555
86	0.023770933223	0.206628932549	-1	0.110906437697	1.277983157034
88	0.023565401230	0.219408582223	-1	0.095037968658	1.164874690348
90	0.023383104637	0.242127446665	-1	0.079234528309	1.081521647071
92	0.023201185070	0.279314663566	-1	0.064383894854	1.035808492947
94	0.023000771326	0.339206826284	-1	0.051196764049	1.041742136824
96	0.022769340446	0.437876413703	-1	0.040082912518	1.128939085257
98	0.022501610257	0.610711041921	-1	0.031127417896	1.373574563172
100	0.022198674813	0.952584745558	-1	0.024164744719	2.029816875906
105	0.021337099363	21.059060350319	+1	0.013307863550	287.506841053571
110	0.020307299281	2.230922692594	+1	0.010532004497	3.702859291740

115	0.019475088445	0.195471208520	+1	0.006233843322	0.073830794651
120	0.018631494345	0.074146669893	+1	0.005321515801	0.022451382061
125	0.017874486959	0.034599252379	+1	0.005091323289	0.010068354931
130	0.017203974095	0.020706940959	+1	0.005272459064	0.006401610689
135	0.016613390182	0.016342714171	+1	0.005744346826	0.005681890462
140	0.016093522020	0.016429577093	+1	0.006453593553	0.006633341414
145	0.015635038756	0.019446385374	+1	0.007377708172	0.009279062272
150	0.015228981285	0.025093730840	+1	0.008509291382	0.014279029791
155	0.014867424256	0.033505772484	+1	0.009847927005	0.022826031616
160	0.014543262776	0.044974136083	+1	0.011396661081	0.036719056120
165	0.014250377766	0.059861123457	+1	0.013159875880	0.058536569054
170	0.013983378104	0.078573054092	+1	0.015142404777	0.091897072462
175	0.013737636778	0.101575697462	+1	0.017348875433	0.141853002366
180	0.013509100077	0.129404899595	+1	0.019783277932	0.215438075736
185	0.013294299643	0.162701268134	+1	0.022448766561	0.322486082965
190	0.013090268400	0.202220694981	+1	0.025347363000	0.476755844349
195	0.012894460726	0.248900360184	+1	0.028479727452	0.697701887019
200	0.012704588352	0.303949817683	+1	0.031845034838	1.013249133360
205	0.012518723864	0.368911947402	+1	0.035441163927	1.463909952778
210	0.012335473604	0.445639719592	+1	0.039263842759	2.108396792786
215	0.012153757659	0.536481091801	+1	0.043306547807	3.033229977309
220	0.011972737038	0.644496228449	+1	0.047560494908	4.368174406041
225	0.011791771619	0.773749303750	+1	0.052014766905	6.311715154021
230	0.011610410255	0.929743035240	+1	0.056656273798	9.174440803859
235	0.011428358640	1.120108427741	+1	0.061469921706	13.455926759878
240	0.011245460117	1.355730899168	+1	0.066438721921	19.986824439836
245	0.011061689580	1.652662450424	+1	0.071543903136	30.204961413432
250	0.010877117864	2.035580059260	+1	0.076765111870	46.727156977961
255	0.010691942953	2.544424602313	+1	0.082081042448	74.627418044120
260	0.010506565072	3.248105732810	+1	0.087470539361	124.577752532500
265	0.010321457216	4.276629018625	+1	0.092911884601	221.655922103032
270	0.010137113825	5.907991216585	+1	0.098382644930	434.903795555644
275	0.009954046354	8.862051836284	+1	0.103859928945	1007.563481478525

280	0.009772764575	15.756288551469	+1	0.109320646700	3283.760493472244
285	0.009593777857	49.429083877969	+1	0.114741737406	33356.367426935656
290	0.009417581250	55.736715971599	-1	0.120100521249	45405.364056966711
295	0.009244645234	18.709414900261	-1	0.125374819975	5665.465255538731
300	0.009075425644	11.556884553514	-1	0.130543163660	2379.239440641940
310	0.008749665919	6.897604591544	-1	0.140489514822	1008.815019499926
320	0.008442735470	5.182398615130	-1	0.149830844307	663.207266639327
330	0.008156324138	4.338140039435	-1	0.158486362048	530.398042451044
340	0.007891529427	3.877849803992	-1	0.166394525189	474.704016809069
350	0.007648938348	3.630506762715	-1	0.173511793387	457.907438478776
360	0.007428574502	3.523360716793	-1	0.179817107507	466.894634135599
370	0.007229637477	3.521428632252	-1	0.185327320807	497.400078797449
380	0.007051022348	3.611104282415	-1	0.190073579148	550.322912349224
390	0.006891528002	3.793474494473	-1	0.194092164538	631.120086500075
400	0.006749911257	4.083151157043	-1	0.197422527815	751.308949643431
410	0.006624846938	4.511558496914	-1	0.200109071802	932.810713485595
420	0.006514747805	5.135059672138	-1	0.202209212490	1217.750890448235
430	0.006418063111	6.061373089445	-1	0.203780436849	1695.928011248040
440	0.006333380112	7.515349417744	-1	0.204876151298	2587.205023346134
450	0.006259408346	10.043282895884	-1	0.205545608527	4555.854939195511
460	0.006194946120	15.382518328486	-1	0.205835298382	10478.466082246568
470	0.006138776300	33.492976528892	-1	0.205792874292	48466.457444953543
480	0.006091372159	174.974798881818	+1	0.205436601678	1299040.493071794700
490	0.006046998797	23.575374045329	+1	0.204882633647	24539.995887402234
500	0.006009547100	12.244190957695	+1	0.204088604914	6878.056149612826
510	0.005976662904	8.114268287918	+1	0.203111297366	3135.168697312157
520	0.005947619664	5.985441776815	+1	0.201979933116	1768.747926154163
530	0.005921779463	4.692204589988	+1	0.200720473195	1125.988574421790
540	0.005898582444	3.826498423636	+1	0.199355679574	775.034157491978
550	0.005877547616	3.208468820061	+1	0.197905428459	563.524492247407
560	0.005858256085	2.746553840837	+1	0.196387085445	426.757316086660
570	0.005840336214	2.389263522972	+1	0.194815963029	333.527675637289
580	0.005823468417	2.105431903978	+1	0.193205377054	267.310448692232

590	0.005807379398	1.875101859135	+1	0.191566948118	218.705448392917
600	0.005791833664	1.684909530012	+1	0.189910694417	182.053310277403
610	0.005776632634	1.525569102511	+1	0.188245243338	153.785014636792
620	0.005761615806	1.390415192591	+1	0.186577681990	131.559465851097
630	0.005746648823	1.274557313658	+1	0.184914042142	113.794031109469
640	0.005731618205	1.174333209291	+1	0.183259566528	99.389540590624
650	0.005716428204	1.086946099951	+1	0.181618748649	87.563669122369
660	0.005701004152	1.010219967866	+1	0.179995366586	77.747119820574
670	0.005685294437	0.942426596587	+1	0.178392214340	69.516586588135
680	0.005669257899	0.882186757133	+1	0.176811499819	62.553710027178
690	0.005652863621	0.828390667236	+1	0.175255201863	56.615966165690
700	0.005636089529	0.780135045367	+1	0.173724980751	51.515942928928
710	0.005618917455	0.736674918658	+1	0.172222131202	47.106786344975
720	0.005601347699	0.697383854902	+1	0.170747343131	43.271371463440
730	0.005583382163	0.661737585578	+1	0.169301054353	39.916164747238
740	0.005565027290	0.629296636978	+1	0.167883656824	36.966001907006
750	0.005546290832	0.599689982020	+1	0.166495448512	34.359932465840
760	0.005527182610	0.572600532775	+1	0.165136561355	32.047955743513
770	0.005507720538	0.547751540039	+1	0.163806769452	29.988361987795
780	0.005487924762	0.524904079638	+1	0.162505722529	28.146492151644
790	0.005467815143	0.503852753167	+1	0.161233117934	26.493536394345
800	0.005447407228	0.484420172764	+1	0.159988661460	25.005406743544
810	0.005426721902	0.466450546551	+1	0.158771994015	23.661660273449
820	0.005405781331	0.449804692762	+1	0.157582518834	22.444725515322
830	0.005384609029	0.434359940552	+1	0.156419627347	21.339600525447
840	0.005363225292	0.420008531542	+1	0.155282723343	20.333483715015
850	0.005341650191	0.406656097969	+1	0.154171333780	19.415444279890
860	0.005319902263	0.394218342387	+1	0.153084873139	18.575994522153
870	0.005298003117	0.382618497071	+1	0.152022704898	17.806785462817
880	0.005275973225	0.371787581376	+1	0.150984126472	17.100520954934
890	0.005253830777	0.361664936372	+1	0.149968530426	16.450911814445
900	0.005231593944	0.352195792953	+1	0.148975357101	15.852431499949
910	0.005209278250	0.343331300394	+1	0.148004032163	15.300248916544

920	0.005186901829	0.335026040114	+1	0.147053939817	14.790012763891
930	0.005164480243	0.327238692505	+1	0.146124390773	14.317857452417
940	0.005142030147	0.319932330791	+1	0.145214813071	13.880390277605
950	0.005119563958	0.313073861793	+1	0.144324691444	13.474631744672
960	0.005097093964	0.306632989924	+1	0.143453472584	13.097908334760
970	0.005074627045	0.300582265942	+1	0.142600681241	12.747857759918
980	0.005052195540	0.294893993625	+1	0.141765533320	12.422130282956
990	0.005029790031	0.289546971194	+1	0.140947778970	12.118980124135
1000	0.005007425246	0.284519524356	+1	0.140146870951	11.836632624080
1025	0.004951761478	0.273223429805	+1	0.138215180600	11.211779138432
1050	0.004896564963	0.263532177274	+1	0.136377930869	10.686301895346
1075	0.004841956570	0.255224258634	+1	0.134628170882	10.243722775632
1100	0.004788012268	0.248122822738	+1	0.132960183700	9.871358013874
1125	0.004734803938	0.242081280275	+1	0.131368733591	9.559041189014
1150	0.004682391230	0.236972202038	+1	0.129848329491	9.298272387640
1175	0.004630823807	0.232688435479	+1	0.128393981223	9.082132007993
1200	0.004580133249	0.229141459038	+1	0.127001394902	8.905079167226
1225	0.004530340933	0.226256744939	+1	0.125666722139	8.762585686455
1250	0.004481463370	0.223969255090	+1	0.124386147164	8.650805123532
1275	0.004433511263	0.222223305925	+1	0.123156178479	8.566533413262
1300	0.004386486090	0.220971546418	+1	0.121973734702	8.507130502665
1325	0.004340384146	0.220173377511	+1	0.120836030280	8.470398122331
1350	0.004295200396	0.219793345345	+1	0.119740349954	8.454456792931
1375	0.004250925959	0.219800540584	+1	0.118684208875	8.457717669540
1400	0.004207549508	0.220167995039	+1	0.117665366115	8.478839683078
1425	0.004165056618	0.220872184269	+1	0.116681748584	8.516691889600
1450	0.004123432952	0.221892844294	+1	0.115731391318	8.570326067235
1475	0.004082660808	0.223212304712	+1	0.114812483123	8.638951476879
1500	0.004042722849	0.224814537801	+1	0.113923329147	8.721876398389
1550	0.003965278054	0.228813177023	+1	0.112228174212	8.928429855978
1600	0.003890948627	0.233798927001	+1	0.110634718120	9.186627953707
1650	0.003819582426	0.239700165827	+1	0.109133143321	9.494176605244
1700	0.003751028075	0.246464123377	+1	0.107714964689	9.849849824252

1750	0.003685140733	0.254048038872	+1	0.106372584624	10.253016951778
1800	0.003621778090	0.262422218742	+1	0.105099309209	10.703808657789
1850	0.003560810012	0.271563472710	+1	0.103889169977	11.202770838090
1900	0.003502105594	0.281462171529	+1	0.102737116241	11.751301469502
1950	0.003445536666	0.292112337226	+1	0.101638706284	12.351155457666
2000	0.003391008268	0.303494157016	+1	0.100589005592	13.003273351546
2100	0.003287666915	0.328426367554	+1	0.098620213718	14.471726426300
2200	0.003191239599	0.356405401830	+1	0.096808402532	16.185413913517
2300	0.003100993655	0.387650249444	+1	0.095135330873	18.181627227900
2400	0.003016332133	0.422373902140	+1	0.093583871252	20.502039576658
2500	0.002936763433	0.460766256358	+1	0.092137691178	23.191894086276
2600	0.002861866677	0.503028316144	+1	0.090782295902	26.302822724352
2700	0.002791216831	0.549570505052	+1	0.089508654364	29.910237892032
2800	0.002724431002	0.600915742940	+1	0.088309522048	34.110239016411
2900	0.002661177285	0.657662924110	+1	0.087178076394	39.020496901909
3000	0.002601168199	0.720498967745	+1	0.086107897030	44.785682351780
3100	0.002544150459	0.790234184830	+1	0.085093121961	51.586602355750
3200	0.002489894611	0.867906414708	+1	0.084129230108	59.659520554882
3300	0.002438194088	0.954793464672	+1	0.083212226074	69.311095659041
3400	0.002388863726	1.052459633155	+1	0.082338438377	80.941742260032
3500	0.002341737744	1.162843063653	+1	0.081504422636	95.081527440873
3600	0.002296665686	1.288385017959	+1	0.080707064396	112.444527109166
3700	0.002253512350	1.432247543946	+1	0.079943742294	134.016546181782
3800	0.002212152853	1.598562245618	+1	0.079212098035	161.183206463825
3900	0.002172472932	1.792818417956	+1	0.078510009241	195.937051122382
4000	0.002134368641	2.022464904296	+1	0.077835521976	241.221673325574
4100	0.002097744382	2.297876015606	+1	0.077186842308	301.528079361015
4200	0.002062512724	2.633923965928	+1	0.076562291810	383.967917584921
4300	0.002028594937	3.052733449984	+1	0.075960356906	500.331523993534
4400	0.001995896969	3.589146273389	+1	0.075380520455	671.452182514516
4500	0.001964348470	4.300363651567	+1	0.074821643506	936.573416520778
4600	0.001933906363	5.286944987413	+1	0.074281641754	1376.488390474165
4700	0.001904513761	6.746023120723	+1	0.073759403850	2180.769438570972

4800	0.001876116077	9.122045955161	+1	0.073253903172	3882.905637089322
4900	0.001848663229	13.671805541206	+1	0.072764185066	8499.179088506327
5000	0.001822106470	25.883313951709	+1	0.072289425184	29703.018620395724
5500	0.001701329991	8.188348144522	-1	0.070113533342	3328.732221492718
6000	0.001597436337	3.470127578550	-1	0.068210980025	709.717145873938
6500	0.001507071097	2.174030341169	-1	0.066522602184	325.802442917567
7000	0.001427715308	1.570629063031	-1	0.065005295704	196.332142975720
7500	0.001357439493	1.223112982727	-1	0.063627068977	135.928826962831
8000	0.001294740674	0.997958694739	-1	0.062363787926	102.294541386562
8500	0.001238430101	0.840670881012	-1	0.061196879177	81.348188710413
9000	0.001187556021	0.724867920768	-1	0.060111906291	67.255766915994
9500	0.001141348385	0.636234462987	-1	0.059097424127	57.223312257127
10000	0.001099174844	0.566336901965	-1	0.058144266286	49.766679552044
10500	0.001060514577	0.509883355859	-1	0.057245124653	44.032868445811
11000	0.001024935971	0.463410529892	-1	0.056393462092	39.502834415078
11500	0.000992070362	0.424517662332	-1	0.055584637217	35.841173619752
12000	0.000961611902	0.391530534794	-1	0.054814106206	32.825868973458
12500	0.000933301501	0.363228543053	-1	0.054077799132	30.302965149850
13000	0.000906915162	0.338705990672	-1	0.053372321288	28.163370314227
13500	0.000882252303	0.317257184981	-1	0.052695782361	26.326470529895
14000	0.000859145649	0.298352761100	-1	0.052045707571	24.733212569430
14500	0.000837447390	0.281572375544	-1	0.051420134803	23.338417863781
15000	0.000817030281	0.266586907629	-1	0.050817175054	22.107601084093
16000	0.000779598304	0.240977864770	-1	0.049672978303	20.034521763398
17000	0.000746092684	0.219925861724	-1	0.048602143719	18.356349274206
18000	0.000715914365	0.202336654415	-1	0.047595760448	16.969760735128
19000	0.000688581973	0.187437302209	-1	0.046646459556	15.804356669688
20000	0.000663704760	0.174666921044	-1	0.045748096118	14.810588428637
21000	0.000610497152	0.149812075916	-1	0.047830052931	14.164830499320
22000	0.000588235996	0.140309079442	-1	0.047218141752	13.471525589083
23000	0.000566986060	0.131235305565	-1	0.046649751426	12.805069419243
24000	0.000546954428	0.122819740803	-1	0.046128568528	12.186240223376
25000	0.000528313372	0.115270397086	-1	0.045650005850	11.633493203997

26000	0.000511141801	0.108711402619	-1	0.045202924656	11.157984138402
27000	0.000495295473	0.103014853452	-1	0.044777400840	10.748703730122
28000	0.000480575935	0.098002212357	-1	0.044369154369	10.391049317042
29000	0.000466815361	0.093515116238	-1	0.043977033375	10.072015515575
30000	0.000453844525	0.089405481049	-1	0.043604611939	9.780127019342
31000	0.000441534253	0.085560041426	-1	0.043256299238	9.506539792603
32000	0.000429833516	0.081951424961	-1	0.042931294187	9.249286398681
33000	0.000418711413	0.078573102352	-1	0.042627154860	9.008077689831
34000	0.000408139851	0.075419162562	-1	0.042341281603	8.782668507279
35000	0.000398093370	0.072484230277	-1	0.042070917707	8.572850949312
36000	0.000388545544	0.069760287554	-1	0.041813441848	8.378184773512
37000	0.000379459881	0.067227744289	-1	0.041567493849	8.197233772517
38000	0.000370799905	0.064865348718	-1	0.041332396685	8.028406790889
39000	0.000362531872	0.062653246989	-1	0.041107881334	7.870220332155
40000	0.000354624732	0.060572871148	-1	0.040894089626	7.721286114282
41000	0.000347050736	0.058608330695	-1	0.040691242788	7.580424705245
42000	0.000339788938	0.056750648558	-1	0.040498646916	7.447002416020
43000	0.000332821047	0.054992789132	-1	0.040315464987	7.320539926328
44000	0.000326130069	0.053328105022	-1	0.040140946698	7.200580560767
45000	0.000319700223	0.051750299433	-1	0.039974455880	7.086691419931
46000	0.000313516766	0.050253397916	-1	0.039815446754	6.978458450165
47000	0.000307565563	0.048831738049	-1	0.039663427063	6.875487708804
48000	0.000301833403	0.047479942770	-1	0.039517983580	6.777399344440
49000	0.000296307943	0.046192881817	-1	0.039378811617	6.683828571550
50000	0.000290977543	0.044965669061	-1	0.039245702841	6.594426520101
55000	0.000266909434	0.039595866500	-1	0.038661979925	6.200726001512
60000	0.000246430061	0.035247895828	-1	0.038190635087	5.878205119509
65000	0.000228780069	0.031661645026	-1	0.037807721260	5.608824650104
70000	0.000213402512	0.028657980220	-1	0.037495459150	5.380222922740
75000	0.000199879556	0.026109599046	-1	0.037240231457	5.183620723048
80000	0.000187890991	0.023923512810	-1	0.037031520734	5.012615478629
85000	0.000177187347	0.022030252491	-1	0.036861037393	4.862416729194
90000	0.000167570588	0.020376808639	-1	0.036722255910	4.729377825065

95000	0.000158882210	0.018922151559	-1	0.036609854499	4.610659542876
100000	0.000150993296	0.017633964764	-1	0.036519539263	4.504024098414
105000	0.000143797873	0.016486355348	-1	0.036447886796	4.407663651947
110000	0.000137208489	0.015458898892	-1	0.036391664864	4.320178750512
115000	0.000131151292	0.014534230621	-1	0.036348785067	4.240326038732
120000	0.000125564671	0.013698630631	-1	0.036316990335	4.167155167309
125000	0.000120395913	0.012940363980	-1	0.036294690462	4.099823744095
130000	0.000115600008	0.012249837491	-1	0.036280332023	4.037667102328
135000	0.000111138014	0.011618732084	-1	0.036272849624	3.980084443953
140000	0.000106976691	0.011040210170	-1	0.036271035221	3.926586707174
145000	0.000103086829	0.010508248278	-1	0.036274162585	3.876735156364
150000	0.000099442593	0.010017688916	-1	0.036281882538	3.830193255583
155000	0.000096021555	0.009564107573	-1	0.036293615743	3.786634805850
160000	0.000092808132	0.009144903706	-1	0.036304145342	3.745610008235
165000	0.000089781045	0.008755705743	-1	0.036316419985	3.706995720518
170000	0.000086924835	0.008393600577	-1	0.036330179031	3.670591347916
175000	0.000084224569	0.008055701959	-1	0.036346520530	3.636256366516
180000	0.000081667141	0.007739614482	-1	0.036365877652	3.603850339862
185000	0.000079243741	0.007443958302	-1	0.036385140740	3.573106935931
190000	0.000076944196	0.007166913450	-1	0.036404506426	3.543926601449
195000	0.000074759299	0.006906828707	-1	0.036424197520	3.516206653027
200000	0.000072680653	0.006662172989	-1	0.036444207541	3.489803038393
205000	0.000070700694	0.006431581437	-1	0.036464504748	3.464577251118
210000	0.000068812843	0.006214046895	-1	0.036484683285	3.440467628086
215000	0.000067011160	0.006008682620	-1	0.036504320705	3.417427054057
220000	0.000065290152	0.005814653282	-1	0.036523050584	3.395404079763
225000	0.000063644735	0.005631162555	-1	0.036540631244	3.374343630463
230000	0.000062070212	0.005457459898	-1	0.036556886487	3.354186381128
235000	0.000060562199	0.005292828501	-1	0.036571778264	3.334872131426
240000	0.000059116639	0.005136589247	-1	0.036585354686	3.316336096401
245000	0.000057729746	0.004988097322	-1	0.036597773530	3.298512554630
250000	0.000056397980	0.004846739075	-1	0.036609312933	3.281334922496
255000	0.000055118098	0.004711964049	-1	0.036620231845	3.264742615267

260000	0.000053887259	0.004583376634	-1	0.036630424114	3.248710837900
265000	0.000052702854	0.004460634049	-1	0.036639689336	3.233221986791
270000	0.000051562447	0.004343406265	-1	0.036647881766	3.218256035461
275000	0.000050463748	0.004231380302	-1	0.036654866905	3.203790935890
280000	0.000049404603	0.004124253550	-1	0.036660585808	3.189804112526
285000	0.000048382995	0.004021739061	-1	0.036664993126	3.176270693569
290000	0.000047397022	0.003923559919	-1	0.036668105073	3.163164864885
295000	0.000046444891	0.003829451953	-1	0.036669972119	3.150459664325
300000	0.000045524911	0.003739161655	-1	0.036670692662	3.138127407715

Electron Elastic Scattering Sampling Data
Solution for Z = 76

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.052549384178	81.653149183423	+1	0.217087506185	33833.259372589499
52	0.049015186523	7.307658260237	-1	0.214209315212	321.866586669195
54	0.046046600835	3.417536853337	-1	0.210494721459	83.566257114118
56	0.043462161732	2.176566538594	-1	0.206633746716	39.707212807224
58	0.041192988864	1.567456130205	-1	0.202685680013	23.852691373628
60	0.039183936342	1.206195489782	-1	0.198711150870	16.206690750329
62	0.037390682355	0.967398482597	-1	0.194770859217	11.868518113933
64	0.035778669289	0.798104065867	-1	0.190905112775	9.136951137805
66	0.034319378798	0.671990630840	-1	0.187160163564	7.288051182038
68	0.032990743625	0.574623449325	-1	0.183560042551	5.969327725273
70	0.031775796919	0.497439102387	-1	0.180104889583	4.990849919109
72	0.030660527115	0.434990175204	-1	0.176790924576	4.242119834480
74	0.029635400792	0.383757566093	-1	0.173568066680	3.654983532219
76	0.028692853327	0.341304330079	-1	0.170370207875	3.185069973311
78	0.027827891646	0.305939473835	-1	0.167091700779	2.802305972339
80	0.027037934452	0.276477111367	-1	0.163576996716	2.485469747444
82	0.026321382146	0.252046386333	-1	0.159640785931	2.219155411705
84	0.025678611099	0.232061881466	-1	0.155037889178	1.991838456167
86	0.025110292684	0.216123907064	-1	0.149499809816	1.794834844914
88	0.024617141202	0.204016742866	-1	0.142747515501	1.621656651832
90	0.024199007099	0.195710603188	-1	0.134532415774	1.467691141908
92	0.023853155185	0.191367809052	-1	0.124714689702	1.330145684983
94	0.023573588595	0.191422458160	-1	0.113321862682	1.207985174284
96	0.023349773285	0.196666260298	-1	0.100624385378	1.101940823689
98	0.023166745118	0.208431990183	-1	0.087146335663	1.014432418082
100	0.023006524873	0.228918928971	-1	0.073595902730	0.949573707997
105	0.022590539702	0.349315077086	-1	0.044001509381	0.939101846868
110	0.022023510268	0.770138562386	-1	0.024842815941	1.542960836314

115	0.021304042496	5.337653139655	-1	0.014744478146	23.267100874330
120	0.020517884245	1.354826102213	+1	0.009890080019	1.521968257037
125	0.019740457622	0.395692726012	+1	0.007656489887	0.211674574291
130	0.019012511189	0.179776140456	+1	0.006737834597	0.074262423000
135	0.018350115575	0.103751390726	+1	0.006539852966	0.040341013422
140	0.017755486870	0.073193845677	+1	0.006793334333	0.029731722103
145	0.017224823089	0.061455529673	+1	0.007372749167	0.027652494537
150	0.016751612765	0.059231869456	+1	0.008218647869	0.030525263317
155	0.016328845114	0.062962023325	+1	0.009302880499	0.037868948399
160	0.015949534755	0.071264214410	+1	0.010613016024	0.050538293332
165	0.015607323982	0.083677228299	+1	0.012144527226	0.070329927002
170	0.015296397198	0.100159684210	+1	0.013896918165	0.099991448383
175	0.015011644640	0.120910079399	+1	0.015871708020	0.143451775963
180	0.014748516864	0.146276742581	+1	0.018071102837	0.206187628396
185	0.014503055883	0.176748727564	+1	0.020497481561	0.295816300057
190	0.014271838718	0.212921864903	+1	0.023152548986	0.422854399845
195	0.014051881565	0.255566186051	+1	0.026037351766	0.602008821984
200	0.013840485200	0.305716248280	+1	0.029152259787	0.854215576089
205	0.013635335596	0.364692224740	+1	0.032496813688	1.209489283836
210	0.013434677669	0.433996461135	+1	0.036068114198	1.710363206602
215	0.013237120144	0.515491764747	+1	0.039861083173	2.418163895502
220	0.013041520259	0.611581836609	+1	0.043868818455	3.422866276552
225	0.012846974797	0.725408739136	+1	0.048082511150	4.858675611306
230	0.012652782778	0.861147213098	+1	0.052491455353	6.929740837915
235	0.012458421338	1.024463585865	+1	0.057083229773	9.954087678210
240	0.012263530259	1.223216389335	+1	0.061843593404	14.440937781245
245	0.012067882648	1.468636418934	+1	0.066756782029	21.233972716987
250	0.011871378481	1.777306704724	+1	0.071805476355	31.789106745639
255	0.011674060191	2.174711805976	+1	0.076971229152	48.747984009843
260	0.011476230958	2.701729711122	+1	0.082234999257	77.199918750181
265	0.011278291466	3.428614560842	+1	0.087576709806	127.780567607228
270	0.011080681358	4.487232257100	+1	0.092975295415	225.282814944231
275	0.010883875859	6.157389052318	+1	0.098408895851	437.211032187353

280	0.010688371184	9.154792549536	+1	0.103855083625	997.333210942341
285	0.010494672220	16.020199183387	+1	0.109291174060	3154.851912865420
290	0.010303275893	47.162011947500	+1	0.114694554826	28269.590617595804
295	0.010114701229	65.386726934042	-1	0.120042362484	57958.865186431263
300	0.009929413994	20.306973981713	-1	0.125312759908	6181.513931155389
310	0.009570461383	9.064812249240	-1	0.135544017552	1480.581950801911
320	0.009229331590	6.175823777293	-1	0.145267373534	808.619758269612
330	0.008908243893	4.905085241155	-1	0.154386757521	588.392639479423
340	0.008608817851	4.234104010785	-1	0.162823770174	496.407699537377
350	0.008332127997	3.860510297019	-1	0.170517461809	459.122584211780
360	0.008078625720	3.665045117034	-1	0.177429885239	452.852869430007
370	0.007847831066	3.591537853164	-1	0.183563051292	468.766559828451
380	0.007638885889	3.614482300371	-1	0.188934960912	504.766811111568
390	0.007450774703	3.725982095583	-1	0.193570554162	563.093462632051
400	0.007282386278	3.931050983059	-1	0.197499635095	650.345705828729
410	0.007132471798	4.247374973009	-1	0.200758975731	779.351265813500
420	0.006999438043	4.707700122808	-1	0.203400984128	973.398832210261
430	0.006881702520	5.372937894529	-1	0.205479715437	1278.030237341028
440	0.006777793742	6.360193490344	-1	0.207046193293	1791.253058408369
450	0.006686360227	7.915254151840	-1	0.208148148535	2755.771811702743
460	0.006606119187	10.641718147140	-1	0.208831495946	4917.562306465404
470	0.006535746836	16.494685310208	-1	0.209144600199	11600.462822333224
480	0.006474019430	37.400748729334	-1	0.209132660662	58285.649925185120
490	0.006424956662	120.664478301999	+1	0.208734937870	598914.454172239520
500	0.006372275999	23.199645062092	+1	0.208291592721	23032.632530423536
510	0.006330425672	12.338379468381	+1	0.207531682841	6765.348509627522
520	0.006293470467	8.252398079772	+1	0.206587921600	3139.248856240313
530	0.006260669283	6.118343765491	+1	0.205488618322	1788.007021542430
540	0.006231370312	4.812241586611	+1	0.204258648111	1145.033496349514
550	0.006205009778	3.933614712027	+1	0.202919973151	791.317871165908
560	0.006181088765	3.304132355700	+1	0.201491922783	577.005895261013
570	0.006159158089	2.832404775962	+1	0.199991835247	437.881403286220
580	0.006138829534	2.466759959328	+1	0.198434967465	342.757226076158

590	0.006119760605	2.175795112525	+1	0.196834673461	275.031864672296
600	0.006101661548	1.939335364526	+1	0.195202602823	225.222159167056
610	0.006084281480	1.743830566020	+1	0.193548830454	187.598943906918
620	0.006067409253	1.579834920300	+1	0.191881866430	158.537621411955
630	0.006050865069	1.440579788622	+1	0.190209083314	135.659831059921
640	0.006034495506	1.321094146755	+1	0.188536871724	117.354619641445
650	0.006018170374	1.217645516118	+1	0.186870798685	102.500168934451
660	0.006001783240	1.127375044488	+1	0.185215575609	90.295936745500
670	0.005985250995	1.048045574395	+1	0.183574844711	80.157210657048
680	0.005968510884	0.977892226149	+1	0.181951663987	71.650678376835
690	0.005951507013	0.915509745182	+1	0.180348708662	64.450642574550
700	0.005934197506	0.859763604471	+1	0.178768242259	58.308231051700
710	0.005916548371	0.809726793040	+1	0.177212142052	53.030626132750
720	0.005898543058	0.764626608577	+1	0.175681586723	48.465705815577
730	0.005880172792	0.723821216853	+1	0.174177497688	44.493086026926
740	0.005861431099	0.686776065851	+1	0.172700645522	41.016824737279
750	0.005842314830	0.653041675986	+1	0.171251700740	37.959640059681
760	0.005822827164	0.622235625639	+1	0.169831079863	35.258523451403
770	0.005802978393	0.594027121289	+1	0.168438827713	32.861404156179
780	0.005782782259	0.568131726005	+1	0.167074853845	30.725266817504
790	0.005762253002	0.544305789515	+1	0.165739061685	28.814531620044
800	0.005741405822	0.522338990441	+1	0.164431336250	27.099525230287
810	0.005720254214	0.502048194048	+1	0.163151472923	25.555294685681
820	0.005698819843	0.483269955468	+1	0.161899030756	24.160450819367
830	0.005677124101	0.465860864457	+1	0.160673488830	22.896826957273
840	0.005655185053	0.449695764767	+1	0.159474435586	21.749030207150
850	0.005633023870	0.434664226699	+1	0.158301404017	20.703854832698
860	0.005610656629	0.420668856673	+1	0.157153967020	19.749984758184
870	0.005588103936	0.407620744746	+1	0.156031501207	18.877452434717
880	0.005565388231	0.395440281765	+1	0.154933357168	18.077582529886
890	0.005542527179	0.384057287827	+1	0.153858960194	17.342904637042
900	0.005519538435	0.373409106059	+1	0.152807795383	16.666910772153
910	0.005496439525	0.363439325300	+1	0.151779315052	16.043882479062

920	0.005473247562	0.354096231787	+1	0.150772899290	15.468730162424
930	0.005449982635	0.345332844690	+1	0.149787933245	14.936938946149
940	0.005426659348	0.337107125425	+1	0.148823839480	14.444557162444
950	0.005403295220	0.329381262914	+1	0.147880111583	13.988092977407
960	0.005379902300	0.322120951188	+1	0.146956241151	13.564453378151
970	0.005356495957	0.315294149166	+1	0.146051642481	13.170818588338
980	0.005333087745	0.308871707353	+1	0.145165769922	12.804682691268
990	0.005309690019	0.302827166590	+1	0.144298139937	12.463811137562
1000	0.005286312572	0.297136591602	+1	0.143448254300	12.146213278904
1025	0.005228025799	0.284316926039	+1	0.141397985482	11.442579270975
1050	0.005170100356	0.273266563297	+1	0.139447510964	10.849274468931
1075	0.005112673140	0.263736978151	+1	0.137589731772	10.347538409013
1100	0.005055845769	0.255528800070	+1	0.135818683820	9.922866963189
1125	0.004999696127	0.248478536897	+1	0.134129029682	9.563789863945
1150	0.004944303257	0.242442977221	+1	0.132514991029	9.260661594046
1175	0.004889729802	0.237302294768	+1	0.130971292917	9.005679337486
1200	0.004836019864	0.232957360159	+1	0.129493393458	8.792588810723
1225	0.004783196778	0.229325849972	+1	0.128077344455	8.616358621583
1250	0.004731293064	0.226334330957	+1	0.126719007160	8.472611549184
1275	0.004680324764	0.223920874314	+1	0.125414702605	8.357768099249
1300	0.004630300604	0.222032799580	+1	0.124161179543	8.268870242418
1325	0.004581220956	0.220624971511	+1	0.122955495752	8.203457580340
1350	0.004533086858	0.219657836220	+1	0.121794758567	8.159414560271
1375	0.004485893490	0.219096808148	+1	0.120676299224	8.134945528076
1400	0.004439632172	0.218911981819	+1	0.119597704261	8.128543336449
1425	0.004394291445	0.219077187568	+1	0.118556771907	8.138929533270
1450	0.004349858400	0.219569852387	+1	0.117551421776	8.165028898934
1475	0.004306317584	0.220369980602	+1	0.116579686064	8.205918506398
1500	0.004263654724	0.221459761192	+1	0.115639800428	8.260804857046
1550	0.004180888898	0.224447782742	+1	0.113849029608	8.410012199646
1600	0.004101415889	0.228431603117	+1	0.112167087912	8.608549554572
1650	0.004025085181	0.233329793201	+1	0.110583479198	8.853496851235
1700	0.003951744528	0.239081827809	+1	0.109088920580	9.143050961509

1750	0.003881245060	0.245638590514	+1	0.107675213287	9.476064968679
1800	0.003813441616	0.252962797199	+1	0.106335490993	9.852091862565
1850	0.003748198454	0.261024442948	+1	0.105063614723	10.271112817695
1900	0.003685375855	0.269809176186	+1	0.103853922975	10.733958029023
1950	0.003624847926	0.279304502479	+1	0.102701164947	11.241620876490
2000	0.003566506609	0.289487832342	+1	0.101600365178	11.794623256597
2100	0.003455962747	0.311869841878	+1	0.099538254251	13.041318758534
2200	0.003352849259	0.337053811844	+1	0.097643474492	14.495909675514
2300	0.003256387269	0.365205648361	+1	0.095896184365	16.187158002135
2400	0.003165936284	0.396480567504	+1	0.094277916756	18.146667291370
2500	0.003080971353	0.431005361624	+1	0.092771158854	20.407810599261
2600	0.003001041515	0.468910602512	+1	0.091360430536	23.007981681523
2700	0.002925684826	0.510518790425	+1	0.090036079616	26.003629777526
2800	0.002854490106	0.556241815918	+1	0.088790258102	29.466001975174
2900	0.002787096573	0.606543985361	+1	0.087615673819	33.480979582845
3000	0.002723195987	0.661943535031	+1	0.086505382409	38.151743262007
3100	0.002662516331	0.723042634666	+1	0.085453084238	43.604832559563
3200	0.002604807256	0.790618250069	+1	0.084453987245	50.003965715488
3300	0.002549845304	0.865615187293	+1	0.083503905747	57.557682545738
3400	0.002497429530	0.949168167920	+1	0.082598932411	66.532088686383
3500	0.002447380189	1.042650513475	+1	0.081735454292	77.270276791293
3600	0.002399535330	1.147753880940	+1	0.080910141398	90.221545655335
3700	0.002353747544	1.266628541620	+1	0.080120261540	105.988813396454
3800	0.002309882607	1.402010853359	+1	0.079363379817	125.390989253069
3900	0.002267816078	1.557425138611	+1	0.078637262111	149.560268265616
4000	0.002227436628	1.737477788143	+1	0.077939851266	180.093708466453
4100	0.002188638856	1.948326046002	+1	0.077269265371	219.303398512320
4200	0.002151330974	2.198370434026	+1	0.076623790668	270.628824712491
4300	0.002115426575	2.499391645046	+1	0.076001827089	339.362680206028
4400	0.002080845683	2.868449135545	+1	0.075401938679	433.981226785565
4500	0.002047515054	3.331197772926	+1	0.074822820504	568.724813720046
4600	0.002015364992	3.928087022566	+1	0.074263256612	768.984995330305
4700	0.001984333294	4.726726840081	+1	0.073722099814	1083.547156905890

4800	0.001954353121	5.849852697684	+1	0.073198679866	1616.187689978736
4900	0.001925349911	7.546335446446	+1	0.072692992167	2620.836997481820
5000	0.001897301142	10.399741422330	+1	0.072202862587	4853.549404426031
5500	0.001769827393	15.864484862064	-1	0.069958334243	11351.081701311366
6000	0.001660287348	4.541006123047	-1	0.067998685242	1103.877786905812
6500	0.001565096413	2.611639007478	-1	0.066262466084	427.011904106270
7000	0.001481569547	1.817212462922	-1	0.064704825801	238.697726452892
7500	0.001407652537	1.385613224793	-1	0.063292371378	158.446624236159
8000	0.001341747272	1.115409037608	-1	0.061999872124	116.081594981158
8500	0.001282591842	0.930865856793	-1	0.060807913773	90.614926922262
9000	0.001229176156	0.797152161160	-1	0.059701326994	73.908878943426
9500	0.001180683142	0.696021332102	-1	0.058668137357	62.239712452442
10000	0.001136444582	0.616998809047	-1	0.057698727666	53.694394677328
10500	0.001095907325	0.553640835832	-1	0.056785399422	47.201456259719
11000	0.001058614745	0.501793231376	-1	0.055921354832	42.121808154182
11500	0.001024178094	0.458615999374	-1	0.055101678423	38.049580661111
12000	0.000992273160	0.422146541755	-1	0.054321615909	34.719609677409
12500	0.000962620888	0.390956506997	-1	0.053577559639	31.949697767467
13000	0.000934984902	0.364002639127	-1	0.052866064729	29.612485547349
13500	0.000909159239	0.340488918946	-1	0.052184491449	27.615266307536
14000	0.000884976151	0.319828196575	-1	0.051529075329	25.890875775642
14500	0.000862270789	0.301526643678	-1	0.050898863437	24.386886446774
15000	0.000840909650	0.285212293847	-1	0.050291918679	23.064115202619
16000	0.000801753843	0.257396075393	-1	0.049141475278	20.845734355818
17000	0.000766712072	0.234589458238	-1	0.048066349829	19.059011305097
18000	0.000735154540	0.215574865745	-1	0.047057328853	17.589056063317
19000	0.000706575959	0.199496491511	-1	0.046106800961	16.358138168217
20000	0.000680566232	0.185735900351	-1	0.045208406023	15.311881871346
21000	0.000629822735	0.160456428378	-1	0.047003904011	14.572598284041
22000	0.000606751379	0.150248533925	-1	0.046376291101	13.843525476814
23000	0.000584743292	0.140515704574	-1	0.045790237676	13.144257329981
24000	0.000564007338	0.131498772910	-1	0.045250394391	12.496230795154
25000	0.000544719452	0.123416897220	-1	0.044753326598	11.918345643427

26000	0.000526969183	0.116402455633	-1	0.044288541771	11.421772239574
27000	0.000510593635	0.110313226089	-1	0.043846961622	10.994819538397
28000	0.000495373272	0.104953607252	-1	0.043424915814	10.622180558927
29000	0.000481132409	0.100153408154	-1	0.043021068584	10.290211085502
30000	0.000467710768	0.095758185913	-1	0.042637485723	9.986777105282
31000	0.000454977299	0.091647333998	-1	0.042277867787	9.702607650991
32000	0.000442888491	0.087793804521	-1	0.041940631094	9.435529846622
33000	0.000431399514	0.084186975727	-1	0.041624299463	9.185298463314
34000	0.000420481085	0.080820277063	-1	0.041326400379	8.951619052604
35000	0.000410106435	0.077687724947	-1	0.041044313116	8.734240349305
36000	0.000400247882	0.074780525734	-1	0.040775562418	8.532674832717
37000	0.000390867557	0.072077692772	-1	0.040518783755	8.345410739438
38000	0.000381927681	0.069556486549	-1	0.040273259988	8.170781174038
39000	0.000373393415	0.067195709307	-1	0.040038649914	8.007233678274
40000	0.000365232623	0.064975533981	-1	0.039815007753	7.853318787923
41000	0.000357416821	0.062879030547	-1	0.039602462702	7.707803734879
42000	0.000349924155	0.060896559955	-1	0.039400332222	7.570026274429
43000	0.000342735563	0.059020587912	-1	0.039207777271	7.439481787106
44000	0.000335833458	0.057244001388	-1	0.039024061926	7.315691522341
45000	0.000329201419	0.055560047742	-1	0.038848561230	7.198201967075
46000	0.000322824107	0.053962351217	-1	0.038680722030	7.086580841172
47000	0.000316686940	0.052444861041	-1	0.038520053607	6.980415537590
48000	0.000310776207	0.051001834708	-1	0.038366135490	6.879309863242
49000	0.000305079057	0.049627795585	-1	0.038218656125	6.782885757423
50000	0.000299583512	0.048317547895	-1	0.038077381997	6.690779076253
55000	0.000274775837	0.042582837641	-1	0.037454767242	6.285405028354
60000	0.000253674807	0.037936937198	-1	0.036947364928	5.953593587457
65000	0.000235494556	0.034102693764	-1	0.036530796417	5.676629153521
70000	0.000219659176	0.030889379190	-1	0.036186858117	5.441699327454
75000	0.000205736657	0.028161448468	-1	0.035901676869	5.239727360617
80000	0.000193396300	0.025819928259	-1	0.035664460254	5.064091020275
85000	0.000182380207	0.023790826746	-1	0.035466789383	4.909853729676
90000	0.000172484470	0.022017786123	-1	0.035301897467	4.773246103432

95000	0.000163544955	0.020457012631	-1	0.035164447383	4.651352503680
100000	0.000155428872	0.019074117873	-1	0.035049992594	4.541864349343
105000	0.000148026891	0.017841501214	-1	0.034955034702	4.442923525473
110000	0.000141248837	0.016737386859	-1	0.034876301881	4.353090313571
115000	0.000135018639	0.015743265073	-1	0.034811608865	4.271086875523
120000	0.000129272657	0.014844473985	-1	0.034758700527	4.195938632731
125000	0.000123956535	0.014028491493	-1	0.034715927502	4.126781799007
130000	0.000119024082	0.013285094460	-1	0.034681680293	4.062930139282
135000	0.000114435320	0.012605417194	-1	0.034654802759	4.003764054474
140000	0.000110155837	0.011982103597	-1	0.034634214543	3.948789579333
145000	0.000106155403	0.011408694586	-1	0.034619204057	3.897560434550
150000	0.000102407377	0.010879718792	-1	0.034609149020	3.849720326368
155000	0.000098889738	0.010390765062	-1	0.034602357284	3.804890606085
160000	0.000095585314	0.009938625114	-1	0.034595415189	3.762684474620
165000	0.000092472455	0.009518581896	-1	0.034591377963	3.722980058997
170000	0.000089535211	0.009127627345	-1	0.034589395565	3.685548752287
175000	0.000086757438	0.008762515954	-1	0.034590844586	3.650254271487
180000	0.000084127234	0.008421055230	-1	0.034594837071	3.616903741282
185000	0.000081634701	0.008101501769	-1	0.034599606994	3.585281241403
190000	0.000079269449	0.007801964437	-1	0.034604960677	3.555266803179
195000	0.000077022110	0.007520735627	-1	0.034610669207	3.526736041770
200000	0.000074884059	0.007256156304	-1	0.034616782198	3.499545259594
205000	0.000072847476	0.007006733030	-1	0.034623425757	3.473562219075
210000	0.000070905583	0.006771373779	-1	0.034630275303	3.448725995529
215000	0.000069052266	0.006549130364	-1	0.034636896800	3.424987355203
220000	0.000067281862	0.006339096029	-1	0.034642991338	3.402294345113
225000	0.000065589147	0.006140422389	-1	0.034648284451	3.380590320190
230000	0.000063969275	0.005952296034	-1	0.034652643654	3.359815718598
235000	0.000062417759	0.005773950195	-1	0.034655998328	3.339907568323
240000	0.000060930421	0.005604655207	-1	0.034658383255	3.320800630748
245000	0.000059503377	0.005443718291	-1	0.034659931610	3.302427747856
250000	0.000058132996	0.005290481020	-1	0.034660869193	3.284719708120
255000	0.000056815948	0.005144351311	-1	0.034661429151	3.267615388279

260000	0.000055549315	0.005004904539	-1	0.034661496461	3.251088739697
265000	0.000054330422	0.004871770192	-1	0.034660888045	3.235121166263
270000	0.000053156748	0.004744593881	-1	0.034659454875	3.219692631837
275000	0.000052025941	0.004623034550	-1	0.034657100323	3.204780971999
280000	0.000050935796	0.004506770359	-1	0.034653729770	3.190361826235
285000	0.000049884242	0.004395490655	-1	0.034649306091	3.176409639863
290000	0.000048869313	0.004288896600	-1	0.034643847203	3.162899021176
295000	0.000047889181	0.004186706000	-1	0.034637371006	3.149801360458
300000	0.000046942105	0.004088644554	-1	0.034629969597	3.137088482795

Electron Elastic Scattering Sampling Data
Solution for Z = 77

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.057426687590	3.738083682022	+1	0.236009992323	90.101168835742
52	0.053692430269	8.360248224728	+1	0.230613518734	414.590959405925
54	0.050735136000	125.783083541431	+1	0.223181222565	85944.759532534445
56	0.047768296165	8.607880802633	-1	0.218775901091	462.746024545212
58	0.045384088209	4.250320251849	-1	0.212535513688	126.948765298348
60	0.043287884659	2.777673699131	-1	0.206219397176	60.362076613241
62	0.041425078151	2.036301973336	-1	0.199928783624	35.813144362312
64	0.039752908768	1.588923013750	-1	0.193746876586	23.915872820910
66	0.038236764901	1.288734538757	-1	0.187758682470	17.174982316392
68	0.036849704979	1.072796230835	-1	0.182031104923	12.951880888597
70	0.035570782174	0.909658877379	-1	0.176613761353	10.115377383541
72	0.034382715845	0.781783358439	-1	0.171557822529	8.110884381830
74	0.033273068225	0.678818729482	-1	0.166884975025	6.639906028601
76	0.032231575356	0.594142310138	-1	0.162615872162	5.528370037747
78	0.031250635559	0.523400168122	-1	0.158754133324	4.669032226905
80	0.030324990195	0.463632366633	-1	0.155282077014	3.992459059808
82	0.029450414089	0.412707216894	-1	0.152175760642	3.451731780735
84	0.028624853655	0.369126909549	-1	0.149377328398	3.014163861758
86	0.027847136926	0.331762395941	-1	0.146810596615	2.656175561365
88	0.027117377592	0.299774393569	-1	0.144366182296	2.360327548312
90	0.026436979036	0.272539903413	-1	0.141892808103	2.113373378728
92	0.025807978152	0.249578725051	-1	0.139204432179	1.905040313441
94	0.025233442019	0.230554831716	-1	0.136066011982	1.727209567035
96	0.024716634532	0.215240176945	-1	0.132212194717	1.573440443672
98	0.024260561327	0.203520314089	-1	0.127365762930	1.438700341494
100	0.023867216932	0.195410398092	-1	0.121273885997	1.319268040001
105	0.023148686847	0.192529804976	-1	0.099874433816	1.075606294957
110	0.022711264888	0.223902994699	-1	0.072271653059	0.919093509357

115	0.022345272715	0.323202594353	-1	0.046543282197	0.913847972148
120	0.021884696958	0.612343816907	-1	0.028709002566	1.304906220427
125	0.021304558218	1.885109140853	-1	0.018534163289	4.720290647909
130	0.020659404265	6.219410973402	+1	0.013253691407	28.601165390471
135	0.020007423422	1.000925476140	+1	0.010653361044	1.056759897665
140	0.019384322639	0.457018213987	+1	0.009504871017	0.323373028067
145	0.018806826279	0.278514053675	+1	0.009196824071	0.172502641697
150	0.018279883431	0.202826873619	+1	0.009428650712	0.124753235448
155	0.017802550936	0.168657240794	+1	0.010050074808	0.110433907848
160	0.017370916118	0.155141952501	+1	0.010983638471	0.112617354651
165	0.016980103829	0.153809601707	+1	0.012188719577	0.126808656805
170	0.016624872108	0.160871453320	+1	0.013643832429	0.152843398449
175	0.016300231848	0.174612273225	+1	0.015338021761	0.192857119356
180	0.016001468139	0.194313702584	+1	0.017265878970	0.250795842423
185	0.015724352937	0.219823629383	+1	0.019425175273	0.332588305699
190	0.015465106734	0.251290392730	+1	0.021814671831	0.446522767934
195	0.015220380246	0.289162560746	+1	0.024433961917	0.604228402892
200	0.014987082340	0.334247089153	+1	0.027283474469	0.822317761529
205	0.014762518716	0.387643832206	+1	0.030363556026	1.124422976485
210	0.014544577268	0.450520063673	+1	0.033671581451	1.543136709063
215	0.014331533488	0.524327295742	+1	0.037203071828	2.124477854943
220	0.014121940202	0.610960790952	+1	0.040952205740	2.934612822938
225	0.013914605517	0.712896448288	+1	0.044911719091	4.070065935855
230	0.013708561617	0.833398863716	+1	0.049072875926	5.674128073481
235	0.013503029912	0.976836206819	+1	0.053425498385	7.963975861191
240	0.013297412719	1.149165221449	+1	0.057958000971	11.276941520351
245	0.013091263839	1.358698982422	+1	0.062657407747	16.152497989641
250	0.012884270527	1.617385958252	+1	0.067509510659	23.484554370077
255	0.012676299688	1.942878830831	+1	0.072498783265	34.815383478693
260	0.012467527006	2.361902312372	+1	0.077608290791	52.927128054156
265	0.012258262487	2.917372030047	+1	0.082819624454	83.165822896312
270	0.012048870693	3.683091120179	+1	0.088113242949	136.677655368496
275	0.011839771753	4.797470247352	+1	0.093468537232	239.374733003518

280	0.011631425275	6.553825372359	+1	0.098864072583	461.588256411071
285	0.011424305746	9.701238045821	+1	0.104277981835	1045.965476022215
290	0.011218932393	16.887780989625	+1	0.109687586572	3280.555476325277
295	0.011015790061	49.122954306724	+1	0.115070775252	28747.762672075198
300	0.010815391450	70.295556005272	-1	0.120405123775	62753.581801117085
310	0.010424717635	13.040284874154	-1	0.130847429227	2616.760116402804
320	0.010050265894	7.646770992227	-1	0.140884524429	1068.127877269043
330	0.009694796134	5.678604620353	-1	0.150407380053	685.893964330235
340	0.009360482321	4.706463341257	-1	0.159322547030	538.722392753684
350	0.009048941812	4.168631933460	-1	0.167552687107	474.956430580889
360	0.008761120095	3.867510079554	-1	0.175043424722	451.965264100703
370	0.008496937695	3.715423043875	-1	0.181781557998	454.226504137173
380	0.008255858273	3.671427399342	-1	0.187771347103	476.324128356842
390	0.008037126398	3.718019698493	-1	0.193025423100	517.903409781405
400	0.007839828407	3.852043617339	-1	0.197562922243	582.387804128219
410	0.007662851341	4.081567824725	-1	0.201411677325	677.455521249398
420	0.007504649809	4.425001928627	-1	0.204617961868	816.777650916512
430	0.007363638854	4.918178880141	-1	0.207231225425	1025.704630487518
440	0.007238327548	5.627690365767	-1	0.209299060651	1354.181744159564
450	0.007127325731	6.681364544940	-1	0.210866688990	1910.513717973358
460	0.007029279149	8.348244846336	-1	0.211978802465	2965.697853654561
470	0.006942813951	11.292708767729	-1	0.212682932361	5363.994941366257
480	0.006866558620	17.720506244604	-1	0.213025733288	12988.356552749790
490	0.006799341580	42.022711840381	-1	0.213048371520	71499.376574678638
500	0.006740839461	108.229881095218	+1	0.212774667492	470844.856949616460
510	0.006687870397	22.909719856627	+1	0.212279874868	21925.447381180878
520	0.006641716609	12.456440969854	+1	0.211556485620	6727.050353307132
530	0.006600789430	8.405734693827	+1	0.210648492742	3175.434588119149
540	0.006564348051	6.262957639443	+1	0.209582847143	1825.404939033068
550	0.006531736790	4.941876304900	+1	0.208383356348	1175.729569704766
560	0.006502374622	4.048865176317	+1	0.207071288527	815.691694802034
570	0.006475731698	3.406911025578	+1	0.205666027026	596.433928952853
580	0.006451337560	2.924609722203	+1	0.204184757570	453.558084660361

590	0.006428784037	2.550008603671	+1	0.202642627756	355.579700630103
600	0.006407715695	2.251412435581	+1	0.201052910834	285.655294215566
610	0.006387821736	2.008395870605	+1	0.199427234630	234.126082502910
620	0.006368836438	1.807199780867	+1	0.197775634763	195.136787000202
630	0.006350528400	1.638232912219	+1	0.196106826661	164.977231170551
640	0.006332700440	1.494611202089	+1	0.194428488607	141.207047416675
650	0.006315179129	1.371269047845	+1	0.192747351762	122.169486881773
660	0.006297820253	1.264391567945	+1	0.191069105105	106.707605340098
670	0.006280510423	1.171042726461	+1	0.189398439540	93.993121007496
680	0.006263152429	1.088937873056	+1	0.187739250252	83.422593387727
690	0.006245666226	1.016276314194	+1	0.186095026930	74.548708362589
700	0.006227983090	0.951620170227	+1	0.184468732198	67.034329115717
710	0.006210049840	0.893805005930	+1	0.182862902425	60.621263995513
720	0.006191829352	0.841870056407	+1	0.181279275355	55.108254817204
730	0.006173296526	0.795023999500	+1	0.179719315058	50.337639071827
740	0.006154431638	0.752610796594	+1	0.178184251051	46.184706370137
750	0.006135217245	0.714082800696	+1	0.176675144053	42.549876229853
760	0.006115643927	0.678977271630	+1	0.175192820170	39.352636282893
770	0.006095716002	0.646895575975	+1	0.173737643409	36.526846383237
780	0.006075437323	0.617497478127	+1	0.172309814411	34.018324431111
790	0.006054815215	0.590492166349	+1	0.170909476605	31.782446923077
800	0.006033856924	0.565630154768	+1	0.169536767757	29.782257687546
810	0.006012574187	0.542694275069	+1	0.168191694377	27.986754888282
820	0.005990982339	0.521492351063	+1	0.166873971180	26.369596676252
830	0.005969100106	0.501856071433	+1	0.165583253449	24.908489605767
840	0.005946944556	0.483638725072	+1	0.164319206410	23.584581302878
850	0.005924532399	0.466711795993	+1	0.163081519268	22.381834213814
860	0.005901878173	0.450961627000	+1	0.161869849757	21.286494935146
870	0.005879005669	0.436284927352	+1	0.160683669294	20.286506138152
880	0.005855932123	0.422590284146	+1	0.159522422904	19.371494888353
890	0.005832677906	0.409796258063	+1	0.158385598613	18.532462865576
900	0.005809259020	0.397830954253	+1	0.157272747061	17.761649211817
910	0.005785692545	0.386629443335	+1	0.156183368056	17.052232282700

920	0.005761997674	0.376132109439	+1	0.155116866000	16.398141079132
930	0.005738194433	0.366285021020	+1	0.154072642014	15.794021391167
940	0.005714297437	0.357040140782	+1	0.153050128838	15.235203726303
950	0.005690324072	0.348354216590	+1	0.152048834215	14.717567960391
960	0.005666289221	0.340187909231	+1	0.151068261056	14.237456109509
970	0.005642205906	0.332505006454	+1	0.150107845718	13.791585211791
980	0.005618089506	0.325272355916	+1	0.149167045131	13.377012941223
990	0.005593953730	0.318460223402	+1	0.148245379505	12.991143269900
1000	0.005569811219	0.312041408533	+1	0.147342379599	12.631649624825
1025	0.005509496281	0.297554932262	+1	0.145163351796	11.835011661661
1050	0.005449397265	0.285026243629	+1	0.143089724537	11.162494448086
1075	0.005389669961	0.274174909609	+1	0.141114160044	10.592423099159
1100	0.005330429932	0.264776506843	+1	0.139230552031	10.108107972512
1125	0.005271774167	0.256646975056	+1	0.137433412333	9.696362697423
1150	0.005213795822	0.249625800521	+1	0.135716663950	9.346177612548
1175	0.005156575470	0.243578964551	+1	0.134074813811	9.048672743476
1200	0.005100169293	0.238395966466	+1	0.132503124178	8.796758968307
1225	0.005044616298	0.233984470106	+1	0.130997402591	8.584694752959
1250	0.004989954503	0.230262942743	+1	0.129553303523	8.407560418950
1275	0.004936214214	0.227162121119	+1	0.128166940745	8.261293402986
1300	0.004883410040	0.224623447487	+1	0.126834864612	8.142561624374
1325	0.004831552463	0.222596535199	+1	0.125553913949	8.048571654372
1350	0.004780642470	0.221037708667	+1	0.124321091263	7.976967915167
1375	0.004730687225	0.219907894722	+1	0.123133464589	7.925680552538
1400	0.004681681299	0.219174009862	+1	0.121988528245	7.893020318015
1425	0.004633617486	0.218807064372	+1	0.120883929069	7.877542673973
1450	0.004586484853	0.218781645497	+1	0.119817411886	7.878012331637
1475	0.004540273221	0.219075424169	+1	0.118786907370	7.893371275270
1500	0.004494968022	0.219668589858	+1	0.117790518488	7.922715157229
1550	0.004407016999	0.221685539947	+1	0.115893103728	8.020383804793
1600	0.004322498775	0.224717453251	+1	0.114112241160	8.166165453358
1650	0.004241269157	0.228672826692	+1	0.112436655224	8.356520336582
1700	0.004163182356	0.233481954358	+1	0.110856567813	8.589067097711

1750	0.004088091611	0.239088055382	+1	0.109363267831	8.862137631039
1800	0.004015847575	0.245448014849	+1	0.107949104436	9.174803056529
1850	0.003946312139	0.252526771907	+1	0.106607257883	9.526576848109
1900	0.003879343530	0.260304144721	+1	0.105331914569	9.917785766822
1950	0.003814812885	0.268761758704	+1	0.104117698648	10.348903011594
2000	0.003752609817	0.277872711163	+1	0.102959228436	10.819980876259
2100	0.003634742760	0.297990119130	+1	0.100791512277	11.884678752248
2200	0.003524802432	0.320714649640	+1	0.098802403972	13.128417826262
2300	0.003421967916	0.346167591373	+1	0.096970398035	14.573477346746
2400	0.003325560686	0.374457495758	+1	0.095275578501	16.243977141833
2500	0.003235028748	0.405661743590	+1	0.093699297301	18.164693054154
2600	0.003149890492	0.439857992889	+1	0.092225050613	20.362991146563
2700	0.003069653778	0.477301009867	+1	0.090842452170	22.881819835315
2800	0.002993873832	0.518320730803	+1	0.089543028902	25.775237856824
2900	0.002922167491	0.563279551364	+1	0.088318866949	29.107091995490
3000	0.002854206625	0.612573148595	+1	0.087162450293	32.952631646095
3100	0.002789699901	0.666654257671	+1	0.086067024819	37.402554552420
3200	0.002728376795	0.726116088627	+1	0.085027442030	42.573509526494
3300	0.002669996225	0.791674857792	+1	0.084039311931	48.611949580155
3400	0.002614341878	0.864173204756	+1	0.083098476007	55.700761093627
3500	0.002561221458	0.944611679479	+1	0.082201085554	64.070509860805
3600	0.002510459985	1.034199307519	+1	0.081343606668	74.016040968712
3700	0.002461899429	1.134451859857	+1	0.080523162882	85.923960100997
3800	0.002415393701	1.247260879112	+1	0.079737200539	100.305385922678
3900	0.002370810436	1.374996110714	+1	0.078983371855	117.843960536071
4000	0.002328027625	1.520672059793	+1	0.078259520793	139.470524417946
4100	0.002286935241	1.688178497425	+1	0.077563652220	166.476284179788
4200	0.002247432909	1.882636860795	+1	0.076893977555	200.694535191888
4300	0.002209426671	2.110921116582	+1	0.076248842759	244.794236747428
4400	0.002172832498	2.382474811375	+1	0.075626751798	302.776451346761
4500	0.002137569807	2.710643241900	+1	0.075026331728	380.853767707946
4600	0.002103565282	3.114908146690	+1	0.074446317594	489.078302120247
4700	0.002070752190	3.624831665744	+1	0.073885504038	644.542880421940

4800	0.002039067143	4.287608503392	+1	0.073342798064	878.206413427210
4900	0.002008453069	5.183503237271	+1	0.072817179596	1250.815835051249
5000	0.001978854173	6.461027968769	+1	0.072307744275	1894.998296574431
5500	0.001859953105	94.757615757517	+1	0.069317425959	362676.388202544880
6000	0.001728778602	6.350238577909	-1	0.067953175542	1965.051669397899
6500	0.001628442148	3.209466032163	-1	0.066160149939	586.819974688229
7000	0.001540462216	2.126868564438	-1	0.064554079114	297.464903895952
7500	0.001462653970	1.580756584909	-1	0.063100053428	187.573811727664
8000	0.001393320764	1.252643302901	-1	0.061771637882	133.151054216107
8500	0.001331122163	1.034346984680	-1	0.060548441379	101.747613141288
9000	0.001274986868	0.879020888362	-1	0.059414569346	81.727164373752
9500	0.001224048773	0.763097278029	-1	0.058357388735	68.035554968442
10000	0.001177599119	0.673431450168	-1	0.057366788100	58.171534885918
10500	0.001135052732	0.602113257991	-1	0.056434653824	50.773439156564
11000	0.001095926390	0.544127187730	-1	0.055553904661	45.046788091542
11500	0.001059807997	0.496094502162	-1	0.054719274054	40.496337573815
12000	0.001026355421	0.455704062243	-1	0.053925843686	36.803105858435
12500	0.000995273592	0.421291040211	-1	0.053169773842	33.750750378349
13000	0.000966312295	0.391648117242	-1	0.052447471509	31.189597740685
13500	0.000939254331	0.365861031510	-1	0.051756169657	29.011744448120
14000	0.000913912906	0.343240409485	-1	0.051093141951	27.138738008169
14500	0.000890124143	0.323244764443	-1	0.050456290298	25.511444794886
15000	0.000867749786	0.305459659949	-1	0.049843111591	24.085514865170
16000	0.000826754781	0.275226080601	-1	0.048680846026	21.705661523811
17000	0.000790075413	0.250505418913	-1	0.047596273389	19.798989742448
18000	0.000757048590	0.229941179939	-1	0.046579781862	18.237351917623
19000	0.000727143358	0.212584557785	-1	0.045623493829	16.934673443234
20000	0.000699928182	0.197752770164	-1	0.044720798407	15.831119858435
21000	0.000651001158	0.171899048121	-1	0.046264216009	15.000868614271
22000	0.000627042989	0.160931500154	-1	0.045619190307	14.233246708517
23000	0.000604205536	0.150489934540	-1	0.045013908563	13.498730626280
24000	0.000582700569	0.140827719460	-1	0.044453941021	12.819421360738
25000	0.000562704496	0.132174602609	-1	0.043937150180	12.214682062360

26000	0.000544304060	0.124667658246	-1	0.043454470093	11.695772786086
27000	0.000527326619	0.118152033810	-1	0.042997138344	11.250186621245
28000	0.000511559520	0.112421844034	-1	0.042560288448	10.861631306428
29000	0.000496814428	0.107292700177	-1	0.042142466285	10.515785778019
30000	0.000482920534	0.102597800645	-1	0.041745482232	10.199959051096
31000	0.000469731872	0.098205270145	-1	0.041373170429	9.904522833580
32000	0.000457203789	0.094086272918	-1	0.041023927788	9.627177202355
33000	0.000445301538	0.090232397048	-1	0.040695565448	9.367520853420
34000	0.000433994147	0.086636226762	-1	0.040385728461	9.125204760224
35000	0.000423260789	0.083293026877	-1	0.040091345611	8.899866654386
36000	0.000413061643	0.080190288182	-1	0.039810846827	8.691053852919
37000	0.000403357961	0.077305648739	-1	0.039542832323	8.497167185153
38000	0.000394110709	0.074614851452	-1	0.039286519500	8.316458510454
39000	0.000385283971	0.072095278786	-1	0.039041487202	8.147299618896
40000	0.000376844564	0.069725797502	-1	0.038807700185	7.988177339002
41000	0.000368762913	0.067488311103	-1	0.038585210339	7.837804064016
42000	0.000361016421	0.065372529214	-1	0.038373313523	7.695482616103
43000	0.000353585205	0.063370367830	-1	0.038171187561	7.560683406681
44000	0.000346450929	0.061474197776	-1	0.037978109440	7.432904162846
45000	0.000339596536	0.059676808174	-1	0.037793446294	7.311668464474
46000	0.000333006119	0.057971374365	-1	0.037616655257	7.196524019043
47000	0.000326664442	0.056351432294	-1	0.037447236190	7.087040259254
48000	0.000320557284	0.054810846222	-1	0.037284764004	6.982803234069
49000	0.000314671380	0.053343795776	-1	0.037128903960	6.883418144989
50000	0.000308994235	0.051944720098	-1	0.036979418550	6.788507259486
55000	0.000283373078	0.045819458945	-1	0.036317854904	6.371055874280
60000	0.000261588268	0.040854342974	-1	0.035774651325	6.029665225428
65000	0.000242824739	0.036754072674	-1	0.035324893201	5.744902070728
70000	0.000226485933	0.033315630428	-1	0.034949895702	5.503481021296
75000	0.000212124213	0.030394679491	-1	0.034635482170	5.296009100093
80000	0.000199397092	0.027885864170	-1	0.034370636095	5.115648525021
85000	0.000188037805	0.025710435617	-1	0.034146682990	4.957294588682
90000	0.000177835196	0.023808348451	-1	0.033956749649	4.817065326767

95000	0.000168620030	0.022133051803	-1	0.033795265704	4.691946478181
100000	0.000160254495	0.020647819591	-1	0.033657781151	4.579571294302
105000	0.000152625777	0.019323271703	-1	0.033540648198	4.478022706888
110000	0.000145640713	0.018136193371	-1	0.033440548013	4.385819801874
115000	0.000139220707	0.017066842922	-1	0.033355205443	4.301650242984
120000	0.000133300031	0.016099568892	-1	0.033282338594	4.224512077025
125000	0.000127822585	0.015221012052	-1	0.033220234163	4.153518586243
130000	0.000122740655	0.014420249104	-1	0.033167261950	4.087965339520
135000	0.000118012961	0.013687800315	-1	0.033122238419	4.027217015163
140000	0.000113603937	0.013015827332	-1	0.033083981024	3.970766054620
145000	0.000109482458	0.012397441400	-1	0.033051675537	3.918151576337
150000	0.000105621372	0.011826797810	-1	0.033024704890	3.869004566350
155000	0.000101996028	0.011298525666	-1	0.033003259386	3.823009881313
160000	0.000098591887	0.010810398905	-1	0.032980672695	3.779651698579
165000	0.000095385296	0.010356951071	-1	0.032960673877	3.738831121759
170000	0.000092359555	0.009934727294	-1	0.032943303530	3.700347640703
175000	0.000089499490	0.009540583162	-1	0.032928903773	3.664022608152
180000	0.000086789379	0.009171220268	-1	0.032919589068	3.629773514400
185000	0.000084221298	0.008825582144	-1	0.032910841126	3.597273078582
190000	0.000081784394	0.008501557630	-1	0.032902765151	3.566410889209
195000	0.000079468936	0.008197247121	-1	0.032895452664	3.537073376299
200000	0.000077266039	0.007910869634	-1	0.032888917770	3.509113190690
205000	0.000075167660	0.007640834112	-1	0.032883178293	3.482392407843
210000	0.000073166810	0.007385964854	-1	0.032877918249	3.456847717568
215000	0.000071257172	0.007145238618	-1	0.032872739738	3.432429189076
220000	0.000069432910	0.006917681700	-1	0.032867350121	3.409083738368
225000	0.000067688633	0.006702375312	-1	0.032861513016	3.386753508019
230000	0.000066019356	0.006498451523	-1	0.032855062265	3.365377361005
235000	0.000064420453	0.006305080326	-1	0.032847946596	3.344891282785
240000	0.000062887628	0.006121479544	-1	0.032840171967	3.325228349963
245000	0.000061416878	0.005946903949	-1	0.032831847312	3.306320152854
250000	0.000060004489	0.005780646645	-1	0.032823158886	3.288095214118
255000	0.000058647025	0.005622072076	-1	0.032814297825	3.270491309114

260000	0.000057341484	0.005470719527	-1	0.032805170702	3.253481837285
265000	0.000056085100	0.005326191573	-1	0.032795589120	3.237047637335
270000	0.000054875284	0.005188103047	-1	0.032785427423	3.221167750325
275000	0.000053709613	0.005056089777	-1	0.032774572921	3.205819471026
280000	0.000052585813	0.004929801899	-1	0.032762949322	3.190978174225
285000	0.000051501738	0.004808903903	-1	0.032750523635	3.176618521600
290000	0.000050455392	0.004693076970	-1	0.032737280336	3.162712695904
295000	0.000049444870	0.004582013966	-1	0.032723248458	3.149232701498
300000	0.000048468398	0.004475420944	-1	0.032708495876	3.136148982181

Electron Elastic Scattering Sampling Data
Solution for Z = 78

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.069749693226	1.054745679933	+1	0.217797512344	8.087514661971
52	0.064704561283	1.403189552033	+1	0.214018710314	13.328457543386
54	0.060467608456	1.904532588034	+1	0.209446237634	22.855231005291
56	0.056884501265	2.679676489217	+1	0.204169959174	42.076735020172
58	0.053829654787	4.027540766285	+1	0.198305714576	88.293752988860
60	0.051201280014	6.943079665952	+1	0.191982199082	243.452590985546
62	0.048917291124	17.959361387327	+1	0.185331025812	1509.655672090809
64	0.046911252669	48.259542389507	-1	0.178476658953	10515.942312051606
66	0.045130003170	10.545270008934	-1	0.171538809886	534.461397863985
68	0.043531210178	5.881729881402	-1	0.164620165582	175.588294643229
70	0.042080864533	4.050794810729	-1	0.157809066011	87.424927988489
72	0.040751550181	3.066425031923	-1	0.151187563196	52.367067473388
74	0.039522305113	2.447956317161	-1	0.144811142297	34.787985889073
76	0.038375896872	2.020343198830	-1	0.138732447398	24.666541948594
78	0.037299114529	1.705149539999	-1	0.132987716484	18.286790915970
80	0.036281853772	1.462059546502	-1	0.127598732967	14.003168850438
82	0.035315801234	1.268041212800	-1	0.122585598839	10.989478892953
84	0.034395174747	1.109352876627	-1	0.117950113004	8.795087405540
86	0.033515249800	0.977066617659	-1	0.113692171479	7.153722756020
88	0.032672638762	0.865251163254	-1	0.109802454556	5.900085240045
90	0.031865126036	0.769838532093	-1	0.106260973407	4.926718889080
92	0.031090977443	0.687857379178	-1	0.103044933903	4.160626616298
94	0.030349524070	0.617192482349	-1	0.100116826018	3.551132057300
96	0.029640478465	0.556221399058	-1	0.097432273174	3.061761044338
98	0.028964096005	0.503708292368	-1	0.094934962083	2.665808132079
100	0.028321178610	0.458709126020	-1	0.092553804484	2.343361920945
105	0.026868565594	0.374669155419	-1	0.086520449411	1.768099597509
110	0.025656949893	0.326496505146	-1	0.078999231509	1.411693346428

115	0.024697616651	0.313420123022	-1	0.068530452122	1.196725945853
120	0.023959027765	0.344054991669	-1	0.055219866245	1.101685742009
125	0.023357276993	0.448332996046	-1	0.041400632615	1.173247058167
130	0.022796926124	0.722224270604	-1	0.029925649426	1.645639262649
135	0.022226673235	1.606208033293	-1	0.021963953094	4.137565147819
140	0.021643293572	14.933981628263	-1	0.017071736483	186.910268488611
145	0.021065700314	2.444295953105	+1	0.014317452933	5.685299633106
150	0.020512342137	0.976824665013	+1	0.012943067799	1.209612533695
155	0.019994916913	0.580615994412	+1	0.012464880502	0.567980370124
160	0.019518077997	0.415516936937	+1	0.012602516791	0.377256811263
165	0.019082527277	0.335752058648	+1	0.013194072165	0.308351733673
170	0.018685721875	0.296620929111	+1	0.014150673167	0.290022221626
175	0.018324265820	0.280221304934	+1	0.015419621281	0.301089808886
180	0.017994020149	0.278421150099	+1	0.016970731013	0.335456986934
185	0.017690824580	0.287253063054	+1	0.018786747223	0.393235623308
190	0.017410637515	0.304657172710	+1	0.020856693484	0.477964966447
195	0.017149672613	0.329746872297	+1	0.023174766086	0.596358555618
200	0.016904258191	0.362511195747	+1	0.025739905537	0.759132097440
205	0.016671078178	0.403409695375	+1	0.028552637352	0.981778693293
210	0.016447419646	0.452871042178	+1	0.031609241871	1.284642754788
215	0.016230971028	0.511595109516	+1	0.034904817665	1.695665403684
220	0.016019731003	0.580669661640	+1	0.038434236782	2.253990919242
225	0.015811971116	0.661611562700	+1	0.042191778193	3.014966715317
230	0.015606213505	0.756466836985	+1	0.046171036323	4.057944204586
235	0.015401197285	0.867970903646	+1	0.050364788175	5.498615107605
240	0.015195855382	0.999803500998	+1	0.054764997907	7.509141185532
245	0.014989302560	1.156973694193	+1	0.059362689706	10.351822382237
250	0.014780808047	1.346444589326	+1	0.064148040599	14.437919223271
255	0.014569870347	1.577977352357	+1	0.069109779702	20.430700448627
260	0.014356464990	1.865019681116	+1	0.074233172875	29.421805488482
265	0.014140759403	2.227288902724	+1	0.079501382587	43.290735840525
270	0.013923022169	2.695163454321	+1	0.084896053118	65.448144084635
275	0.013703600994	3.317928838498	+1	0.090397440347	102.494677522163

280	0.013482915731	4.181106470470	+1	0.095984640769	168.321435447247
285	0.013261445975	5.447082125287	+1	0.101635687935	295.670820820270
290	0.013039714013	7.466261580042	+1	0.107327844341	575.334959866968
295	0.012818276765	11.159672918457	+1	0.113037856026	1332.082160652831
300	0.012597714968	19.975277832931	+1	0.118741991741	4425.609416785802
310	0.012161601551	59.270748308976	-1	0.130044897464	43381.328022371890
320	0.011736077547	13.411493112537	-1	0.141084817882	2673.781442249304
330	0.011325423762	8.018723327785	-1	0.151725721275	1129.348083737830
340	0.010933341000	5.994375517546	-1	0.161844156322	732.469799991555
350	0.010562898710	4.984570399770	-1	0.171331862543	577.792293573069
360	0.010216347851	4.423498443731	-1	0.180104551665	510.624381805368
370	0.009894659825	4.105527268389	-1	0.188123607382	486.055634643518
380	0.009598148263	3.941913105819	-1	0.195371208606	488.125107155910
390	0.009326735966	3.891733426973	-1	0.201840875913	511.403913107847
400	0.009080038067	3.937732761444	-1	0.207535552414	555.742044011958
410	0.008857299857	4.076828941342	-1	0.212470622762	624.907963380235
420	0.008657090905	4.315332796133	-1	0.216685573892	726.646364076201
430	0.008477841222	4.672415264578	-1	0.220225851937	875.502273649241
440	0.008318016642	5.186275556431	-1	0.223136767764	1098.737904431044
450	0.008176144377	5.927846387779	-1	0.225462515582	1450.247512980897
460	0.008050754807	7.032786320964	-1	0.227248131988	2047.080380789489
470	0.007940198244	8.783399693128	-1	0.228545251590	3180.885797970234
480	0.007842910855	11.882186195206	-1	0.229403677041	5764.866359283161
490	0.007757472036	18.682856152472	-1	0.229869052905	14040.128217241627
500	0.007682599258	44.863176224558	-1	0.229983052248	79381.217602465185
510	0.007617108531	107.088322440117	+1	0.229784459384	449928.591155279720
520	0.007559821116	23.493871871248	+1	0.229311944553	22479.038279314918
530	0.007509660558	12.849539481732	+1	0.228601031666	6970.316556720640
540	0.007465673102	8.689885014404	+1	0.227683486588	3300.423255219249
550	0.007427013875	6.481304644705	+1	0.226587625482	1898.615489532162
560	0.007392926340	5.116768204151	+1	0.225338919642	1222.438335954113
570	0.007362704742	4.193263186046	+1	0.223961058949	847.340956798987
580	0.007335719356	3.528846256562	+1	0.222475279852	618.829387062395

590	0.007311417464	3.029360966132	+1	0.220900342402	469.921415530327
600	0.007289315418	2.641216837334	+1	0.219252836384	367.827702312591
610	0.007268988960	2.331689792373	+1	0.217547386485	294.992980424507
620	0.007250063974	2.079674072125	+1	0.215796878056	241.344542255560
630	0.007232213830	1.870959882618	+1	0.214012672194	200.777332326579
640	0.007215155008	1.695634593789	+1	0.212204738090	169.420938850272
650	0.007198640697	1.546577330622	+1	0.210381878052	144.728513404093
660	0.007182461769	1.418538856576	+1	0.208551686511	124.969483892121
670	0.007166445486	1.307556542741	+1	0.206720483466	108.934401360803
680	0.007150445961	1.210594748512	+1	0.204893742609	95.759962092942
690	0.007134338343	1.125293455515	+1	0.203076258687	84.817600348475
700	0.007118016907	1.049789764149	+1	0.201272193631	75.640997855694
710	0.007101394763	0.982592226225	+1	0.199485141644	67.878310806607
720	0.007084410319	0.922484379719	+1	0.197717759734	61.259121331027
730	0.007067016704	0.868472921245	+1	0.195972305517	55.574081510446
740	0.007049172499	0.819741205422	+1	0.194250732673	50.659433186472
750	0.007030848137	0.775611603534	+1	0.192554727988	46.385567164571
760	0.007012020781	0.735515524273	+1	0.190885676204	42.648714791134
770	0.006992684557	0.698967216670	+1	0.189244386322	39.364486778842
780	0.006972839498	0.665554641831	+1	0.187631452256	36.464286144929
790	0.006952488243	0.634926885299	+1	0.186047362286	33.891999590333
800	0.006931633993	0.606784470870	+1	0.184492581761	31.601483302586
810	0.006910286457	0.580867872053	+1	0.182967341586	29.554271778122
820	0.006888463248	0.556948441014	+1	0.181471564085	27.717900023373
830	0.006866182887	0.534827141135	+1	0.180005069698	26.065097674245
840	0.006843467130	0.514330860785	+1	0.178567653146	24.572888187073
850	0.006820332701	0.495308434367	+1	0.177159167152	23.221847215039
860	0.006796799061	0.477626476594	+1	0.175779341168	21.995363187627
870	0.006772892005	0.461164486973	+1	0.174427691434	20.878996224717
880	0.006748637751	0.445815785850	+1	0.173103723543	19.860336858954
890	0.006724058912	0.431486099057	+1	0.171806957917	18.928716076940
900	0.006699177748	0.418091637347	+1	0.170536931472	18.074902041156
910	0.006674015346	0.405557705396	+1	0.169293199818	17.290877186921

920	0.006648598507	0.393815487739	+1	0.168075144891	16.569502594253
930	0.006622951877	0.382803250546	+1	0.166882156902	15.904537668050
940	0.006597098332	0.372465615813	+1	0.165713674477	15.290519831860
950	0.006571059417	0.362753148113	+1	0.164569154300	14.722666736557
960	0.006544854849	0.353620956404	+1	0.163448087756	14.196747528857
970	0.006518506605	0.345027565338	+1	0.162349880222	13.708957236227
980	0.006492032769	0.336935314193	+1	0.161273951942	13.255923201448
990	0.006465451875	0.329310100503	+1	0.160219767638	12.834650619244
1000	0.006438779906	0.322121162675	+1	0.159186826271	12.442486808143
1025	0.006371813902	0.305875182751	+1	0.156693849743	11.574201676191
1050	0.006304658632	0.291788808083	+1	0.154321148520	10.841492273706
1075	0.006237541367	0.279545897891	+1	0.152060583736	10.219905192905
1100	0.006170638305	0.268894072444	+1	0.149905346546	9.690690084426
1125	0.006104094849	0.259626821950	+1	0.147849264388	9.239107321554
1150	0.006038061356	0.251564290378	+1	0.145885463678	8.852911641332
1175	0.005972660616	0.244556625926	+1	0.144007649793	8.522279214598
1200	0.005907984443	0.238480897718	+1	0.142210492336	8.239412045973
1225	0.005844105904	0.233233996349	+1	0.140489155511	7.997974786188
1250	0.005781093027	0.228725284775	+1	0.138838692659	7.792585108236
1275	0.005719000654	0.224877695392	+1	0.137254599482	7.618799787210
1300	0.005657864092	0.221626326415	+1	0.135732950799	7.472988280864
1325	0.005597710584	0.218915676451	+1	0.134270167310	7.352126232327
1350	0.005538562453	0.216696457565	+1	0.132862669912	7.253595950796
1375	0.005480433931	0.214926013071	+1	0.131507199099	7.175192353899
1400	0.005423331952	0.213567514520	+1	0.130200801588	7.115061263476
1425	0.005367258381	0.212589009198	+1	0.128940827558	7.071637496206
1450	0.005312209853	0.211962271372	+1	0.127724649492	7.043566259027
1475	0.005258183124	0.211662291123	+1	0.126549868913	7.029676607187
1500	0.005205166854	0.211667341342	+1	0.125414301757	7.028984452137
1550	0.005102122774	0.212517309962	+1	0.123252770640	7.063882241412
1600	0.005002966395	0.214383470499	+1	0.121225125336	7.142779202509
1650	0.004907556964	0.217164318224	+1	0.119318536534	7.261649489675
1700	0.004815755135	0.220779584576	+1	0.117521577013	7.417522158697

1750	0.004727405727	0.225164865277	+1	0.115824294443	7.608256015446
1800	0.004642354900	0.230270471280	+1	0.114217874714	7.832424020242
1850	0.004560451123	0.236055903627	+1	0.112694489531	8.089070116104
1900	0.004481537833	0.242493831362	+1	0.111247393534	8.377894124579
1950	0.004405472206	0.249559367944	+1	0.109870408084	8.698747693931
2000	0.004332131157	0.257221283245	+1	0.108557406627	9.051191427470
2100	0.004193122834	0.274252590697	+1	0.106102890328	9.851244949929
2200	0.004063437071	0.293596383347	+1	0.103853113958	10.787855640922
2300	0.003942127355	0.315318110770	+1	0.101783011539	11.875021882166
2400	0.003828409307	0.339469001002	+1	0.099869659162	13.127532758030
2500	0.003721639976	0.366068717449	+1	0.098091772464	14.559878524363
2600	0.003621260403	0.395133567562	+1	0.096430686087	16.187653083227
2700	0.003526686467	0.426836102934	+1	0.094874355194	18.037627993558
2800	0.003437396206	0.461405214690	+1	0.093412936096	20.143307404761
2900	0.003352939171	0.499083989399	+1	0.092037235916	22.543208667200
3000	0.003272925892	0.540127331739	+1	0.090738577361	25.281376604655
3100	0.003197014184	0.584819023369	+1	0.089509142213	28.409407650392
3200	0.003124884304	0.633546466322	+1	0.088343079511	31.993526998554
3300	0.003056246942	0.686771481554	+1	0.087235320226	36.115057170636
3400	0.002990846008	0.745023269172	+1	0.086181134984	40.872587044857
3500	0.002928452099	0.808910606758	+1	0.085176106829	46.386312096734
3600	0.002868859489	0.879148815205	+1	0.084216200565	52.804730878942
3700	0.002811876760	0.956626196987	+1	0.083298161335	60.317272550099
3800	0.002757331764	1.042416465650	+1	0.082419085768	69.164639413302
3900	0.002705064978	1.137823217781	+1	0.081576312291	79.655664137471
4000	0.002654933147	1.244436573953	+1	0.080767365150	92.190357657312
4100	0.002606803396	1.364226353266	+1	0.079989997062	107.295052047800
4200	0.002560555768	1.499668690447	+1	0.079242179086	125.673559317587
4300	0.002516081146	1.653907280426	+1	0.078522044059	148.281701176825
4400	0.002473275922	1.831007047025	+1	0.077827923633	176.444883465721
4500	0.002432046165	2.036301126236	+1	0.077158261010	212.038775618723
4600	0.002392303002	2.276937766811	+1	0.076511616574	257.787222368342
4700	0.002353968159	2.562696543459	+1	0.075886653397	317.756523766213

4800	0.002316965458	2.907355336114	+1	0.075282141409	398.234701238423
4900	0.002281226328	3.330957717046	+1	0.074696924810	509.347067358780
5000	0.002246686418	3.863842412143	+1	0.074129998085	668.229720255882
5500	0.002089987266	12.260833182395	+1	0.071537615564	5981.506508899409
6000	0.001955707643	16.590986510676	-1	0.069280564584	11086.707365811446
6500	0.001839291046	4.983322152526	-1	0.067287860453	1167.352246344937
7000	0.001737242210	2.895853326313	-1	0.065513009441	454.484688369336
7500	0.001647105331	2.026561134321	-1	0.063910665330	253.821898790243
8000	0.001566876688	1.551525079203	-1	0.062450902843	168.030674293243
8500	0.001494979030	1.252953036289	-1	0.061110656961	122.717245187312
9000	0.001430152191	1.048413688774	-1	0.059871859303	95.495548095384
9500	0.001371378033	0.899835450596	-1	0.058720160418	77.659609066100
10000	0.001317825841	0.787214923931	-1	0.057644053033	65.219830742403
10500	0.001268809735	0.699033236821	-1	0.056634267332	56.124398586094
11000	0.001223763230	0.628226213660	-1	0.055682747896	49.227182836470
11500	0.001182205795	0.570166042421	-1	0.054783453917	43.838816092047
12000	0.001143736522	0.521752167053	-1	0.053930787005	39.527524324175
12500	0.001108011713	0.480793249183	-1	0.053120323878	36.007537204224
13000	0.001074739368	0.445722464719	-1	0.052348009942	33.084996269214
13500	0.001043666588	0.415370154045	-1	0.051610618356	30.622658982496
14000	0.001014575983	0.388863017940	-1	0.050905089717	28.522174997773
14500	0.000987276805	0.365522498986	-1	0.050228992102	26.710439758922
15000	0.000961604600	0.344825594074	-1	0.049579994447	25.132888947451
16000	0.000914573783	0.309770474223	-1	0.048355576528	22.521188964209
17000	0.000872510165	0.281241243535	-1	0.047218337086	20.449277168904
18000	0.000834646882	0.257596609549	-1	0.046157313801	18.766365308024
19000	0.000800372639	0.237703899701	-1	0.045163040572	17.372700225510
20000	0.000769197643	0.220762673978	-1	0.044226715774	16.199992604480
21000	0.000722290518	0.194543492364	-1	0.045267001992	15.243791031487
22000	0.000695284592	0.182077118991	-1	0.044569056105	14.430150443556
23000	0.000669592881	0.170240762725	-1	0.043907914427	13.654642469051
24000	0.000645437517	0.159309450187	-1	0.043291663625	12.939908543899
25000	0.000622998966	0.149531888280	-1	0.042721263303	12.305597580908

26000	0.000602358329	0.141054208804	-1	0.042190557884	11.762835897271
27000	0.000583317502	0.133698492130	-1	0.041690789787	11.297966255629
28000	0.000565637816	0.127231233689	-1	0.041216140605	10.893547717052
29000	0.000549108674	0.121443874790	-1	0.040764003764	10.534351630041
30000	0.000533543319	0.116148970046	-1	0.040334684456	10.206928014396
31000	0.000518793045	0.111201494371	-1	0.039929982112	9.901027179163
32000	0.000504793444	0.106564505700	-1	0.039548886456	9.614250340931
33000	0.000491503179	0.102227712067	-1	0.039189402618	9.346114343696
34000	0.000478884790	0.098181885041	-1	0.038849437421	9.096199570505
35000	0.000466904225	0.094418769644	-1	0.038526780143	8.864145200868
36000	0.000455527097	0.090927068388	-1	0.038219277568	8.649346759641
37000	0.000444709292	0.087681434358	-1	0.037925463170	8.450107591855
38000	0.000434403311	0.084653514266	-1	0.037644663477	8.264607532093
39000	0.000424563230	0.081816252595	-1	0.037376762443	8.091176967384
40000	0.000415159201	0.079147974636	-1	0.037120961621	7.928177411261
41000	0.000406158071	0.076628289102	-1	0.036877142559	7.774259702963
42000	0.000397534130	0.074245561814	-1	0.036644563250	7.628691109525
43000	0.000389265827	0.071990934175	-1	0.036422301387	7.490904537878
44000	0.000381336903	0.069857062663	-1	0.036209180128	7.360334784104
45000	0.000373721179	0.067833900866	-1	0.036005165951	7.236534249080
46000	0.000366400937	0.065913875546	-1	0.035809658617	7.119027900374
47000	0.000359359260	0.064089763311	-1	0.035622118978	7.007362127401
48000	0.000352580102	0.062354706699	-1	0.035442077700	6.901106860203
49000	0.000346048543	0.060702150064	-1	0.035269172593	6.799850313843
50000	0.000339750636	0.059125886433	-1	0.035103102179	6.703197741273
55000	0.000311353020	0.052221088274	-1	0.034364657463	6.278609971677
60000	0.000287240414	0.046618371410	-1	0.033753131960	5.932000191073
65000	0.000266496902	0.041986699982	-1	0.033241767046	5.643288498940
70000	0.000248453079	0.038098485595	-1	0.032810610487	5.398794377274
75000	0.000232607678	0.034792012337	-1	0.032444490926	5.188868168550
80000	0.000218577577	0.031949191369	-1	0.032131662639	5.006504118516
85000	0.000206064712	0.029481738799	-1	0.031862904011	4.846487823190
90000	0.000194833585	0.027322305304	-1	0.031630887934	4.704853271711

95000	0.000184695638	0.025418651015	-1	0.031429706678	4.578529861507
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105000	0.000167113649	0.022221963467	-1	0.031101714989	4.362639183691
110000	0.000159440639	0.020869810795	-1	0.030967557184	4.269620134832
115000	0.000152391238	0.019650878034	-1	0.030849645595	4.184719009210
120000	0.000145892570	0.018547547014	-1	0.030745588779	4.106920390227
125000	0.000139882466	0.017544759750	-1	0.030653548172	4.035326204713
130000	0.000134308080	0.016630199869	-1	0.030571805642	3.969222572142
135000	0.000129123754	0.015793180539	-1	0.030499057812	3.907966782727
140000	0.000124290235	0.015024861924	-1	0.030434039152	3.851043451073
145000	0.000119773248	0.014317499486	-1	0.030375773145	3.797984035688
150000	0.000115542966	0.013664558019	-1	0.030323382824	3.748408269051
155000	0.000111573003	0.013060237791	-1	0.030276244579	3.701968765028
160000	0.000107840023	0.012499577724	-1	0.030233808108	3.658383260550
165000	0.000104322919	0.011978019276	-1	0.030196026440	3.617402979900
170000	0.000101006597	0.011492890338	-1	0.030159813721	3.578713827062
175000	0.000097876432	0.011041358381	-1	0.030123158356	3.542050190482
180000	0.000094914248	0.010619162555	-1	0.030088864766	3.507349349365
185000	0.000092107039	0.010223678928	-1	0.030056614540	3.474446273919
190000	0.000089440880	0.009851856258	-1	0.030028422687	3.443295852895
195000	0.000086905994	0.009501903188	-1	0.030003472191	3.413749193357
200000	0.000084494920	0.009172593735	-1	0.029979435623	3.385577998591
205000	0.000082198611	0.008862028448	-1	0.029956538755	3.358653347561
210000	0.000080009277	0.008568834026	-1	0.029934573887	3.332915007944
215000	0.000077919910	0.008291825517	-1	0.029913223948	3.308314261214
220000	0.000075924068	0.008029895221	-1	0.029892193365	3.284797733516
225000	0.000074015820	0.007781989160	-1	0.029871271356	3.262307218511
230000	0.000072189687	0.007547115642	-1	0.029850291492	3.240780955376
235000	0.000070440601	0.007324337177	-1	0.029829142266	3.220153331081
240000	0.000068763855	0.007112760321	-1	0.029807805721	3.200356969797
245000	0.000067155076	0.006911537734	-1	0.029786331757	3.181321986509
250000	0.000065610198	0.006719865308	-1	0.029764841765	3.162976266947
255000	0.000064125486	0.006537019643	-1	0.029743458890	3.145255411588

260000	0.000062697630	0.006362474587	-1	0.029722083027	3.128133196727
265000	0.000061323589	0.006195767497	-1	0.029700576103	3.111590992072
270000	0.000060000515	0.006036459194	-1	0.029678811717	3.095607891955
275000	0.000058725748	0.005884128807	-1	0.029656701453	3.080161585899
280000	0.000057496790	0.005738376393	-1	0.029634166577	3.065227449978
285000	0.000056311297	0.005598816765	-1	0.029611176340	3.050780055073
290000	0.000055167063	0.005465083122	-1	0.029587715708	3.036792322340
295000	0.000054062021	0.005336826863	-1	0.029563784807	3.023235536574
300000	0.000052994221	0.005213708697	-1	0.029539452182	3.010081078434

Electron Elastic Scattering Sampling Data
Solution for Z = 79

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.076428510779	0.759754369300	+1	0.235801212502	5.014462162914
52	0.070527049806	0.961893468847	+1	0.232155542933	7.557094244557
54	0.065631063617	1.217019667620	+1	0.227484792513	11.360466352390
56	0.061544660007	1.545044091235	+1	0.221894273915	17.163862438033
58	0.058108522087	1.978472346423	+1	0.215523956085	26.331122829849
60	0.055193865380	2.574259711068	+1	0.208530343568	41.624630107891
62	0.052697060704	3.442106529417	+1	0.201074241635	69.370286791975
64	0.050534076575	4.824943203513	+1	0.193310751748	126.864222797319
66	0.048638357227	7.386138654626	+1	0.185385212389	276.374300645322
68	0.046956741183	13.811193981513	+1	0.177424400886	897.495197372504
70	0.045446333745	61.299312265177	+1	0.169539867350	16409.347331664518
72	0.044073084612	28.011571539961	-1	0.161831132514	3409.847295052965
74	0.042810429511	11.322783042154	-1	0.154371293189	570.550199516400
76	0.041636997617	7.017222813237	-1	0.147225622479	223.945672015398
78	0.040536239465	5.024693706193	-1	0.140442098653	117.264369360629
80	0.039495525507	3.866561932989	-1	0.134052046187	70.950974008558
82	0.038504500931	3.103102608372	-1	0.128084431625	46.774649887100
84	0.037555883912	2.558927818111	-1	0.122549599076	32.642021597026
86	0.036643749466	2.149531474347	-1	0.117456088549	23.719172510569
88	0.035763778721	1.829573397343	-1	0.112804610025	17.769460978108
90	0.034912966903	1.572586993871	-1	0.108588154318	13.639492597639
92	0.034088834948	1.361831819589	-1	0.104800245738	10.681808447289
94	0.033290064677	1.186461291730	-1	0.101425060575	8.512349529695
96	0.032515621511	1.038905046134	-1	0.098446463042	6.889580227192
98	0.031764957020	0.913765145368	-1	0.095844401571	5.656108839925
100	0.031037986014	0.807086230973	-1	0.093593189112	4.705997600803
105	0.029326720617	0.603033999169	-1	0.089280399250	3.139346285652
110	0.027780892553	0.465762122444	-1	0.086202409498	2.255538913990

115	0.026425325431	0.377079341706	-1	0.083170594768	1.736701875999
120	0.025291950163	0.326920611042	-1	0.078513289785	1.425317035704
125	0.024399716832	0.311765182931	-1	0.070699432162	1.244770248352
130	0.023724404790	0.335747790290	-1	0.059686479737	1.172094235504
135	0.023193884171	0.416984610036	-1	0.047443221044	1.240043827358
140	0.022721784636	0.606100144587	-1	0.036574842104	1.590309084868
145	0.022254179410	1.063587735408	-1	0.028456599862	2.825833571003
150	0.021776838543	2.608119892081	-1	0.023071553791	9.987843174187
155	0.021319339529	36.288390444342	+1	0.019530411364	1237.893562368838
160	0.020832395619	2.788656381852	+1	0.017991682028	9.102132731907
165	0.020388687161	1.331742887783	+1	0.017206909076	2.613285860997
170	0.019973088415	0.874545568348	+1	0.017141924732	1.403502793711
175	0.019587361243	0.669459448484	+1	0.017616829621	1.003567558725
180	0.019230900807	0.565023354551	+1	0.018520094117	0.851288544011
185	0.018901722583	0.511246949658	+1	0.019783732711	0.809690075376
190	0.018597045499	0.487068716281	+1	0.021363980500	0.834710515359
195	0.018313781489	0.482624666959	+1	0.023234325375	0.912684687982
200	0.018048545352	0.493349736231	+1	0.025381961002	1.044230717091
205	0.017798104526	0.517038272105	+1	0.027799788800	1.238139627256
210	0.017559675525	0.552160013920	+1	0.030476920193	1.507780058183
215	0.017330771202	0.598077684540	+1	0.033403649401	1.873372675536
220	0.017109158612	0.654924678334	+1	0.036572144366	2.364310967094
225	0.016892854409	0.723448532800	+1	0.039975521513	3.022313809880
230	0.016680094352	0.804992162894	+1	0.043607436182	3.906686057103
235	0.016469333171	0.901554595134	+1	0.047461644138	5.102591961922
240	0.016259213475	1.015946564336	+1	0.051531777415	6.734388868228
245	0.016048547535	1.152071384870	+1	0.055811316049	8.987716038534
250	0.015836312738	1.315359331443	+1	0.060293315173	12.146799289009
255	0.015621731591	1.513280469728	+1	0.064969517898	16.656475176577
260	0.015404580311	1.755534249309	+1	0.069826957118	23.215898643855
265	0.015184860819	2.055790452368	+1	0.074850358376	32.970714995968
270	0.014962683472	2.434238388524	+1	0.080023002318	47.881952809888
275	0.014738253625	2.921887662459	+1	0.085326906839	71.479038916496

280	0.014511866860	3.568803108542	+1	0.090742824295	110.527454869089
285	0.014283889313	4.461240063248	+1	0.096250431523	179.099939869079
290	0.014054753780	5.761387725890	+1	0.101828443660	309.876117112088
295	0.013824940324	7.814239814125	+1	0.107454868533	591.617856255936
300	0.013594971399	11.505547073141	+1	0.113107104246	1331.637237330713
310	0.013136886191	59.513857892529	+1	0.124403160511	38444.977265771144
320	0.012685454558	24.194660559386	-1	0.135562883217	7441.403084705721
330	0.012245455763	10.781354046351	-1	0.146442887072	1758.099386077991
340	0.011821208588	7.294695713125	-1	0.156908650514	941.486798030565
350	0.011416467207	5.751347863590	-1	0.166837848925	673.384967735866
360	0.011034191559	4.928223032948	-1	0.176130368392	559.866233229627
370	0.010676038948	4.455442649147	-1	0.184730807866	510.430987012758
380	0.010342949422	4.186801784919	-1	0.192604882572	495.735488138474
390	0.010035399954	4.056200551975	-1	0.199730414047	504.987142752731
400	0.009753491245	4.032901206898	-1	0.206095651589	535.009107303698
410	0.009496842794	4.104568205920	-1	0.211703316000	586.921791917088
420	0.009264283177	4.269069109432	-1	0.216582710652	665.090872122290
430	0.009054420739	4.535574582287	-1	0.220771057730	778.568488296167
440	0.008865850377	4.927231482673	-1	0.224306786362	944.177086352534
450	0.008697185408	5.487995097488	-1	0.227228510212	1193.428542116464
460	0.008546995715	6.298033651269	-1	0.229577049160	1588.914285278211
470	0.008413603190	7.508145858750	-1	0.231401763363	2266.805129778024
480	0.008295387666	9.440104641779	-1	0.232751169534	3574.479656670952
490	0.008190863326	12.916086461820	-1	0.233670248350	6636.870729605060
500	0.008098681309	20.826119752937	-1	0.234200345059	17027.069287685641
510	0.008017573244	55.492867380484	-1	0.234380662900	118748.635877193710
520	0.007946256456	80.479446352362	+1	0.234250996469	250454.075174123400
530	0.007883548445	22.467025419967	+1	0.233848368518	20253.082741615195
540	0.007828391462	12.737368372233	+1	0.233206119048	6745.054032314444
550	0.007779846473	8.741821004821	+1	0.232354133607	3287.720176470880
560	0.007737060662	6.573207097520	+1	0.231319643988	1921.324182326107
570	0.007699228801	5.216652906151	+1	0.230128286792	1249.459118821569
580	0.007665623389	4.291108899394	+1	0.228803345170	872.066387104776

590	0.007635603671	3.621369919045	+1	0.227365429178	640.098832665746
600	0.007608603615	3.115672177733	+1	0.225832914040	487.919572742847
610	0.007584121996	2.721337279550	+1	0.224222178098	383.032818889856
620	0.007561709739	2.405989003174	+1	0.222547839073	307.889535723643
630	0.007540966874	2.148639820860	+1	0.220822962860	252.350950433028
640	0.007521545490	1.935092677589	+1	0.219059091081	210.235120309692
650	0.007503138063	1.755408372353	+1	0.217266458038	177.604323310738
660	0.007485487600	1.602413290618	+1	0.215453874834	151.854525686995
670	0.007468362969	1.470805768139	+1	0.213629079106	131.210931887754
680	0.007451572827	1.356584115881	+1	0.211798646097	114.430961536967
690	0.007434949800	1.256680558438	+1	0.209968467850	100.625855039872
700	0.007418349720	1.168702611624	+1	0.208143668220	89.146370698836
710	0.007401650629	1.090756507283	+1	0.206328735664	79.509512432641
720	0.007384759431	1.021314770535	+1	0.204527171457	71.348935266371
730	0.007367599184	0.959141351225	+1	0.202742013224	64.384198421725
740	0.007350105036	0.903226908023	+1	0.200975875296	58.397935177253
750	0.007332221506	0.852740360833	+1	0.199231116547	53.219778048873
760	0.007313907441	0.806988358455	+1	0.197509640353	48.714338383692
770	0.007295138365	0.765383381890	+1	0.195812794981	44.772536462408
780	0.007275897313	0.727429544809	+1	0.194141653220	41.306299648081
790	0.007256172946	0.692706634828	+1	0.192497096845	38.244023167701
800	0.007235956971	0.660857252781	+1	0.190879971208	35.527134512801
810	0.007215245761	0.631573179783	+1	0.189290849470	33.107116934811
820	0.007194049102	0.604584363646	+1	0.187729941664	30.943256566307
830	0.007172378408	0.579656681693	+1	0.186197337783	29.001530321888
840	0.007150246263	0.556586954356	+1	0.184693099972	27.253400548886
850	0.007127664763	0.535198249325	+1	0.183217251773	25.674805838130
860	0.007104648785	0.515334999766	+1	0.181769751396	24.245277645584
870	0.007081219880	0.496857363870	+1	0.180350271572	22.947113994606
880	0.007057400012	0.479641726731	+1	0.178958480718	21.765153461652
890	0.007033210663	0.463578988196	+1	0.177593985378	20.686378442926
900	0.007008671051	0.448572863358	+1	0.176256517763	19.699610957446
910	0.006983801891	0.434536853405	+1	0.174945698102	18.795100993444

920	0.006958628555	0.421391989306	+1	0.173660985419	17.964240449814
930	0.006933172785	0.409067747790	+1	0.172401868561	17.199543053640
940	0.006907459259	0.397500566371	+1	0.171167798080	16.494429613034
950	0.006881509019	0.386633701627	+1	0.169958333396	15.843166272370
960	0.006855340749	0.376416129707	+1	0.168772988737	15.240708175983
970	0.006828976545	0.366800574548	+1	0.167611205069	14.682521854737
980	0.006802437789	0.357744400197	+1	0.166472467539	14.164605872141
990	0.006775742519	0.349208901027	+1	0.165356263492	13.683411158018
1000	0.006748908749	0.341159228325	+1	0.164262115680	13.235795997938
1025	0.006681337233	0.322954547285	+1	0.161619865835	12.245730011673
1050	0.006613307818	0.307145658587	+1	0.159103266061	11.410991712229
1075	0.006545070554	0.293376260780	+1	0.156704209519	10.702938409254
1100	0.006476823609	0.281362273857	+1	0.154415898139	10.099669281231
1125	0.006408731133	0.270871983177	+1	0.152232122642	9.584043837299
1150	0.006340968237	0.261703678339	+1	0.150145815674	9.141875061796
1175	0.006273679795	0.253690097090	+1	0.148150519584	8.761844956882
1200	0.006206978063	0.246693946637	+1	0.146240691833	8.434970919302
1225	0.006140952141	0.240600412847	+1	0.144411357616	8.153988426108
1250	0.006075691515	0.235308425494	+1	0.142657357319	7.912728414197
1275	0.006011266078	0.230732229217	+1	0.140973990652	7.706119155281
1300	0.005947727935	0.226799682826	+1	0.139357155563	7.530016023141
1325	0.005885116400	0.223449196544	+1	0.137803086293	7.380975753371
1350	0.005823461480	0.220625988912	+1	0.136307966161	7.256022770588
1375	0.005762783704	0.218282578721	+1	0.134868261700	7.152646207777
1400	0.005703095992	0.216378153872	+1	0.133480805359	7.068742884112
1425	0.005644406984	0.214877366942	+1	0.132142787810	7.002539055077
1450	0.005586735925	0.213748689474	+1	0.130851602175	6.952478677533
1475	0.005530098201	0.212964485011	+1	0.129604906513	6.917232294179
1500	0.005474503147	0.212500546670	+1	0.128400594374	6.895667805498
1550	0.005366396133	0.212450569815	+1	0.126110391010	6.889840149429
1600	0.005262162160	0.213455410941	+1	0.123962475142	6.928751046984
1650	0.005161578619	0.215400907823	+1	0.121941127613	7.007695626607
1700	0.005064668370	0.218198445832	+1	0.120036523975	7.123172117172

1750	0.004971419818	0.221776471335	+1	0.118240210852	7.272571200927
1800	0.004881631606	0.226077749458	+1	0.116541897973	7.454045701072
1850	0.004795094216	0.231055050332	+1	0.114932090896	7.666250434456
1900	0.004711661087	0.236676562200	+1	0.113403666647	7.908553585059
1950	0.004631205340	0.242913923065	+1	0.111950274115	8.180514834260
2000	0.004553603356	0.249732183899	+1	0.110565378368	8.481414354749
2100	0.004406451015	0.265015444574	+1	0.107979100010	9.169238004426
2200	0.004269101818	0.282503114486	+1	0.105611452056	9.978834934143
2300	0.004140582610	0.302229082543	+1	0.103435245993	10.920802661201
2400	0.004020084240	0.324214900207	+1	0.101425887895	12.006289255481
2500	0.003906939793	0.348452474945	+1	0.099560714982	13.245934266034
2600	0.003800565476	0.374930596116	+1	0.097819889991	14.651089646573
2700	0.003700348047	0.403786098070	+1	0.096190470391	16.242795726676
2800	0.003605735877	0.435204516676	+1	0.094661791892	18.047373743900
2900	0.003516254165	0.469378178419	+1	0.093223901836	20.094584122674
3000	0.003431493650	0.506502565110	+1	0.091867441303	22.417799032419
3100	0.003351094028	0.546792372103	+1	0.090584010741	25.055546904984
3200	0.003274716217	0.590553866718	+1	0.089367356524	28.057570211598
3300	0.003202050760	0.638151744900	+1	0.088212089636	31.484423604447
3400	0.003132826145	0.689996552852	+1	0.087113157371	35.408278307059
3500	0.003066798599	0.746552712236	+1	0.086065858389	39.915637194221
3600	0.003003750414	0.808357751326	+1	0.085065882174	45.111487337119
3700	0.002943476989	0.876079814803	+1	0.084109803764	51.128269200109
3800	0.002885794312	0.950517364670	+1	0.083194551906	58.131392333713
3900	0.002830532784	1.032621914208	+1	0.082317310726	66.328601047641
4000	0.002777539517	1.123534021731	+1	0.081475478875	75.983058956255
4100	0.002726674128	1.224637342274	+1	0.080666646264	87.432299404862
4200	0.002677808269	1.337637864148	+1	0.079888693940	101.115994925941
4300	0.002630823482	1.464657414860	+1	0.079139702687	117.614406098479
4400	0.002585611347	1.608357770005	+1	0.078417894173	137.703903457241
4500	0.002542070557	1.772132165546	+1	0.077721647376	162.442556473638
4600	0.002500108164	1.960365778667	+1	0.077049440384	193.299313986573
4700	0.002459639001	2.178827512703	+1	0.076399896560	232.359452571955

4800	0.002420583892	2.435264120645	+1	0.075771716889	282.659744504774
4900	0.002382867675	2.740340530422	+1	0.075163732654	348.759144212243
5000	0.002346422327	3.109140456118	+1	0.074574838820	437.742104191007
5500	0.002181151102	7.343035188666	+1	0.071883691307	2170.679315803275
6000	0.002056458331	98.274238118416	+1	0.068879544830	350226.128975006000
6500	0.001917005891	7.039743025659	-1	0.067479001024	2132.326983191601
7000	0.001809714993	3.583896268878	-1	0.065635683588	636.529531459927
7500	0.001714883993	2.383735696587	-1	0.063979474737	320.945253934304
8000	0.001630519498	1.776843597801	-1	0.062472668639	201.313637637730
8500	0.001554951125	1.411519984278	-1	0.061091052682	142.213394408374
9000	0.001486843990	1.168057426361	-1	0.059815655738	108.199730511813
9500	0.001425122619	0.994557281247	-1	0.058631407005	86.571752800953
10000	0.001368907720	0.864880420957	-1	0.057526167742	71.818267156116
10500	0.001317473920	0.764428534097	-1	0.056490186657	61.214418541038
11000	0.001270222480	0.684448858809	-1	0.055515031889	53.282339096141
11500	0.001226645030	0.619314736845	-1	0.054594303733	47.154212597289
12000	0.001186318989	0.565308130397	-1	0.053722116473	42.296371152124
12500	0.001148880504	0.519833037835	-1	0.052893832000	38.361236649915
13000	0.001114021976	0.481051429544	-1	0.052105190459	35.116012040911
13500	0.001081475604	0.447602859408	-1	0.051352804950	32.397804137111
14000	0.001051012619	0.418478873641	-1	0.050633494947	30.090975724548
14500	0.001022432058	0.392901307565	-1	0.049944660800	28.110315309266
15000	0.000995559860	0.370272880084	-1	0.049283896837	26.392688217615
16000	0.000946343577	0.332057022956	-1	0.048038529596	23.563846489182
17000	0.000902338701	0.301057490083	-1	0.046883276274	21.333224247941
18000	0.000862737438	0.275433857769	-1	0.045806716769	19.530569669432
19000	0.000826894388	0.253918071615	-1	0.044799518072	18.043989691005
20000	0.000794285948	0.235609015525	-1	0.043853882704	16.797129158099
21000	0.000748059072	0.208509200241	-1	0.044711545017	15.754320662905
22000	0.000719961313	0.195099810852	-1	0.043994263038	14.892748359631
23000	0.000693249700	0.182389401561	-1	0.043312372160	14.073796865806
24000	0.000668149333	0.170666463668	-1	0.042674842023	13.320796715725
25000	0.000644840988	0.160190848084	-1	0.042083823574	12.653836670277

26000	0.000623402758	0.151113244920	-1	0.041534374934	12.084045300302
27000	0.000603627096	0.143240161898	-1	0.041017861589	11.596688019550
28000	0.000585266184	0.136320415708	-1	0.040528132926	11.173224561942
29000	0.000568102010	0.130130160779	-1	0.040062163746	10.797538075471
30000	0.000551941650	0.124468782964	-1	0.039619683730	10.455451557773
31000	0.000536631677	0.119181206056	-1	0.039201946899	10.136182168854
32000	0.000522104814	0.114227418156	-1	0.038807906663	9.837162457713
33000	0.000508317096	0.109595788408	-1	0.038435660834	9.557828836045
34000	0.000495228862	0.105275927708	-1	0.038083231636	9.297691201111
35000	0.000482803831	0.101258508783	-1	0.037748541413	9.056326374682
36000	0.000471005476	0.097531034714	-1	0.037429565728	8.833065454458
37000	0.000459787047	0.094066079099	-1	0.037124884699	8.626117634319
38000	0.000449102649	0.090834288360	-1	0.036833526922	8.433540447937
39000	0.000438910392	0.087808449971	-1	0.036554839590	8.253538547838
40000	0.000429172276	0.084963288607	-1	0.036288457931	8.084437423249
41000	0.000419853165	0.082276794224	-1	0.036034251788	7.924828666850
42000	0.000410917498	0.079733939310	-1	0.035792189356	7.773999991817
43000	0.000402350166	0.077327445746	-1	0.035560773504	7.631305384439
44000	0.000394129385	0.075048076335	-1	0.035339269262	7.496187942587
45000	0.000386234945	0.072887088304	-1	0.035127040312	7.368121387494
46000	0.000378648005	0.070836257941	-1	0.034923513421	7.246608286911
47000	0.000371354385	0.068888873048	-1	0.034727803536	7.131146383450
48000	0.000364335789	0.067037099853	-1	0.034539574418	7.021294811543
49000	0.000357573742	0.065273113905	-1	0.034358717993	6.916645881729
50000	0.000351053944	0.063590332060	-1	0.034184909121	6.816785466838
55000	0.000321661857	0.056216468170	-1	0.033410243690	6.378443435142
60000	0.000296713652	0.050229469716	-1	0.032766005728	6.020996483383
65000	0.000275258327	0.045276827771	-1	0.032224745972	5.723508219607
70000	0.000256600644	0.041116302176	-1	0.031765999792	5.471751026223
75000	0.000240220406	0.037575827060	-1	0.031374205559	5.255703922505
80000	0.000225720004	0.034529723121	-1	0.031037333906	5.068102234430
85000	0.000212790283	0.031884048400	-1	0.030745937288	4.903546168595
90000	0.000201187030	0.029567124732	-1	0.030492505852	4.757933418800

95000	0.000190714658	0.027523329041	-1	0.030270988461	4.628091912877
100000	0.000181214700	0.025708827429	-1	0.030076456359	4.511525431238
105000	0.000172556801	0.024088383231	-1	0.029904972672	4.406230454596
110000	0.000164633714	0.022634166318	-1	0.029753024390	4.310655867336
115000	0.000157355302	0.021322527689	-1	0.029618014193	4.223428003521
120000	0.000150646080	0.020134674910	-1	0.029497499129	4.143500690406
125000	0.000144441724	0.019054543160	-1	0.029389572852	4.069948410660
130000	0.000138687537	0.018068978039	-1	0.029292497873	4.002037490363
135000	0.000133336323	0.017166569925	-1	0.029204918788	3.939105972197
140000	0.000128347422	0.016337863929	-1	0.029125558262	3.880625056495
145000	0.000123685363	0.015574575574	-1	0.029053414842	3.826113656022
150000	0.000119319338	0.014869740186	-1	0.028987537540	3.775179027714
155000	0.000115222170	0.014217186687	-1	0.028927201478	3.727461576613
160000	0.000111369985	0.013611631545	-1	0.028871788129	3.682666208890
165000	0.000107741389	0.013048310103	-1	0.028820946946	3.640524902297
170000	0.000104316911	0.012522974386	-1	0.028774667883	3.600830494938
175000	0.000101083551	0.012033513697	-1	0.028729266259	3.563257377110
180000	0.000098026816	0.011576904468	-1	0.028683770953	3.527601268224
185000	0.000095130075	0.011149058557	-1	0.028640629286	3.493790408653
190000	0.000092381323	0.010747570280	-1	0.028599473712	3.461691890442
195000	0.000089767184	0.010369295915	-1	0.028562461399	3.431259577664
200000	0.000087278500	0.010012412109	-1	0.028528874606	3.402318703464
205000	0.000084908503	0.009675851376	-1	0.028496399810	3.374649551117
210000	0.000082649014	0.009358077987	-1	0.028464968305	3.348193841743
215000	0.000080492721	0.009057789851	-1	0.028434346204	3.322904097884
220000	0.000078432956	0.008773782767	-1	0.028404280356	3.298725810511
225000	0.000076463575	0.008504917851	-1	0.028374578944	3.275600223549
230000	0.000074578912	0.008250121154	-1	0.028345096205	3.253464441734
235000	0.000072773720	0.008008381076	-1	0.028315734254	3.232253051862
240000	0.000071043152	0.007778735616	-1	0.028286464129	3.211896458946
245000	0.000069382692	0.007560273835	-1	0.028257318094	3.192323895747
250000	0.000067788148	0.007352128907	-1	0.028228399175	3.173461676921
255000	0.000066255673	0.007153524851	-1	0.028199800726	3.155244230800

260000	0.000064781837	0.006963890950	-1	0.028171436744	3.137644999873
265000	0.000063363512	0.006782733876	-1	0.028143148934	3.120643579596
270000	0.000061997756	0.006609577119	-1	0.028114826475	3.104218549551
275000	0.000060681827	0.006443970164	-1	0.028086362862	3.088346005112
280000	0.000059413149	0.006285482820	-1	0.028057673549	3.073000555513
285000	0.000058189303	0.006133700169	-1	0.028028720397	3.058156122454
290000	0.000057008025	0.005988229029	-1	0.027999466896	3.043783852378
295000	0.000055867184	0.005848691929	-1	0.027969911118	3.029854230503
300000	0.000054764770	0.005714727379	-1	0.027940079895	3.016337171099

Electron Elastic Scattering Sampling Data
Solution for Z = 80

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.073981726689	0.844590414589	+1	0.296486945515	8.263388198464
52	0.068516606677	1.042821341112	+1	0.289740577116	11.870130423991
54	0.064038907424	1.284459044062	+1	0.281930974306	16.907477326148
56	0.060343290674	1.582718138029	+1	0.273227506487	24.017679560667
58	0.057265138590	1.957781183730	+1	0.263821864858	34.275502840092
60	0.054673158906	2.442152165164	+1	0.253910730641	49.613628001526
62	0.052463352710	3.091654112615	+1	0.243683621767	73.815850100261
64	0.050552313491	4.011715538204	+1	0.233315079901	115.208285233120
66	0.048875065785	5.426072633647	+1	0.222962910520	195.169069989474
68	0.047380482041	7.906715873143	+1	0.212760104220	383.524293856302
70	0.046027949449	13.485813831506	+1	0.202818725443	1032.300418975447
72	0.044785651686	38.484224264157	+1	0.193237079915	7778.301727016295
74	0.043629464338	51.474295413725	-1	0.184083027227	13383.773984143168
76	0.042540281260	15.172068391552	-1	0.175415528146	1176.928401236966
78	0.041503787605	8.707485520291	-1	0.167275016846	392.808081879235
80	0.040509373412	5.988634124090	-1	0.159685637948	188.687284305879
82	0.039548725181	4.480533078600	-1	0.152667357510	107.613660264451
84	0.038616301202	3.517183830470	-1	0.146223776446	67.843924906153
86	0.037707794492	2.846247598105	-1	0.140356640134	45.679185916349
88	0.036820322217	2.351434129419	-1	0.135061204673	32.234256813771
90	0.035952170082	1.971707165067	-1	0.130326222355	23.575398552567
92	0.035101948909	1.671600319592	-1	0.126142606538	17.742336505720
94	0.034269273114	1.429358054757	-1	0.122494196076	13.676014765115
96	0.033453897576	1.230628136148	-1	0.119366178889	10.762226220414
98	0.032655859183	1.065578193272	-1	0.116742895879	8.626876064683
100	0.031875493584	0.927237439155	-1	0.114606342694	7.032572417580
105	0.030006150550	0.667646997689	-1	0.111253167197	4.509571132888
110	0.028267925892	0.494230524268	-1	0.110332584846	3.150816008814

115	0.026685222802	0.378217145042	-1	0.111029011767	2.376290885846
120	0.025296945698	0.302683112527	-1	0.111842077695	1.914362835857
125	0.024151518772	0.257544613091	-1	0.110457035284	1.625899377423
130	0.023285170228	0.237371502720	-1	0.104435145431	1.437481372121
135	0.022691322737	0.241249854757	-1	0.092771236994	1.319527434227
140	0.022299204027	0.273508751610	-1	0.077276852214	1.279628148656
145	0.022004384507	0.346942860313	-1	0.061510641618	1.361965315305
150	0.021719787057	0.490482733612	-1	0.048339094166	1.673322245215
155	0.021405758804	0.773532735361	-1	0.038698419989	2.525937231186
160	0.021059022557	1.401782130057	-1	0.032214180652	5.211861988970
165	0.020692672808	3.373060199548	-1	0.028110249192	20.199734139913
170	0.020357237951	47.558248017663	+1	0.025214738033	2875.830331776854
175	0.019956398486	4.350621688252	+1	0.024461076055	28.676275732249
180	0.019604593540	2.142593755444	+1	0.024085938000	8.313625178483
185	0.019269431178	1.463946564097	+1	0.024354625004	4.584458780624
190	0.018951979513	1.156920136016	+1	0.025128454718	3.330792186859
195	0.018651757540	0.998195074449	+1	0.026319794910	2.837748915808
200	0.018367113318	0.916060052967	+1	0.027877066429	2.690999836964
205	0.018096036584	0.880619401133	+1	0.029766361917	2.757822937133
210	0.017836623374	0.876383685538	+1	0.031955914919	2.990069875159
215	0.017586972090	0.895392324001	+1	0.034421476282	3.380584273616
220	0.017345228225	0.933749180056	+1	0.037145406241	3.947538830174
225	0.017109641285	0.989884114753	+1	0.040114341358	4.730244913493
230	0.016878603705	1.063774877538	+1	0.043317509244	5.791646902385
235	0.016650655427	1.156659963473	+1	0.046745847885	7.226344083571
240	0.016424482739	1.271017538752	+1	0.050391331334	9.175217650051
245	0.016198920077	1.410772456149	+1	0.054246550418	11.850661502965
250	0.015972933228	1.581755776882	+1	0.058304444425	15.580411120845
255	0.015745724356	1.792201803365	+1	0.062556939963	20.879335085978
260	0.015517034736	2.052718422592	+1	0.066990968909	28.552924307765
265	0.015286813079	2.378456102744	+1	0.071591503361	39.923636804276
270	0.015055103326	2.792123036476	+1	0.076342574839	57.266348208623
275	0.014822037176	3.329025157261	+1	0.081227217749	84.703792476147

280	0.014587825528	4.046932134723	+1	0.086227576839	130.221086238430
285	0.014352745203	5.046925836822	+1	0.091324901086	210.677504132551
290	0.014117136863	6.523078391456	+1	0.096499668890	366.109455328772
295	0.013881387503	8.900792189811	+1	0.101731764719	709.135315468920
300	0.013645923860	13.326796013077	+1	0.107000573972	1653.942980298696
310	0.013177831827	96.816906050622	+1	0.117569554624	94503.930484294688
320	0.012717211299	22.386808310797	-1	0.128064455888	5970.727973448171
330	0.012268335639	10.641797055980	-1	0.138351183713	1601.792586122697
340	0.011835103475	7.301076721425	-1	0.148302538164	881.257384658698
350	0.011420939654	5.775668038799	-1	0.157801301022	634.770273019943
360	0.011028579284	4.945093126653	-1	0.166749603212	527.642069272948
370	0.010659584457	4.457296177602	-1	0.175090264338	479.247010760007
380	0.010314881680	4.169914449199	-1	0.182784910682	462.693570509245
390	0.009994982789	4.017153841639	-1	0.189805985849	467.730283161995
400	0.009700040910	3.967159037342	-1	0.196135809326	490.903293316692
410	0.009429774696	4.005507178949	-1	0.201770140296	532.423360595167
420	0.009183141384	4.126867712930	-1	0.206730501229	594.970185404810
430	0.008958884159	4.335352449034	-1	0.211046293905	684.520317930263
440	0.008755726492	4.645603746110	-1	0.214748562764	812.074515837689
450	0.008572400158	5.086335361349	-1	0.217869127013	997.395993137262
460	0.008407583364	5.708338421158	-1	0.220442450261	1277.216259992412
470	0.008259706182	6.600457155384	-1	0.222512010000	1723.996933688527
480	0.008127241674	7.934005716150	-1	0.224121080365	2499.015588827260
490	0.008008787944	10.081833938744	-1	0.225309984652	4025.061720157810
500	0.007903059441	14.026603487124	-1	0.226116140768	7731.346021353961
510	0.007808852841	23.443844618598	-1	0.226575103847	21331.774358040882
520	0.007724930574	73.705938272988	-1	0.226723909618	207388.063197508160
530	0.007650148712	62.624622630465	+1	0.226597131006	151439.552818721130
540	0.007583483190	21.227236065932	+1	0.226226027449	18053.341424152473
550	0.007524014084	12.499132339575	+1	0.225638895905	6485.614797241418
560	0.007470907147	8.723712328328	+1	0.224861530507	3269.365357586429
570	0.007423363840	6.624865089537	+1	0.223918702791	1948.855274241230
580	0.007380659734	5.293258802928	+1	0.222832981566	1284.621059939406

590	0.007342153126	4.376031442462	+1	0.221624464370	905.670683235859
600	0.007307271366	3.707670474034	+1	0.220311196685	670.046975552265
610	0.007275505523	3.200292300884	+1	0.218909292345	514.067844334915
620	0.007246389989	2.802955590923	+1	0.217433454506	405.774859356579
630	0.007219511147	2.484089056410	+1	0.215896812173	327.715888777200
640	0.007194502084	2.223092862811	+1	0.214311056476	269.718210267529
650	0.007171038957	2.005959988640	+1	0.212686593226	225.534309622011
660	0.007148836757	1.822837212806	+1	0.211032613023	191.159202257968
670	0.007127649758	1.666586000193	+1	0.209357072283	163.930475863761
680	0.007107260411	1.531920563805	+1	0.207667030127	142.026109643389
690	0.007087477883	1.414845593959	+1	0.205968719841	124.166134040243
700	0.007068136015	1.312287986066	+1	0.204267690256	109.430909364634
710	0.007049089343	1.221842637677	+1	0.202568780807	97.145837559475
720	0.007030222578	1.141592553561	+1	0.200875914472	86.806059487417
730	0.007011434542	1.070000409592	+1	0.199192529817	78.029355742047
740	0.006992638933	1.005821589000	+1	0.197521676557	70.522436406074
750	0.006973759871	0.948037290796	+1	0.195866002016	64.057233516254
760	0.006954735675	0.895804438139	+1	0.194227812129	58.454145064938
770	0.006935518852	0.848414392292	+1	0.192608832027	53.569668000983
780	0.006916077556	0.805270533963	+1	0.191010412988	49.288441202701
790	0.006896379515	0.765871737544	+1	0.189433850005	45.517498791155
800	0.006876398459	0.729792523677	+1	0.187880238150	42.181037127372
810	0.006856116717	0.696667677169	+1	0.186350435331	39.216591805075
820	0.006835527551	0.666179335193	+1	0.184844958775	36.572085183778
830	0.006814625861	0.638052374441	+1	0.183364145733	34.204130580111
840	0.006793412107	0.612049229004	+1	0.181908313691	32.076494356471
850	0.006771884007	0.587963364989	+1	0.180477708648	30.158723376741
860	0.006750044856	0.565613607877	+1	0.179072497292	28.424982430330
870	0.006727905457	0.544837855704	+1	0.177692553191	26.853023726326
880	0.006705475721	0.525493253664	+1	0.176337718670	25.423857783153
890	0.006682766791	0.507454116874	+1	0.175007847758	24.121241071950
900	0.006659790353	0.490609272057	+1	0.173702768550	22.931197419145
910	0.006636556751	0.474859435624	+1	0.172422267280	21.841614982378

920	0.006613082506	0.460114344343	+1	0.171165983662	20.841838313517
930	0.006589384336	0.446292888094	+1	0.169933487365	19.922558385991
940	0.006565478792	0.433322659613	+1	0.168724406012	19.075670417289
950	0.006541378815	0.421139271968	+1	0.167538398292	18.294123153603
960	0.006517098974	0.409684217365	+1	0.166375078676	17.571675789608
970	0.006492655407	0.398903897800	+1	0.165234011272	16.902770565485
980	0.006468063053	0.388749764000	+1	0.164114750763	16.282491093598
990	0.006443338163	0.379178091127	+1	0.163016868793	15.706491112282
1000	0.006418491297	0.370149288649	+1	0.161939992810	15.170931369427
1025	0.006355939104	0.349719374297	+1	0.159336732753	13.987035246192
1050	0.006292964729	0.331959181084	+1	0.156853977161	12.989385486823
1075	0.006229776981	0.316467757645	+1	0.154484525012	12.143208539090
1100	0.006166542008	0.302925834237	+1	0.152222302350	11.421962782408
1125	0.006103401007	0.291072783900	+1	0.150061693549	10.804887366014
1150	0.006040505889	0.280682871435	+1	0.147996111926	10.274896649347
1175	0.005977991070	0.271568621920	+1	0.146019504501	9.818351328567
1200	0.005915954175	0.263576553391	+1	0.144126701539	9.424467168996
1225	0.005854478450	0.256578233519	+1	0.142312989923	9.084513783962
1250	0.005793646920	0.250460975423	+1	0.140573440500	8.791111755365
1275	0.005733527240	0.245129110979	+1	0.138903513743	8.538191353789
1300	0.005674170344	0.240502385744	+1	0.137299282246	8.320806732318
1325	0.005615615616	0.236512217188	+1	0.135757153315	8.134849797897
1350	0.005557897979	0.233097500703	+1	0.134273426856	7.976763336808
1375	0.005501046633	0.230205301615	+1	0.132844731903	7.843547515713
1400	0.005445076838	0.227790373655	+1	0.131468043465	7.732708229750
1425	0.005390003389	0.225813257167	+1	0.130140620425	7.642122064240
1450	0.005335835274	0.224238912729	+1	0.128859737635	7.569945238840
1475	0.005282579155	0.223036491425	+1	0.127622919318	7.514595314538
1500	0.005230238580	0.222179050058	+1	0.126427913864	7.474723292300
1550	0.005128278782	0.221406800290	+1	0.124154839750	7.436943644833
1600	0.005029872696	0.221762357860	+1	0.122024207994	7.449070131730
1650	0.004934935432	0.223119256029	+1	0.120022289320	7.505448892316
1700	0.004843474424	0.225378712384	+1	0.118139017610	7.601880263401

1750	0.004755418387	0.228460855307	+1	0.116364760520	7.735216683635
1800	0.004670448870	0.232300070852	+1	0.114686453505	7.903120049804
1850	0.004588304737	0.236842388111	+1	0.113092941057	8.103839047599
1900	0.004509021956	0.242052271228	+1	0.111580177159	8.336459604565
1950	0.004432628169	0.247899346393	+1	0.110144725970	8.600370343578
2000	0.004358963473	0.254344920169	+1	0.108779165912	8.894637394629
2100	0.004219158783	0.268922074890	+1	0.106231383835	9.572707118759
2200	0.004088525582	0.285738865148	+1	0.103901270958	10.376439602834
2300	0.003966192281	0.304812400035	+1	0.101761687567	11.315677924788
2400	0.003851428796	0.326150768618	+1	0.099788218618	12.400938979692
2500	0.003743627463	0.349734909303	+1	0.097958400460	13.642286244273
2600	0.003642249977	0.375545093667	+1	0.096252612866	15.050596511977
2700	0.003546718179	0.403709587185	+1	0.094657761048	16.646598238040
2800	0.003456509840	0.434404154689	+1	0.093162996957	18.456246002357
2900	0.003371176917	0.467809284515	+1	0.091758198675	20.508726556546
3000	0.003290334463	0.504105709819	+1	0.090433840065	22.836522977369
3100	0.003213642359	0.543491314833	+1	0.089181387191	25.476992089307
3200	0.003140778998	0.586257544358	+1	0.087994626976	28.478796950494
3300	0.003071450876	0.632751436472	+1	0.086868191975	31.901057655209
3400	0.003005400561	0.683362224211	+1	0.085797073427	35.813995693909
3500	0.002942396862	0.738526763002	+1	0.084776563219	40.301299807721
3600	0.002882233823	0.798748873478	+1	0.083802374919	45.464122191458
3700	0.002824716624	0.864658354037	+1	0.082871098211	51.430010405640
3800	0.002769668254	0.937007752530	+1	0.081979725019	58.357917443372
3900	0.002716928104	1.016688221053	+1	0.081125470779	66.446342047501
4000	0.002666349869	1.104762979876	+1	0.080305729886	75.945454738638
4100	0.002617799582	1.202517446710	+1	0.079518135232	87.174585151768
4200	0.002571154525	1.311534349360	+1	0.078760629851	100.547974901035
4300	0.002526303743	1.433766086743	+1	0.078031284679	116.608006160871
4400	0.002483141275	1.571661964030	+1	0.077328415717	136.077550965067
4500	0.002441572312	1.728312326752	+1	0.076650416164	159.932236979025
4600	0.002401507367	1.907690740793	+1	0.075995811118	189.516167637021
4700	0.002362865862	2.114981760333	+1	0.075363228502	226.718224489617

4800	0.002325570945	2.357095102072	+1	0.074751435939	274.260628501515
4900	0.002289552723	2.643433888060	+1	0.074159281483	336.174471315496
5000	0.002254745324	2.987146022992	+1	0.073585704989	418.630807636403
5500	0.002096867670	6.751007994135	+1	0.070964191771	1902.185584668432
6000	0.001971075214	82.235502617563	+1	0.068328789173	254185.413777036130
6500	0.001844400735	7.730926091333	-1	0.066672584714	2609.453368514475
7000	0.001741674885	3.776909754728	-1	0.064883245601	717.509310950394
7500	0.001650950086	2.478366162528	-1	0.063270618803	352.109998587742
8000	0.001570219598	1.834811234263	-1	0.061803537572	217.867917721900
8500	0.001497892440	1.451565369674	-1	0.060458342021	152.647466300660
9000	0.001432698294	1.197876492838	-1	0.059216482066	115.502588759247
9500	0.001373609929	1.017924871009	-1	0.058063196203	92.053504734546
10000	0.001319789073	0.883882822923	-1	0.056986626201	76.142362362017
10500	0.001270543156	0.780320959159	-1	0.055977209264	64.752938227399
11000	0.001225300579	0.698036462202	-1	0.055026703344	56.260634399674
11500	0.001183575127	0.631139745096	-1	0.054128860159	49.716902322483
12000	0.001144963216	0.575751078848	-1	0.053277943684	44.540883938046
12500	0.001109116276	0.529169868548	-1	0.052469388392	40.355719681698
13000	0.001075739990	0.489486875586	-1	0.051699104124	36.909685006897
13500	0.001044578694	0.455293592835	-1	0.050963753720	34.027197611074
14000	0.001015412629	0.425546139116	-1	0.050260264911	31.583828503246
14500	0.000988049134	0.399440786898	-1	0.049586131381	29.488111721217
15000	0.000962322307	0.376361643255	-1	0.048938996530	27.672367683988
16000	0.000915204870	0.337420073885	-1	0.047718017994	24.685388922407
17000	0.000873078849	0.305866694833	-1	0.046583736302	22.333167519654
18000	0.000835169991	0.279810389825	-1	0.045525175256	20.434272346984
19000	0.000800861288	0.257953185289	-1	0.044533112319	18.869822277582
20000	0.000769661532	0.239388918262	-1	0.043598480020	17.559365939030
21000	0.000723554092	0.211085079573	-1	0.044540042547	16.458308583272
22000	0.000696557465	0.197492441835	-1	0.043835689163	15.554613100906
23000	0.000670879341	0.184612424136	-1	0.043166657943	14.696491024466
24000	0.000646740306	0.172738129315	-1	0.042541207573	13.908114800979
25000	0.000624318609	0.162132337319	-1	0.041960870375	13.210192201160

26000	0.000603693064	0.152946041728	-1	0.041420361415	12.614052116556
27000	0.000584664824	0.144981503036	-1	0.040911306615	12.104165123332
28000	0.000566995253	0.137983196890	-1	0.040427908754	11.661116243275
29000	0.000550474282	0.131723981998	-1	0.039967418798	11.268068102271
30000	0.000534915818	0.126000572658	-1	0.039529805298	10.910237977647
31000	0.000520171871	0.120656126616	-1	0.039116468577	10.576401430501
32000	0.000506178201	0.115650018581	-1	0.038726385640	10.263852803514
33000	0.000492893265	0.110970282442	-1	0.038357672350	9.971968910383
34000	0.000480279393	0.106606249675	-1	0.038008349998	9.700207239261
35000	0.000468302331	0.102548319960	-1	0.037676360413	9.448096428384
36000	0.000456927581	0.098783780540	-1	0.037359682284	9.214913020832
37000	0.000446111016	0.095284988459	-1	0.037056893292	8.998774129307
38000	0.000435807163	0.092021789071	-1	0.036767155127	8.797659104504
39000	0.000425966943	0.088963866450	-1	0.036490541225	8.609750930119
40000	0.000416562200	0.086088302322	-1	0.036226115167	8.433253542923
41000	0.000407560012	0.083373107196	-1	0.035973701021	8.266691788293
42000	0.000398934485	0.080805610967	-1	0.035732569707	8.109256927890
43000	0.000390662981	0.078375834468	-1	0.035501925202	7.960328228046
44000	0.000382731430	0.076076474926	-1	0.035280440183	7.819268283627
45000	0.000375112521	0.073896284385	-1	0.035068163693	7.685584329728
46000	0.000367788517	0.071827050594	-1	0.034864505533	7.558752143142
47000	0.000360742684	0.069861008937	-1	0.034668927252	7.438273766618
48000	0.000353959397	0.067990823715	-1	0.034480944604	7.323673718624
49000	0.000347423974	0.066209464833	-1	0.034300176295	7.214498855670
50000	0.000341122680	0.064510281353	-1	0.034126306023	7.110317958559
55000	0.000312700762	0.057063217896	-1	0.033350405048	6.653107432162
60000	0.000288539119	0.051011411994	-1	0.032704891346	6.280561906065
65000	0.000267789379	0.046010982555	-1	0.032158852372	5.970140887224
70000	0.000249717171	0.041805494792	-1	0.031696086267	5.707647215584
75000	0.000233843719	0.038225439210	-1	0.031299896229	5.482396576213
80000	0.000219786220	0.035144102899	-1	0.030958388644	5.286805020670
85000	0.000207246738	0.032466801369	-1	0.030662174484	5.115236183898
90000	0.000195989838	0.030121272055	-1	0.030403834647	4.963413687938

95000	0.000185826818	0.028051438402	-1	0.030177352107	4.828027147367
100000	0.000176604676	0.026213105181	-1	0.029977840529	4.706475755899
105000	0.000168197834	0.024570803911	-1	0.029801339002	4.596666632509
110000	0.000160502634	0.023096447950	-1	0.029644372077	4.496982869929
115000	0.000153431799	0.021766163765	-1	0.029504368530	4.405996445160
120000	0.000146912443	0.020561001444	-1	0.029378894583	4.322615164930
125000	0.000140882406	0.019464755046	-1	0.029266054719	4.245874799303
130000	0.000135288791	0.018464163931	-1	0.029164097219	4.175010192498
135000	0.000130085905	0.017547704992	-1	0.029071682260	4.109333275355
140000	0.000125234401	0.016705828269	-1	0.028987542315	4.048292574112
145000	0.000120699945	0.015930162895	-1	0.028910685758	3.991386663241
150000	0.000116452738	0.015213679842	-1	0.028840166966	3.938206798092
155000	0.000112466448	0.014550135694	-1	0.028775279647	3.888378748469
160000	0.000108717745	0.013934165309	-1	0.028715439481	3.841599170971
165000	0.000105185670	0.013360892660	-1	0.028660410239	3.797595208376
170000	0.000101852485	0.012826373402	-1	0.028609509619	3.756121108200
175000	0.000098707920	0.012329310687	-1	0.028557261705	3.716764962652
180000	0.000095731754	0.011864272998	-1	0.028507779041	3.679508916520
185000	0.000092910851	0.011428408842	-1	0.028460716354	3.644178086163
190000	0.000090233179	0.011019100155	-1	0.028416172976	3.610649711419
195000	0.000087685049	0.010632863918	-1	0.028377086923	3.578904490740
200000	0.000085261270	0.010269286744	-1	0.028339125902	3.548626918439
205000	0.000082952652	0.009926257639	-1	0.028302572225	3.519684700031
210000	0.000080751369	0.009602272463	-1	0.028267227192	3.492012097400
215000	0.000078650367	0.009296027139	-1	0.028232820621	3.465557275539
220000	0.000076643182	0.009006305869	-1	0.028199095917	3.440263010221
225000	0.000074723868	0.008731966103	-1	0.028165823639	3.416066513184
230000	0.000072886929	0.008471920298	-1	0.028132859614	3.392902253963
235000	0.000071127283	0.008225144917	-1	0.028100091654	3.370700514336
240000	0.000069440222	0.007990669409	-1	0.028067477152	3.349389707196
245000	0.000067821371	0.007767571097	-1	0.028035036689	3.328895154292
250000	0.000066266658	0.007554971706	-1	0.028002867358	3.309140966634
255000	0.000064772337	0.007352083981	-1	0.027971057512	3.290059448139

260000	0.000063335100	0.007158333652	-1	0.027939496104	3.271621037353
265000	0.000061951894	0.006973212435	-1	0.027908058830	3.253805639307
270000	0.000060619858	0.006796238271	-1	0.027876629208	3.236590921286
275000	0.000059336332	0.006626953037	-1	0.027845102825	3.219951560264
280000	0.000058098805	0.006464916530	-1	0.027813413658	3.203862023022
285000	0.000056904929	0.006309708946	-1	0.027781512653	3.188294307329
290000	0.000055752501	0.006160929070	-1	0.027749376103	3.173219302397
295000	0.000054639440	0.006018191193	-1	0.027717014856	3.158607160428
300000	0.000053563800	0.005881130773	-1	0.027684440349	3.144425916514

Electron Elastic Scattering Sampling Data
Solution for Z = 81

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.053248141831	1.286643330252	+1	0.379592342395	32.096800014271
52	0.051290545495	1.576474756780	+1	0.368676816046	43.989287344010
54	0.049563787746	1.944811212244	+1	0.356916118945	61.102660261408
56	0.048043536262	2.426783486930	+1	0.344508181905	86.803187243359
58	0.046698113861	3.084208942118	+1	0.331663398833	127.889021288106
60	0.045494610847	4.036751429534	+1	0.318589528862	199.858888472038
62	0.044402298624	5.549753943063	+1	0.305482731278	344.769673342643
64	0.043394071732	8.352550767548	+1	0.292515464937	713.349418433759
66	0.042447210029	15.431860811955	+1	0.279844124158	2226.852786586915
68	0.041543649828	70.444262363800	+1	0.267596680075	42497.293770120974
70	0.040669569231	29.233455610236	-1	0.255872670926	7180.623630355299
72	0.039813651055	11.846621707856	-1	0.244761862480	1191.394998181373
74	0.038968852957	7.284437705029	-1	0.234319277830	456.141122434225
76	0.038129774632	5.166187662996	-1	0.224591179908	233.095017515640
78	0.037293268159	3.935783330857	-1	0.215605998090	138.032654553393
80	0.036457977480	3.128307050285	-1	0.207375897680	89.418647861490
82	0.035622980536	2.555765891775	-1	0.199911255116	61.549053944364
84	0.034788974526	2.128221522476	-1	0.193206164066	44.287311530793
86	0.033956655113	1.796780970740	-1	0.187255145333	32.976601039524
88	0.033127218951	1.532707377173	-1	0.182047788292	25.244278180021
90	0.032302276378	1.317979870144	-1	0.177568887775	19.780887226907
92	0.031483134416	1.140576383006	-1	0.173806642561	15.816110146070
94	0.030671565568	0.992261789816	-1	0.170743760505	12.875749790896
96	0.029869071257	0.867095156363	-1	0.168365409668	10.654910463289
98	0.029077093898	0.760689349750	-1	0.166656666173	8.951377792842
100	0.028297135371	0.669730880950	-1	0.165600461914	7.627341548020
105	0.026409553201	0.494332444593	-1	0.165683866017	5.411705811274
110	0.024632939582	0.372982035781	-1	0.169256088618	4.133760856192

115	0.022998227130	0.288885639442	-1	0.175457279546	3.367668448943
120	0.021548361367	0.231365720118	-1	0.182649040606	2.892155963038
125	0.020337046527	0.193447211440	-1	0.188159766551	2.578637804099
130	0.019416321730	0.170613393593	-1	0.188600815079	2.345400784061
135	0.018813691803	0.160311816872	-1	0.181017062883	2.144944767272
140	0.018505555130	0.161717330983	-1	0.164666500092	1.964883791305
145	0.018412564079	0.175836021400	-1	0.141941201413	1.823929372048
150	0.018423148717	0.205671953545	-1	0.117372808561	1.757528213358
155	0.018439561295	0.256831307503	-1	0.095097982182	1.806378905686
160	0.018404537147	0.338542689871	-1	0.077245417159	2.023890229757
165	0.018301619360	0.465951953885	-1	0.064036433861	2.507628030692
170	0.018137972729	0.664958301007	-1	0.054742538059	3.471979942685
175	0.017929449032	0.983603670828	-1	0.048435732440	5.441494160656
180	0.017691684706	1.522419551184	-1	0.044319420931	9.891167955290
185	0.017437219729	2.533741076009	-1	0.041800280856	22.015839798048
190	0.017175026155	4.888157237520	-1	0.040456913164	69.463991189323
195	0.016910813021	14.861708000735	-1	0.040005315733	571.242085349856
200	0.016661119973	25.212065356555	+1	0.040069721628	1628.567990025823
205	0.016386982001	9.054043325479	+1	0.041095938490	234.233492910648
210	0.016130125303	5.817786652187	+1	0.042404852468	107.163712204737
215	0.015877431227	4.619448708508	+1	0.044111656318	74.269159290589
220	0.015628783654	4.072281985905	+1	0.046162245917	62.978668512515
225	0.015383768129	3.831255300736	+1	0.048516988532	60.422812476090
230	0.015141819989	3.775132097430	+1	0.051145838428	63.215500455300
235	0.014902305357	3.857225553483	+1	0.054025391822	70.746352768827
240	0.014664592362	4.064978383566	+1	0.057136572662	83.851093645360
245	0.014428069079	4.408692571999	+1	0.060463486226	104.846071707955
250	0.014192165119	4.922405604330	+1	0.063992514070	138.470253680647
255	0.013956466868	5.673320439080	+1	0.067710079219	194.306275780518
260	0.013720991763	6.781197634202	+1	0.071598139503	292.559792677275
265	0.013485879494	8.486798618714	+1	0.075637888826	482.018674964201
270	0.013251306073	11.344126111709	+1	0.079810822275	904.565880423278
275	0.013017477546	16.946454205007	+1	0.084098588134	2117.647638315419

280	0.012784633277	32.451384232861	+1	0.088482760918	8138.337962023722
285	0.012614441517	151.808179032288	+1	0.092527324648	185168.059312492750
290	0.012322993009	45.071665328171	-1	0.097466463603	17976.041942433567
295	0.012094805058	20.862632389444	-1	0.102028917419	4233.625289313948
300	0.011868804230	13.662841051844	-1	0.106613767634	1990.682530025812
310	0.011424786721	8.228257675823	-1	0.115781965399	860.453590406065
320	0.010993919313	6.023469635084	-1	0.124850388714	543.006390060852
330	0.010578979260	4.860806034239	-1	0.133708692637	411.289194332043
340	0.010182400011	4.167191135879	-1	0.142254410371	347.180433869626
350	0.009806218028	3.727862073275	-1	0.150394638279	315.064997411580
360	0.009451933749	3.444552125020	-1	0.158053258056	301.212703289786
370	0.009120133006	3.264911625208	-1	0.165188597131	299.384365033977
380	0.008810973396	3.160397779745	-1	0.171773604405	306.796413089909
390	0.008524367549	3.115465698442	-1	0.177789008545	322.489090253177
400	0.008260027250	3.122255122018	-1	0.183222486022	346.676354943656
410	0.008017388363	3.177734059718	-1	0.188071980422	380.508149914769
420	0.007795334740	3.281367095588	-1	0.192356608356	425.909806978835
430	0.007592649065	3.436352124183	-1	0.196101261229	486.098623890180
440	0.007408143023	3.650411650667	-1	0.199331506037	566.293573439373
450	0.007240666811	3.937109171314	-1	0.202073047847	674.968693813344
460	0.007089067747	4.318242139305	-1	0.204353632856	826.190825879003
470	0.006952014258	4.827527245834	-1	0.206208621823	1043.974905185328
480	0.006828224973	5.521232215862	-1	0.207673382404	1372.710847842865
490	0.006716541221	6.499807906775	-1	0.208780453475	1902.350783614212
500	0.006615898899	7.958941463057	-1	0.209560097773	2838.566680552934
510	0.006525306754	10.333777161448	-1	0.210041201938	4741.417352945458
520	0.006443753514	14.816553850097	-1	0.210254127788	9620.282072816668
530	0.006370305692	26.287092915191	-1	0.210227335607	29783.026715327429
540	0.006304125455	116.152370887677	-1	0.209986604172	570140.898298238990
550	0.006244459432	47.433397144151	+1	0.209555242662	96929.911899272367
560	0.006190625454	19.163122540284	+1	0.208954681906	16385.511855057615
570	0.006141964779	11.801428950075	+1	0.208205676724	6428.455530030836
580	0.006097880139	8.424162690829	+1	0.207327225816	3384.642454384161

590	0.006057837840	6.490673963570	+1	0.206336363611	2074.003029134056
600	0.006021361592	5.241294669153	+1	0.205248384021	1394.632174714646
610	0.005988020106	4.369546474036	+1	0.204077071765	998.667940026017
620	0.005957420633	3.728132316619	+1	0.202835080038	748.407212885054
630	0.005929207808	3.237452637273	+1	0.201533847747	580.544715777709
640	0.005903065047	2.850726175891	+1	0.200183582964	462.703286608042
650	0.005878705250	2.538668704265	+1	0.198793465257	376.943497533230
660	0.005855884273	2.282004127421	+1	0.197371542031	312.677969019367
670	0.005834372444	2.067543121734	+1	0.195925039308	263.340729934231
680	0.005813973511	1.885950155167	+1	0.194460288866	224.684076215966
690	0.005794510167	1.730443917420	+1	0.192983021609	193.865812490912
700	0.005775823549	1.595979429620	+1	0.191498290938	168.926345716154
710	0.005757775491	1.478723266470	+1	0.190010548394	148.479047263771
720	0.005740247318	1.375704197673	+1	0.188523576103	131.519683743044
730	0.005723136666	1.284591134465	+1	0.187040627026	117.308088121115
740	0.005706349858	1.203534325888	+1	0.185564640472	105.290046674054
750	0.005689806080	1.131045739202	+1	0.184098228548	95.043661682397
760	0.005673431870	1.065914564392	+1	0.182643643445	86.243237331026
770	0.005657173375	1.007137854048	+1	0.181202657914	78.632994764874
780	0.005640980685	0.953885691496	+1	0.179776750303	72.011086165990
790	0.005624811429	0.905465533340	+1	0.178367257369	66.216537919764
800	0.005608626259	0.861297069122	+1	0.176975389547	61.119983293453
810	0.005592395302	0.820886740899	+1	0.175602109391	56.616000765975
820	0.005576094247	0.783810242431	+1	0.174248094364	52.617837373995
830	0.005559705854	0.749703075193	+1	0.172913830227	49.053832325733
840	0.005543215451	0.718252562400	+1	0.171599805001	45.864671032042
850	0.005526607738	0.689188806115	+1	0.170306395668	43.000887305189
860	0.005509872977	0.662276656703	+1	0.169033908826	40.420842377028
870	0.005493003834	0.637307771230	+1	0.167782427950	38.089053017363
880	0.005476002965	0.614098596640	+1	0.166551902362	35.975249791544
890	0.005458865409	0.592489162324	+1	0.165342373377	34.053833082032
900	0.005441591438	0.572338285027	+1	0.164153798742	32.302830137656
910	0.005424179029	0.553520803726	+1	0.162986115698	30.703340488699

920	0.005406634355	0.535923301515	+1	0.161839107320	29.238797252013
930	0.005388962671	0.519444468254	+1	0.160712514827	27.894823597355
940	0.005371168592	0.503994519841	+1	0.159606125146	26.658980233504
950	0.005353256394	0.489493112636	+1	0.158519724947	25.520414352223
960	0.005335231444	0.475867960254	+1	0.157453042113	24.469592925276
970	0.005317102178	0.463052962846	+1	0.156405785616	23.498051966811
980	0.005298874150	0.450988450170	+1	0.155377610116	22.598333909402
990	0.005280553731	0.439620466426	+1	0.154368205362	21.763849746736
1000	0.005262148013	0.428900706778	+1	0.153377296148	20.988799066542
1025	0.005215808192	0.404652624448	+1	0.150978568629	19.278224130783
1050	0.005169119404	0.383576137147	+1	0.148686873266	17.839482048362
1075	0.005122208055	0.365186501029	+1	0.146496383263	16.620808835035
1100	0.005075169002	0.349099037417	+1	0.144402201813	15.582875053131
1125	0.005028090422	0.335000652779	+1	0.142399733427	14.695017944088
1150	0.004981077223	0.322621773424	+1	0.140483397433	13.932174789845
1175	0.004934224763	0.311739355811	+1	0.138648012602	13.274421555195
1200	0.004887604384	0.302171008852	+1	0.136889153501	12.706026168724
1225	0.004841279428	0.293764132202	+1	0.135202738737	12.214267892316
1250	0.004795307948	0.286385936989	+1	0.133584503264	11.788505203141
1275	0.004749750775	0.279922511695	+1	0.132030361256	11.419893458211
1300	0.004704648098	0.274279320330	+1	0.130536862407	11.101307685198
1325	0.004660033447	0.269375398350	+1	0.129100789589	10.826818309238
1350	0.004615940832	0.265138684406	+1	0.127718853869	10.591304668483
1375	0.004572397866	0.261507076710	+1	0.126388011443	10.390469650727
1400	0.004529425650	0.258427094547	+1	0.125105557323	10.220714356329
1425	0.004487037856	0.255852695093	+1	0.123868973802	10.079015360187
1450	0.004445248196	0.253742568159	+1	0.122675792457	9.962725835428
1475	0.004404068491	0.252060493870	+1	0.121523707142	9.869576812455
1500	0.004363504134	0.250774947184	+1	0.120410642302	9.797649824988
1550	0.004284232542	0.249285281894	+1	0.118293802774	9.711060984391
1600	0.004207440934	0.249086126889	+1	0.116310804988	9.692169001943
1650	0.004133105680	0.250029640716	+1	0.114449041644	9.732907933257
1700	0.004061184953	0.251999331407	+1	0.112697312535	9.827256719604

1750	0.003991621835	0.254901222206	+1	0.111045744695	9.970673371425
1800	0.003924353437	0.258660226121	+1	0.109485583885	10.159797274377
1850	0.003859305785	0.263215413117	+1	0.108009002045	10.392168384508
1900	0.003796397992	0.268523460227	+1	0.106609167188	10.666364715965
1950	0.003735549141	0.274546857849	+1	0.105279858490	10.981371983387
2000	0.003676693824	0.281242347694	+1	0.104015004564	11.335898523477
2100	0.003564675693	0.296529907048	+1	0.101658200698	12.161480858399
2200	0.003459659898	0.314330784976	+1	0.099506844434	13.150153115602
2300	0.003361019420	0.334660344979	+1	0.097534773708	14.314486355180
2400	0.003268228671	0.357529727025	+1	0.095718524465	15.668389957916
2500	0.003180848099	0.382925883864	+1	0.094036637134	17.225741319093
2600	0.003098488248	0.410839346866	+1	0.092470406186	19.001948358285
2700	0.003020717511	0.441425250332	+1	0.091007475055	21.025485568421
2800	0.002947142524	0.474893903514	+1	0.089637598719	23.332114108742
2900	0.002877426550	0.511464557243	+1	0.088351222175	25.962494446355
3000	0.002811279197	0.551360666851	+1	0.087139311734	28.962429432532
3100	0.002748444116	0.594829344220	+1	0.085993762438	32.385118198281
3200	0.002688669547	0.642232896117	+1	0.084908739904	36.300428115873
3300	0.002631727637	0.694004508119	+1	0.083879207410	40.793976978888
3400	0.002577415326	0.750635660944	+1	0.082900468855	45.968798783160
3500	0.002525553920	0.812683587316	+1	0.081968044401	51.949116993161
3600	0.002475980837	0.880798633545	+1	0.081077900000	58.887277052887
3700	0.002428542121	0.955799761021	+1	0.080226875116	66.977880926901
3800	0.002383098461	1.038676385199	+1	0.079412212108	76.467151637820
3900	0.002339522386	1.130616378784	+1	0.078631317935	87.667895730009
4000	0.002297697616	1.233058539949	+1	0.077881787073	100.981892519303
4100	0.002257500974	1.347830765644	+1	0.077162054301	116.942730724847
4200	0.002218829914	1.477202504460	+1	0.076470449891	136.256686795113
4300	0.002181617128	1.623917797001	+1	0.075804452953	159.852762548989
4400	0.002145777771	1.791574597573	+1	0.075162481716	189.018434706181
4500	0.002111236543	1.984841700588	+1	0.074543080008	225.551375022413
4600	0.002077920817	2.209901261561	+1	0.073944876733	272.022800048501
4700	0.002045765759	2.475112895457	+1	0.073366653926	332.208894401623

4800	0.002014710725	2.792061274340	+1	0.072807273816	411.830255506539
4900	0.001984698841	3.177291004831	+1	0.072265709327	519.881878009778
5000	0.001955677199	3.655255601765	+1	0.071740993557	671.141069096078
5500	0.001823806025	10.325151306886	+1	0.069340825346	4768.357271417101
6000	0.001710519585	22.939481246472	-1	0.067250473874	23107.786900242612
6500	0.001612102355	5.552988461459	-1	0.065404114568	1577.085374889417
7000	0.001525776277	3.120191016522	-1	0.063753348479	572.872883839963
7500	0.001449418613	2.154100197417	-1	0.062261864366	310.784303421086
8000	0.001381376975	1.637254447737	-1	0.060901932891	202.430812806580
8500	0.001320345698	1.316339480484	-1	0.059652082639	146.300720507274
9000	0.001265277832	1.098240321869	-1	0.058495457240	113.010105089911
9500	0.001215325645	0.940710884100	-1	0.057418637020	91.396778867824
10000	0.001169793796	0.821817915928	-1	0.056410843106	76.426359105783
10500	0.001128107594	0.729042298852	-1	0.055463416109	65.539933838489
11000	0.001089790068	0.654753771038	-1	0.054568864834	57.320573825032
11500	0.001054436647	0.593983521489	-1	0.053721562387	50.922501392697
12000	0.001021707869	0.543413384363	-1	0.052916308035	45.818781646543
12500	0.000991313147	0.500707709700	-1	0.052149047868	41.662521470515
13000	0.000963004769	0.464200474418	-1	0.051416036803	38.219278017425
13500	0.000936573137	0.432665214523	-1	0.050713727322	35.324560863252
14000	0.000911829933	0.405167582887	-1	0.050039673496	32.859590327138
14500	0.000888610892	0.380985701019	-1	0.049391914822	30.736530120030
15000	0.000866775894	0.359568178941	-1	0.048768361259	28.890231371515
16000	0.000826772895	0.323350225586	-1	0.047587079234	25.838457903480
17000	0.000790991478	0.293933290401	-1	0.046483839512	23.421753515183
18000	0.000758776151	0.269596344765	-1	0.045449053928	21.461610979299
19000	0.000729602517	0.249149110712	-1	0.044474880788	19.840071748275
20000	0.000703046285	0.231743119600	-1	0.043554840135	18.476265941619
21000	0.000646598834	0.198362786521	-1	0.045193133158	17.389607978661
22000	0.000623032595	0.185663171459	-1	0.044528203490	16.455956593912
23000	0.000600569753	0.173607705579	-1	0.043900523201	15.568055228143
24000	0.000579417014	0.162481328693	-1	0.043315930338	14.751145390949
25000	0.000559745946	0.152538627448	-1	0.042773338885	14.026835590889

26000	0.000541640189	0.143926929031	-1	0.042265227506	13.407019771635
27000	0.000524927654	0.136460758746	-1	0.041783614952	12.875890585699
28000	0.000509389665	0.129896601940	-1	0.041324290051	12.413632145108
29000	0.000494851458	0.124024626214	-1	0.040885025761	12.002940267518
30000	0.000481147901	0.118653814504	-1	0.040466891442	11.628663053915
31000	0.000468151249	0.113638034547	-1	0.040071986820	11.279257848253
32000	0.000455807309	0.108939713604	-1	0.039699348298	10.951941765341
33000	0.000444076168	0.104546317520	-1	0.039347314646	10.646113333155
34000	0.000432927276	0.100448385443	-1	0.039013766507	10.361208801897
35000	0.000422332405	0.096637250229	-1	0.038696519088	10.096739693816
36000	0.000412262652	0.093101151119	-1	0.038393481887	9.851956926657
37000	0.000402679317	0.089813998786	-1	0.038103363482	9.624920552020
38000	0.000393544095	0.086747887357	-1	0.037825367077	9.413533642734
39000	0.000384821737	0.083876876921	-1	0.037559035152	9.215859410131
40000	0.000376479829	0.081176837353	-1	0.037304220714	9.030100422058
41000	0.000368489525	0.078627155351	-1	0.037060867219	8.854733697567
42000	0.000360828623	0.076215976535	-1	0.036828289079	8.688916424397
43000	0.000353477676	0.073934000600	-1	0.036605696916	8.532001584659
44000	0.000346418664	0.071772453613	-1	0.036392396278	8.383379271805
45000	0.000339634842	0.069723064212	-1	0.036187780577	8.242474884152
46000	0.000333110631	0.067778019997	-1	0.035991320622	8.108743360943
47000	0.000326831123	0.065929939313	-1	0.035802527425	7.981668929493
48000	0.000320782345	0.064171848996	-1	0.035620966910	7.860759588523
49000	0.000314951336	0.062497111511	-1	0.035446301718	7.745545468289
50000	0.000309325877	0.060899424951	-1	0.035278266693	7.635579658461
55000	0.000283922176	0.053897030914	-1	0.034527471825	7.152622059530
60000	0.000262301068	0.048208933333	-1	0.033900696091	6.758468051003
65000	0.000243661995	0.043500812725	-1	0.033372413431	6.430207501236
70000	0.000227418581	0.039543207361	-1	0.032923373184	6.152238642963
75000	0.000213130402	0.036173151128	-1	0.032538867476	5.913568458941
80000	0.000200460152	0.033271706349	-1	0.032207412389	5.706213930250
85000	0.000189144621	0.030749922996	-1	0.031919991239	5.524242348027
90000	0.000178975761	0.028540018109	-1	0.031669349775	5.363137944138

95000	0.000169785744	0.026589240274	-1	0.031449715173	5.219419770873
100000	0.000161439579	0.024856170248	-1	0.031256318816	5.090330236288
105000	0.000153824560	0.023307380949	-1	0.031085357393	4.973675490360
110000	0.000146848545	0.021916544063	-1	0.030933360556	4.867741941386
115000	0.000140434099	0.020661268749	-1	0.030797832806	4.771015699024
120000	0.000134516202	0.019523704846	-1	0.030676488728	4.682345442824
125000	0.000129039199	0.018488587428	-1	0.030567571730	4.600717833219
130000	0.000123955626	0.017543511618	-1	0.030469211851	4.525317548349
135000	0.000119224488	0.016677703223	-1	0.030379953966	4.455411541985
140000	0.000114810655	0.015882163204	-1	0.030298617033	4.390416564655
145000	0.000110683349	0.015148981539	-1	0.030224351563	4.329807420812
150000	0.000106815706	0.014471532564	-1	0.030156238548	4.273151433265
155000	0.000103183992	0.013843946003	-1	0.030093586536	4.220053828367
160000	0.000099767312	0.013261176129	-1	0.030035852165	4.170192697786
165000	0.000096546672	0.012718570099	-1	0.029982996986	4.123286583500
170000	0.000093509407	0.012213754186	-1	0.029931262148	4.078946604152
175000	0.000090639911	0.011742926603	-1	0.029880809244	4.036964659815
180000	0.000087923206	0.011302327625	-1	0.029832959696	3.997210544393
185000	0.000085347634	0.010889286533	-1	0.029787379843	3.959495487374
190000	0.000082900269	0.010500608909	-1	0.029746127277	3.923775638224
195000	0.000080573144	0.010134796558	-1	0.029707483323	3.889844570294
200000	0.000078358735	0.009790268934	-1	0.029670094307	3.857481661376
205000	0.000076248902	0.009465109300	-1	0.029634079838	3.826539053970
210000	0.000074236623	0.009157917787	-1	0.029599207890	3.796945580688
215000	0.000072315563	0.008867483810	-1	0.029565153163	3.768643914628
220000	0.000070479875	0.008592659742	-1	0.029531663168	3.741572974462
225000	0.000068724190	0.008332369173	-1	0.029498510834	3.715665597205
230000	0.000067043522	0.008085587628	-1	0.029465555635	3.690852911012
235000	0.000065433266	0.007851347999	-1	0.029432704676	3.667061652945
240000	0.000063889145	0.007628732879	-1	0.029399932536	3.644216309321
245000	0.000062407174	0.007416868863	-1	0.029367290992	3.622239509691
250000	0.000060983661	0.007214929528	-1	0.029334886689	3.601050958800
255000	0.000059615189	0.007022169437	-1	0.029302837014	3.580580374751

260000	0.000058298761	0.006838046212	-1	0.029271035200	3.560796044988
265000	0.000057031599	0.006662083812	-1	0.029239343334	3.541676878756
270000	0.000055811120	0.006493829398	-1	0.029207628081	3.523197206774
275000	0.000054634896	0.006332849448	-1	0.029175792804	3.505330990725
280000	0.000053500648	0.006178729280	-1	0.029143766277	3.488050576502
285000	0.000052406250	0.006031073994	-1	0.029111494762	3.471325625012
290000	0.000051349683	0.005889503822	-1	0.029078964009	3.455126368986
295000	0.000050329071	0.005753656860	-1	0.029046172351	3.439419408107
300000	0.000049342625	0.005623185298	-1	0.029013157711	3.424172618001

Electron Elastic Scattering Sampling Data
Solution for Z = 82

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.045893541391	1.209791829917	+1	0.445390631567	44.727727625591
52	0.045354333578	1.450110095881	+1	0.435085323965	57.715948708448
54	0.044857826474	1.743923378838	+1	0.423158288950	74.894538511512
56	0.044400603438	2.111096397643	+1	0.409984419218	98.416840354851
58	0.043970273317	2.583988265750	+1	0.395924617148	132.230361791716
60	0.043550809809	3.218998652788	+1	0.381314498238	184.176292611911
62	0.043125980424	4.123649230271	+1	0.366458389483	271.665748630085
64	0.042681786175	5.530600299425	+1	0.351616012759	440.116213356107
66	0.042206640952	8.053242368789	+1	0.337017204302	842.539176452276
68	0.041692825284	13.992453156371	+1	0.322847857567	2302.911324392060
70	0.041135860937	45.886567468834	+1	0.309253049348	22490.599330075769
72	0.040533115503	38.076099154135	-1	0.296355208725	14857.880018643278
74	0.039885824297	13.041254487295	-1	0.284232504907	1753.165118420492
76	0.039195791186	7.656279290976	-1	0.272948050508	610.839013189475
78	0.038466651640	5.297175648444	-1	0.262539757682	297.282750531407
80	0.037703259008	3.969302198807	-1	0.253024228154	170.770595903206
82	0.036910097467	3.116139709600	-1	0.244412784348	108.407679792979
84	0.036092849253	2.521767713389	-1	0.236697323374	73.644870919329
86	0.035256531558	2.084355527160	-1	0.229867831227	52.572859576782
88	0.034406121374	1.749699526396	-1	0.223908333854	39.001306219305
90	0.033546560891	1.486269913394	-1	0.218796523189	29.849987926544
92	0.032681977355	1.274324007434	-1	0.214512841899	23.451546411882
94	0.031816642425	1.100952930364	-1	0.211031633901	18.845869081718
96	0.030954144404	0.957259290430	-1	0.208329134308	15.449881277359
98	0.030097721419	0.836914871534	-1	0.206381203340	12.894855079456
100	0.029250370250	0.735292703501	-1	0.205161507493	10.939502905415
105	0.027189302620	0.542244955866	-1	0.205105065654	7.726218396547
110	0.025242482104	0.410319884168	-1	0.208825508289	5.901913126487

115	0.023447437924	0.318946468463	-1	0.215416670100	4.813093086858
120	0.021846704411	0.255621044984	-1	0.223387155967	4.135586804068
125	0.020488010434	0.212401157832	-1	0.230480043585	3.689002667692
130	0.019416256755	0.184100444385	-1	0.233854554828	3.361715284039
135	0.018662856559	0.167503246598	-1	0.230631015643	3.083583932533
140	0.018225795985	0.160836778933	-1	0.219018923778	2.821415554597
145	0.018060982942	0.163634084243	-1	0.199270676977	2.577108429973
150	0.018083518876	0.176610901612	-1	0.174009605241	2.377837925025
155	0.018192790422	0.201755881773	-1	0.147181917315	2.258973741017
160	0.018301292878	0.242447490715	-1	0.122391973390	2.254187416800
165	0.018355333994	0.303819193113	-1	0.101705808867	2.399374885952
170	0.018334835232	0.393388165357	-1	0.085619949594	2.748995454998
175	0.018242462051	0.522208555240	-1	0.073682782767	3.404001705135
180	0.018091083947	0.706981029047	-1	0.065107111467	4.563014023090
185	0.017895913594	0.974093925049	-1	0.059118376241	6.632830703553
190	0.017670669412	1.368502481159	-1	0.055075106553	10.505512141787
195	0.017425816530	1.971521722607	-1	0.052503225045	18.310188952726
200	0.017168381472	2.940091617543	-1	0.051072923954	35.702848047228
205	0.016903355923	4.620014059027	-1	0.050544218915	80.412734099675
210	0.016634746615	7.985596260495	-1	0.050723953261	226.722009705585
215	0.016365120437	17.135972335441	-1	0.051472494732	1013.925224255361
220	0.016095946617	99.421322964627	-1	0.052690909828	33954.569415154365
225	0.015827983299	40.929849007199	+1	0.054307384022	6129.521471225678
230	0.015561538483	20.542016956194	+1	0.056268484141	1669.503861357038
235	0.015296644817	15.689743059661	+1	0.058533471082	1048.276241526240
240	0.015033158481	14.145173768027	+1	0.061070583799	913.169101532227
245	0.014770859777	14.143769910099	+1	0.063854293338	974.702489803825
250	0.014509479463	15.416404877597	+1	0.066863642926	1231.964360518671
255	0.014248842391	18.421784063888	+1	0.070079428432	1865.698236336481
260	0.013989158203	24.880177480359	+1	0.073478370980	3599.977517964463
265	0.013730719800	42.222784886587	+1	0.077037660830	10943.665626677297
270	0.013473798792	177.465711291622	+1	0.080736048139	203701.354169311180
275	0.013218669084	74.418912482960	-1	0.084553284011	38705.268100354035

280	0.012965605401	29.808661431034	-1	0.088469821338	6786.594533704772
285	0.012714892844	18.398428735321	-1	0.092466641677	2824.033698131123
290	0.012466825157	13.239500172769	-1	0.096525163645	1595.710672622244
295	0.012221697531	10.329919362551	-1	0.100627168485	1058.502930471866
300	0.011979809030	8.479308116190	-1	0.104754786917	775.795371557866
310	0.011507001346	6.291734399130	-1	0.113021603733	502.248430653967
320	0.011050965727	5.071732089260	-1	0.121211308338	380.149394820685
330	0.010613999425	4.318028497699	-1	0.129221123729	317.685521966992
340	0.010198038701	3.825500302624	-1	0.136956749956	284.353312832991
350	0.009804642427	3.495796120157	-1	0.144333481691	267.760266088437
360	0.009434864133	3.276194270122	-1	0.151282332782	262.203263488435
370	0.009088901958	3.134998705853	-1	0.157765888526	264.759880375020
380	0.008766592770	3.053717728522	-1	0.163759674457	274.117479770680
390	0.008467583706	3.021949060976	-1	0.169245886650	289.966539793129
400	0.008191361873	3.034473094976	-1	0.174212765392	312.739573762017
410	0.007937195208	3.089496619883	-1	0.178657654471	343.521923132455
420	0.007703857739	3.186882002877	-1	0.182597236127	383.949076504866
430	0.007490051448	3.329406220333	-1	0.186053137177	436.626911533049
440	0.007294535233	3.523453527806	-1	0.189047467612	505.661637107426
450	0.007116130907	3.780000747956	-1	0.191602278297	597.546844810962
460	0.006953664008	4.116250968460	-1	0.193741503116	722.734617830857
470	0.006805808513	4.557883449423	-1	0.195496375356	898.375536405541
480	0.006671304689	5.146314078489	-1	0.196897825939	1154.735960657956
490	0.006549001826	5.952048964271	-1	0.197974592070	1549.496549318541
500	0.006437864200	7.103915922845	-1	0.198753125182	2203.999938909701
510	0.006336919700	8.862240615701	-1	0.199258812571	3410.537991159619
520	0.006245182398	11.838088903813	-1	0.199518618260	6027.888747783869
530	0.006161746046	17.891875656647	-1	0.199557898097	13592.468974215953
540	0.006085796226	36.663607985388	-1	0.199399573768	56171.122923112482
550	0.006034550862	210.531815553909	+1	0.198685561879	1818858.547066506700
560	0.006052703323	88.621673580920	+1	0.199356898154	324769.456640284920
570	0.005895852031	16.429488158777	+1	0.197939352816	11916.096517147836
580	0.005843072883	10.791488412798	+1	0.197185373848	5317.871838616080

590	0.005794642303	7.952478442663	+1	0.196324804892	2984.038651605685
600	0.005750095949	6.246657158229	+1	0.195371479676	1900.579126171039
610	0.005709011302	5.110966979495	+1	0.194337884107	1312.152448741954
620	0.005671000058	4.302268051285	+1	0.193235587228	958.040667667349
630	0.005635711436	3.698353723232	+1	0.192075132174	728.894857319889
640	0.005602828640	3.231080472510	+1	0.190865870551	572.364897382152
650	0.005572069748	2.859458010570	+1	0.189616230899	460.855816638819
660	0.005543182379	2.557359402346	+1	0.188333727860	378.713006298746
670	0.005515937194	2.307344276472	+1	0.187025028415	316.523593622216
680	0.005490134833	2.097332258683	+1	0.185696134350	268.355545706668
690	0.005465589702	1.918698016213	+1	0.184352391122	230.323238517880
700	0.005442138144	1.765118460232	+1	0.182998587366	199.795583580879
710	0.005419633457	1.631851582613	+1	0.181638967750	174.939893749849
720	0.005397950758	1.515263307741	+1	0.180277119505	154.446546222256
730	0.005376976120	1.412531684636	+1	0.178916239264	137.361960013016
740	0.005356608138	1.321434898766	+1	0.177559143545	122.978908045230
750	0.005336756857	1.240199410608	+1	0.176208417201	110.763971973746
760	0.005317338683	1.167392036982	+1	0.174866248435	100.308640592223
770	0.005298289473	1.101833687019	+1	0.173534422436	91.294503997772
780	0.005279549425	1.042553906619	+1	0.172214470198	83.471871161544
790	0.005261065649	0.988747496190	+1	0.170907740851	76.642794671039
800	0.005242789768	0.939741514790	+1	0.169615471506	70.648847074295
810	0.005224679601	0.894967061147	+1	0.168338701001	65.361707763746
820	0.005206703529	0.853936386317	+1	0.167078161398	60.676086268887
830	0.005188833810	0.816232456282	+1	0.165834423338	56.505444602089
840	0.005171043474	0.781499252294	+1	0.164608050260	52.778475081386
850	0.005153311500	0.749428933992	+1	0.163399496795	49.435695901952
860	0.005135618815	0.719754677594	+1	0.162209161828	46.427288925053
870	0.005117949309	0.692240786142	+1	0.161037168664	43.710899019788
880	0.005100295377	0.666680874521	+1	0.159883635833	41.250601994681
890	0.005082644830	0.642894396450	+1	0.158748641957	39.015932615313
900	0.005064989478	0.620722879687	+1	0.157632253436	36.980874644960
910	0.005047321253	0.600025756297	+1	0.156534482448	35.123039959336

920	0.005029638228	0.580675803211	+1	0.155455187586	33.422846746056
930	0.005011937611	0.562560240353	+1	0.154394219462	31.863393033240
940	0.004994218612	0.545578309260	+1	0.153351395167	30.429970544397
950	0.004976478376	0.529640536660	+1	0.152326564928	29.109829258603
960	0.004958717727	0.514666505902	+1	0.151319581397	27.891782372968
970	0.004940936016	0.500582812184	+1	0.150330173337	26.765915119966
980	0.004923137571	0.487323192801	+1	0.149358121055	25.723478423526
990	0.004905321221	0.474828037372	+1	0.148403163865	24.756786014276
1000	0.004887488548	0.463043909942	+1	0.147465085120	23.859062625560
1025	0.004842859390	0.436378819360	+1	0.145191851031	21.877930247509
1050	0.004798217590	0.413186237133	+1	0.143017103716	20.211673607617
1075	0.004753633881	0.392930615174	+1	0.140935780529	18.799905698793
1100	0.004709153427	0.375188444710	+1	0.138943713903	17.596886426818
1125	0.004664818772	0.359615047103	+1	0.137036901804	16.566972583650
1150	0.004620698685	0.345914584791	+1	0.135210416606	15.681092003640
1175	0.004576853632	0.333842754781	+1	0.133459642229	14.916178106781
1200	0.004533329875	0.323199662117	+1	0.131780639807	14.253999918784
1225	0.004490164489	0.313818468280	+1	0.130169774078	13.679857620428
1250	0.004447401660	0.305553055812	+1	0.128623087698	13.181368022444
1275	0.004405080799	0.298279605622	+1	0.127136940001	12.748369877848
1300	0.004363226271	0.291894506725	+1	0.125708132781	12.372611376929
1325	0.004321862550	0.286309317060	+1	0.124333752811	12.047237196678
1350	0.004281012081	0.281445319591	+1	0.123010744259	11.766334170104
1375	0.004240695188	0.277234363149	+1	0.121736277317	11.524918242151
1400	0.004200926649	0.273618302900	+1	0.120507864818	11.318846012929
1425	0.004161712889	0.270546751450	+1	0.119323159196	11.144622625609
1450	0.004123067064	0.267974455301	+1	0.118179866847	10.999173293722
1475	0.004084992804	0.265861971629	+1	0.117075812949	10.879891650987
1500	0.004047494287	0.264174676622	+1	0.116009040766	10.784543890427
1550	0.003974226616	0.261957866201	+1	0.113980151461	10.658274139638
1600	0.003903260550	0.261118842336	+1	0.112079550355	10.607844401594
1650	0.003834566218	0.261495854901	+1	0.110295316696	10.623887036516
1700	0.003768100996	0.262961045653	+1	0.108616841341	10.699369683305

1750	0.003703810306	0.265411402834	+1	0.107034777662	10.828975687271
1800	0.003641632236	0.268764464327	+1	0.105540698605	11.008736578529
1850	0.003581500061	0.272953426410	+1	0.104127161255	11.235725330300
1900	0.003523338904	0.277929599723	+1	0.102787665548	11.508152339234
1950	0.003467075277	0.283650929833	+1	0.101516263954	11.824700752044
2000	0.003412649264	0.290071058525	+1	0.100307155826	12.183847510342
2100	0.003309041196	0.304878458038	+1	0.098056105116	13.027318057632
2200	0.003211893722	0.322277023043	+1	0.096003521258	14.044891208966
2300	0.003120635914	0.342266981104	+1	0.094124011565	15.248928375022
2400	0.003034784078	0.364849022187	+1	0.092394889774	16.653481071513
2500	0.002953936858	0.390002958859	+1	0.090795487811	18.272758534775
2600	0.002877731285	0.417715851887	+1	0.089307791914	20.122857735128
2700	0.002805770245	0.448140405341	+1	0.087919767857	22.233576744530
2800	0.002737692658	0.481484785829	+1	0.086621412902	24.642352757078
2900	0.002673188210	0.517965491798	+1	0.085403366629	27.391712158252
3000	0.002611990002	0.557802376178	+1	0.084256784340	30.529485697687
3100	0.002553861841	0.601239016350	+1	0.083173753254	34.111236934460
3200	0.002498569871	0.648638244312	+1	0.082148594535	38.210297707949
3300	0.002445902700	0.700434715149	+1	0.081176467401	42.916623091356
3400	0.002395671882	0.757120999566	+1	0.080252773722	48.338370654736
3500	0.002347712281	0.819253546220	+1	0.079373180808	54.605758891597
3600	0.002301872263	0.887482237764	+1	0.078533733370	61.878472487225
3700	0.002258010481	0.962628162167	+1	0.077731419133	70.360721269019
3800	0.002215995623	1.045686313391	+1	0.076963569384	80.311288535097
3900	0.002175710367	1.137847742116	+1	0.076227704732	92.058496903866
4000	0.002137046324	1.240554550532	+1	0.075521492317	106.023974075787
4100	0.002099893663	1.355623311201	+1	0.074843261111	122.764822075363
4200	0.002064144416	1.485383273597	+1	0.074191925471	143.031593401297
4300	0.002029743393	1.632564061854	+1	0.073564748418	167.796196816846
4400	0.001996613913	1.800778529571	+1	0.072960230269	198.411369963773
4500	0.001964683065	1.994722884340	+1	0.072376960599	236.768057167517
4600	0.001933886479	2.220603561370	+1	0.071813647394	285.568345290437
4700	0.001904162919	2.486830600417	+1	0.071269142717	348.785503494145

4800	0.001875455412	2.805061847528	+1	0.070742367727	432.441271400257
4900	0.001847711603	3.191942174216	+1	0.070232343369	546.005636882148
5000	0.001820882837	3.672095946951	+1	0.069738179485	705.048672642566
5500	0.001698962843	10.387815177099	+1	0.067477350209	5029.700785424106
6000	0.001594199353	22.813245165730	-1	0.065507831363	23850.021658889902
6500	0.001503158337	5.551590496066	-1	0.063767753779	1645.601364155104
7000	0.001423277075	3.121129525056	-1	0.062211679690	598.670733964908
7500	0.001352598690	2.154936498281	-1	0.060805473855	324.979699033963
8000	0.001289601546	1.637804272212	-1	0.059523011568	211.751277065988
8500	0.001233082248	1.316635560547	-1	0.058344029929	153.073573902183
9000	0.001182076937	1.098338808941	-1	0.057252614207	118.264150590569
9500	0.001135803460	0.940657312171	-1	0.056236090775	95.661209144783
10000	0.001093621460	0.821649322679	-1	0.055284249731	80.003654295009
10500	0.001054999846	0.728787087739	-1	0.054388908740	68.616669093250
11000	0.001019499460	0.654433581019	-1	0.053542970888	60.018749046382
11500	0.000986745801	0.593616105649	-1	0.052741112731	53.325676239662
12000	0.000956425984	0.543012509407	-1	0.051978427234	47.986343378443
12500	0.000928279046	0.500310785109	-1	0.051250099071	43.639780263027
13000	0.000902067769	0.463813265950	-1	0.050553517692	40.038609219902
13500	0.000877592964	0.432278590567	-1	0.049885944583	37.010042567146
14000	0.000854683220	0.404781388999	-1	0.049244781689	34.430598884893
14500	0.000833188575	0.380604958944	-1	0.048627956868	32.208797032969
15000	0.000812978564	0.359196665258	-1	0.048033530256	30.276483185229
16000	0.000775964295	0.323006899723	-1	0.046905479661	27.082135883490
17000	0.000742870971	0.293627416630	-1	0.045849511900	24.552050148583
18000	0.000713090281	0.269334620848	-1	0.044856703620	22.499508590739
19000	0.000686135370	0.248936023567	-1	0.043919861446	20.801129373824
20000	0.000661611870	0.231581784398	-1	0.043033011371	19.372332146785
21000	0.000607719328	0.197642548277	-1	0.044763613515	18.241268842197
22000	0.000585787202	0.184973267907	-1	0.044129385962	17.264423763986
23000	0.000564864442	0.172948611560	-1	0.043531964705	16.335949716304
24000	0.000545152066	0.161854891264	-1	0.042976011047	15.481985040923
25000	0.000526804458	0.151941578206	-1	0.042460051201	14.724905933010

26000	0.000509908066	0.143355754909	-1	0.041975893259	14.076891005510
27000	0.000494310700	0.135913776612	-1	0.041515578767	13.521356111420
28000	0.000479819528	0.129376213183	-1	0.041074729189	13.037573343641
29000	0.000466265624	0.123531506783	-1	0.040651830752	12.607558884232
30000	0.000453484439	0.118186017969	-1	0.040248873315	12.215632658114
31000	0.000441353399	0.113193462207	-1	0.039868431553	11.849834416975
32000	0.000429822248	0.108516326205	-1	0.039509641207	11.507254864843
33000	0.000418860071	0.104143764949	-1	0.039170527330	11.187193952662
34000	0.000408438613	0.100066013141	-1	0.038849015208	10.889040269736
35000	0.000398532181	0.096274246914	-1	0.038542947296	10.612261237047
36000	0.000389114206	0.092756533252	-1	0.038250279875	10.356056843372
37000	0.000380148848	0.089486796201	-1	0.037969793903	10.118397087318
38000	0.000371600417	0.086437179205	-1	0.037700773831	9.897096087148
39000	0.000363436173	0.083581845420	-1	0.037442819468	9.690132635871
40000	0.000355625869	0.080896769254	-1	0.037195849037	9.495638117768
41000	0.000348142651	0.078361429313	-1	0.036959851686	9.312024711200
42000	0.000340965980	0.075964001008	-1	0.036734179123	9.138410375964
43000	0.000334077841	0.073695184028	-1	0.036518070433	8.974114925629
44000	0.000327461577	0.071546221066	-1	0.036310862985	8.818499121611
45000	0.000321101715	0.069508862265	-1	0.036111971331	8.670958795570
46000	0.000314983719	0.067575302167	-1	0.035920899181	8.530925808713
47000	0.000309093833	0.065738189684	-1	0.035737174953	8.397857599394
48000	0.000303419117	0.063990574782	-1	0.035560393346	8.271239903350
49000	0.000297947418	0.062325849125	-1	0.035390230562	8.150583211873
50000	0.000292667480	0.060737737852	-1	0.035226444632	8.035418497782
55000	0.000268809295	0.053777436311	-1	0.034493633857	7.529597963375
60000	0.000248483688	0.048123211972	-1	0.033880567495	7.116738662570
65000	0.000230946377	0.043442585277	-1	0.033362810479	6.772857030679
70000	0.000215651516	0.039507460969	-1	0.032921864643	6.481617959722
75000	0.000202188119	0.036155808109	-1	0.032543612064	6.231521005205
80000	0.000190241599	0.033269501587	-1	0.032216981260	6.014210863645
85000	0.000179566227	0.030760225014	-1	0.031933236030	5.823474063343
90000	0.000169967259	0.028560619674	-1	0.031685391916	5.654588921796

95000	0.000161288262	0.026618427036	-1	0.031467786095	5.503902836318
100000	0.000153401998	0.024892421340	-1	0.031275821015	5.368542220039
105000	0.000146203915	0.023349564694	-1	0.031105729776	5.246193570151
110000	0.000139607606	0.021963672678	-1	0.030954201073	5.135065780726
115000	0.000133540130	0.020712481522	-1	0.030818825784	5.033579022609
120000	0.000127940257	0.019578308930	-1	0.030697273596	4.940527900896
125000	0.000122755701	0.018546032292	-1	0.030587747143	4.854848492689
130000	0.000117942083	0.017603299065	-1	0.030488524789	4.775688808931
135000	0.000113460997	0.016739364600	-1	0.030398324852	4.702285914773
140000	0.000109279346	0.015945245725	-1	0.030316119218	4.634036004676
145000	0.000105368059	0.015213064872	-1	0.030241137939	4.570393039893
150000	0.000101701716	0.014536290382	-1	0.030172335665	4.510898889998
155000	0.000098257651	0.013909021476	-1	0.030109115219	4.455142839920
160000	0.000095018660	0.013327196339	-1	0.030049024603	4.402698281022
165000	0.000091968026	0.012786600848	-1	0.029990962336	4.353222553217
170000	0.000089087993	0.012282482320	-1	0.029936358429	4.306542623982
175000	0.000086364789	0.011811456759	-1	0.029884754829	4.262409784942
180000	0.000083784106	0.011369826771	-1	0.029837502894	4.220693434211
185000	0.000081336162	0.010955459083	-1	0.029793101650	4.181142456773
190000	0.000079012216	0.010566453050	-1	0.029750344157	4.143563970259
195000	0.000076803085	0.010200577106	-1	0.029709361670	4.107823889877
200000	0.000074700393	0.009855789045	-1	0.029670033235	4.073746695903
205000	0.000072696574	0.009530272405	-1	0.029632207145	4.041166764918
210000	0.000070785057	0.009222662303	-1	0.029595566207	4.010004438600
215000	0.000068959880	0.008931756191	-1	0.029559792558	3.980199188335
220000	0.000067215555	0.008656423430	-1	0.029524595167	3.951683840806
225000	0.000065546996	0.008395589949	-1	0.029489769745	3.924389990296
230000	0.000063949523	0.008148243139	-1	0.029455145859	3.898242615141
235000	0.000062418767	0.007913415720	-1	0.029420652303	3.873166467180
240000	0.000060950698	0.007690197558	-1	0.029386251165	3.849081679510
245000	0.000059541551	0.007477719563	-1	0.029351993400	3.825907412271
250000	0.000058187817	0.007275156211	-1	0.029317997821	3.803561485420
255000	0.000056886288	0.007081768629	-1	0.029284365269	3.781968940944

260000	0.000055634114	0.006897015019	-1	0.029250996249	3.761097523836
265000	0.000054428676	0.006720420572	-1	0.029217747519	3.740923512459
270000	0.000053267527	0.006551532179	-1	0.029184505379	3.721421483550
275000	0.000052148373	0.006389917961	-1	0.029151166594	3.702563138682
280000	0.000051069062	0.006235163551	-1	0.029117666709	3.684319195766
285000	0.000050027569	0.006086875456	-1	0.029083954257	3.666659241853
290000	0.000049021993	0.005944672916	-1	0.029050019571	3.649550497750
295000	0.000048050545	0.005808195070	-1	0.029015867155	3.632959887826
300000	0.000047111542	0.005677096217	-1	0.028981530076	3.616852979617

Electron Elastic Scattering Sampling Data
Solution for Z = 83

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.041550470504	0.950037650631	+1	0.506327017451	43.905536671029
52	0.041719326040	1.108299890450	+1	0.498954880770	53.540954655562
54	0.041949808782	1.291144340035	+1	0.488883738557	64.734582959683
56	0.042216865747	1.504948237775	+1	0.476648452179	78.033468033602
58	0.042489513528	1.759077394444	+1	0.462765932393	94.382877071053
60	0.042736362004	2.067787545166	+1	0.447719169165	115.399744391846
62	0.042929116733	2.453754642333	+1	0.431948466861	143.932898482440
64	0.043045343303	2.954906526917	+1	0.415833797532	185.282313181924
66	0.043067960536	3.639839475256	+1	0.399711875485	250.325777562018
68	0.042986844654	4.644967029461	+1	0.383859278408	364.352519035212
70	0.042797705277	6.284922256415	+1	0.368495617792	598.632429089730
72	0.042499844906	9.485532520293	+1	0.353803520715	1229.097760621869
74	0.042098203207	18.634982833520	+1	0.339908545983	4294.823189436081
76	0.041627797811	238.488690982727	+1	0.326718629405	639196.079864009630
78	0.041011673087	20.875484732968	-1	0.314866402645	4915.664399042320
80	0.040346165018	9.660850506929	-1	0.303815471972	1070.810457106644
82	0.039612605075	6.092938498724	-1	0.293776231932	436.538321528086
84	0.038822121267	4.340000058551	-1	0.284745086739	228.773615353934
86	0.037984751711	3.299238238809	-1	0.276711801158	137.632571896798
88	0.037110154999	2.611499998194	-1	0.269656340283	90.478078017214
90	0.036207585017	2.124825413716	-1	0.263550042534	63.331902309610
92	0.035284863952	1.763641222019	-1	0.258365183400	46.482285111976
94	0.034349686916	1.486241666267	-1	0.254066083164	35.423293728638
96	0.033408531460	1.267587781944	-1	0.250618407676	27.843425850988
98	0.032467173063	1.091753688667	-1	0.247986096486	22.465492588647
100	0.031530790119	0.948115551044	-1	0.246130668680	18.540805132329
105	0.029240490373	0.686411424162	-1	0.244621201731	12.455920516208
110	0.027070458240	0.514885296435	-1	0.246964872440	9.200561746048

115	0.025068625552	0.398667768431	-1	0.252196048041	7.318005782921
120	0.023279028468	0.318545509907	-1	0.258971177738	6.162032984062
125	0.021743521956	0.263154993223	-1	0.265467354466	5.407499568667
130	0.020497587458	0.225389780670	-1	0.269504395615	4.871267629578
135	0.019566793510	0.200811793257	-1	0.268788626695	4.443209236396
140	0.018954792787	0.186688813579	-1	0.261512595264	4.061913818776
145	0.018638301041	0.181599517827	-1	0.246913075168	3.705592454474
150	0.018561802419	0.185133104253	-1	0.225775582149	3.384182601148
155	0.018646706080	0.197812947947	-1	0.200335886843	3.125137674672
160	0.018806138066	0.221026926433	-1	0.173626797788	2.959509803859
165	0.018965689314	0.257080719790	-1	0.148440921971	2.915032091087
170	0.019075680573	0.309307972288	-1	0.126588181109	3.019399246983
175	0.019113103211	0.382278949906	-1	0.108762426642	3.310608985611
180	0.019074848090	0.482161212913	-1	0.094846000222	3.852273294918
185	0.018969298606	0.617304119519	-1	0.084317968298	4.756132413343
190	0.018809523456	0.799474590022	-1	0.076540249614	6.222307902882
195	0.018608283551	1.045054184980	-1	0.070940064538	8.609500518066
200	0.018375793637	1.375735271402	-1	0.067066838959	12.555558956915
205	0.018120539450	1.820747493797	-1	0.064561626432	19.213341026697
210	0.017850057386	2.424664291799	-1	0.063121442308	30.792135872660
215	0.017569810590	3.254144048056	-1	0.062521140272	51.639624837332
220	0.017283491244	4.407382256178	-1	0.062598288554	90.517184607240
225	0.016993561055	6.025660420544	-1	0.063233794348	165.351156146478
230	0.016701627931	8.296921086631	-1	0.064338883785	312.362378467688
235	0.016408707034	11.416856152373	-1	0.065846403356	599.141233273017
240	0.016115426748	15.421719177604	-1	0.067704425416	1123.129903021743
245	0.015822139317	19.794295917377	-1	0.069872268074	1923.816512825175
250	0.015529026048	23.121740357058	-1	0.072317397083	2756.994965292833
255	0.015236269315	23.870156930760	-1	0.075011256637	3112.275459020957
260	0.014944435694	22.087629987330	-1	0.077921844055	2841.176229382857
265	0.014654082119	19.086573427161	-1	0.081019480604	2273.214123448299
270	0.014365690752	16.014902080376	-1	0.084277581448	1721.000095154438
275	0.014079684274	13.375561665000	-1	0.087672047467	1294.142259619880

280	0.013796454349	11.260114822371	-1	0.091180360034	990.245094112059
285	0.013516366027	9.604257033521	-1	0.094781401027	778.436095527884
290	0.013239767055	8.311913929304	-1	0.098455092244	630.083691391747
295	0.012966990144	7.296946841284	-1	0.102182232106	524.580575937502
300	0.012698357406	6.491846432620	-1	0.105944408144	448.170191746749
310	0.012174807858	5.323175817757	-1	0.113507068526	349.732553615769
320	0.011671653426	4.542708926539	-1	0.121026641257	293.609623991073
330	0.011191067166	4.005944878307	-1	0.128400135941	261.056574647399
340	0.010734792096	3.630743888201	-1	0.135534655339	242.950776804744
350	0.010304142355	3.368619552225	-1	0.142347920648	234.623867471356
360	0.009899929991	3.189640628325	-1	0.148773065412	233.607625944114
370	0.009522066887	3.073483680001	-1	0.154774097031	238.492830896510
380	0.009170137265	3.007624755469	-1	0.160326922581	248.694798593760
390	0.008843559374	2.984858439859	-1	0.165413782306	264.232478822129
400	0.008541616395	3.001683847060	-1	0.170022656347	285.636955327090
410	0.008263382936	3.057161587446	-1	0.174150150945	313.929108266124
420	0.008007462730	3.151495087484	-1	0.177811266817	350.550220367827
430	0.007772405795	3.287304187649	-1	0.181025684062	397.718851806821
440	0.007556845660	3.470309589810	-1	0.183813245009	458.862926205394
450	0.007359492911	3.710134339173	-1	0.186193755384	539.305249640958
460	0.007179083044	4.021600096056	-1	0.188188781192	647.446686280010
470	0.007014204134	4.426301362876	-1	0.189826967690	796.729722356577
480	0.006863520912	4.958288336181	-1	0.191136744791	1010.194047522802
490	0.006725824130	5.673961969086	-1	0.192144389490	1330.170752143944
500	0.006600023730	6.672547014558	-1	0.192874066724	1841.455818829039
510	0.006485105496	8.144023352408	-1	0.193348877454	2734.688419997418
520	0.006380040550	10.498904649354	-1	0.193593738332	4513.905109824552
530	0.006283884722	14.825011477072	-1	0.193632050770	8909.110234089052
540	0.006195793052	25.264616414451	-1	0.193484925880	25535.185513233308
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560	0.006040841478	62.137640345695	+1	0.192709057001	154099.808492926010
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580	0.005909764013	13.276224632100	+1	0.191405927606	7547.161299481344

590	0.005851710237	9.366514637674	+1	0.190595344499	3884.548966113590
600	0.005797981241	7.174150958793	+1	0.189696314672	2354.163808937422
610	0.005748140708	5.774391955505	+1	0.188720393751	1574.012678987122
620	0.005701782278	4.805291131600	+1	0.187678476712	1123.958740086382
630	0.005658537490	4.096034012428	+1	0.186580399985	841.380643513083
640	0.005618077148	3.555484872264	+1	0.185434963094	652.647277251264
650	0.005580104840	3.130598185123	+1	0.184250046054	520.513257111952
660	0.005544352706	2.788407715794	+1	0.183032702423	424.507068555336
670	0.005510581346	2.507353038582	+1	0.181789247347	352.625663495315
680	0.005478572494	2.272746118219	+1	0.180525374793	297.458068423767
690	0.005448131731	2.074237998021	+1	0.179246159849	254.229379513308
700	0.005419081554	1.904328484369	+1	0.177956141833	219.751971538286
710	0.005391261669	1.757450277817	+1	0.176659349410	191.832544675449
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740	0.005313886757	1.417295839115	+1	0.172761008994	133.934072820482
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780	0.005221001634	1.113955783215	+1	0.167638935358	90.367362303129
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850	0.005074394349	0.797201639537	+1	0.159156098302	53.172915169689
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890	0.004995373115	0.682507790504	+1	0.154663692135	41.849623298890
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940	0.004899028698	0.577864864035	+1	0.149437076675	32.539853987736
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1025	0.004738946316	0.460441778067	+1	0.141510176269	23.279650981817
1050	0.004692583697	0.435470091066	+1	0.139392651839	21.475440797592
1075	0.004646571017	0.413639824446	+1	0.137364434143	19.946292007952
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1125	0.004555630889	0.377663979932	+1	0.133560716944	17.525360294643
1150	0.004510751452	0.362830643112	+1	0.131777010489	16.563447338021
1175	0.004466314377	0.349732506912	+1	0.130066248505	15.731765921447
1200	0.004422341878	0.338155387517	+1	0.128424755288	15.010599595524
1225	0.004378850930	0.327920477929	+1	0.126849113422	14.384044681723
1250	0.004335871284	0.318871232803	+1	0.125335609540	13.838703755883
1275	0.004293425494	0.310875239926	+1	0.123880778704	13.363605965596
1300	0.004251528763	0.303821589457	+1	0.122481609110	12.949823003063
1325	0.004210191703	0.297615492311	+1	0.121135342786	12.589947911176
1350	0.004169428451	0.292172795298	+1	0.119839032533	12.277587484694
1375	0.004129252051	0.287420523757	+1	0.118590022891	12.007355896258
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1550	0.003864724207	0.269115131791	+1	0.110984728516	10.990044277642
1600	0.003794503075	0.267580735580	+1	0.109120589920	10.907332058571
1650	0.003726598660	0.267312586447	+1	0.107370689721	10.894058406970
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1750	0.003597513362	0.270051015178	+1	0.104173452413	11.046841348082
1800	0.003536197955	0.272857674892	+1	0.102708833856	11.202651217428
1850	0.003476936670	0.276520618168	+1	0.101323565541	11.406654512576
1900	0.003419651239	0.280986289441	+1	0.100011251116	11.656736326922
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2000	0.003310714234	0.292138774301	+1	0.097582394956	12.288676998499
2100	0.003208838233	0.305981620165	+1	0.095380286031	13.088377244770
2200	0.003113397200	0.322415725109	+1	0.093374244419	14.060433386025
2300	0.003023817757	0.341419612349	+1	0.091539041698	15.215504306314
2400	0.002939613200	0.362976707066	+1	0.089852289557	16.566069672701
2500	0.002860374130	0.387053644077	+1	0.088293692806	18.124908684763
2600	0.002785733054	0.413627097777	+1	0.086845603054	19.906725192206
2700	0.002715293884	0.442834264203	+1	0.085496044261	21.939342936702
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2900	0.002585632167	0.509914759262	+1	0.083053163300	26.901333966776
3000	0.002525835593	0.548179690181	+1	0.081941672611	29.914255935810
3100	0.002469070693	0.589876499395	+1	0.080892634599	33.347456241096
3200	0.002415104954	0.635337964044	+1	0.079900444202	37.268600766727
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3500	0.002268014274	0.798547625116	+1	0.077217943626	52.870351928681
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3700	0.002180657025	0.935077100091	+1	0.075633346197	67.745641372117
3800	0.002139767278	1.013890967130	+1	0.074892741040	77.086798073695
3900	0.002100575753	1.101098090423	+1	0.074183247934	88.065029902553
4000	0.002062976372	1.197973943198	+1	0.073502576228	101.050620914425
4100	0.002026872149	1.306070982369	+1	0.072848601997	116.521023956108
4200	0.001992171506	1.427333727595	+1	0.072219547531	135.105649973594
4300	0.001958793268	1.564194671666	+1	0.071613850573	157.641916057893
4400	0.001926651979	1.719779536136	+1	0.071030326865	185.271899110736
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4600	0.001865763279	2.104627652994	+1	0.069926341702	262.810178036836
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5500	0.001638002470	8.626301676028	+1	0.065753560094	3562.185932306405
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6500	0.001448442210	6.292310080876	-1	0.062186713242	2097.619433185688
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7500	0.001302809993	2.284841934700	-1	0.059341125697	362.950788976217
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8500	0.001187267580	1.373590884266	-1	0.056979090346	165.727098795084
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9500	0.001093262853	0.974064347141	-1	0.054958144028	102.171750931328
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10500	0.001015208902	0.751375181326	-1	0.053188370719	72.743308094600
11000	0.000980926350	0.673642151717	-1	0.052378146946	63.466524883259
11500	0.000949301892	0.610222594199	-1	0.051610215432	56.273843305460
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12500	0.000892863574	0.513201284567	-1	0.050182632038	45.911878990236
13000	0.000867571424	0.475353173446	-1	0.049515328387	42.075092744726
13500	0.000843959590	0.442695864307	-1	0.048875690181	38.855083600096
14000	0.000821862108	0.414253726996	-1	0.048261207877	36.117562345018
14500	0.000801133728	0.389273124502	-1	0.047669869929	33.763362573876
15000	0.000781648145	0.367173975391	-1	0.047099805522	31.718799242028
16000	0.000745972089	0.329863292295	-1	0.046017364416	28.344958822545
17000	0.000714088602	0.299618986450	-1	0.045003178911	25.678197158956
18000	0.000685409666	0.274643441830	-1	0.044048724649	23.518398142637
19000	0.000659463977	0.253695854858	-1	0.043147110929	21.733752921074
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22000	0.000564940229	0.188880272816	-1	0.043343620683	17.998907882199
23000	0.000544824626	0.176565928046	-1	0.042767703712	17.026621415339
24000	0.000525869413	0.165213649129	-1	0.042231608728	16.133269151962
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26000	0.000491989694	0.146302909924	-1	0.041265206576	14.664534193858
27000	0.000476995741	0.138698502606	-1	0.040819598717	14.084043172608
28000	0.000463063465	0.132018983143	-1	0.040392476129	13.578611072313
29000	0.000450034499	0.126049477341	-1	0.039982251080	13.129412434275
30000	0.000437749351	0.120592122701	-1	0.039590959548	12.720105467874
31000	0.000426087565	0.115496955580	-1	0.039221291807	12.338250452178
32000	0.000415001071	0.110725401419	-1	0.038872417704	11.980779250435
33000	0.000404460471	0.106265995864	-1	0.038542429617	11.646921319378
34000	0.000394438866	0.102108378812	-1	0.038229332691	11.336001740917
35000	0.000384911708	0.098243158190	-1	0.037931053161	11.047430325294
36000	0.000375853615	0.094657919507	-1	0.037645612461	10.780348054208
37000	0.000367230149	0.091325866149	-1	0.037371865242	10.532626557347
38000	0.000359007041	0.088218527784	-1	0.037109129224	10.301981449895
39000	0.000351152781	0.085309490082	-1	0.036857041077	10.086304392213
40000	0.000343638279	0.082574241882	-1	0.036615533233	9.883647729360
41000	0.000336437773	0.079991865872	-1	0.036384605473	9.692357257732
42000	0.000329531524	0.077550243227	-1	0.036163634473	9.511508477835
43000	0.000322902293	0.075239833453	-1	0.035951891920	9.340387031584
44000	0.000316534132	0.073051650043	-1	0.035748748837	9.178322163973
45000	0.000310412157	0.070977249031	-1	0.035553643167	9.024682458879
46000	0.000304522478	0.069008632623	-1	0.035366105070	8.878871319649
47000	0.000298851851	0.067138307571	-1	0.035185673265	8.740323368070
48000	0.000293387878	0.065359164120	-1	0.035011963534	8.608500511327
49000	0.000288118918	0.063664454871	-1	0.034844668618	8.482891456840
50000	0.000283034128	0.062047776621	-1	0.034683559277	8.363008275320
55000	0.000260051855	0.054962588542	-1	0.033961588690	7.836550898787
60000	0.000240464291	0.049206765645	-1	0.033356028518	7.406937477741
65000	0.000223557245	0.044441464190	-1	0.032843308558	7.049149088090
70000	0.000208806432	0.040434314308	-1	0.032405609668	6.746166550427
75000	0.000195817744	0.037020518736	-1	0.032029209041	6.485996868555
80000	0.000184288956	0.034079925190	-1	0.031703323711	6.259934015085
85000	0.000173984090	0.031522748864	-1	0.031419457332	6.061508815798
90000	0.000164715644	0.029280446918	-1	0.031170846016	5.885812699731

95000	0.000156333398	0.027299933765	-1	0.030951943492	5.729039350730
100000	0.000148715002	0.025539317798	-1	0.030758264767	5.588200359572
105000	0.000141759832	0.023965007527	-1	0.030586146247	5.460890566373
110000	0.000135384650	0.022550399612	-1	0.030432326765	5.345246983602
115000	0.000129519248	0.021272873689	-1	0.030294442539	5.239628296527
120000	0.000124104906	0.020114474895	-1	0.030170211381	5.142775880274
125000	0.000119091372	0.019059832370	-1	0.030057886271	5.053582535793
130000	0.000114435652	0.018096323605	-1	0.029955871483	4.971170342147
135000	0.000110100452	0.017212942102	-1	0.029863041331	4.894756085539
140000	0.000106053548	0.016400422455	-1	0.029778599227	4.823719303916
145000	0.000102270563	0.015652306689	-1	0.029699151385	4.757359578240
150000	0.000098725669	0.014961331982	-1	0.029624515371	4.695244730220
155000	0.000095395859	0.014320975930	-1	0.029554969661	4.636995227374
160000	0.000092262130	0.013726034913	-1	0.029490272986	4.582274007046
165000	0.000089305360	0.013170973559	-1	0.029432182969	4.530862627492
170000	0.000086513965	0.012653426896	-1	0.029377169893	4.482338602625
175000	0.000083874410	0.012169895890	-1	0.029324736598	4.436439215710
180000	0.000081374735	0.011717259946	-1	0.029274747056	4.392958734553
185000	0.000079004173	0.011292718822	-1	0.029227137767	4.351707654000
190000	0.000076753203	0.010893995198	-1	0.029181374739	4.312514855696
195000	0.000074613177	0.010518981674	-1	0.029137022456	4.275210155392
200000	0.000072576053	0.010165552404	-1	0.029094152287	4.239623240364
205000	0.000070634497	0.009831769849	-1	0.029052963342	4.205601289165
210000	0.000068782159	0.009516243060	-1	0.029013174357	4.173064278131
215000	0.000067013293	0.009217756940	-1	0.028974438006	4.141946005654
220000	0.000065322592	0.008935166747	-1	0.028936452483	4.112176786509
225000	0.000063705160	0.008667381332	-1	0.028898997167	4.083682575024
230000	0.000062156467	0.008413374150	-1	0.028861887296	4.056385415777
235000	0.000060672317	0.008172167328	-1	0.028825015396	4.030204490403
240000	0.000059248804	0.007942832547	-1	0.028788341710	4.005057437138
245000	0.000057882307	0.007724492561	-1	0.028751870445	3.980858219027
250000	0.000056569452	0.007516307618	-1	0.028715697423	3.957519721408
255000	0.000055307123	0.007317523956	-1	0.028679910169	3.934965003466

260000	0.000054092579	0.007127590303	-1	0.028644404543	3.913159882444
265000	0.000052923288	0.006946018599	-1	0.028609048942	3.892079427900
270000	0.000051796875	0.006772344337	-1	0.028573735408	3.871697664230
275000	0.000050711127	0.006606124191	-1	0.028538374345	3.851985051746
280000	0.000049663951	0.006446933752	-1	0.028502908588	3.832912718436
285000	0.000048653397	0.006294369101	-1	0.028467290861	3.814447650218
290000	0.000047677621	0.006148042434	-1	0.028431510152	3.796557345883
295000	0.000046734894	0.006007583333	-1	0.028395575746	3.779207154325
300000	0.000045823583	0.005872637356	-1	0.028359524004	3.762361968768

Electron Elastic Scattering Sampling Data
Solution for Z = 84

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.037730061823	0.714440044414	+1	0.563430532399	40.374131641790
52	0.038118133066	0.813973899104	+1	0.560193014093	47.526811506825
54	0.038707815424	0.923789487436	+1	0.553188539077	54.725201777655
56	0.039447826941	1.045770452644	+1	0.543043685268	62.005123023385
58	0.040277243129	1.182508529762	+1	0.530382580177	69.565906830941
60	0.041133820096	1.337642537778	+1	0.515804328541	77.781560803638
62	0.041959923358	1.516408989616	+1	0.499868608310	87.233565989990
64	0.042706978218	1.726416964764	+1	0.483072438480	98.777815663285
66	0.043336181458	1.979263403535	+1	0.465864371284	113.748462885150
68	0.043820670810	2.293008616736	+1	0.448624215530	134.316282325530
70	0.044140567552	2.697706236643	+1	0.431679099856	164.398395279169
72	0.044299004455	3.243543731382	+1	0.415239769586	211.276270686622
74	0.044286398789	4.030838736728	+1	0.399546711103	291.765652294193
76	0.044112609897	5.274205608416	+1	0.384732684362	449.263303635952
78	0.043788723092	7.546908663140	+1	0.370900582179	832.034830421364
80	0.043329212975	13.055536535835	+1	0.358112824401	2264.650353606768
82	0.042748874073	45.956008515636	+1	0.346409564317	25657.435727987588
84	0.042064659593	30.250707851002	-1	0.335798843528	10903.424548969049
86	0.041292350797	10.816421097770	-1	0.326276081890	1439.562524645331
88	0.040447371524	6.351988863239	-1	0.317821639170	516.998961764415
90	0.039544614419	4.375787103600	-1	0.310403163434	257.571996975990
92	0.038596899504	3.264691594394	-1	0.303986436517	151.693458752434
94	0.037616706697	2.555622829555	-1	0.298527130410	99.075813291680
96	0.036614708631	2.066044456983	-1	0.293980427515	69.493924343344
98	0.035600362742	1.709474215734	-1	0.290298825443	51.389064859659
100	0.034582052091	1.439624521750	-1	0.287432396698	39.597354140189
105	0.032064994794	0.990856646661	-1	0.283488372899	23.584387594911
110	0.029660854513	0.722453685528	-1	0.283424174621	16.115895449312

115	0.027435295056	0.550138325897	-1	0.286222392378	12.131623610038
120	0.025438666822	0.434712552259	-1	0.290664106226	9.797212087481
125	0.023710397586	0.355604222789	-1	0.295271690925	8.321161774450
130	0.022278128414	0.300970756435	-1	0.298407596330	7.312553532631
135	0.021159721759	0.263734909477	-1	0.298365297630	6.559295882465
140	0.020356353861	0.239505621333	-1	0.293692329734	5.943072503206
145	0.019853248977	0.225692348929	-1	0.283424731273	5.403870926298
150	0.019612643505	0.220869815705	-1	0.267465457846	4.923500347833
155	0.019579305845	0.224564599907	-1	0.246651312112	4.510161439383
160	0.019684008152	0.237042941194	-1	0.222679791587	4.185173876981
165	0.019855647754	0.259251411428	-1	0.197678800117	3.972122551900
170	0.020032303692	0.292784088493	-1	0.173655748088	3.892752575521
175	0.020169637994	0.339885938107	-1	0.152068830234	3.969265359113
180	0.020242786658	0.403507774771	-1	0.133667932105	4.230929005045
185	0.020243551691	0.487401044236	-1	0.118602078813	4.723286041954
190	0.020175382764	0.596467143045	-1	0.106620260423	5.521454875884
195	0.020046783888	0.736740565891	-1	0.097319936899	6.746098847233
200	0.019866907660	0.914759785153	-1	0.090293236934	8.580278550686
205	0.019645607696	1.137635272673	-1	0.085144712780	11.298667242718
210	0.019393281464	1.414865682490	-1	0.081493200945	15.333952950864
215	0.019118403582	1.757860004257	-1	0.079034009751	21.352594645300
220	0.018827183097	2.178743026320	-1	0.077538109017	30.348856511238
225	0.018524217190	2.688620975624	-1	0.076831457183	43.746212972360
230	0.018212858457	3.293897320908	-1	0.076781237428	63.430116251657
235	0.017895531107	3.989993108140	-1	0.077285307949	91.549040647546
240	0.017573990250	4.752731137249	-1	0.078264111022	129.818654669567
245	0.017249483017	5.529852034226	-1	0.079655354008	178.105680785109
250	0.016922896319	6.239854225499	-1	0.081409466209	232.645409602033
255	0.016595019855	6.790393933151	-1	0.083483807610	285.621398355913
260	0.016267001944	7.122129774775	-1	0.085832929052	328.543457914844
265	0.015939898457	7.222709637263	-1	0.088416081824	355.710064956747
270	0.015614562878	7.121806135354	-1	0.091198209025	366.016910758407
275	0.015291715019	6.873428685504	-1	0.094148468162	362.281807903344

280	0.014971972567	6.535441713951	-1	0.097239234091	349.075558353339
285	0.014655872455	6.156324627776	-1	0.100445333190	330.813556320107
290	0.014343902235	5.770570410497	-1	0.103743570393	310.828169099620
295	0.014036497442	5.399710672381	-1	0.107112342988	291.246820306327
300	0.013734053397	5.055401902100	-1	0.110531456863	273.231769126548
310	0.013145547943	4.463456346449	-1	0.117448305608	243.665946061244
320	0.012581251353	3.999180065231	-1	0.124367660378	222.895699524793
330	0.012043470537	3.644701340521	-1	0.131180055076	209.704111338046
340	0.011533940311	3.379350425305	-1	0.137789086592	202.715087499916
350	0.011053875205	3.185794214285	-1	0.144110847508	200.902752686869
360	0.010603886239	3.050612713417	-1	0.150078297746	203.610771619743
370	0.010183664532	2.962933109148	-1	0.155654365261	210.414277629515
380	0.009792542698	2.915519521771	-1	0.160814203595	221.229987096686
390	0.009429698626	2.904183601747	-1	0.165539408081	236.306668438090
400	0.009094185243	2.927137605293	-1	0.169817195978	256.231011180645
410	0.008784857497	2.984336707323	-1	0.173643496126	281.943216145972
420	0.008500083813	3.076410542822	-1	0.177032131135	314.696765083339
430	0.008238207840	3.205923839741	-1	0.180001399982	356.353871545484
440	0.007997681730	3.378027197355	-1	0.182569646733	409.728111139324
450	0.007777052735	3.601124403635	-1	0.184755201470	479.105579856560
460	0.007574913771	3.887907274158	-1	0.186577951671	571.121090847375
470	0.007389708693	4.256395083999	-1	0.188064934443	696.132057590216
480	0.007219976029	4.734381737596	-1	0.189242928516	871.402299691446
490	0.007064401826	5.366733622214	-1	0.190136565534	1127.581481353974
500	0.006921800464	6.229659161840	-1	0.190768347763	1523.353683078833
510	0.006791073169	7.462161358596	-1	0.191159848978	2182.740714445697
520	0.006671113472	9.343852157396	-1	0.191334571047	3405.233508631540
530	0.006560903035	12.537283613123	-1	0.191314604845	6079.947463938152
540	0.006459535730	19.085056467286	-1	0.191119787677	13931.257686442768
550	0.006366200664	39.893690741092	-1	0.190767915637	60028.349205455801
560	0.006296038820	191.397815140354	+1	0.189951690927	1362938.299562947800
570	0.006200704736	33.463113923930	+1	0.189658795881	43261.369675902955
580	0.006127184244	16.999108664481	+1	0.188933015765	11561.507354542853

590	0.006059023815	11.246339606972	+1	0.188111567636	5234.925690650524
600	0.005995705310	8.323930885344	+1	0.187206441964	2963.682268014853
610	0.005936763888	6.559121085685	+1	0.186228539961	1899.941709316429
620	0.005881760229	5.380280224104	+1	0.185188163202	1318.700875597634
630	0.005830300937	4.538783370930	+1	0.184094632333	967.251659959643
640	0.005782030705	3.909115722931	+1	0.182956302518	738.923743360819
650	0.005736634779	3.421063417697	+1	0.181780535785	582.403492622749
660	0.005693822417	3.032316114647	+1	0.180574020771	470.549032233203
670	0.005653333829	2.715851346047	+1	0.179342793700	387.912291212068
680	0.005614932990	2.453610533055	+1	0.178092256681	325.180624771011
690	0.005578405044	2.233071992187	+1	0.176827290557	276.471548745502
700	0.005543563614	2.045268626563	+1	0.175552091378	237.918835636231
710	0.005510229664	1.883631935646	+1	0.174270585407	206.902630602872
720	0.005478253483	1.743216275147	+1	0.172986063577	181.591201872105
730	0.005447494299	1.620243284991	+1	0.171701456814	160.676642746007
740	0.005417828330	1.511776491906	+1	0.170419395617	143.204672542706
750	0.005389141219	1.415501337010	+1	0.169142239420	128.466297389579
760	0.005361330578	1.329565771793	+1	0.167872038781	115.925316110262
770	0.005334308226	1.252465667823	+1	0.166610462394	105.169455588111
780	0.005307995304	1.182972126526	+1	0.165358987119	95.878475000034
790	0.005282317968	1.120074061638	+1	0.164118933616	87.800984841125
800	0.005257210550	1.062930994857	+1	0.162891448217	80.737204937639
810	0.005232614370	1.010837848448	+1	0.161677548932	74.526695468232
820	0.005208479572	0.963194413384	+1	0.160477946602	69.038827241217
830	0.005184761783	0.919491016678	+1	0.159293289750	64.167015293695
840	0.005161419366	0.879293098165	+1	0.158124096573	59.823690810225
850	0.005138415382	0.842227741058	+1	0.156970855470	55.936361749730
860	0.005115715781	0.807972569250	+1	0.155833958371	52.444531111180
870	0.005093295010	0.776244191155	+1	0.154713620965	49.297001736362
880	0.005071120575	0.746797977807	+1	0.153610089827	46.450923026909
890	0.005049192386	0.719412306526	+1	0.152523169893	43.868889939035
900	0.005027467943	0.693904369482	+1	0.151453281166	41.520655109449
910	0.005005935603	0.670105679107	+1	0.150400396184	39.379304833896

920	0.004984584480	0.647865356517	+1	0.149364392616	37.421538525826
930	0.004963399706	0.627051076228	+1	0.148345215237	35.627435336266
940	0.004942369949	0.607544115750	+1	0.147342710947	33.979615373212
950	0.004921486447	0.589239488603	+1	0.146356803533	32.463048342158
960	0.004900737603	0.572042681604	+1	0.145387352664	31.064578483604
970	0.004880117975	0.555868045961	+1	0.144434168626	29.772575843875
980	0.004859620273	0.540638358612	+1	0.143497052040	28.576823320567
990	0.004839241746	0.526283729710	+1	0.142575774023	27.468269599621
1000	0.004818969911	0.512743066251	+1	0.141670272863	26.439150889398
1025	0.004768756872	0.482082968820	+1	0.139473548618	24.168551827376
1050	0.004719191920	0.455380547386	+1	0.137368922943	22.258817877233
1075	0.004670257277	0.432019231930	+1	0.135352117999	20.640173984243
1100	0.004621928283	0.411510401961	+1	0.133419449259	19.259688142710
1125	0.004574184724	0.393457449657	+1	0.131567375526	18.076229759270
1150	0.004527042629	0.377521647653	+1	0.129791493625	17.056384646300
1175	0.004480514611	0.363423705307	+1	0.128087654130	16.173690299906
1200	0.004434604062	0.350935140610	+1	0.126452272252	15.407239706897
1225	0.004389311890	0.339865356240	+1	0.124882030684	14.740183230641
1250	0.004344653012	0.330047669394	+1	0.123373316533	14.158347318022
1275	0.004300639476	0.321341220899	+1	0.121922759334	13.650127535329
1300	0.004257273020	0.313627950343	+1	0.120527409846	13.206087396007
1325	0.004214555057	0.306806969523	+1	0.119184540327	12.818388110148
1350	0.004172493526	0.300788728661	+1	0.117891315226	12.480271855718
1375	0.004131091204	0.295495708840	+1	0.116645082645	12.186055838433
1400	0.004090348639	0.290861668022	+1	0.115443486614	11.931002204328
1425	0.004050262502	0.286829322911	+1	0.114284349364	11.711116800385
1450	0.004010831723	0.283347116147	+1	0.113165481075	11.522891730754
1475	0.003972056104	0.280369852508	+1	0.112084824435	11.363316178887
1500	0.003933927152	0.277858391588	+1	0.111040519935	11.229859509360
1550	0.003859591039	0.274098133685	+1	0.109054124979	11.032793052382
1600	0.003787774507	0.271831578739	+1	0.107193231244	10.917253155489
1650	0.003718410675	0.270873903038	+1	0.105446446147	10.872414116801
1700	0.003651429543	0.271077797212	+1	0.103803542399	10.890033094503

1750	0.003586749924	0.272324909354	+1	0.102255475615	10.963852625313
1800	0.003524294222	0.274519393238	+1	0.100794126267	11.089080068344
1850	0.003463978449	0.277583681597	+1	0.099412264312	11.262122746132
1900	0.003405716306	0.281459261268	+1	0.098103543196	11.480566548336
1950	0.003349423483	0.286096040051	+1	0.096862143683	11.742566027083
2000	0.003295029635	0.291441761807	+1	0.095682474901	12.046200214371
2100	0.003191637702	0.304110333283	+1	0.093489237469	12.774287205062
2200	0.003094885656	0.319339397574	+1	0.091492896828	13.667260110223
2300	0.003004173947	0.337082856708	+1	0.089668002584	14.733463724321
2400	0.002918992709	0.357303991325	+1	0.087992126132	15.983112320233
2500	0.002838907571	0.379954162851	+1	0.086445053121	17.426850748726
2600	0.002763531496	0.404996612478	+1	0.085009230551	19.077132248252
2700	0.002692454991	0.432548211287	+1	0.083672555052	20.958485895321
2800	0.002625306959	0.462773856805	+1	0.082424847129	23.101690441879
2900	0.002561770058	0.495841499281	+1	0.081256625105	25.541225098989
3000	0.002501570250	0.531916840195	+1	0.080158974440	28.315259233971
3100	0.002444463825	0.571182122807	+1	0.079123902573	31.467605568456
3200	0.002390211288	0.613928924019	+1	0.078145734580	35.056810265342
3300	0.002338594612	0.660507440172	+1	0.077219578964	39.154186038057
3400	0.002289422041	0.711306123608	+1	0.076340828104	43.844019778624
3500	0.002242524121	0.766756577085	+1	0.075505096739	49.226167514627
3600	0.002197746523	0.827355210759	+1	0.074708402914	55.421055538188
3700	0.002154944915	0.893737342306	+1	0.073947742940	62.581796853318
3800	0.002113984947	0.966663383933	+1	0.073220471600	70.899370054464
3900	0.002074747170	1.047029792099	+1	0.072524110183	80.611626545878
4000	0.002037122611	1.135899693914	+1	0.071856319551	92.017326866636
4100	0.002001010941	1.234555578112	+1	0.071214955073	105.497015764704
4200	0.001966320457	1.344590013407	+1	0.070598255744	121.545772695133
4300	0.001932965610	1.467974564866	+1	0.070004635416	140.812896242317
4400	0.001900868428	1.607167218316	+1	0.069432632984	164.160610218189
4500	0.001869956591	1.765268539271	+1	0.068880854355	192.751818445087
4600	0.001840163361	1.946259534143	+1	0.068348036107	228.186145615283
4700	0.001811428281	2.155341969426	+1	0.067833055819	272.711327850740

4800	0.001783686870	2.399530983966	+1	0.067335221913	329.586576260122
4900	0.001756863179	2.688656215025	+1	0.066854653288	403.724898495273
5000	0.001730937619	3.035655458113	+1	0.066389139100	502.418008832893
5500	0.001613289530	6.830382832807	+1	0.064260932989	2273.044368652485
6000	0.001519796190	78.837870764544	+1	0.062087123956	273739.826426401500
6500	0.001424849045	7.841405155425	-1	0.060774866633	3143.998106693162
7000	0.001348125963	3.826844196234	-1	0.059315339942	862.802631940873
7500	0.001280307239	2.509766322090	-1	0.057998167854	423.062119761382
8000	0.001219907672	1.857226887887	-1	0.056798583519	261.629259947248
8500	0.001165756617	1.468720863246	-1	0.055697325545	183.240090419653
9000	0.001116918480	1.211611448041	-1	0.054679201150	138.614565382705
9500	0.001072637082	1.029283974004	-1	0.053732104290	110.453474488621
10000	0.001032292458	0.893515216670	-1	0.052846256098	91.351073524170
10500	0.000995372083	0.788659058368	-1	0.052013784713	77.681172171000
11000	0.000961451851	0.705379349232	-1	0.051227908629	67.490644133483
11500	0.000930171115	0.637707004980	-1	0.050483476946	59.639981051951
12000	0.000901227792	0.581704355528	-1	0.049775787786	53.431070839760
12500	0.000874362991	0.534633471784	-1	0.049101153055	48.411311621828
13000	0.000849358321	0.494565451615	-1	0.048455911332	44.278908139899
13500	0.000826026893	0.460084637214	-1	0.047836816471	40.823841622301
14000	0.000804196981	0.430107586052	-1	0.047242199791	37.894995100879
14500	0.000783724001	0.403819974290	-1	0.046670073110	35.382709612926
15000	0.000764483079	0.380596846494	-1	0.046118599425	33.205806335062
16000	0.000729265136	0.341457704784	-1	0.045071542652	29.623982053716
17000	0.000697804012	0.309796209272	-1	0.044090491781	26.802270216115
18000	0.000669515582	0.283694985788	-1	0.043167096199	24.523298228872
19000	0.000643932441	0.261835215118	-1	0.042294597423	22.644554753824
20000	0.000620676686	0.243280936611	-1	0.041467476612	21.068965089065
21000	0.000574527649	0.209047043678	-1	0.043006701719	19.758505581003
22000	0.000553849099	0.195539238324	-1	0.042411211082	18.683896585236
23000	0.000534118298	0.182745101784	-1	0.041849754119	17.665536822273
24000	0.000515527613	0.170962363620	-1	0.041326540605	16.731159241599
25000	0.000498238169	0.160452863506	-1	0.040839512623	15.904166894916

26000	0.000482332582	0.151363585364	-1	0.040381024837	15.196948166309
27000	0.000467638798	0.143484401712	-1	0.039945174352	14.591153985550
28000	0.000453987701	0.136565469204	-1	0.039527324979	14.063925640459
29000	0.000441213678	0.130380220790	-1	0.039126443341	13.595646072005
30000	0.000429173857	0.124729127798	-1	0.038743663670	13.169148380248
31000	0.000417752802	0.119458173679	-1	0.038381293495	12.771434616480
32000	0.000406895041	0.114523919517	-1	0.038039004312	12.399329479257
33000	0.000396572210	0.109914106884	-1	0.037714954998	12.051974136247
34000	0.000386757996	0.105617569739	-1	0.037407235118	11.728619089121
35000	0.000377428374	0.101624190586	-1	0.037113869497	11.428610666471
36000	0.000368558377	0.097920715971	-1	0.036832993856	11.151021761021
37000	0.000360114226	0.094479316032	-1	0.036563491405	10.893619777228
38000	0.000352062261	0.091270447861	-1	0.036304710097	10.654018995898
39000	0.000344371547	0.088266755955	-1	0.036056293646	10.430020041672
40000	0.000337013599	0.085442891321	-1	0.035818166659	10.219592041828
41000	0.000329963143	0.082777223937	-1	0.035590317893	10.021011602044
42000	0.000323200845	0.080257185702	-1	0.035372140688	9.833311674778
43000	0.000316709804	0.077872817437	-1	0.035162948256	9.655742727081
44000	0.000310474350	0.075614798713	-1	0.034962120863	9.487601514372
45000	0.000304479927	0.073474327917	-1	0.034769136960	9.328227206512
46000	0.000298712917	0.071443141743	-1	0.034583529569	9.176996616540
47000	0.000293160324	0.069513456230	-1	0.034404858723	9.033319062447
48000	0.000287810011	0.067677909344	-1	0.034232755446	8.896633605285
49000	0.000282650608	0.065929522811	-1	0.034066921414	8.766406647702
50000	0.000277671446	0.064261684846	-1	0.033907126357	8.642130982192
55000	0.000255165458	0.056952492720	-1	0.033189885428	8.096551562242
60000	0.000235981962	0.051014343448	-1	0.032586671975	7.651518020060
65000	0.000219421885	0.046097279095	-1	0.032074573103	7.281001595399
70000	0.000204972200	0.041961546708	-1	0.031636208346	6.967309343071
75000	0.000192247305	0.038437241709	-1	0.031258150079	6.697981378014
80000	0.000180951289	0.035400478677	-1	0.030929911400	6.463990697608
85000	0.000170853174	0.032758730475	-1	0.030643183732	6.258624671368
90000	0.000161769938	0.030441521754	-1	0.030391251866	6.076782657930

95000	0.000153554454	0.028394146486	-1	0.030168705512	5.914523967305
100000	0.000146086703	0.026573411864	-1	0.029971176708	5.768758500598
105000	0.000139268353	0.024944752993	-1	0.029795051706	5.636991803341
110000	0.000133017950	0.023480761972	-1	0.029637147375	5.517293548982
115000	0.000127266663	0.022158117468	-1	0.029495177645	5.407970761467
120000	0.000121956713	0.020958198142	-1	0.029367059748	5.307728164923
125000	0.000117038148	0.019864827743	-1	0.029251556549	5.215445722627
130000	0.000112475326	0.018868018669	-1	0.029143055715	5.130007130056
135000	0.000108226600	0.017953945882	-1	0.029043532327	5.050759647254
140000	0.000104260857	0.017113303884	-1	0.028951785552	4.977040649488
145000	0.000100548237	0.016336746073	-1	0.028868779143	4.908350455428
150000	0.000097067251	0.015618499116	-1	0.028792026559	4.844121302622
155000	0.000093797510	0.014952778578	-1	0.028720312131	4.783882940828
160000	0.000090720551	0.014334324779	-1	0.028653078862	4.727267850337
165000	0.000087820008	0.013758484089	-1	0.028589848083	4.673935224551
170000	0.000085081154	0.013221246075	-1	0.028530127627	4.623605103987
175000	0.000082490810	0.012719030845	-1	0.028473490556	4.576017288740
180000	0.000080037437	0.012248736795	-1	0.028419494755	4.530938577037
185000	0.000077710638	0.011807565946	-1	0.028367813610	4.488157111272
190000	0.000075500997	0.011393040290	-1	0.028318358401	4.447522900443
195000	0.000073399968	0.011002899867	-1	0.028271038265	4.408881524834
200000	0.000071399720	0.010635065059	-1	0.028225529614	4.372034794449
205000	0.000069493211	0.010287669245	-1	0.028181518890	4.336793343570
210000	0.000067674245	0.009959279129	-1	0.028138681641	4.303069977621
215000	0.000065937180	0.009648614211	-1	0.028096747320	4.270799677908
220000	0.000064276826	0.009354475934	-1	0.028055465842	4.239911996644
225000	0.000062688369	0.009075719963	-1	0.028014667831	4.210332681486
230000	0.000061167361	0.008811273988	-1	0.027974215238	4.181984806106
235000	0.000059709670	0.008560111904	-1	0.027934056028	4.154788288045
240000	0.000058311475	0.008321269137	-1	0.027894168330	4.128659014425
245000	0.000056969187	0.008093824494	-1	0.027854614137	4.103513839324
250000	0.000055679506	0.007876908508	-1	0.027815493722	4.079264060998
255000	0.000054439361	0.007669736272	-1	0.027776915879	4.055833116802

260000	0.000053246071	0.007471738430	-1	0.027738772658	4.033184759188
265000	0.000052097150	0.007282411730	-1	0.027700931845	4.011293127839
270000	0.000050990283	0.007101278158	-1	0.027663271742	3.990129164618
275000	0.000049923299	0.006927881973	-1	0.027625691306	3.969662323376
280000	0.000048894153	0.006761785394	-1	0.027588121066	3.949860953499
285000	0.000047900939	0.006602571910	-1	0.027550506503	3.930690732345
290000	0.000046941854	0.006449841679	-1	0.027512821694	3.912116821763
295000	0.000046015205	0.006303212954	-1	0.027475061840	3.894102951363
300000	0.000045119393	0.006162318285	-1	0.027437252462	3.876611865045

Electron Elastic Scattering Sampling Data
Solution for Z = 85

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.033543954027	0.543271387729	+1	0.614467723911	38.543776614594
52	0.033662815428	0.606991587306	+1	0.615906202873	44.951504321954
54	0.034188670133	0.675053748977	+1	0.612704030386	50.593284747034
56	0.035059536834	0.748162850902	+1	0.605513139742	55.321959099340
58	0.036193935326	0.827201950698	+1	0.595001060815	59.208642280329
60	0.037501800366	0.913312563949	+1	0.581824205975	62.488093420755
62	0.038893071721	1.008032754737	+1	0.566611724446	65.495391272768
64	0.040284388792	1.113412150378	+1	0.549939429241	68.611227349557
66	0.041603220070	1.232372971487	+1	0.532341042621	72.267054560696
68	0.042791580999	1.369006177047	+1	0.514285060084	76.955240274121
70	0.043806454292	1.529107735050	+1	0.496169359360	83.289968887557
72	0.044618159416	1.721269923635	+1	0.478335958437	92.149611356222
74	0.045212465646	1.958266233044	+1	0.461050915334	104.869058526723
76	0.045584679277	2.260281173479	+1	0.444528368461	123.730568061679
78	0.045739906299	2.660780348590	+1	0.428925640766	152.951271418880
80	0.045690619125	3.219493372719	+1	0.414349141453	201.161677526149
82	0.045452463638	4.055233762695	+1	0.400872009478	288.656633202573
84	0.045045808419	5.441634643331	+1	0.388526874021	473.128864765708
86	0.044491131769	8.184932523619	+1	0.377325073321	980.318390458166
88	0.043809616579	16.146241191930	+1	0.367256078938	3513.909967464326
90	0.043075321403	219.053254777131	+1	0.357948571099	598114.218009373060
92	0.042148340415	17.581117157609	-1	0.350396670076	4011.621933869733
94	0.041206307178	8.177974373959	-1	0.343522653931	915.435475733676
96	0.040212615034	5.171888574431	-1	0.337618417676	388.956188506158
98	0.039181967938	3.697877475106	-1	0.332628724714	212.651571572081
100	0.038127537078	2.826585776318	-1	0.328494491300	133.678840556259
105	0.035459822282	1.691546424736	-1	0.321499923967	58.755288586225
110	0.032857783317	1.147503896497	-1	0.318473271300	33.931217060992

115	0.030419326951	0.837969945536	-1	0.318354421769	22.948564060223
120	0.028212014784	0.644637315493	-1	0.320010243252	17.200073926639
125	0.026281184899	0.517157924973	-1	0.322195559321	13.827950181402
130	0.024652680836	0.430386732624	-1	0.323640624385	11.661570180207
135	0.023339889945	0.370630354622	-1	0.323065626000	10.150485327203
140	0.022340707962	0.329835105916	-1	0.319363963516	9.011001378551
145	0.021641389633	0.303203189647	-1	0.311694012609	8.092993454922
150	0.021212876576	0.287833244502	-1	0.299678703812	7.322228647542
155	0.021014160536	0.282128143686	-1	0.283477217890	6.669944066540
160	0.020992427639	0.285377094633	-1	0.263835448166	6.133702774568
165	0.021089252166	0.297573535858	-1	0.241963142836	5.723481650335
170	0.021246434219	0.319284081155	-1	0.219302683740	5.453310698660
175	0.021413124045	0.351568204530	-1	0.197247156569	5.338201828130
180	0.021550588052	0.395937328128	-1	0.176891121374	5.395380948538
185	0.021634412147	0.454335078651	-1	0.158913755977	5.648343487724
190	0.021653906130	0.529289887049	-1	0.143569925985	6.133592656964
195	0.021607072853	0.623715641858	-1	0.130842694799	6.906656836524
200	0.021496270657	0.740336507876	-1	0.120574636003	8.044877993194
205	0.021328117408	0.881676950785	-1	0.112498958809	9.654201815042
210	0.021113196372	1.051231566177	-1	0.106261677676	11.891906794048
215	0.020861288423	1.252814572929	-1	0.101544329236	14.978330229688
220	0.020580414180	1.489879703524	-1	0.098085965123	19.207460697106
225	0.020276997610	1.764774467940	-1	0.095676256611	24.952118144001
230	0.019956124727	2.077639175810	-1	0.094146459021	32.649469669597
235	0.019621776080	2.424877415254	-1	0.093361714875	42.745673949949
240	0.019277032978	2.797347943201	-1	0.093214441361	55.574179376638
245	0.018924295318	3.178949667627	-1	0.093618054339	71.160259402887
250	0.018565396420	3.546245716077	-1	0.094503228473	88.979164466309
255	0.018201966954	3.872130994059	-1	0.095809838399	107.861653744560
260	0.017836046847	4.136007956015	-1	0.097474732971	126.375622078299
265	0.017469445816	4.325529117891	-1	0.099442199922	143.106918522045
270	0.017103611423	4.437246640298	-1	0.101665407578	156.954823837024
275	0.016739737360	4.476112018887	-1	0.104104076588	167.349727163241

280	0.016378814861	4.453074246691	-1	0.106723026521	174.275068772807
285	0.016021677858	4.381958813269	-1	0.109491176905	178.130623843872
290	0.015669044096	4.276856979948	-1	0.112380485649	179.543379317342
295	0.015321531031	4.150308443627	-1	0.115365601305	179.192720563378
300	0.014979678501	4.012514965373	-1	0.118423246964	177.700783635415
310	0.014314890141	3.732371228152	-1	0.124673914243	173.264081794987
320	0.013678267875	3.475978291060	-1	0.130988053014	169.137429580484
330	0.013072537755	3.259328608031	-1	0.137243636804	166.752707887900
340	0.012499596912	3.086014466191	-1	0.143336136574	166.706386301576
350	0.011960654990	2.954455284269	-1	0.149176777017	169.241702031150
360	0.011456195881	2.861247938588	-1	0.154695557047	174.485909474639
370	0.010985677206	2.802057318804	-1	0.159852909056	182.511003987004
380	0.010548173175	2.773683195388	-1	0.164622037105	193.505350396310
390	0.010142599797	2.774379833860	-1	0.168983000575	207.832114224504
400	0.009767747235	2.803772403505	-1	0.172921947619	226.071072468736
410	0.009422202288	2.862578704875	-1	0.176433804625	249.053579836792
420	0.009104050888	2.951793543343	-1	0.179531530937	277.835949116408
430	0.008811370594	3.073891520788	-1	0.182232350956	313.935272104255
440	0.008542376988	3.233412749254	-1	0.184553520986	359.588462190759
450	0.008295419455	3.437530002002	-1	0.186512095299	418.135995327356
460	0.008068897267	3.696789278502	-1	0.188126886512	494.634129670497
470	0.007861066914	4.025763826360	-1	0.189423785369	596.772583148323
480	0.007670299466	4.446397914302	-1	0.190428426401	736.993136596614
490	0.007495137184	4.993153458254	-1	0.191164192348	936.599548200947
500	0.007334269944	5.722507622297	-1	0.191652355419	1234.534319128859
510	0.007186489512	6.732549611134	-1	0.191913373462	1708.137825574789
520	0.007050577965	8.207289372379	-1	0.191969720277	2528.486462284763
530	0.006925419823	10.540336961188	-1	0.191842447838	4140.742707997544
540	0.006810028061	14.752427954437	-1	0.191550445556	8030.541131079269
550	0.006703516373	24.562328423141	-1	0.191110534725	21981.692721719115
560	0.006605084125	72.615253029214	-1	0.190538306478	189253.618024229970
570	0.006513956925	76.355511400511	+1	0.189849378985	211110.765064394570
580	0.006429432063	24.453077993450	+1	0.189058122779	22424.538506413257

590	0.006350881386	14.329447854923	+1	0.188177313442	7966.702805381968
600	0.006277746528	10.024865552811	+1	0.187218308145	4029.996023953637
610	0.006209520785	7.646848751646	+1	0.186191374291	2421.202558071570
620	0.006145729701	6.141568526915	+1	0.185106347379	1611.235204228859
630	0.006085943298	5.105066773844	+1	0.183972110154	1147.561184146537
640	0.006029778208	4.349218884283	+1	0.182796599587	857.881708365624
650	0.005976886102	3.774584850557	+1	0.181586806328	665.048770096324
660	0.005926957491	3.323679963279	+1	0.180349011949	530.345979141238
670	0.005879705608	2.960976963616	+1	0.179088983307	432.621903983999
680	0.005834874046	2.663331125156	+1	0.177811867254	359.527987872173
690	0.005792226767	2.415023033576	+1	0.176522267413	303.465077924979
700	0.005751554655	2.205001549492	+1	0.175224229328	259.549049889924
710	0.005712668110	2.025273358082	+1	0.173921386381	224.526170014350
720	0.005675396895	1.869907771077	+1	0.172616888143	196.160108895420
730	0.005639587619	1.734419942237	+1	0.171313542898	172.874611332481
740	0.005605100442	1.615357164547	+1	0.170013836751	153.533134953207
750	0.005571809536	1.510018916710	+1	0.168719967267	137.299565877612
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770	0.005508369200	1.332357146608	+1	0.166157196398	111.800037399654
780	0.005478031679	1.256900001055	+1	0.164891268827	101.688198426648
790	0.005448502568	1.188740792122	+1	0.163637370989	92.924959572865
800	0.005419705168	1.126928683688	+1	0.162396557826	85.283432824103
810	0.005391573030	1.070668572969	+1	0.161169794204	78.582258211681
820	0.005364047217	1.019288130679	+1	0.159957753298	72.674739691914
830	0.005337075144	0.972217122134	+1	0.158761010308	67.441533157018
840	0.005310610833	0.928971582031	+1	0.157580103549	62.785055255564
850	0.005284606090	0.889137570017	+1	0.156415445042	58.624872127075
860	0.005259023797	0.852357442503	+1	0.155267414273	54.893953366659
870	0.005233829464	0.818318923576	+1	0.154136182939	51.535932837815
880	0.005208994187	0.786749650247	+1	0.153021873865	48.503306654521
890	0.005184489265	0.757413252679	+1	0.151924607306	45.756068260749
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910	0.005136373335	0.704634062481	+1	0.149781474414	40.986493183377

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950	0.005043181484	0.618178319016	+1	0.145698977863	33.658627893254
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1025	0.004876878915	0.503732253467	+1	0.138748022193	24.900726400515
1050	0.004823432928	0.475209666474	+1	0.136622083233	22.888270872738
1075	0.004770878692	0.450244263503	+1	0.134584571560	21.183346686963
1100	0.004719162874	0.428311002525	+1	0.132631766885	19.729514722700
1125	0.004668238907	0.408984689017	+1	0.130760083031	18.483027211570
1150	0.004618103309	0.391903047098	+1	0.128965114370	17.408432995980
1175	0.004568748238	0.376767892674	+1	0.127242730549	16.477724247001
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1225	0.004472329711	0.351402107302	+1	0.124001572364	14.963770123740
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1275	0.004378936543	0.331350676919	+1	0.121008789970	13.808498709119
1300	0.004333371098	0.322956689904	+1	0.119597441468	13.336035080257
1325	0.004288546807	0.315501456864	+1	0.118239063739	12.922131769217
1350	0.004244466035	0.308889633522	+1	0.116930798679	12.559664241473
1375	0.004201125331	0.303038761286	+1	0.115670001770	12.242653559735
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1500	0.003995292013	0.283020546760	+1	0.109999356814	11.188482809289
1550	0.003917893594	0.278446053124	+1	0.107989473888	10.956808903753
1600	0.003843205185	0.275419728689	+1	0.106106667980	10.808009070252
1650	0.003771143277	0.273744700443	+1	0.104339461656	10.730637468087
1700	0.003701620918	0.273263812177	+1	0.102677549315	10.715955789714

1750	0.003634545007	0.273850632754	+1	0.101111784602	10.757285433589
1800	0.003569825474	0.275402685936	+1	0.099634014442	10.849493631712
1850	0.003507367251	0.277836747768	+1	0.098236908507	10.988678900565
1900	0.003447077146	0.281089107965	+1	0.096914062330	11.172120188625
1950	0.003388863469	0.285105530934	+1	0.095659575536	11.397709707302
2000	0.003332646394	0.289830754011	+1	0.094467858846	11.663347550321
2100	0.003225873037	0.301246992674	+1	0.092253491832	12.309904700234
2200	0.003126059765	0.315184566623	+1	0.090239406294	13.111970568451
2300	0.003032574876	0.331571619415	+1	0.088399572043	14.075406705836
2400	0.002944874167	0.350350709965	+1	0.086711227426	15.208030983900
2500	0.002862495395	0.371456976450	+1	0.085153982220	16.518152876074
2600	0.002785023615	0.394840135052	+1	0.083710195355	18.015839615312
2700	0.002712029321	0.420595210974	+1	0.082367462960	19.721999751865
2800	0.002643123049	0.448861239447	+1	0.081115308320	21.662917417685
2900	0.002577971682	0.479777901118	+1	0.079944011449	23.867787193170
3000	0.002516287648	0.513479950361	+1	0.078844455373	26.368572948872
3100	0.002457815157	0.550115089984	+1	0.077808490761	29.201694300901
3200	0.002402303043	0.589933641475	+1	0.076830311474	32.416294694218
3300	0.002349522940	0.633235712042	+1	0.075904896049	36.071857762894
3400	0.002299275178	0.680350846301	+1	0.075027527488	40.237997347247
3500	0.002251381581	0.731639690102	+1	0.074193704704	44.996210926322
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3700	0.002162024817	0.848504880728	+1	0.072641399549	56.703886771699
3800	0.002120269721	0.915245771042	+1	0.071917154187	63.928870782684
3900	0.002080291759	0.988473418838	+1	0.071224067451	72.305916317620
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4100	0.002005222944	1.158009667336	+1	0.069921985077	93.503375863356
4200	0.001969932094	1.256617478519	+1	0.069309008752	106.989036499862
4300	0.001936016308	1.366428549814	+1	0.068719219775	123.006738675784
4400	0.001903393610	1.489348436177	+1	0.068151095583	142.185363146448
4500	0.001871989761	1.627744081249	+1	0.067603258684	165.356157376851
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5000	0.001731005668	2.693106226802	+1	0.065127567897	399.584086815023
5500	0.001611923361	5.453039102639	+1	0.063013926237	1465.758555163369
6000	0.001509878694	28.454550883322	+1	0.061179452295	36118.511536235579
6500	0.001421435930	10.932464981224	-1	0.059562076583	5804.218964765299
7000	0.001344000855	4.531254613473	-1	0.058118947306	1149.161188881130
7500	0.001275607116	2.831445893574	-1	0.056817869183	511.669786378966
8000	0.001214736848	2.047223164907	-1	0.055634184307	302.177049270554
8500	0.001160196407	1.597065725822	-1	0.054548677128	206.022991238640
9000	0.001111033295	1.305724412886	-1	0.053546186526	153.136501514914
9500	0.001066478191	1.102203042854	-1	0.052614599761	120.531608424393
10000	0.001025902226	0.952281835819	-1	0.051744145982	98.785321532485
10500	0.000988784987	0.837434557421	-1	0.050926920832	83.421778994489
11000	0.000954696603	0.746796446605	-1	0.050156140158	72.083627120344
11500	0.000923271918	0.673518408589	-1	0.049426629195	63.419804758840
12000	0.000894204964	0.613128890836	-1	0.048733662350	56.613827851565
12500	0.000867233500	0.562546480512	-1	0.048073530884	51.142441629224
13000	0.000842134614	0.519607017018	-1	0.047442851512	46.659377682869
13500	0.000818714815	0.482724329372	-1	0.046838964349	42.925220799409
14000	0.000796812268	0.450744853292	-1	0.046258723278	39.772505729063
14500	0.000776280033	0.422767163818	-1	0.045700201714	37.077713814373
15000	0.000756987848	0.398092577775	-1	0.045162055600	34.749335451937
16000	0.000721687645	0.356595494340	-1	0.044140853533	30.932175514514
17000	0.000690165553	0.323108111594	-1	0.043184557102	27.937695232137
18000	0.000661832645	0.295556868596	-1	0.042284836167	25.527618819178
19000	0.000636217749	0.272521324252	-1	0.041434965268	23.546640679780
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21000	0.000569832304	0.218334845336	-1	0.042027623006	20.468079216449
22000	0.000549262817	0.204156820501	-1	0.041442687562	19.340072330788
23000	0.000529642291	0.190747320784	-1	0.040890104432	18.273228795852
24000	0.000511161722	0.178412577828	-1	0.040374266801	17.295986510668
25000	0.000493979793	0.167420111101	-1	0.039893637297	16.432188956742

26000	0.000478174688	0.157916853626	-1	0.039441371297	15.694221709503
27000	0.000463595989	0.149689329688	-1	0.039010703864	15.062450045666
28000	0.000450054415	0.142466643147	-1	0.038598012285	14.512966945130
29000	0.000437373851	0.136007384256	-1	0.038202759195	14.025298875710
30000	0.000425419777	0.130106639521	-1	0.037825467329	13.581474950571
31000	0.000414075798	0.124603291590	-1	0.037468308084	13.167953047607
32000	0.000403299540	0.119456471214	-1	0.037130204040	12.781264510900
33000	0.000393061228	0.114652124241	-1	0.036809453623	12.420461579280
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35000	0.000374076230	0.106015779951	-1	0.036213883864	11.773449702294
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37000	0.000356908656	0.098575136725	-1	0.035668123088	11.218604320275
38000	0.000348925804	0.095234153945	-1	0.035411397819	10.970238077680
39000	0.000341301704	0.092107231182	-1	0.035164860462	10.738117179453
40000	0.000334007983	0.089167912414	-1	0.034928412015	10.520124220578
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43000	0.000313884314	0.081290422239	-1	0.034276956433	9.936318043713
44000	0.000307704917	0.078941176373	-1	0.034077040459	9.762312197071
45000	0.000301764637	0.076714390389	-1	0.033884821953	9.597415115298
46000	0.000296050013	0.074601406105	-1	0.033699857207	9.440973875012
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60000	0.000233902047	0.053351656761	-1	0.031702728370	7.864545526882
65000	0.000217498958	0.048235665559	-1	0.031187811623	7.482054825635
70000	0.000203186929	0.043931411089	-1	0.030745818166	7.158326249758
75000	0.000190583567	0.040262277970	-1	0.030363567452	6.880450128690
80000	0.000179395680	0.037099583579	-1	0.030030722640	6.639072562528
85000	0.000169394310	0.034347256209	-1	0.029739081730	6.427247932381
90000	0.000160397959	0.031932081935	-1	0.029482068784	6.239707755321

95000	0.000152260771	0.029797249124	-1	0.029254359633	6.072379424351
100000	0.000144864194	0.027897994168	-1	0.029051591478	5.922060073698
105000	0.000138110593	0.026198361293	-1	0.028870266413	5.786181056006
110000	0.000131918914	0.024669733962	-1	0.028707425871	5.662760613875
115000	0.000126220500	0.023287657098	-1	0.028561093563	5.550066207251
120000	0.000120965646	0.022036673409	-1	0.028424896218	5.446536817666
125000	0.000116099102	0.020896924550	-1	0.028300616956	5.351172711676
130000	0.000111578979	0.019854756863	-1	0.028186937032	5.263046580291
135000	0.000107366000	0.018896829616	-1	0.028084881487	5.181434561482
140000	0.000103434166	0.018015925106	-1	0.027990226837	5.105496580090
145000	0.000099755938	0.017203299440	-1	0.027902320039	5.034633237949
150000	0.000096307580	0.016451712130	-1	0.027820366866	4.968346704406
155000	0.000093068234	0.015754794247	-1	0.027743702259	4.906178872646
160000	0.000090019673	0.015107138038	-1	0.027671670423	4.847747527118
165000	0.000087145675	0.014503921011	-1	0.027603750993	4.792700594594
170000	0.000084431713	0.013940986462	-1	0.027539438607	4.740749426771
175000	0.000081864833	0.013414601862	-1	0.027478331686	4.691622771133
180000	0.000079433654	0.012921524511	-1	0.027420065277	4.645085345102
185000	0.000077127906	0.012458840178	-1	0.027364325784	4.600918209166
190000	0.000074938196	0.012024037898	-1	0.027310759764	4.558952360694
195000	0.000072855998	0.011614813252	-1	0.027259070539	4.519020520661
200000	0.000070873603	0.011228932052	-1	0.027209153695	4.480930511292
205000	0.000068984005	0.010864368549	-1	0.027160988767	4.444507170705
210000	0.000067181072	0.010519624656	-1	0.027114286863	4.409661522016
215000	0.000065459220	0.010193378839	-1	0.027068751207	4.376324292488
220000	0.000063813289	0.009884383656	-1	0.027024121170	4.344421127643
225000	0.000062238537	0.009591463279	-1	0.026980188525	4.313873765676
230000	0.000060730554	0.009313498464	-1	0.026936807315	4.284601004309
235000	0.000059285266	0.009049433941	-1	0.026893871702	4.256517815943
240000	0.000057898882	0.008798265032	-1	0.026851346465	4.229537978203
245000	0.000056567883	0.008559040576	-1	0.026809239682	4.203571490272
250000	0.000055289005	0.008330859100	-1	0.026767612943	4.178526464364
255000	0.000054059212	0.008112902178	-1	0.026726550271	4.154322929834

260000	0.000052875855	0.007904575280	-1	0.026685942379	4.130923392237
265000	0.000051736466	0.007705347486	-1	0.026645673844	4.108301526154
270000	0.000050638748	0.007514718288	-1	0.026605629316	4.086428083705
275000	0.000049580545	0.007332203965	-1	0.026565735740	4.065272335677
280000	0.000048559841	0.007157348470	-1	0.026525918839	4.044801244436
285000	0.000047574735	0.006989711935	-1	0.026486141074	4.024980895607
290000	0.000046623440	0.006828876826	-1	0.026446373333	4.005775693783
295000	0.000045704281	0.006674442893	-1	0.026406615265	3.987148960158
300000	0.000044815671	0.006526025287	-1	0.026366892430	3.969063172564

Electron Elastic Scattering Sampling Data
Solution for Z = 86

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.029032846068	0.424792255216	+1	0.653867931551	38.269914114637
52	0.028440149236	0.466534082434	+1	0.659993679798	45.406437562526
54	0.028457764024	0.510102321446	+1	0.660925794240	51.302010912497
56	0.029026011893	0.555973585985	+1	0.657305298519	55.552345554549
58	0.030061125994	0.604632872592	+1	0.649794063832	58.136841717615
60	0.031465719056	0.656591059595	+1	0.639046375507	59.333338796936
62	0.033136257177	0.712440822662	+1	0.625695130615	59.571784771894
64	0.034968332012	0.772875070133	+1	0.610330563892	59.299936657708
66	0.036862672338	0.838850668441	+1	0.593511896016	58.925686224420
68	0.038730004041	0.911634040060	+1	0.575746496503	58.786951022776
70	0.040493545000	0.992906241329	+1	0.557483170922	59.165956359445
72	0.042090968135	1.085016015055	+1	0.539121090892	60.332383729308
74	0.043477702563	1.191099654531	+1	0.520990236743	62.567051335970
76	0.044623149926	1.315551070682	+1	0.503367779211	66.235790971063
78	0.045511757287	1.464547811256	+1	0.486471457418	71.858980771299
80	0.046140671056	1.646987967860	+1	0.470463196042	80.241290591375
82	0.046515227057	1.876324413537	+1	0.455463945211	92.732605638741
84	0.046650347117	2.173611216408	+1	0.441546408455	111.703905005453
86	0.046564607748	2.574137141052	+1	0.428753726879	141.698557482448
88	0.046280378340	3.141795155473	+1	0.417099460822	192.294415323681
90	0.045822216458	4.005577148416	+1	0.406572939483	286.652957858846
92	0.045213959942	5.471740026853	+1	0.397149523088	493.643255700419
94	0.044480269844	8.487241159346	+1	0.388787638777	1102.450625965825
96	0.043643787069	18.159347974175	+1	0.381438306419	4710.288843936038
98	0.042772175969	165.769482910413	-1	0.375057022713	371986.599650692430
100	0.041745016401	14.843121126141	-1	0.369547423673	3169.696363699609
105	0.039130678159	4.112875942413	-1	0.359288421066	290.003989651718
110	0.036455184656	2.225341729593	-1	0.353157410599	103.712793835976

115	0.033872422836	1.459476543358	-1	0.350064568353	55.208320245634
120	0.031486792307	1.055743798539	-1	0.348925499824	35.812732603910
125	0.029364839617	0.813905801219	-1	0.348632054256	26.141640794306
130	0.027541832450	0.657983419539	-1	0.348138358620	20.587292796904
135	0.026034452711	0.553210251147	-1	0.346432755789	17.050563697985
140	0.024840630443	0.481382928157	-1	0.342661093894	14.602073501245
145	0.023947724399	0.432347218249	-1	0.336133684156	12.787049417019
150	0.023329860929	0.400055861529	-1	0.326451601583	11.370726168510
155	0.022953632716	0.380940619458	-1	0.313516400530	10.231869893657
160	0.022776204256	0.372899437750	-1	0.297600040624	9.311443232875
165	0.022750124381	0.374861146167	-1	0.279302000538	8.584137808423
170	0.022825179944	0.386468208657	-1	0.259480658849	8.042233064549
175	0.022953324532	0.407907053584	-1	0.239121979753	7.686670127789
180	0.023092220540	0.439787990512	-1	0.219182399506	7.523458268791
185	0.023208789357	0.483070069046	-1	0.200455121746	7.563614091712
190	0.023281482430	0.539148101504	-1	0.183463455740	7.826303564083
195	0.023297308726	0.609598761660	-1	0.168510889551	8.341142177225
200	0.023248786526	0.695656519303	-1	0.155741890687	9.147057669873
205	0.023135549207	0.798279809897	-1	0.145120107758	10.294894856332
210	0.022965011568	0.919134865042	-1	0.136426222566	11.861939242581
215	0.022745788611	1.060002158427	-1	0.129414280340	13.953282559665
220	0.022485806606	1.222292584858	-1	0.123857614103	16.701622902215
225	0.022192099230	1.406690451532	-1	0.119554965555	20.265309420588
230	0.021870721492	1.612647282882	-1	0.116332468088	24.818363959586
235	0.021526786980	1.837766163080	-1	0.114042284403	30.527468927289
240	0.021164542697	2.077118180154	-1	0.112560484024	37.510077045832
245	0.020787488295	2.322727507571	-1	0.111783469993	45.773526173576
250	0.020398379211	2.563273996745	-1	0.111626686453	55.138044348842
255	0.020000083457	2.786255290872	-1	0.112010565927	65.230390349883
260	0.019595520143	2.981459767632	-1	0.112856454450	75.582121059836
265	0.019187591727	3.142124994305	-1	0.114090651149	85.710264427304
270	0.018778552640	3.264308769730	-1	0.115652833290	95.154964972452
275	0.018370248349	3.347343781456	-1	0.117491572458	103.559853437796

280	0.017964204329	3.393459908553	-1	0.119562468573	110.714683584742
285	0.017561674826	3.406950829116	-1	0.121827060322	116.557738360643
290	0.017163717800	3.393338538434	-1	0.124251196514	121.154809924477
295	0.016771223731	3.358500968341	-1	0.126804501039	124.657326015085
300	0.016384942399	3.308048272606	-1	0.129459769516	127.260973586633
310	0.015633645249	3.180076897679	-1	0.134980084662	130.637587162685
320	0.014914599332	3.042026379438	-1	0.140642298994	132.942246201565
330	0.014231247859	2.913487941545	-1	0.146305962032	135.380786028333
340	0.013585835661	2.804375455860	-1	0.151854272852	138.716836789626
350	0.012979657820	2.718959210958	-1	0.157190465315	143.435581843652
360	0.012413098796	2.658440914217	-1	0.162239468279	149.872415958965
370	0.011885400007	2.622098892641	-1	0.166957315947	158.271397774334
380	0.011395350512	2.609156221750	-1	0.171314098394	168.911911806123
390	0.010941564301	2.619405172027	-1	0.175287563602	182.172565604443
400	0.010522530166	2.653365529366	-1	0.178862234472	198.575952656400
410	0.010136515385	2.712193368253	-1	0.182031939506	218.823387155151
420	0.009781258309	2.797080106841	-1	0.184808629990	243.778445970559
430	0.009454521617	2.910314358964	-1	0.187208563411	274.645096286886
440	0.009154239409	3.055795065134	-1	0.189247971154	313.158064775963
450	0.008878506468	3.239464104500	-1	0.190943031112	361.851234571974
460	0.008625493716	3.469851401255	-1	0.192311578339	424.474526368329
470	0.008393228856	3.758406559665	-1	0.193378622084	506.576513278509
480	0.008179877578	4.121948376826	-1	0.194168935651	616.862914077610
490	0.007983802935	4.586145064578	-1	0.194704955971	769.694910390727
500	0.007803550078	5.191602745520	-1	0.195006966373	990.135054019934
510	0.007637767611	6.005528071466	-1	0.195094487460	1325.016535763395
520	0.007485109416	7.145903258348	-1	0.194989167370	1869.684602789822
530	0.007344342104	8.842868541029	-1	0.194711270932	2844.614860958145
540	0.007214373164	11.613850306254	-1	0.194278884704	4861.208359731499
550	0.007094233280	16.913173380642	-1	0.193707984195	10187.725115121902
560	0.006983044687	30.996388903811	-1	0.193013400314	33733.874688725540
570	0.006924065020	220.432579207254	+1	0.191199454211	1655025.370345624600
580	0.006784194691	47.313074296062	+1	0.191311996458	79172.134483307949

590	0.006695075613	20.447434204244	+1	0.190331095268	15295.476792133029
600	0.006611988079	12.869872027131	+1	0.189278212093	6261.542065981808
610	0.006534384359	9.301989382241	+1	0.188163106143	3376.986583160616
620	0.006461740137	7.231070519175	+1	0.186995169728	2104.987024981772
630	0.006393587854	5.880867758495	+1	0.185782880093	1434.952708342113
640	0.006329504985	4.932554901132	+1	0.184533741582	1039.617384096887
650	0.006269116187	4.231071064977	+1	0.183254390482	787.205386455437
660	0.006212081057	3.691966772717	+1	0.181950744044	616.396909159917
670	0.006158086261	3.265342395865	+1	0.180628293853	495.536276380388
680	0.006106848659	2.919809656371	+1	0.179291930449	406.939920653582
690	0.006058110141	2.634641106474	+1	0.177945974590	340.103087074313
700	0.006011643262	2.395594921018	+1	0.176594279585	288.466776984569
710	0.005967237860	2.192569411635	+1	0.175240204009	247.766610918689
720	0.005924704305	2.018196508517	+1	0.173886777092	215.132385646925
730	0.005883877987	1.866973882743	+1	0.172536546011	188.574407401043
740	0.005844598786	1.734726687758	+1	0.171191921919	166.681994828187
750	0.005806727421	1.618218329096	+1	0.169854964476	148.429856855748
760	0.005770137051	1.514903102210	+1	0.168527421401	133.058888464056
770	0.005734717515	1.422747645460	+1	0.167210817727	119.996859297072
780	0.005700363642	1.340113636163	+1	0.165906443939	108.806763890322
790	0.005666984610	1.265666016673	+1	0.164615437284	99.150041070286
800	0.005634494778	1.198308480016	+1	0.163338784651	90.761529925084
810	0.005602817293	1.137129349300	+1	0.162077347478	83.430745584001
820	0.005571884973	1.081361629075	+1	0.160831740901	76.988516049710
830	0.005541638346	1.030358267119	+1	0.159602476143	71.298034922401
840	0.005512021673	0.983571772765	+1	0.158390020379	66.247993690818
850	0.005482982721	0.940535436766	+1	0.157194718606	61.746997040303
860	0.005454476303	0.900848121346	+1	0.156016896481	57.719346619250
870	0.005426462271	0.864160343669	+1	0.154856700320	54.101604694298
880	0.005398905548	0.830168869038	+1	0.153714184140	50.840563074441
890	0.005371773309	0.798610588276	+1	0.152589462547	47.891509741658
900	0.005345033203	0.769255631277	+1	0.151482538594	45.216559833375
910	0.005318658450	0.741901581024	+1	0.150393428108	42.783376913398

920	0.005292626051	0.716368118012	+1	0.149322033896	40.564085900062
930	0.005266917580	0.692494580942	+1	0.148268163281	38.534593310765
940	0.005241511960	0.670140167790	+1	0.147231724515	36.674308927619
950	0.005216391337	0.649178984061	+1	0.146212539820	34.965308655489
960	0.005191538465	0.629499140998	+1	0.145210469065	33.392052248764
970	0.005166940477	0.610998653257	+1	0.144225285448	31.940795800145
980	0.005142585658	0.593586591457	+1	0.143256784270	30.599551803957
990	0.005118461450	0.577180881939	+1	0.142304723738	29.357769284293
1000	0.005094554357	0.561708274675	+1	0.141368912107	28.206222014959
1025	0.005035691756	0.526680686463	+1	0.139098777253	25.669946808102
1050	0.004978046713	0.496170650864	+1	0.136923872999	23.541098871652
1075	0.004921537951	0.469461577169	+1	0.134839687528	21.739344470733
1100	0.004866085024	0.445986724480	+1	0.132842325024	20.203971687490
1125	0.004811619672	0.425287337301	+1	0.130928001866	18.887989011055
1150	0.004758116629	0.406974624644	+1	0.129092201780	17.753534101144
1175	0.004705553963	0.390728979792	+1	0.127330709313	16.770732492200
1200	0.004653901653	0.376289059295	+1	0.125639816743	15.916020648743
1225	0.004603135192	0.363436947362	+1	0.124016096594	15.170427078911
1250	0.004553245327	0.351982967546	+1	0.122455839207	14.518086359752
1275	0.004504221971	0.341766951919	+1	0.120955592110	13.946034690267
1300	0.004456050897	0.332654559050	+1	0.119512331790	13.443719096768
1325	0.004408715668	0.324531429369	+1	0.118123253793	13.002413630626
1350	0.004362209626	0.317295918844	+1	0.116785442121	12.614598362307
1375	0.004316526882	0.310860099649	+1	0.115496190014	12.273946248417
1400	0.004271651808	0.305149390861	+1	0.114253080782	11.975232457574
1425	0.004227574561	0.300098603531	+1	0.113053891377	11.713997610193
1450	0.004184284070	0.295649542939	+1	0.111896339487	11.486359278239
1475	0.004141772443	0.291751134991	+1	0.110778338349	11.288986419001
1500	0.004100026985	0.288359008318	+1	0.109697980593	11.119058170026
1550	0.004018780924	0.282941833160	+1	0.107643188486	10.852154575843
1600	0.003940455857	0.279131062318	+1	0.105718432517	10.669528495745
1650	0.003864945226	0.276717609427	+1	0.103912095098	10.559138807545
1700	0.003792149183	0.275533648311	+1	0.102213596083	10.511700958493

1750	0.003721961681	0.275444576021	+1	0.100613652103	10.520130184531
1800	0.003654281023	0.276340598817	+1	0.099103897661	10.578917283810
1850	0.003589002500	0.278132550606	+1	0.097676872235	10.683848345143
1900	0.003526022892	0.280751283409	+1	0.096325970067	10.831893300899
1950	0.003465243695	0.284137947147	+1	0.095045185824	11.020670829946
2000	0.003406576041	0.288234316682	+1	0.093828829667	11.247903393629
2100	0.003295222529	0.298384198922	+1	0.091569886842	11.812088871561
2200	0.003191219349	0.311019128646	+1	0.089516564061	12.522386524777
2300	0.003093895953	0.326041425132	+1	0.087642038703	13.382269988451
2400	0.003002671930	0.343372933022	+1	0.085922981780	14.397239445803
2500	0.002917050570	0.362932946474	+1	0.084338644133	15.573407243916
2600	0.002836586201	0.384658117846	+1	0.082871129776	16.918591230599
2700	0.002760824255	0.408622421669	+1	0.081507626077	18.450296914970
2800	0.002689355784	0.434939574900	+1	0.080237243844	20.190545675636
2900	0.002621827829	0.463722935199	+1	0.079049927456	22.163662028681
3000	0.002557937682	0.495078262117	+1	0.077936290213	24.395916883714
3100	0.002497413768	0.529122196610	+1	0.076887961625	26.917104673956
3200	0.002439991323	0.566066617935	+1	0.075898925656	29.767835984032
3300	0.002385429207	0.606166197529	+1	0.074963995171	32.997041724018
3400	0.002333515492	0.649696985898	+1	0.074078268285	36.661365451845
3500	0.002284063267	0.696957283149	+1	0.073237116239	40.826365532004
3600	0.002236903504	0.748284046181	+1	0.072436323002	45.569420301855
3700	0.002191876117	0.804117891082	+1	0.071672724191	50.988302849423
3800	0.002148834403	0.864980178866	+1	0.070943535358	57.202619799456
3900	0.002107646459	0.931471208411	+1	0.070246125722	64.357611066478
4000	0.002068192229	1.004285265607	+1	0.069578005294	72.630737084837
4100	0.002030363872	1.084239773726	+1	0.068936912191	82.241490468617
4200	0.001994059609	1.172339371054	+1	0.068321015122	93.468602884600
4300	0.001959185909	1.269797490714	+1	0.067728651501	106.665994713343
4400	0.001925656770	1.378083065774	+1	0.067158304221	122.286864437572
4500	0.001893394308	1.498985984639	+1	0.066608510611	140.917424922142
4600	0.001862325851	1.634721942370	+1	0.066077947128	163.328086681382
4700	0.001832384514	1.788082422128	+1	0.065565452635	190.549424062345

4800	0.001803508221	1.962617863763	+1	0.065069991743	223.981610118032
4900	0.001775639137	2.162908006187	+1	0.064590588218	265.562615818010
5000	0.001748724559	2.394959283936	+1	0.064126341008	318.032668704754
5500	0.001626841526	4.457509308218	+1	0.062005127120	986.876205478442
6000	0.001522540779	13.949705688877	+1	0.060166024740	8755.242978053291
6500	0.001432202030	18.590853881586	-1	0.058548716650	15792.336667519983
7000	0.001353187031	5.613544189878	-1	0.057107095540	1659.411132121324
7500	0.001283458359	3.271662672648	-1	0.055808764379	642.789963311611
8000	0.001221446392	2.294166540716	-1	0.054628880493	357.096758915476
8500	0.001165919105	1.759176252275	-1	0.053548100240	235.266364448233
9000	0.001115896341	1.422504051065	-1	0.052551136847	171.094539621836
9500	0.001070585574	1.191619669118	-1	0.051625756236	132.648835158761
10000	0.001029341430	1.023753045355	-1	0.050762086301	107.525345944554
10500	0.000991630164	0.896406360983	-1	0.049952115924	90.046026260825
11000	0.000957010297	0.796657127702	-1	0.049188990209	77.299791019337
11500	0.000925107844	0.716494718572	-1	0.048467451360	67.653154707843
12000	0.000895609756	0.650752797844	-1	0.047782708323	60.134704911710
12500	0.000868247647	0.595909395168	-1	0.047130988872	54.130406244226
13000	0.000842793230	0.549510751671	-1	0.046508874415	49.238300836708
13500	0.000819048884	0.509772514160	-1	0.045913640101	45.183158128468
14000	0.000796844032	0.475385300546	-1	0.045342771128	41.772699578815
14500	0.000776029448	0.445352583700	-1	0.044794227016	38.867605957618
15000	0.000756482037	0.418933858670	-1	0.044265371706	36.366991557503
16000	0.000720732968	0.374628891457	-1	0.043261813446	32.285763490637
17000	0.000688823263	0.338973097854	-1	0.042322948525	29.099603026434
18000	0.000660152487	0.309703255200	-1	0.041440315147	26.545548115897
19000	0.000634240893	0.285276120979	-1	0.040607149402	24.453345560178
20000	0.000610700418	0.264604682708	-1	0.039817899317	22.708251189587
21000	0.000569996845	0.229290222612	-1	0.041072771909	21.168417786632
22000	0.000549330506	0.214322896843	-1	0.040493968393	19.983573943854
23000	0.000529626648	0.200189184397	-1	0.039945881893	18.865435540820
24000	0.000511076267	0.187205197380	-1	0.039433199016	17.843108434313
25000	0.000493836686	0.175645131772	-1	0.038955010273	16.940811268699

26000	0.000477983599	0.165656635037	-1	0.038505279505	16.170830350688
27000	0.000463363357	0.157011660864	-1	0.038077534238	15.512275763303
28000	0.000449788128	0.149425627259	-1	0.037667946859	14.939968295381
29000	0.000437092848	0.142649535297	-1	0.037275115943	14.432339243124
30000	0.000425125590	0.136461183027	-1	0.036900131309	13.970710339352
31000	0.000413762206	0.130688659239	-1	0.036545295474	13.540996889166
32000	0.000402964839	0.125290799744	-1	0.036209290688	13.139508125298
33000	0.000392703759	0.120252388078	-1	0.035890517215	12.765192736588
34000	0.000382955059	0.115561032419	-1	0.035587099212	12.417101534431
35000	0.000373697161	0.111205670669	-1	0.035297068371	12.094400817357
36000	0.000364896620	0.107167731799	-1	0.035019258168	11.796073503864
37000	0.000356520061	0.103416596546	-1	0.034752596149	11.519657977497
38000	0.000348533977	0.099919847755	-1	0.034496421749	11.262544040277
39000	0.000340907567	0.096647556111	-1	0.034250348855	11.022337898540
40000	0.000333612488	0.093572039695	-1	0.034014233539	10.796830795999
41000	0.000326623548	0.090669663015	-1	0.033788014565	10.584154412936
42000	0.000319921420	0.087926525943	-1	0.033571121214	10.383247131935
43000	0.000313489158	0.085331623514	-1	0.033362906456	10.193286632921
44000	0.000307311067	0.082874643074	-1	0.033162798188	10.013502885752
45000	0.000301372583	0.080545879361	-1	0.032970304384	9.843172137327
46000	0.000295660098	0.078336250920	-1	0.032784981415	9.681614751649
47000	0.000290160666	0.076237193632	-1	0.032606422309	9.528187846730
48000	0.000284862123	0.074240647638	-1	0.032434269780	9.382284049213
49000	0.000279753171	0.072338989247	-1	0.032268228185	9.243323576679
50000	0.000274823174	0.070525004880	-1	0.032108070540	9.110759682879
55000	0.000252545034	0.062575339214	-1	0.031386975395	8.529304292753
60000	0.000233562224	0.056115393722	-1	0.030777368885	8.055589098329
65000	0.000217179585	0.050763832192	-1	0.030257128195	7.661561939271
70000	0.000202887561	0.046259944372	-1	0.029809399923	7.328200613661
75000	0.000190303410	0.042419217221	-1	0.029421157259	7.042142040365
80000	0.000179133657	0.039107278895	-1	0.029082170157	6.793715230240
85000	0.000169149320	0.036223864877	-1	0.028784315733	6.575743851759
90000	0.000160168921	0.033692573987	-1	0.028521074240	6.382785889267

95000	0.000152046576	0.031454113640	-1	0.028287178106	6.210640383521
100000	0.000144663693	0.029461752209	-1	0.028078322608	6.056006175248
105000	0.000137922325	0.027677797396	-1	0.027891200021	5.916247871812
110000	0.000131740443	0.026071776595	-1	0.027723468455	5.789349913976
115000	0.000126060413	0.024624262389	-1	0.027567353958	5.673224229007
120000	0.000120816548	0.023310230915	-1	0.027425004777	5.566710243457
125000	0.000115959273	0.022112042215	-1	0.027295277141	5.468623227632
130000	0.000111443989	0.021013978809	-1	0.027178606793	5.378101707822
135000	0.000107240232	0.020006808736	-1	0.027070607764	5.294113625462
140000	0.000103316586	0.019080093967	-1	0.026970415173	5.215974989108
145000	0.000099645891	0.018224866484	-1	0.026877179182	5.143057927706
150000	0.000096204552	0.017433600708	-1	0.026790064030	5.074847388833
155000	0.000092971775	0.016699653331	-1	0.026708382110	5.010871122440
160000	0.000089929304	0.016017365225	-1	0.026631478194	4.950737507749
165000	0.000087060902	0.015381691275	-1	0.026558830813	4.894087080505
170000	0.000084352192	0.014788291643	-1	0.026489934124	4.840618792101
175000	0.000081790306	0.014233273820	-1	0.026424371060	4.790052452960
180000	0.000079363810	0.013713245546	-1	0.026361748219	4.742146607814
185000	0.000077062389	0.013225150325	-1	0.026301742375	4.696677807897
190000	0.000074876723	0.012766352843	-1	0.026244030300	4.653472567301
195000	0.000072798364	0.012334426774	-1	0.026188359605	4.612358709534
200000	0.000070819603	0.011927036082	-1	0.026134601842	4.573139422148
205000	0.000068933453	0.011542074804	-1	0.026082673226	4.535632665365
210000	0.000067133780	0.011177961800	-1	0.026032315231	4.499748128114
215000	0.000065415003	0.010833311886	-1	0.025983230795	4.465414069039
220000	0.000063771975	0.010506812639	-1	0.025935180089	4.432554461351
225000	0.000062199954	0.010197227442	-1	0.025887959494	4.401088611809
230000	0.000060694536	0.009903380523	-1	0.025841430215	4.370933836921
235000	0.000059251654	0.009624162406	-1	0.025795492833	4.342003411645
240000	0.000057867538	0.009358525381	-1	0.025750085658	4.314207671050
245000	0.000056538665	0.009105466268	-1	0.025705224268	4.287455931997
250000	0.000055261782	0.008864041542	-1	0.025660950968	4.261653943873
255000	0.000054033871	0.008633396163	-1	0.025617325357	4.236719354109

260000	0.000052852277	0.008412899554	-1	0.025574254880	4.212614147184
265000	0.000051714550	0.008201997726	-1	0.025531612389	4.189309769292
270000	0.000050618398	0.008000159870	-1	0.025489302140	4.166776630526
275000	0.000049561673	0.007806883636	-1	0.025447228502	4.144982211570
280000	0.000048542356	0.007621682881	-1	0.025405339451	4.123893349302
285000	0.000047558564	0.007444101843	-1	0.025363573856	4.103474015169
290000	0.000046608503	0.007273696735	-1	0.025321914733	4.083688679015
295000	0.000045690517	0.007110049460	-1	0.025280348121	4.064498432332
300000	0.000044803023	0.006952756691	-1	0.025238884681	4.045864353918

Electron Elastic Scattering Sampling Data
Solution for Z = 87

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.009380874738	0.342393140182	+1	0.412032229960	34.016062346503
52	0.009082148101	0.373215282273	+1	0.414124076469	39.528266907330
54	0.008920661416	0.407516193027	+1	0.415417345148	45.287974690841
56	0.008872690661	0.446099967816	+1	0.416077414137	51.352036278553
58	0.008918884755	0.489877641221	+1	0.416235632938	57.832649812486
60	0.009043160908	0.539918589805	+1	0.415996447151	64.903807261533
62	0.009231817146	0.597526111278	+1	0.415444427980	72.813827404718
64	0.009472839833	0.664306090784	+1	0.414645671427	81.900189349446
66	0.009755437486	0.742348943635	+1	0.413657808255	92.633987917592
68	0.010069770226	0.834403116343	+1	0.412529317998	105.674057614925
70	0.010406699960	0.944158956192	+1	0.411300569127	121.964469546281
72	0.010757574735	1.076774547154	+1	0.410009360384	142.922764234694
74	0.011114511035	1.239609100954	+1	0.408688290182	170.742639176091
76	0.011470026596	1.443609745925	+1	0.407367752878	209.009284986729
78	0.011817339485	1.705777732946	+1	0.406075810969	263.917893794029
80	0.012150425934	2.053979369451	+1	0.404837531178	346.953156184431
82	0.012463792980	2.537336464842	+1	0.403676025040	481.476827500480
84	0.012752988719	3.251179669913	+1	0.402611792479	721.215028036361
86	0.013014211557	4.408022536968	+1	0.401662487775	1213.846977061070
88	0.013244552965	6.597590066897	+1	0.400843141241	2498.869201438027
90	0.013442023202	12.290765430203	+1	0.400165676089	7999.703582894847
92	0.013605301483	62.862891435264	+1	0.399638370603	193784.991971335840
94	0.013734013834	21.171860152416	-1	0.399267273827	22408.979067608008
96	0.013828401550	8.808731577916	-1	0.399054340917	4092.480583930828
98	0.013889346265	5.455912988945	-1	0.398997786965	1660.531639554190
100	0.013918324558	3.897531077905	-1	0.399092142775	898.342922556708
105	0.013864562819	2.196253465498	-1	0.399926858789	332.823460428259
110	0.013663325267	1.479282948168	-1	0.401454764879	177.609766219456

115	0.013360087873	1.090768973872	-1	0.403348997574	113.874457367782
120	0.013000026609	0.851373680085	-1	0.405245870984	81.553337729022
125	0.012624307673	0.692347426151	-1	0.406713372944	62.832100970867
130	0.012265790613	0.581438943327	-1	0.407339048711	50.899811008431
135	0.011950016468	0.501695290481	-1	0.406711976285	42.708631615918
140	0.011693548548	0.443264838711	-1	0.404495205808	36.731792904074
145	0.011506271430	0.400145596877	-1	0.400416891793	32.147784457970
150	0.011391147516	0.368454827861	-1	0.394314674235	28.492068580106
155	0.011346115122	0.345635041281	-1	0.386135868146	25.495641527586
160	0.011364474872	0.329941915478	-1	0.375952820910	23.000062774908
165	0.011436192929	0.320178760004	-1	0.363961237510	20.911098374184
170	0.011548849861	0.315516550814	-1	0.350460790063	19.170212586708
175	0.011688491810	0.315368252547	-1	0.335844201935	17.738950719537
180	0.011840856410	0.319312190823	-1	0.320553713960	16.588741239013
185	0.011992425358	0.327031071561	-1	0.305046497527	15.696257615987
190	0.012132198219	0.338317889963	-1	0.289725232481	15.040678981325
195	0.012250714134	0.352965029907	-1	0.274957425928	14.603962129275
200	0.012339338705	0.370638218717	-1	0.261085699013	14.369579201915
205	0.012392591388	0.390962925312	-1	0.248350900559	14.321570298536
210	0.012410438554	0.413768073773	-1	0.236815236605	14.446789824298
215	0.012394589889	0.438906303934	-1	0.226475461656	14.735653984124
220	0.012347299711	0.466179546986	-1	0.217300790628	15.181170744341
225	0.012271199694	0.495333454431	-1	0.209239889921	15.777984890328
230	0.012169115978	0.526054287318	-1	0.202227728866	16.521527717907
235	0.012043922327	0.557967161080	-1	0.196191592897	17.407142345364
240	0.011898441833	0.590639137474	-1	0.191055750122	18.429280783664
245	0.011735356578	0.623583994851	-1	0.186745058244	19.580731444184
250	0.011557162047	0.656271844151	-1	0.183187338988	20.851953724849
255	0.011366343890	0.688209218675	-1	0.180308670895	22.232266288746
260	0.011165893801	0.719168462525	-1	0.178018353129	23.715693144584
265	0.010958541196	0.749026458178	-1	0.176232123764	25.298086335063
270	0.010746542603	0.777694334385	-1	0.174877808426	26.975619596214
275	0.010531801883	0.805122316924	-1	0.173892879956	28.744930893601

280	0.010315901569	0.831291078834	-1	0.173223393645	30.603033969793
285	0.010100146016	0.856209120796	-1	0.172822566336	32.547410243613
290	0.009885637390	0.879911402850	-1	0.172649445654	34.576026468337
295	0.009673260798	0.902447097615	-1	0.172668658260	36.687205041773
300	0.009463759669	0.923883941913	-1	0.172848936392	38.879774049184
310	0.009055738670	0.963868042672	-1	0.173585502280	43.511731877236
320	0.008665372004	1.001000959627	-1	0.174672723935	48.500516342552
330	0.008295075484	1.036515897738	-1	0.175965687719	53.893759387195
340	0.007946231295	1.071592766804	-1	0.177351783009	59.752625155384
350	0.007619472436	1.107338507597	-1	0.178743186695	66.152119380863
360	0.007314819549	1.144770943349	-1	0.180074016040	73.182472034148
370	0.007031587089	1.184758542925	-1	0.181303928328	80.950838124666
380	0.006768880930	1.228145900330	-1	0.182404195310	89.586609182413
390	0.006525751083	1.275813170621	-1	0.183352858678	99.247947119322
400	0.006301227297	1.328720280357	-1	0.184133305368	110.131330394869
410	0.006094267674	1.387892170012	-1	0.184735783512	122.479352906760
420	0.005903565459	1.454282851968	-1	0.185163422376	136.580107062869
430	0.005727869384	1.528995210703	-1	0.185422109916	152.795105204499
440	0.005566049386	1.613395282415	-1	0.185517629198	171.589901597041
450	0.005417089400	1.709194026944	-1	0.185455664833	193.572913172258
460	0.005280025759	1.818499129669	-1	0.185243186633	219.544291996769
470	0.005153825749	1.943754255361	-1	0.184892408276	250.544451693930
480	0.005037536345	2.088054461612	-1	0.184415533517	287.975043102963
490	0.004930316747	2.255464781162	-1	0.183823256618	333.775551413909
500	0.004831425912	2.451401048596	-1	0.183124963059	390.690801741509
510	0.004740172270	2.683130029533	-1	0.182329975919	462.690813661125
520	0.004655874547	2.960450063531	-1	0.181449212553	555.639537386220
530	0.004577896872	3.297145020076	-1	0.180493032252	678.541207233423
540	0.004505685481	3.713360100567	-1	0.179470554484	845.830711212877
550	0.004438745404	4.239716972450	-1	0.178389620596	1081.844064666068
560	0.004376631203	4.924990316257	-1	0.177257511516	1430.201391214126
570	0.004318903605	5.851458244514	-1	0.176081977697	1975.299174322244
580	0.004265165464	7.170244166713	-1	0.174870168547	2898.532254928410

590	0.004215062224	9.192637367299	-1	0.173628236829	4650.941385548688
600	0.004168279388	12.678532254978	-1	0.172361584474	8628.692586887402
610	0.004124530427	20.098795385839	-1	0.171075041730	21131.826639085655
620	0.004083543853	46.641361366227	-1	0.169773451334	110820.847870929560
630	0.004047901808	143.868642491819	+1	0.168386291435	1038343.925630929200
640	0.004008887631	29.543787729349	+1	0.167142069043	44992.743423687905
650	0.003974796688	16.063697435184	+1	0.165819344167	13653.877619819978
660	0.003942614938	10.953662112188	+1	0.164495965560	6512.890296357876
670	0.003912175221	8.267438130278	+1	0.163174664873	3803.947714600078
680	0.003883322881	6.612739135113	+1	0.161857899833	2493.743852920095
690	0.003855918793	5.492198797727	+1	0.160547760340	1761.761256885680
700	0.003829837850	4.683894563254	+1	0.159246090190	1311.633555495052
710	0.003804964371	4.073859347694	+1	0.157954477421	1015.174946259879
720	0.003781194797	3.597545248341	+1	0.156674314709	809.592816836976
730	0.003758432815	3.215672724891	+1	0.155406843109	661.188531206015
740	0.003736591893	2.902965090144	+1	0.154153118595	550.556150322705
750	0.003715591460	2.642422613152	+1	0.152914026445	465.879733022449
760	0.003695359246	2.422188200916	+1	0.151690313707	399.628650401071
770	0.003675830967	2.233731194390	+1	0.150482616541	346.816611515388
780	0.003656946496	2.070764658602	+1	0.149291397470	304.037628115885
790	0.003638652136	1.928557634018	+1	0.148117066183	268.901772082841
800	0.003620897275	1.803481080632	+1	0.146959982748	239.691706873929
810	0.003603636519	1.692702083198	+1	0.145820387791	215.146693906930
820	0.003586828857	1.593973355454	+1	0.144698431376	194.323585399908
830	0.003570438221	1.505492657503	+1	0.143594193361	176.506079329216
840	0.003554430448	1.425800189589	+1	0.142507700999	161.142777956576
850	0.003538773662	1.353701659492	+1	0.141438976762	147.803721378818
860	0.003523438957	1.288209027863	+1	0.140388019301	136.149279598453
870	0.003508401955	1.228493155592	+1	0.139354697763	125.907354731147
880	0.003493640079	1.173857482848	+1	0.138338865904	116.858783912209
890	0.003479131306	1.123714366343	+1	0.137340392304	108.825756110415
900	0.003464856633	1.077562986306	+1	0.136359111865	101.662409009540
910	0.003450798074	1.034974163096	+1	0.135394871403	95.248289459704

920	0.003436940192	0.995574893978	+1	0.134447429036	89.482675145755
930	0.003423269374	0.959042151356	+1	0.133516502602	84.281233896670
940	0.003409772539	0.925095411556	+1	0.132601882273	79.573097518245
950	0.003396438442	0.893490366355	+1	0.131703339893	75.298327381509
960	0.003383253845	0.864012086317	+1	0.130820612548	71.405862442957
970	0.003370211155	0.836469566838	+1	0.129953445013	67.851721500718
980	0.003357300806	0.810694547520	+1	0.129101560483	64.598220629577
990	0.003344513787	0.786537487682	+1	0.128264683781	61.612799666812
1000	0.003331843032	0.763866162098	+1	0.127442590962	58.867332106149
1025	0.003300631279	0.712932498834	+1	0.125450132409	52.898957178392
1050	0.003270031397	0.668995515140	+1	0.123543461925	47.973123456298
1075	0.003239982394	0.630845063227	+1	0.121718136840	43.864108920080
1100	0.003210424677	0.597542543194	+1	0.119970240419	40.405725825609
1125	0.003181310441	0.568343318072	+1	0.118296098643	37.472621167201
1150	0.003152617837	0.542632135691	+1	0.116691532621	34.966848772718
1175	0.003124329296	0.519911073788	+1	0.115152671760	32.812653850135
1200	0.003096425526	0.499777361635	+1	0.113676130448	30.951157012863
1225	0.003068888330	0.481899289106	+1	0.112258746525	29.335731075586
1250	0.003041714259	0.465992955415	+1	0.110897230504	27.928175426302
1275	0.003014898819	0.451820971368	+1	0.109588497389	26.697680724585
1300	0.002988435157	0.439185839961	+1	0.108329859698	25.619426369431
1325	0.002962316414	0.427920327223	+1	0.107118797665	24.673050153627
1350	0.002936542464	0.417877623866	+1	0.105952748896	23.841297178397
1375	0.002911113569	0.408931945264	+1	0.104829334768	23.109814000165
1400	0.002886026149	0.400976304209	+1	0.103746414950	22.466729113389
1425	0.002861277113	0.393918454668	+1	0.102702020093	21.902072288408
1450	0.002836866782	0.387676160847	+1	0.101694172975	21.407198794579
1475	0.002812794279	0.382177733899	+1	0.100721027533	20.974767058013
1500	0.002789057361	0.377361081888	+1	0.099780908662	20.598572243723
1550	0.002742580773	0.369561522738	+1	0.097993588004	19.994357106119
1600	0.002697422384	0.363909164689	+1	0.096320431129	19.559760793588
1650	0.002653520524	0.360133591953	+1	0.094752323938	19.270559194346
1700	0.002610888329	0.357990591576	+1	0.093279029790	19.105482969992

1750	0.002569503211	0.357295335516	+1	0.091892289133	19.049332206820
1800	0.002529337628	0.357899264677	+1	0.090584692170	19.090487398251
1850	0.002490359052	0.359683592042	+1	0.089349794492	19.220216707572
1900	0.002452534191	0.362555580127	+1	0.088181751666	19.432128502399
1950	0.002415829048	0.366437447629	+1	0.087075290864	19.721296482047
2000	0.002380214062	0.371254064512	+1	0.086025456757	20.083228540949
2100	0.002312121558	0.383471506555	+1	0.084078422729	21.014348915422
2200	0.002247957923	0.398974539961	+1	0.082311935430	22.220783383902
2300	0.002187437006	0.417647529491	+1	0.080702324790	23.709563390100
2400	0.002130302753	0.439411238461	+1	0.079228997244	25.493123609135
2500	0.002076332724	0.464194472542	+1	0.077873661182	27.586788188459
2600	0.002025319376	0.491957156676	+1	0.076620551651	30.010725327252
2700	0.001977033946	0.522839335252	+1	0.075458299133	32.804313509185
2800	0.001931266631	0.557042671422	+1	0.074377291909	36.017633484121
2900	0.001887835034	0.594780483973	+1	0.073368605733	39.707974419744
3000	0.001846581667	0.636270896698	+1	0.072423918536	43.939994884412
3100	0.001807363170	0.681761573014	+1	0.071535757526	48.789379436276
3200	0.001770033202	0.731647296047	+1	0.070698853063	54.358524189661
3300	0.001734455721	0.786406349173	+1	0.069908601679	60.773804297086
3400	0.001700511296	0.846577555736	+1	0.069160690963	68.186986084823
3500	0.001668094168	0.912768708354	+1	0.068450994578	76.780838972741
3600	0.001637107809	0.985689845874	+1	0.067775786407	86.779710768293
3700	0.001607458068	1.066260781218	+1	0.067132273306	98.474242997418
3800	0.001579058599	1.155599686488	+1	0.066518041917	112.234292294761
3900	0.001551830387	1.255048089363	+1	0.065930770645	128.530909411081
4000	0.001525702629	1.366227225852	+1	0.065368297451	147.970129676359
4100	0.001500610698	1.491130582099	+1	0.064828594575	171.343763476871
4200	0.001476492299	1.632303358563	+1	0.064310087208	199.715612791476
4300	0.001453290393	1.792981039008	+1	0.063811360658	234.528282094492
4400	0.001430952904	1.977315894069	+1	0.063331089396	277.770087158448
4500	0.001409431350	2.190728450022	+1	0.062868010391	332.239865025381
4600	0.001388681006	2.440443384420	+1	0.062420961269	401.976386618299
4700	0.001368660558	2.736354652329	+1	0.061988979221	492.989050589851

4800	0.001349330922	3.092337149138	+1	0.061571166122	614.511754536216
4900	0.001330656102	3.528451938154	+1	0.061166706876	781.298955739523
5000	0.001312602568	4.074819783465	+1	0.060774806476	1018.075413589532
5500	0.001230633561	12.355717160605	+1	0.058980699535	8394.284342540836
6000	0.001160293461	19.196390205248	-1	0.057414303977	20329.238913117464
6500	0.001099225724	5.462682949415	-1	0.056027000981	1904.112662475163
7000	0.001045685123	3.151101969205	-1	0.054783185625	724.247284344096
7500	0.000998343648	2.200807625965	-1	0.053656257165	399.668294394341
8000	0.000956172091	1.684512017587	-1	0.052625935893	262.462150069681
8500	0.000918357506	1.361096146304	-1	0.051676412396	190.514416488518
9000	0.000884250193	1.140035430389	-1	0.050795236533	147.517441579757
9500	0.000853322850	0.979724809488	-1	0.049972454897	119.459201623593
10000	0.000825143314	0.858376369126	-1	0.049200024982	99.953958168150
10500	0.000799353387	0.763474098143	-1	0.048471475420	85.731808405585
11000	0.000775656015	0.687348928584	-1	0.047781219813	74.971595422500
11500	0.000753798092	0.624992464615	-1	0.047125017796	66.582401371176
12000	0.000733567503	0.573045588926	-1	0.046499008474	59.881748808017
12500	0.000714781975	0.529139343862	-1	0.045900161327	54.419381257825
13000	0.000697286317	0.491578924710	-1	0.045325714970	49.890179623617
13500	0.000680945642	0.459101453358	-1	0.044773500643	46.078758760567
14000	0.000665643681	0.430762945577	-1	0.044241502783	42.830872591335
14500	0.000651278720	0.405831671673	-1	0.043728102961	40.032145052830
15000	0.000637762808	0.383742714331	-1	0.043231799092	37.597242129350
16000	0.000612974081	0.346373805101	-1	0.042285645584	33.570624597569
17000	0.000590757918	0.316007883230	-1	0.041394584989	30.380437529392
18000	0.000570704884	0.290875998861	-1	0.040551936110	27.792215234406
19000	0.000552489318	0.269753062252	-1	0.039752367880	25.650843321194
20000	0.000535862491	0.251760692925	-1	0.038992968223	23.849701452272
21000	0.000450910749	0.195327236047	-1	0.041929031525	22.650635848629
22000	0.000435312543	0.182841990797	-1	0.041424521155	21.460689100416
23000	0.000420379300	0.170997041786	-1	0.040953284756	20.331504730643
24000	0.000406272984	0.160077203359	-1	0.040516439492	19.293710884994
25000	0.000393132496	0.150330750384	-1	0.040109174330	18.373114879457

26000	0.000381033135	0.141896005155	-1	0.039722151441	17.583461778189
27000	0.000369863229	0.134586399972	-1	0.039349326784	16.904752192654
28000	0.000359479853	0.128164173153	-1	0.038988380341	16.312286930765
29000	0.000349755155	0.122420000505	-1	0.038639568402	15.784753467528
30000	0.000340574378	0.117168329137	-1	0.038305404940	15.303539114848
31000	0.000331846438	0.112266800626	-1	0.037989160933	14.854526124621
32000	0.000323536607	0.107678144420	-1	0.037690260044	14.434159101771
33000	0.000315624922	0.103390771619	-1	0.037406946401	14.041461624482
34000	0.000308093243	0.099394307381	-1	0.037137365210	13.675581253070
35000	0.000300924960	0.095679279393	-1	0.036879599902	13.335769515226
36000	0.000294102532	0.092233341146	-1	0.036631858849	13.020977144145
37000	0.000287600901	0.089030666220	-1	0.036393232842	12.728739516813
38000	0.000281394904	0.086043823847	-1	0.036163301287	12.456420047988
39000	0.000275461194	0.083247475266	-1	0.035941904971	12.201594878553
40000	0.000269778263	0.080618175434	-1	0.035729144846	11.962025198501
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42000	0.000259092950	0.075788972130	-1	0.035329460122	11.521870401722
43000	0.000254063655	0.073568136040	-1	0.035141410780	11.319363964995
44000	0.000249227430	0.071464699061	-1	0.034960480117	11.127501504614
45000	0.000244573465	0.069470496786	-1	0.034786210374	10.945542046724
46000	0.000240091585	0.067577841074	-1	0.034618202840	10.772787188130
47000	0.000235772241	0.065779493522	-1	0.034456102891	10.608572853657
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49000	0.000227585619	0.062438669062	-1	0.034148536236	10.303282601750
50000	0.000223701964	0.060883560571	-1	0.034002687762	10.161039799679
55000	0.000206105524	0.054064777520	-1	0.033344908451	9.535875548437
60000	0.000191049617	0.048519772257	-1	0.032787193720	9.025025774590
65000	0.000178006744	0.043923115098	-1	0.032310363945	8.599112892461
70000	0.000166589782	0.040052396099	-1	0.031899434138	8.238070887227
75000	0.000156506735	0.036749887572	-1	0.031542881724	7.927750736655
80000	0.000147532573	0.033900637291	-1	0.031231542241	7.657872307534
85000	0.000139490979	0.031418849297	-1	0.030958072669	7.420787357938
90000	0.000132241712	0.029239121432	-1	0.030716537580	7.210679111171

95000	0.000125671550	0.027310664570	-1	0.030502135845	7.023052460016
100000	0.000119688084	0.025593421948	-1	0.030310932837	6.854369250885
105000	0.000114215227	0.024055237074	-1	0.030139771040	6.701780761544
110000	0.000109188969	0.022670197633	-1	0.029986327965	6.563117130556
115000	0.000104561682	0.021419658795	-1	0.029844989037	6.436193359888
120000	0.000100285433	0.020284788770	-1	0.029715312122	6.319629465954
125000	0.000096320143	0.019250027804	-1	0.029596705464	6.212183152406
130000	0.000092628953	0.018301254345	-1	0.029490688174	6.113013470615
135000	0.000089188297	0.017430420897	-1	0.029392963183	6.020962562207
140000	0.000085973560	0.016628835876	-1	0.029302347093	5.935269648806
145000	0.000082963054	0.015888805274	-1	0.029218019909	5.855253921687
150000	0.000080138083	0.015203859998	-1	0.029139239644	5.780356667918
155000	0.000077482090	0.014568275149	-1	0.029065439282	5.710069188992
160000	0.000074980391	0.013977196454	-1	0.028995965100	5.643967835839
165000	0.000072619930	0.013426295173	-1	0.028930296507	5.581661290558
170000	0.000070389218	0.012911826058	-1	0.028868024128	5.522826593321
175000	0.000068277943	0.012430433335	-1	0.028808812873	5.467162834434
180000	0.000066276843	0.011979214979	-1	0.028752216537	5.414403859741
185000	0.000064377586	0.011555558895	-1	0.028697864359	5.364302827592
190000	0.000062572768	0.011157202746	-1	0.028645470774	5.316669430717
195000	0.000060855652	0.010782058875	-1	0.028594832687	5.271315715536
200000	0.000059219959	0.010428109810	-1	0.028545860726	5.228029575030
205000	0.000057659989	0.010093536609	-1	0.028498509176	5.186615236277
210000	0.000056170779	0.009776984206	-1	0.028452495797	5.146972744578
215000	0.000054747821	0.009477261473	-1	0.028407513189	5.109022968417
220000	0.000053386960	0.009193241860	-1	0.028363305696	5.072681349767
225000	0.000052084339	0.008923856647	-1	0.028319681214	5.037860659651
230000	0.000050836387	0.008668094674	-1	0.028276500085	5.004470415552
235000	0.000049639791	0.008424997819	-1	0.028233676452	4.972416346924
240000	0.000048491478	0.008193656061	-1	0.028191184850	4.941601279369
245000	0.000047388574	0.007973206307	-1	0.028149058410	4.911927852707
250000	0.000046328406	0.007762827073	-1	0.028107387314	4.883295107525
255000	0.000045308513	0.007561779936	-1	0.028066265160	4.855614526761

260000	0.000044326739	0.007369526180	-1	0.028025579646	4.828843299860
265000	0.000043381092	0.007185585827	-1	0.027985212351	4.802950395322
270000	0.000042469714	0.007009507843	-1	0.027945037413	4.777901452825
275000	0.000041590849	0.006840853643	-1	0.027904984139	4.753662458242
280000	0.000040742856	0.006679210828	-1	0.027864965943	4.730194593028
285000	0.000039924192	0.006524180450	-1	0.027824951805	4.707460195656
290000	0.000039133400	0.006375383797	-1	0.027784912635	4.685419104871
295000	0.000038369115	0.006232459603	-1	0.027744838198	4.664029552259
300000	0.000037630042	0.006095061641	-1	0.027704743005	4.643249617882

Electron Elastic Scattering Sampling Data
Solution for Z = 88

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.009533811665	0.226595076681	+1	0.266063390265	10.468653333669
52	0.009222790685	0.247411862242	+1	0.269635712396	12.241055564941
54	0.009000220569	0.270930880010	+1	0.273283957644	14.258880082018
56	0.008850775387	0.297629254855	+1	0.277013393391	16.572518362800
58	0.008761959541	0.328049029394	+1	0.280821491453	19.246712838338
60	0.008723417551	0.362823441132	+1	0.284700485443	22.365388499941
62	0.008726440417	0.402712940481	+1	0.288639506280	26.038735309076
64	0.008763465498	0.448637134382	+1	0.292625698958	30.412546905692
66	0.008827976056	0.501752757722	+1	0.296645758317	35.684036453395
68	0.008914211742	0.563526849523	+1	0.300686992378	42.123631589528
70	0.009016963308	0.635845964594	+1	0.304737106348	50.108550978313
72	0.009131517374	0.721205286292	+1	0.308784627180	60.178746176009
74	0.009253660989	0.822960747887	+1	0.312820188911	73.125172383492
76	0.009379502201	0.945741686162	+1	0.316834720186	90.142671751985
78	0.009505562839	1.096128532546	+1	0.320821037610	113.102304162018
80	0.009628752850	1.283786485464	+1	0.324773219886	145.059808942947
82	0.009746260646	1.523504207191	+1	0.328685099939	191.271888662123
84	0.009855750079	1.839158281303	+1	0.332552847562	261.398730106567
86	0.009955176738	2.271846985601	+1	0.336371728036	374.727524889961
88	0.010042896737	2.898938374175	+1	0.340137629244	574.364851772468
90	0.010117671824	3.885365679039	+1	0.343846918167	973.276824640454
92	0.010178560126	5.656042610954	+1	0.347494223495	1949.878280620563
94	0.010225059447	9.743173851525	+1	0.351076008919	5482.219231289441
96	0.010256951724	29.117699599167	+1	0.354586630423	46495.732988012023
98	0.010274341742	34.011822218828	-1	0.358019473805	63978.798545097605
100	0.010277639711	10.557818734863	-1	0.361366748040	6649.861657865563
105	0.010229061886	3.708771898808	-1	0.369306370636	989.578993797993
110	0.010112448626	2.171804417641	-1	0.376535346212	407.281772247903

115	0.009948132514	1.503263663410	-1	0.382860047633	232.357935705684
120	0.009757474474	1.134563355603	-1	0.388109099044	155.906108411675
125	0.009561099385	0.904718896724	-1	0.392084238964	115.143676718114
130	0.009375952798	0.750334750082	-1	0.394622001820	90.461226455552
135	0.009215600026	0.641605916218	-1	0.395568164416	74.114587790186
140	0.009088942119	0.562564559248	-1	0.394821409597	62.529462136358
145	0.009001309976	0.503996383079	-1	0.392319244565	53.881650822637
150	0.008954289417	0.460181677655	-1	0.388058163967	47.165047771013
155	0.008946668974	0.427433694073	-1	0.382090720749	41.796208982802
160	0.008974786269	0.403266924398	-1	0.374527786575	37.420060595121
165	0.009033133227	0.385964542222	-1	0.365539014309	33.813061971315
170	0.009115033083	0.374312871866	-1	0.355337765805	30.826952207918
175	0.009212877105	0.367424621250	-1	0.344182907503	28.359603644425
180	0.009318869531	0.364639192222	-1	0.332354958562	26.335774592818
185	0.009425380079	0.365445428055	-1	0.320146168219	24.697702042606
190	0.009526109069	0.369477108774	-1	0.307817678916	23.398190091178
195	0.009615211584	0.376406135186	-1	0.295624660127	22.398816839704
200	0.009686744357	0.385842245092	-1	0.283829559006	21.667076122493
205	0.009736380581	0.397409493751	-1	0.272643050557	21.174015245083
210	0.009763448148	0.410932534197	-1	0.262150974933	20.894783407535
215	0.009768385658	0.426277600052	-1	0.252395944682	20.809552021579
220	0.009751961277	0.443290926605	-1	0.243402862312	20.902442483887
225	0.009715229569	0.461796242502	-1	0.235179976693	21.160520956981
230	0.009659470206	0.481590861258	-1	0.227721344156	21.572873845729
235	0.009586117604	0.502444450275	-1	0.221009404372	22.129871600065
240	0.009496697838	0.524098244184	-1	0.215017891402	22.822487875310
245	0.009392774447	0.546266235337	-1	0.209714319795	23.641690011711
250	0.009275895002	0.568638366931	-1	0.205062264244	24.577963898945
255	0.009147736522	0.590927938498	-1	0.201017555291	25.622021080668
260	0.009010528496	0.613021529175	-1	0.197513928303	26.768876994428
265	0.008866367619	0.634860268373	-1	0.194486535222	28.015355926177
270	0.008717057176	0.656397743365	-1	0.191877725673	29.358910494089
275	0.008564133160	0.677598292201	-1	0.189636490232	30.797493999952

280	0.008408908839	0.698437179396	-1	0.187717590928	32.329459479108
285	0.008252493190	0.718898575845	-1	0.186080954353	33.953465643443
290	0.008095826336	0.738975870315	-1	0.184691053304	35.668468582236
295	0.007939693117	0.758667837994	-1	0.183516476654	37.473552624732
300	0.007784756414	0.777981122444	-1	0.182529276319	39.368032945602
310	0.007480632639	0.815593672399	-1	0.181018300722	43.427593167751
320	0.007187040349	0.852315517898	-1	0.179981735668	47.869628681772
330	0.006906384455	0.888761370891	-1	0.179279699598	52.730071129504
340	0.006640152834	0.925559112433	-1	0.178802637889	58.054390181183
350	0.006389171720	0.963341861935	-1	0.178464265794	63.898498700143
360	0.006153730368	1.002741434026	-1	0.178198272825	70.331111221044
370	0.005933551412	1.044366221464	-1	0.177959484205	77.438231332908
380	0.005728152216	1.088844770430	-1	0.177713867462	85.324810374088
390	0.005536975675	1.136856060469	-1	0.177434336482	94.118972983771
400	0.005359417118	1.189151435501	-1	0.177099516960	103.978636866077
410	0.005194795397	1.246546408057	-1	0.176694525753	115.097862767086
420	0.005042218544	1.309834333797	-1	0.176215217303	127.708815382234
430	0.004900814934	1.379921029653	-1	0.175660387836	142.099629702630
440	0.004769800565	1.457906699169	-1	0.175029355802	158.635627295371
450	0.004648462888	1.545138116706	-1	0.174321956316	177.785576437158
460	0.004536121029	1.643244376643	-1	0.173539508401	200.154586411175
470	0.004432033179	1.754090815453	-1	0.172687901083	226.516221782609
480	0.004335510344	1.879989624641	-1	0.171773285881	257.889535290874
490	0.004245946641	2.023903774595	-1	0.170801005270	295.647944197301
500	0.004162802205	2.189674694336	-1	0.169775711434	341.677366520493
510	0.004085580921	2.382324114361	-1	0.168702026782	398.616342559336
520	0.004013773130	2.608380872785	-1	0.167586434841	470.208634932425
530	0.003946912936	2.876699130284	-1	0.166435030973	561.944635887483
540	0.003884589667	3.199662505783	-1	0.165253034848	682.156811764336
550	0.003826437232	3.595109733162	-1	0.164044954215	843.985077809296
560	0.003772123649	4.089642070675	-1	0.162814895238	1069.114284042595
570	0.003721319052	4.724490931149	-1	0.161567608204	1395.301572738941
580	0.003673723807	5.567527128062	-1	0.160307444147	1893.208942110468

590	0.003629070269	6.739031729544	-1	0.159038078447	2707.947915988080
600	0.003587120761	8.474349853064	-1	0.157762684209	4177.577715003502
610	0.003547658523	11.304477952751	-1	0.156484076822	7247.876055981049
620	0.003510474288	16.731570646175	-1	0.155205201717	15472.170885568159
630	0.003475378069	31.323661143275	-1	0.153928711052	52819.825301049386
640	0.003462037624	266.800544612142	+1	0.152001748190	3686540.956195587300
650	0.003410780261	46.113476665807	+1	0.151391467703	113249.038062041450
660	0.003380984922	20.482059541377	+1	0.150134273018	22912.367666176906
670	0.003352679972	13.073231834013	+1	0.148886905607	9567.540766532560
680	0.003325743721	9.553190846912	+1	0.147650724481	5233.828604742518
690	0.003300066873	7.498412299662	+1	0.146426962436	3301.671771349436
700	0.003275550232	6.152744494651	+1	0.145216601919	2275.083240355383
710	0.003252102447	5.203932714983	+1	0.144020477663	1664.889164563768
720	0.003229640079	4.499557893070	+1	0.142839347059	1272.707990536115
730	0.003208085620	3.956384343244	+1	0.141673833032	1005.689157498261
740	0.003187368528	3.525104311730	+1	0.140524434646	815.651322697808
750	0.003167424837	3.174654538961	+1	0.139391576507	675.566668323220
760	0.003148195313	2.884489484484	+1	0.138275563264	569.315716991269
770	0.003129626182	2.640467175669	+1	0.137176633365	486.795563345678
780	0.003111668556	2.432543395098	+1	0.136094943602	421.415003377773
790	0.003094276209	2.253391603589	+1	0.135030599157	368.725890674005
800	0.003077407521	2.097542526565	+1	0.133983675273	325.637491509058
810	0.003061023971	1.960826920695	+1	0.132954178217	289.946677195893
820	0.003045091152	1.840006561708	+1	0.131942042453	260.047355073009
830	0.003029576894	1.732534025550	+1	0.130947187107	234.747856752245
840	0.003014451974	1.636378193585	+1	0.129969502986	213.148762959929
850	0.002999688625	1.549900471489	+1	0.129008852698	194.561021307032
860	0.002985261932	1.471763678066	+1	0.128065101386	178.449267579054
870	0.002971148926	1.400860475357	+1	0.127138031229	164.391308828751
880	0.002957329638	1.336270699137	+1	0.126227408490	152.051484280452
890	0.002943784843	1.277224036678	+1	0.125333020542	141.160426261104
900	0.002930495978	1.223071347837	+1	0.124454623987	131.499955296079
910	0.002917446458	1.173260624831	+1	0.123592000548	122.891616177448

920	0.002904622131	1.127316750453	+1	0.122744877349	115.187753487537
930	0.002892009509	1.084830841051	+1	0.121912955515	108.265789956702
940	0.002879595979	1.045449947985	+1	0.121095970166	102.023444826046
950	0.002867369874	1.008868825113	+1	0.120293676291	96.374945636296
960	0.002855319927	0.974819798798	+1	0.119505783111	91.247540900053
970	0.002843436464	0.943067697819	+1	0.118732033558	86.579297715319
980	0.002831710914	0.913405217084	+1	0.117972143263	82.317208899171
990	0.002820134064	0.885649799152	+1	0.117225851696	78.415886863853
1000	0.002808697855	0.859639631985	+1	0.116492900751	74.836165019728
1025	0.002780678221	0.801336354698	+1	0.114717102548	67.080928076332
1050	0.002753408888	0.751181944700	+1	0.113018445093	60.708051513757
1075	0.002726814948	0.707730266606	+1	0.111392715510	55.410959635602
1100	0.002700827283	0.669866432824	+1	0.109836204425	50.965625075388
1125	0.002675386071	0.636711677370	+1	0.108345423562	47.204359488280
1150	0.002650454529	0.607546543485	+1	0.106916614736	43.997336581560
1175	0.002626001278	0.581791005975	+1	0.105546253824	41.244604629405
1200	0.002601994827	0.558977399585	+1	0.104231269026	38.868806205754
1225	0.002578407381	0.538722110788	+1	0.102968811086	36.808936299733
1250	0.002555222641	0.520698430008	+1	0.101755936355	35.015288942327
1275	0.002532425779	0.504633892244	+1	0.100589897031	33.447888232362
1300	0.002510000762	0.490302359392	+1	0.099468308773	32.074621339706
1325	0.002487933344	0.477512294580	+1	0.098388886805	30.869141923670
1350	0.002466214822	0.466096845949	+1	0.097349386228	29.809295417293
1375	0.002444837174	0.455913157634	+1	0.096347710923	28.876677390181
1400	0.002423791353	0.446839630070	+1	0.095381950647	28.056043952568
1425	0.002403068655	0.438771684371	+1	0.094450369311	27.334637056268
1450	0.002382663947	0.431616435921	+1	0.093551223203	26.701429511365
1475	0.002362571975	0.425292703174	+1	0.092682887116	26.147041434522
1500	0.002342786620	0.419730596882	+1	0.091843875682	25.663580796582
1550	0.002304113509	0.410652194490	+1	0.090248399921	24.883266825081
1600	0.002266608264	0.403966538396	+1	0.088754430657	24.316274271014
1650	0.002230232210	0.399350037013	+1	0.087352913014	23.929687661983
1700	0.002194948740	0.396547012131	+1	0.086035800000	23.698653261886

1750	0.002160682366	0.395377794303	+1	0.084797242962	23.606967735256
1800	0.002127444638	0.395650540465	+1	0.083629347206	23.637131027799
1850	0.002095201869	0.397232016452	+1	0.082526363680	23.778093683075
1900	0.002063920885	0.400018850339	+1	0.081483160735	24.021858999241
1950	0.002033569772	0.403924369174	+1	0.080495059086	24.362260074753
2000	0.002004119745	0.408866316252	+1	0.079557680115	24.793821934831
2100	0.001947804175	0.421619004830	+1	0.077819854748	25.917174786536
2200	0.001894721636	0.438016455066	+1	0.076244113201	27.386458657713
2300	0.001844633805	0.457931570178	+1	0.074809304901	29.211344669321
2400	0.001797328535	0.481284723714	+1	0.073497063232	31.409170595326
2500	0.001752619067	0.508013477305	+1	0.072291078448	34.002074042352
2600	0.001710333575	0.538095190879	+1	0.071177265636	37.019266783535
2700	0.001670286972	0.571702940444	+1	0.070145407004	40.514380766786
2800	0.001632309630	0.609081328808	+1	0.069186808688	44.555691017104
2900	0.001596254104	0.650495408153	+1	0.068293411444	49.222478495037
3000	0.001561992290	0.696223470837	+1	0.067457665805	54.605672491907
3100	0.001529408037	0.746586410437	+1	0.066672832846	60.813231808035
3200	0.001498381320	0.802078707291	+1	0.065934106136	67.990893540878
3300	0.001468802111	0.863302190860	+1	0.065237330965	76.320331769108
3400	0.001440572519	0.930945590674	+1	0.064578578052	86.023120851190
3500	0.001413606264	1.005797605943	+1	0.063954091290	97.370396963966
3600	0.001387824730	1.088791705406	+1	0.063360469386	110.700329052598
3700	0.001363150343	1.181140320723	+1	0.062795185751	126.456622272125
3800	0.001339512048	1.284338452191	+1	0.062256034087	145.214214812183
3900	0.001316845149	1.400207623904	+1	0.061740918432	167.720182810273
4000	0.001295091677	1.530991795910	+1	0.061247849917	194.957929562560
4100	0.001274198113	1.679506819839	+1	0.060774995837	228.245354933639
4200	0.001254113226	1.849416914846	+1	0.060320912889	269.400319228481
4300	0.001234790065	2.045496951289	+1	0.059884338715	320.966656165078
4400	0.001216185367	2.274052542831	+1	0.059464075570	386.578581072182
4500	0.001198258898	2.543589817437	+1	0.059058962626	471.566753444199
4600	0.001180974052	2.865887697076	+1	0.058667965559	584.001077278268
4700	0.001164296069	3.257804150341	+1	0.058290198225	736.580657613468

4800	0.001148194728	3.744178707281	+1	0.057924766691	950.128616956783
4900	0.001132639972	4.363388539114	+1	0.057570913584	1260.764816647979
5000	0.001117602361	5.178034075031	+1	0.057228055416	1735.581987981582
5500	0.001049322392	27.152095286963	+1	0.055658227642	42889.385902376016
6000	0.000990723148	10.441139730152	-1	0.054287010062	6914.669122307532
6500	0.000939854101	4.325824495095	-1	0.053071059610	1372.548477891880
7000	0.000895264757	2.703067699642	-1	0.051979205627	612.477623403247
7500	0.000855851999	1.955012643171	-1	0.050988303630	362.357879880652
8000	0.000820760562	1.526006882825	-1	0.050080692495	247.401225760705
8500	0.000789315956	1.248623838287	-1	0.049242680244	184.088600199289
9000	0.000760977758	1.055047536016	-1	0.048463447546	145.004140351729
9500	0.000735307376	0.912599909696	-1	0.047734369604	118.902090178948
10000	0.000711945225	0.803601141378	-1	0.047048475167	100.438478347700
10500	0.000690592504	0.717649165665	-1	0.046400147137	86.791691472220
11000	0.000671001259	0.648254267540	-1	0.045784528589	76.353198874609
11500	0.000652959824	0.591114844815	-1	0.045197978295	68.141098168796
12000	0.000636290466	0.543312903436	-1	0.044637128780	61.531886928541
12500	0.000620840324	0.502769985019	-1	0.044099371325	56.108937564466
13000	0.000606478869	0.467987185453	-1	0.043582318156	51.586964213970
13500	0.000593092414	0.437839621152	-1	0.043084113666	47.762718230988
14000	0.000580582954	0.411481593840	-1	0.042603014934	44.489503572239
14500	0.000568864411	0.388254096082	-1	0.042137634353	41.657797181183
15000	0.000557862225	0.367645771321	-1	0.041686709945	39.185387718372
16000	0.000537749145	0.332725468852	-1	0.040824048926	35.077717809459
17000	0.000519801807	0.304303313974	-1	0.040007867554	31.805302955150
18000	0.000503671657	0.280754981975	-1	0.039232574863	29.137740302984
19000	0.000489079897	0.260950146413	-1	0.038493707885	26.921602802799
20000	0.000475801753	0.244078968832	-1	0.037787668866	25.050988286351
21000	0.000392013210	0.185528439886	-1	0.041055408847	24.012004635137
22000	0.000378714275	0.173708428397	-1	0.040610229687	22.779561468701
23000	0.000365959335	0.162485954932	-1	0.040197556550	21.608748289488
24000	0.000353894741	0.152134286676	-1	0.039816969611	20.531307382342
25000	0.000342647892	0.142891502817	-1	0.039462171765	19.574066915224

26000	0.000332290623	0.134890211272	-1	0.039122833212	18.751427512815
27000	0.000322728456	0.127954004870	-1	0.038793404302	18.043011581442
28000	0.000313838164	0.121857900811	-1	0.038472330701	17.423533027369
29000	0.000305508996	0.116403898962	-1	0.038160561877	16.871138416384
30000	0.000297641121	0.111416608895	-1	0.037861231025	16.366720218879
31000	0.000290155246	0.106761544534	-1	0.037578088629	15.895773729389
32000	0.000283022317	0.102403498136	-1	0.037310674269	15.454634460673
33000	0.000276226336	0.098331544424	-1	0.037057258067	15.042295123664
34000	0.000269752695	0.094535809029	-1	0.036816017054	14.657872591259
35000	0.000263588075	0.091007305112	-1	0.036585048044	14.300589536938
36000	0.000257718144	0.087734309646	-1	0.036362588325	13.969360368320
37000	0.000252121669	0.084692277055	-1	0.036147848128	13.661636679138
38000	0.000246777073	0.081855202167	-1	0.035940509698	13.374693879130
39000	0.000241664420	0.079199059363	-1	0.035740526086	13.106023813005
40000	0.000236765228	0.076701630096	-1	0.035548096166	12.853310577092
41000	0.000232063114	0.074343955104	-1	0.035363452330	12.614587780432
42000	0.000227546039	0.072114920849	-1	0.035186155470	12.388726684883
43000	0.000223203517	0.070005729427	-1	0.035015651451	12.174851439329
44000	0.000219025793	0.068008089751	-1	0.034851470904	11.972137743055
45000	0.000215003782	0.066114234567	-1	0.034693204875	11.779810668287
46000	0.000211128925	0.064316861302	-1	0.034540506643	11.597143018306
47000	0.000207393053	0.062609066450	-1	0.034393064661	11.423441989266
48000	0.000203788451	0.060984359638	-1	0.034250611506	11.258052598977
49000	0.000200307898	0.059436576480	-1	0.034112955845	11.100350758458
50000	0.000196944603	0.057959897367	-1	0.033979963100	10.949744246445
55000	0.000181686551	0.051485615144	-1	0.033378830052	10.287322891341
60000	0.000168605592	0.046221069787	-1	0.032867641394	9.745427346326
65000	0.000157255664	0.041856970600	-1	0.032429913092	9.293186670203
70000	0.000147303219	0.038182429235	-1	0.032051227424	8.909499683589
75000	0.000138502582	0.035046929870	-1	0.031722588711	8.579477220992
80000	0.000130658925	0.032341413956	-1	0.031435278131	8.292303583981
85000	0.000123621939	0.029984389565	-1	0.031182846044	8.039898159590
90000	0.000117271065	0.027913919585	-1	0.030959651943	7.816097737756

95000	0.000111509222	0.026081750877	-1	0.030761446865	7.616151471604
100000	0.000106256933	0.024449874810	-1	0.030584671039	7.436316479361
105000	0.000101448089	0.022987583675	-1	0.030426684055	7.273605313824
110000	0.000097031014	0.021672181828	-1	0.030283130655	7.125532320450
115000	0.000092959865	0.020483295700	-1	0.030151696653	6.990010487261
120000	0.000089193560	0.019403385571	-1	0.030031907724	6.865573596238
125000	0.000085696307	0.018417231018	-1	0.029924152367	6.750981523021
130000	0.000082441920	0.017514520405	-1	0.029825668458	6.645005925951
135000	0.000079406649	0.016685764204	-1	0.029734766322	6.546596159419
140000	0.000076568998	0.015922637217	-1	0.029650514434	6.454958824182
145000	0.000073910188	0.015217869955	-1	0.029572167548	6.369372241321
150000	0.000071413915	0.014565361704	-1	0.029498961182	6.289239981474
155000	0.000069065750	0.013959714477	-1	0.029430303417	6.214018203257
160000	0.000066852970	0.013396320962	-1	0.029365619531	6.143256173292
165000	0.000064764255	0.012871077832	-1	0.029304452897	6.076537310491
170000	0.000062789574	0.012380459767	-1	0.029246340555	6.013512491818
175000	0.000060919907	0.011921291274	-1	0.029190934404	5.953858647689
180000	0.000059147161	0.011490794413	-1	0.029137909327	5.897300333579
185000	0.000057464037	0.011086471966	-1	0.029087003089	5.843583243901
190000	0.000055864083	0.010706193053	-1	0.029037896809	5.792498638688
195000	0.000054341423	0.010347994977	-1	0.028990341846	5.743840507638
200000	0.000052890514	0.010009955381	-1	0.028944285036	5.697386985565
205000	0.000051506314	0.009690340765	-1	0.028899715248	5.652933673075
210000	0.000050184480	0.009387865564	-1	0.028856365893	5.610374938352
215000	0.000048921083	0.009101402802	-1	0.028813929372	5.569624069234
220000	0.000047712485	0.008829885599	-1	0.028772147769	5.530589331028
225000	0.000046555317	0.008572299982	-1	0.028730840589	5.493177425807
230000	0.000045446442	0.008327687155	-1	0.028689869222	5.457291072653
235000	0.000044382968	0.008095138783	-1	0.028649155715	5.422829002959
240000	0.000043362179	0.007873789542	-1	0.028608684256	5.389688772949
245000	0.000042381564	0.007662821453	-1	0.028568493800	5.357765662737
250000	0.000041438762	0.007461454453	-1	0.028528684792	5.326953842928
255000	0.000040531606	0.007268987088	-1	0.028489353752	5.297158686425

260000	0.000039658196	0.007084906293	-1	0.028450396672	5.268334777961
265000	0.000038816782	0.006908759721	-1	0.028411677947	5.240448050910
270000	0.000038005721	0.006740115029	-1	0.028373087497	5.213462650015
275000	0.000037223478	0.006578561249	-1	0.028334523412	5.187338945100
280000	0.000036468603	0.006423707636	-1	0.028295903741	5.162038008049
285000	0.000035739749	0.006275184515	-1	0.028257147056	5.137516105722
290000	0.000035035662	0.006132651660	-1	0.028218142288	5.113728088725
295000	0.000034354742	0.005995500937	-1	0.028179983687	5.090668261885
300000	0.000033696135	0.005863598640	-1	0.028141908408	5.068264814964

Electron Elastic Scattering Sampling Data
Solution for Z = 89

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.011102931897	0.148469364516	+1	0.206302462080	3.947958663007
52	0.010682266642	0.162270124268	+1	0.211856834463	4.695749796151
54	0.010355953637	0.177995306522	+1	0.217571112198	5.572421558136
56	0.010107666096	0.195912520699	+1	0.223435254130	6.602631794445
58	0.009924067953	0.216317859701	+1	0.229434803756	7.816474548113
60	0.009794108749	0.239547653446	+1	0.235552287828	9.251175832274
62	0.009708624489	0.265991385023	+1	0.241767878217	10.953198840653
64	0.009659418074	0.296111604616	+1	0.248063268789	12.982344362087
66	0.009639940332	0.330453960320	+1	0.254415987153	15.414085178482
68	0.009644245477	0.369691189860	+1	0.260806740741	18.347882359502
70	0.009667077250	0.414641521648	+1	0.267216249097	21.914564241156
72	0.009703809264	0.466326066332	+1	0.273624877191	26.289275548547
74	0.009750358665	0.526034709115	+1	0.280015939166	31.710572009004
76	0.009803039671	0.595413329525	+1	0.286371940112	38.508169872566
78	0.009858617252	0.676608337356	+1	0.292677259187	47.148050821731
80	0.009914255091	0.772465457978	+1	0.298917811112	58.303565819840
82	0.009967417162	0.886824827819	+1	0.305078532975	72.971848696654
84	0.010016019034	1.025038572451	+1	0.311147739388	92.680990663614
86	0.010058260784	1.194729504075	+1	0.317112355320	119.851971541059
88	0.010092708654	1.407191239137	+1	0.322960467690	158.500297378997
90	0.010118290813	1.679891338714	+1	0.328681547526	215.658073697530
92	0.010134194416	2.041268887837	+1	0.334263318828	304.489951646446
94	0.010139992339	2.541179542559	+1	0.339696692605	451.972436779472
96	0.010135500366	3.275367125174	+1	0.344970893753	720.328215837492
98	0.010120810770	4.454224492606	+1	0.350074937958	1280.012537807791
100	0.010096267977	6.647777418067	+1	0.354997980619	2743.802719311317
105	0.009995854396	107.037855009835	-1	0.366446491916	662523.223697961310
110	0.009850361687	6.205133342849	-1	0.376572078744	2714.849788407199

115	0.009676505320	3.094340512925	-1	0.385210238218	812.498310701235
120	0.009491300879	2.025896070208	-1	0.392255783886	412.944198691253
125	0.009310976445	1.492495115639	-1	0.397603036981	261.272637520020
130	0.009148328158	1.176900299959	-1	0.401195923174	185.931612485552
135	0.009013290267	0.971437187289	-1	0.402994755844	142.147319188984
140	0.008911835004	0.829289417643	-1	0.403006534161	113.896584710136
145	0.008847082959	0.726988733941	-1	0.401265485942	94.273418484719
150	0.008819213206	0.651419888203	-1	0.397842884731	79.887183557758
155	0.008826307460	0.594741731240	-1	0.392842098992	68.919115146820
160	0.008864685347	0.551969091626	-1	0.386396075525	60.317892703139
165	0.008929347083	0.519799787356	-1	0.378669659618	53.441663227300
170	0.009014563467	0.495969551316	-1	0.369846648444	47.875251756628
175	0.009113938476	0.478864637579	-1	0.360136711302	43.338621614430
180	0.009220979864	0.467307954355	-1	0.349759034794	39.632887707718
185	0.009329301855	0.460410838317	-1	0.338940417764	36.611819700397
190	0.009433640066	0.457532599808	-1	0.327882775225	34.163064565400
195	0.009528898438	0.458134565951	-1	0.316790441948	32.199368052888
200	0.009609516964	0.461660014772	-1	0.305886040078	30.650849273979
205	0.009671177270	0.467614718578	-1	0.295359330466	29.459401384738
210	0.009712986008	0.475755433840	-1	0.285296491596	28.577087222741
215	0.009735017690	0.485902264821	-1	0.275751432326	27.965664104496
220	0.009737567811	0.497870365850	-1	0.266766994060	27.594440001726
225	0.009721150132	0.511464794820	-1	0.258374320652	27.438430553288
230	0.009686490099	0.526476413880	-1	0.250592862009	27.476847571482
235	0.009634483291	0.542678326481	-1	0.243431400124	27.691949847737
240	0.009566173286	0.559824826208	-1	0.236889066740	28.068053080952
245	0.009482691227	0.577649636543	-1	0.230957252968	28.590760310134
250	0.009385235646	0.595867837153	-1	0.225620894738	29.246266168881
255	0.009275225619	0.614220919965	-1	0.220854027287	30.022024351241
260	0.009154799813	0.632618564284	-1	0.216604663238	30.910557685478
265	0.009026032308	0.651018277490	-1	0.212819143139	31.906706270716
270	0.008890738079	0.669384769748	-1	0.209448601046	33.006363253358
275	0.008750490762	0.687687832220	-1	0.206448899209	34.206210408365

280	0.008606651303	0.705902921762	-1	0.203780142017	35.503577153617
285	0.008460391465	0.724010448590	-1	0.201406388505	36.896301448543
290	0.008312715420	0.741994342553	-1	0.199295301070	38.382553082802
295	0.008164478380	0.759842291186	-1	0.197417843946	39.960809921558
300	0.008016406673	0.777545030592	-1	0.195747887951	41.629739638270
310	0.007723226960	0.812573252440	-1	0.192935499345	45.239929731850
320	0.007437439330	0.847461732174	-1	0.190682415648	49.231797629763
330	0.007162042730	0.882698102912	-1	0.188846645141	53.636808152095
340	0.006898996409	0.918782087058	-1	0.187315737518	58.495002624736
350	0.006649494438	0.956218233299	-1	0.186000608534	63.855410504857
360	0.006414127434	0.995523784393	-1	0.184831704516	69.778789077497
370	0.006192901515	1.037237784809	-1	0.183758568306	76.343768150050
380	0.005985565645	1.081933252878	-1	0.182742077944	83.646879335477
390	0.005791740139	1.130232928043	-1	0.181751009754	91.805620651083
400	0.005610962332	1.182830307500	-1	0.180760349988	100.964169428244
410	0.005442662965	1.240486713087	-1	0.179751854621	111.299666151730
420	0.005286047622	1.303968323174	-1	0.178717383007	123.026022806796
430	0.005140328517	1.374155180284	-1	0.177651989233	136.408595165271
440	0.005004784263	1.452109051548	-1	0.176551821772	151.782412892783
450	0.004878756095	1.539126987916	-1	0.175413818311	169.575791400964
460	0.004761607301	1.636776498962	-1	0.174236641757	190.339961245512
470	0.004652630302	1.746861023529	-1	0.173023348093	214.779108159424
480	0.004551169100	1.871612088688	-1	0.171777540356	243.818107174447
490	0.004456641739	2.013873881349	-1	0.170502186799	278.697539264995
500	0.004368531157	2.177318305600	-1	0.169199827973	321.112678881914
510	0.004286358836	2.366724088319	-1	0.167873158842	373.422773059405
520	0.004209628199	2.588280876502	-1	0.166526699976	438.956917055682
530	0.004137886642	2.850340551472	-1	0.165164755531	522.565285417763
540	0.004070731006	3.164498973913	-1	0.163790914074	631.547369458510
550	0.004007806945	3.547338604431	-1	0.162408156302	777.304983896959
560	0.003948788296	4.023340700366	-1	0.161019273715	978.430345835070
570	0.003893350464	4.630021816539	-1	0.159627684811	1266.830517206885
580	0.003841198348	5.428227077447	-1	0.158236526331	1701.116793370605

590	0.003792067448	6.523712924726	-1	0.156848365388	2398.731045521076
600	0.003745723774	8.117911928915	-1	0.155465354848	3624.068727173485
610	0.003701953321	10.647531466786	-1	0.154089422578	6079.886742475088
620	0.003660548191	15.268808353010	-1	0.152722631816	12187.249402471920
630	0.003621318293	26.379853695518	-1	0.151366813035	35446.844922776290
640	0.003584092967	89.619033851415	-1	0.150023506815	398509.838431383190
650	0.003548719464	66.734030031871	+1	0.148693911898	221692.799043824630
660	0.003515058419	24.082278809965	+1	0.147379102083	29599.751385609401
670	0.003482976007	14.583862511618	+1	0.146080135922	11124.006281723285
680	0.003452350896	10.405421200519	+1	0.144797886986	5800.330851624563
690	0.003423072586	8.057156448678	+1	0.143533090547	3560.532242237316
700	0.003395041626	6.553860603514	+1	0.142286300746	2410.848134739133
710	0.003368166509	5.509851914372	+1	0.141057950135	1742.973839112161
720	0.003342360664	4.743148625915	+1	0.139848422748	1320.677903625866
730	0.003317547078	4.156676580033	+1	0.138658023497	1036.644908113812
740	0.003293653198	3.693931799110	+1	0.137486956566	836.402922281182
750	0.003270613311	3.319784885794	+1	0.136335336153	689.903033673429
760	0.003248367538	3.011250752053	+1	0.135203229315	579.463539843798
770	0.003226859979	2.752646448696	+1	0.134090609393	494.122609993404
780	0.003206040416	2.532913916681	+1	0.132997460295	426.793044002867
790	0.003185860739	2.344036357064	+1	0.131923662689	372.727920260357
800	0.003166278392	2.180056941776	+1	0.130869110333	328.649273357034
810	0.003147252898	2.036458807881	+1	0.129833646646	292.234618923953
820	0.003128748116	1.909746987633	+1	0.128817065951	261.798905648208
830	0.003110729978	1.797180842647	+1	0.127819098122	236.096914505450
840	0.003093168346	1.696583018583	+1	0.126839573012	214.192770346014
850	0.003076033223	1.606200333462	+1	0.125878181311	195.371464121153
860	0.003059297990	1.524606693142	+1	0.124934694456	179.079451501154
870	0.003042939083	1.450623452344	+1	0.124008786801	164.881224970896
880	0.003026933598	1.383273805784	+1	0.123100173442	152.431697001435
890	0.003011260587	1.321740959488	+1	0.122208530836	141.454292340071
900	0.002995901131	1.265338011598	+1	0.121333568846	131.725504056395
910	0.002980836971	1.213480948126	+1	0.120474980291	123.062733225533

920	0.002966051466	1.165669082650	+1	0.119632436205	115.315416585191
930	0.002951530376	1.121470876224	+1	0.118805584740	108.358501713435
940	0.002937259459	1.080515113067	+1	0.117994109812	102.087950820855
950	0.002923225629	1.042480201404	+1	0.117197703070	96.416484048838
960	0.002909415999	1.007085805316	+1	0.116416036993	91.270382138623
970	0.002895820010	0.974084798013	+1	0.115648823943	86.586791439415
980	0.002882427270	0.943259564729	+1	0.114895726359	82.311987735503
990	0.002869227297	0.914419217981	+1	0.114156454065	78.400092635887
1000	0.002856211368	0.887394243250	+1	0.113430716253	74.811474538664
1025	0.002824421928	0.826818727861	+1	0.111673630312	67.039283529313
1050	0.002793624176	0.774706796576	+1	0.109994404815	60.654397243953
1075	0.002763726042	0.729549677817	+1	0.108388556314	55.348021666084
1100	0.002734641589	0.690185175723	+1	0.106852069195	50.894754337559
1125	0.002706297047	0.655697819965	+1	0.105381284001	47.126058371414
1150	0.002678641671	0.625340366663	+1	0.103972309977	43.911741648694
1175	0.002651629953	0.598510514060	+1	0.102621532520	41.151640457126
1200	0.002625218887	0.574722632421	+1	0.101325786028	38.768225760202
1225	0.002599369296	0.553578569265	+1	0.100082147823	36.700402611492
1250	0.002574054587	0.534739548906	+1	0.098887640320	34.898426284593
1275	0.002549250003	0.517923541585	+1	0.097739507793	33.322349097021
1300	0.002524931532	0.502895399252	+1	0.096635292225	31.939953115624
1325	0.002501075828	0.489457162454	+1	0.095572732157	30.724961890948
1350	0.002477667253	0.477435714825	+1	0.094549564226	29.655186453892
1375	0.002454691248	0.466683301601	+1	0.093563697041	28.712239348210
1400	0.002432132535	0.457074042664	+1	0.092613252869	27.880892342720
1425	0.002409976427	0.448499621994	+1	0.091696466542	27.148378147982
1450	0.002388212529	0.440863618473	+1	0.090811633665	26.503658787084
1475	0.002366830708	0.434082392112	+1	0.089957129180	25.937381284350
1500	0.002345820408	0.428083317449	+1	0.089131503768	25.441637328379
1550	0.002304875483	0.418184023868	+1	0.087561483707	24.635547412407
1600	0.002265309556	0.410735865032	+1	0.086091308676	24.041113595506
1650	0.002227058162	0.405402979217	+1	0.084712039175	23.625309625415
1700	0.002190066624	0.401918452227	+1	0.083415703769	23.363003965999

1750	0.002154281247	0.400069422821	+1	0.082195250719	23.235090441281
1800	0.002119653836	0.399683151786	+1	0.081044316479	23.226782382743
1850	0.002086136185	0.400620186814	+1	0.079957238387	23.326805783063
1900	0.002053684011	0.402771420793	+1	0.078928966930	23.526874696290
1950	0.002022254183	0.406045703374	+1	0.077954935594	23.820601138757
2000	0.001991808555	0.410357455981	+1	0.077030871235	24.202342235060
2100	0.001933653638	0.421893462984	+1	0.075320003689	25.221509479570
2200	0.001878970230	0.437052861776	+1	0.073769398799	26.572270869958
2300	0.001827492918	0.455671929944	+1	0.072357816414	28.259996145712
2400	0.001778975352	0.477648820335	+1	0.071067226219	30.298642909063
2500	0.001733202256	0.502903829690	+1	0.069881717570	32.706962230846
2600	0.001689977252	0.531399178665	+1	0.068787558561	35.510454217108
2700	0.001649098490	0.563282469933	+1	0.067774628038	38.756782805740
2800	0.001610382891	0.598768097073	+1	0.066834289897	42.506635066273
2900	0.001573671548	0.638087927824	+1	0.065958577766	46.830186956112
3000	0.001538825985	0.681484706685	+1	0.065140043142	51.807569536306
3100	0.001505720789	0.729238510455	+1	0.064372046797	57.533493139765
3200	0.001474228926	0.781792428588	+1	0.063649820622	64.136129737379
3300	0.001444233464	0.839683533781	+1	0.062969203416	71.774292246479
3400	0.001415631917	0.903523238951	+1	0.062326302064	80.640353769458
3500	0.001388332654	0.974005065503	+1	0.061717379271	90.967700475965
3600	0.001362252740	1.051944818254	+1	0.061139037739	103.045029357403
3700	0.001337311386	1.138405620538	+1	0.060588779287	117.249402113747
3800	0.001313433926	1.234687829464	+1	0.060064391625	134.064791840977
3900	0.001290553356	1.342362356403	+1	0.059563784455	154.113505666006
4000	0.001268608774	1.463345386455	+1	0.059084972997	178.205242856080
4100	0.001247544442	1.600013905654	+1	0.058626106258	207.410547954511
4200	0.001227307664	1.755438287020	+1	0.058185766129	243.187713680750
4300	0.001207849684	1.933566348652	+1	0.057762674047	287.544353526565
4400	0.001189124259	2.139547481764	+1	0.057355664145	343.300212970684
4500	0.001171091317	2.380187334661	+1	0.056963556897	414.497076392601
4600	0.001153712468	2.664737650899	+1	0.056585303423	507.107474337341
4700	0.001136951908	3.006145865272	+1	0.056220047837	630.262814765398

4800	0.001120776451	3.423034858039	+1	0.055866999909	798.451212377120
4900	0.001105155210	3.943169325076	+1	0.055525428495	1035.737235535859
5000	0.001090059459	4.609838114145	+1	0.055194626240	1384.417588971554
5500	0.001021590651	17.308731812683	+1	0.053681845955	17578.970095363893
6000	0.000962935793	13.520943624470	-1	0.052361683221	11255.311040805942
6500	0.000912082546	4.838509722085	-1	0.051192596085	1669.600776099100
7000	0.000867551324	2.916874983265	-1	0.050144100013	694.620915583885
7500	0.000828221274	2.075387594294	-1	0.049193615897	398.391264107026
8000	0.000793226303	1.604688562280	-1	0.048323982600	267.349077807149
8500	0.000761885353	1.304825163725	-1	0.047521870237	196.792453748285
9000	0.000733654536	1.097607278506	-1	0.046776773743	153.885144362129
9500	0.000708093626	0.946184637744	-1	0.046080297091	125.535132872910
10000	0.000684841945	0.830923607628	-1	0.045425659002	105.641638742683
10500	0.000663600825	0.740404447004	-1	0.044807380884	91.029631419000
11000	0.000644122289	0.667560574901	-1	0.044220744948	79.908462888331
11500	0.000626195009	0.607743442917	-1	0.043662162727	71.194994996174
12000	0.000609641789	0.557814850454	-1	0.043128366147	64.206031101547
12500	0.000594310103	0.515551117265	-1	0.042616797051	58.487920654983
13000	0.000580069911	0.479353754683	-1	0.042125125491	53.731431498700
13500	0.000566807824	0.448027702967	-1	0.041651531222	49.717276455594
14000	0.000554426143	0.420676624089	-1	0.041194311377	46.287725630025
14500	0.000542838976	0.396604060264	-1	0.040752110328	43.325441507162
15000	0.000531971868	0.375270515410	-1	0.040323676958	40.742557304341
16000	0.000512140667	0.339177099473	-1	0.039504098365	36.458563056876
17000	0.000494491127	0.309856607418	-1	0.038728581663	33.051933825482
18000	0.000478674190	0.285606929479	-1	0.037991686792	30.278813226248
19000	0.000464410525	0.265246213354	-1	0.037289103399	27.977351184573
20000	0.000451474118	0.247929333963	-1	0.036617335723	26.036160185833
21000	0.000379310305	0.191289177542	-1	0.039655974891	24.798764556670
22000	0.000366388980	0.179051215288	-1	0.039232426828	23.519889974011
23000	0.000354000031	0.167445962805	-1	0.038839342261	22.306443659828
24000	0.000342286668	0.156751891539	-1	0.038476365695	21.190854844746
25000	0.000331372759	0.147209736350	-1	0.038137703484	20.200415467460

26000	0.000321327579	0.138951947243	-1	0.037813699713	19.349623124103
27000	0.000312057994	0.131794549530	-1	0.037499139235	18.617201683067
28000	0.000303443159	0.125504855713	-1	0.037192537185	17.976914161728
29000	0.000295374744	0.119878677904	-1	0.036894752262	17.406127091051
30000	0.000287755321	0.114735575388	-1	0.036608694723	16.885081646814
31000	0.000280507714	0.109937403825	-1	0.036337843421	16.398785849235
32000	0.000273603427	0.105447468666	-1	0.036081769989	15.943422910200
33000	0.000267026780	0.101253917015	-1	0.035838868918	15.517909052849
34000	0.000260763389	0.097346072019	-1	0.035607433576	15.121295965510
35000	0.000254800145	0.093714243203	-1	0.035385684492	14.752752410384
36000	0.000249122999	0.090346016133	-1	0.035171977959	14.411136423397
37000	0.000243711217	0.087215910573	-1	0.034965579584	14.093799781978
38000	0.000238543749	0.084297109911	-1	0.034766190110	13.797929898534
39000	0.000233601239	0.081564861161	-1	0.034573759049	13.520930810547
40000	0.000228865646	0.078996264186	-1	0.034388477746	13.260411904699
41000	0.000224321122	0.076571829366	-1	0.034210555088	13.014339219258
42000	0.000219955878	0.074280031138	-1	0.034039590463	12.781549103180
43000	0.000215759728	0.072111747424	-1	0.033875054850	12.561129920727
44000	0.000211723210	0.070058386194	-1	0.033716512330	12.352227426236
45000	0.000207837478	0.068111906322	-1	0.033563583946	12.154041559870
46000	0.000204094203	0.066264754302	-1	0.033415943169	11.965819409736
47000	0.000200485431	0.064509800034	-1	0.033273296117	11.786845501926
48000	0.000197003684	0.062840339512	-1	0.033135392330	11.616441523690
49000	0.000193641943	0.061250026569	-1	0.033002048995	11.453964300918
50000	0.000190393580	0.059732852845	-1	0.032873142751	11.298803564293
55000	0.000175658712	0.053081819604	-1	0.032289469007	10.616402544281
60000	0.000163028090	0.047674113994	-1	0.031791684723	10.058201763565
65000	0.000152068451	0.043191470195	-1	0.031363838242	9.592358059657
70000	0.000142460295	0.039416296585	-1	0.030993456954	9.197143073437
75000	0.000133962680	0.036194583873	-1	0.030670743828	8.857188605194
80000	0.000126389673	0.033413748385	-1	0.030388433567	8.561374228343
85000	0.000119594353	0.030990750560	-1	0.030139264592	8.301327103905
90000	0.000113461044	0.028861709336	-1	0.029918289872	8.070704624246

95000	0.000107897947	0.026977910048	-1	0.029721032906	7.864600137229
100000	0.000102828582	0.025300643248	-1	0.029543548329	7.679110100289
105000	0.000098187728	0.023797769129	-1	0.029383646450	7.511188500613
110000	0.000093920090	0.022442938122	-1	0.029240579770	7.358577565238
115000	0.000089984469	0.021216973932	-1	0.029110656873	7.219001042502
120000	0.000086343380	0.020103102234	-1	0.028992078102	7.090831713203
125000	0.000082964659	0.019086981611	-1	0.028883458296	6.972639054287
130000	0.000079820930	0.018156888528	-1	0.028783446362	6.863274982072
135000	0.000076888378	0.017302636744	-1	0.028691011319	6.761714371122
140000	0.000074146416	0.016515747422	-1	0.028605200337	6.667134280731
145000	0.000071576982	0.015788791188	-1	0.028525274319	6.578791981083
150000	0.000069164405	0.015115533138	-1	0.028450467265	6.496070320094
155000	0.000066894834	0.014490454386	-1	0.028380175533	6.418403975361
160000	0.000064755974	0.013908832621	-1	0.028313827248	6.345329486035
165000	0.000062736874	0.013366453240	-1	0.028250980066	6.276419972947
170000	0.000060827827	0.012859689159	-1	0.028191201530	6.211318514417
175000	0.000059020173	0.012385291491	-1	0.028134138351	6.149690228604
180000	0.000057306117	0.011940412160	-1	0.028079460106	6.091249431014
185000	0.000055678640	0.011522491159	-1	0.028026900649	6.035732158550
190000	0.000054131451	0.011129330697	-1	0.027976161030	5.982928033992
195000	0.000052658827	0.010758902454	-1	0.027927024586	5.932630396722
200000	0.000051255475	0.010409241187	-1	0.027879423359	5.884607602946
205000	0.000049916574	0.010078570950	-1	0.027833342949	5.838648353709
210000	0.000048637947	0.009765570579	-1	0.027788522998	5.794641157440
215000	0.000047415774	0.009469074740	-1	0.027744677264	5.752498027386
220000	0.000046246553	0.009187989063	-1	0.027701556102	5.712124492724
225000	0.000045127017	0.008921270748	-1	0.027658975036	5.673424015674
230000	0.000044054147	0.008667932648	-1	0.027616806216	5.636296318531
235000	0.000043025141	0.008427040130	-1	0.027574970594	5.600637826683
240000	0.000042037376	0.008197704939	-1	0.027533443319	5.566343203453
245000	0.000041088425	0.007979086360	-1	0.027492250113	5.533304383785
250000	0.000040176013	0.007770383272	-1	0.027451478188	5.501412493364
255000	0.000039298057	0.007570879179	-1	0.027411197233	5.470569217339

260000	0.000038452714	0.007380043807	-1	0.027371309102	5.440728735267
265000	0.000037638298	0.007197412639	-1	0.027331677419	5.411855521400
270000	0.000036853236	0.007022547755	-1	0.027292166069	5.383910832860
275000	0.000036096065	0.006855045804	-1	0.027252604535	5.356852850489
280000	0.000035365086	0.006694276729	-1	0.027213722214	5.330668794946
285000	0.000034659104	0.006539946100	-1	0.027175174141	5.305306662114
290000	0.000033977000	0.006391768879	-1	0.027136625323	5.280710294906
295000	0.000033317596	0.006249383142	-1	0.027098098980	5.256835917511
300000	0.000032679794	0.006112447149	-1	0.027059621510	5.233637430277

Electron Elastic Scattering Sampling Data
Solution for Z = 90

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.013026597984	0.099693963378	+1	0.165088753099	1.642729363338
52	0.012463775127	0.108918704017	+1	0.172133004786	1.990108051209
54	0.012011809931	0.119570240890	+1	0.179364467675	2.406946923817
56	0.011651382314	0.131798462414	+1	0.186768971301	2.906443582277
58	0.011366664472	0.145766152570	+1	0.194328992214	3.504215988749
60	0.011144545074	0.161654458032	+1	0.202024636947	4.218945477811
62	0.010974116772	0.179670093140	+1	0.209834208320	5.073233073887
64	0.010845927444	0.200044961028	+1	0.217735789692	6.094664916607
66	0.010752126536	0.223053905646	+1	0.225705813167	7.317338508411
68	0.010685940194	0.249019818035	+1	0.233721668178	8.783886381785
70	0.010641357166	0.278319436412	+1	0.241761034039	10.547973926308
72	0.010613201289	0.311403608535	+1	0.249800131443	12.677812544751
74	0.010596964989	0.348817006108	+1	0.257818634705	15.261437850026
76	0.010588657827	0.391214862151	+1	0.265794209958	18.412888813643
78	0.010584852147	0.439403779597	+1	0.273706406258	22.282380991734
80	0.010582600775	0.494382511382	+1	0.281536273239	27.070118503723
82	0.010579334043	0.557390417519	+1	0.289262833600	33.045464665611
84	0.010573000812	0.630015689206	+1	0.296869382188	40.579490663457
86	0.010561877383	0.714283837777	+1	0.304337131431	50.188664737703
88	0.010544645385	0.812849437759	+1	0.311648737758	62.609411373463
90	0.010520374687	0.929259577988	+1	0.318788735450	78.917364847058
92	0.010488422305	1.068317235525	+1	0.325739564602	100.720694930436
94	0.010448514506	1.236788538810	+1	0.332487979141	130.517425401764
96	0.010400633434	1.444398155701	+1	0.339019184239	172.322065852606
98	0.010345025916	1.705692970677	+1	0.345318763348	232.899397595156
100	0.010282174589	2.043457204703	+1	0.351373090850	324.323649963216
105	0.010098054877	3.552703653068	+1	0.365357157169	912.883454646597
110	0.009886589990	8.798362948661	+1	0.377598114904	5238.358111420003

115	0.009664262670	43.253193736150	-1	0.387949201410	124338.173356873040
120	0.009446522175	6.462500796091	-1	0.396351617875	3320.674673847053
125	0.009247300725	3.433554407141	-1	0.402767721929	1100.005318738346
130	0.009076544174	2.320285336026	-1	0.407219704628	577.839454195073
135	0.008941326856	1.748296227960	-1	0.409752086740	369.740814409423
140	0.008844924592	1.403991842162	-1	0.410450121344	263.341230110613
145	0.008788208129	1.176976749101	-1	0.409418165311	200.358774476698
150	0.008769613928	1.018306698067	-1	0.406781233781	159.308637512120
155	0.008786055531	0.903052665041	-1	0.402679617390	130.714324901178
160	0.008833204581	0.817155601079	-1	0.397263132444	109.827153521624
165	0.008905895140	0.752108160601	-1	0.390695015925	94.040757053243
170	0.008998604768	0.702470177665	-1	0.383140269655	81.811252673971
175	0.009105413530	0.664585975050	-1	0.374775287113	72.169883202213
180	0.009220464843	0.635913757217	-1	0.365776107671	64.475169997537
185	0.009338026805	0.614619663986	-1	0.356321332687	58.285113200690
190	0.009453428952	0.599402048222	-1	0.346566956239	53.282706617700
195	0.009562017430	0.589233448750	-1	0.336673668546	49.235059760092
200	0.009658431397	0.583175675867	-1	0.326824862547	45.965760916971
205	0.009738289854	0.580455517621	-1	0.317183175167	43.337676881367
210	0.009800524591	0.580654611406	-1	0.307825010795	41.243731242721
215	0.009844924751	0.583462867871	-1	0.298803320375	39.600401219659
220	0.009871398398	0.588593136391	-1	0.290165890332	38.341810574266
225	0.009880005375	0.595769854875	-1	0.281954153997	37.415206816973
230	0.009870963629	0.604722637253	-1	0.274201882176	36.777767446867
235	0.009844659839	0.615179092290	-1	0.266934963828	36.394010808105
240	0.009801633995	0.626860951868	-1	0.260171369887	36.233932628104
245	0.009742565995	0.639481190033	-1	0.253921564993	36.271481199770
250	0.009668242576	0.652743157438	-1	0.248189172758	36.483434586068
255	0.009579774671	0.666385462702	-1	0.242965636202	36.849729717098
260	0.009479185720	0.680323832549	-1	0.238213712766	37.357162244999
265	0.009368519987	0.694522123842	-1	0.233891861293	37.995977200526
270	0.009249595255	0.708946943417	-1	0.229961584822	38.758227040096
275	0.009124009843	0.723567400791	-1	0.226387242128	39.637413264853

280	0.008993180969	0.738355192301	-1	0.223135993067	40.628137912850
285	0.008858339376	0.753283186629	-1	0.220177779205	41.725900675483
290	0.008720562921	0.768326998962	-1	0.217484957215	42.926927684745
295	0.008580779304	0.783461820352	-1	0.215032395778	44.227907659302
300	0.008439800583	0.798665129261	-1	0.212797088201	45.625944114726
310	0.008157106399	0.829284274055	-1	0.208891203085	48.708440520601
320	0.007877662614	0.860483468943	-1	0.205599410830	52.184972403668
330	0.007605290340	0.892659489675	-1	0.202782495937	56.079704169885
340	0.007342622607	0.926209973705	-1	0.200328942763	60.425045290891
350	0.007091394751	0.961531579086	-1	0.198149627627	65.261677839263
360	0.006852639604	0.999037874046	-1	0.196173754761	70.641171520464
370	0.006626768942	1.039204237973	-1	0.194347070444	76.633972477849
380	0.006413861916	1.082544958789	-1	0.192626832128	83.327160441159
390	0.006213794395	1.129623725144	-1	0.190978532973	90.826806196375
400	0.006026298905	1.181066553595	-1	0.189374633000	99.262429429436
410	0.005850960321	1.237570156108	-1	0.187794350427	108.793316925979
420	0.005687103976	1.299858068455	-1	0.186226454639	119.613645763467
430	0.005534038969	1.368766727680	-1	0.184663171085	131.964152607809
440	0.005391119236	1.445304228996	-1	0.183098137572	146.147782770462
450	0.005257742422	1.530696646047	-1	0.181526234344	162.550055535150
460	0.005133315314	1.626423439269	-1	0.179944159455	181.664927341353
470	0.005017159316	1.734201018891	-1	0.178352878763	204.123635526559
480	0.004908640061	1.856146646452	-1	0.176753975533	230.751518722716
490	0.004807192744	1.994950066019	-1	0.175148702294	262.650726709053
500	0.004712313426	2.154061616544	-1	0.173538079429	301.317489584220
510	0.004623532840	2.337953276269	-1	0.171923330805	348.821347052338
520	0.004540357660	2.552394688454	-1	0.170307550360	408.064067420890
530	0.004462334347	2.805121106250	-1	0.168693709405	483.239200782882
540	0.004389061847	3.106790883239	-1	0.167084184076	580.597511013347
550	0.004320184688	3.472505927627	-1	0.165480852097	709.791605415657
560	0.004255376737	3.924326940020	-1	0.163885469995	886.348594917528
570	0.004194309192	4.495615400619	-1	0.162300461660	1136.472060233626
580	0.004136681182	5.239582975218	-1	0.160728029781	1507.288223764413

590	0.004082227041	6.246724071106	-1	0.159169939710	2090.645679024795
600	0.004030707166	7.684364967507	-1	0.157627547629	3085.643655074755
610	0.003981906129	9.899997749181	-1	0.156102035357	4993.019093930002
620	0.003935609833	13.752397966893	-1	0.154594796721	9389.730144407098
630	0.003891622964	22.100513527736	-1	0.153107046590	23625.068239323249
640	0.003849771985	53.748823911620	-1	0.151639716979	136104.556435705310
650	0.003810318065	135.067843757039	+1	0.150182969056	849160.608679311000
660	0.003771862463	30.014763973159	+1	0.148768938937	42971.186993688803
670	0.003735523063	16.708566126687	+1	0.147366616411	13639.191968843221
680	0.003700755512	11.513104933459	+1	0.145987009115	6629.986405130671
690	0.003667446140	8.746903688667	+1	0.144630425994	3916.276115078434
700	0.003635490836	7.030347934166	+1	0.143297025387	2588.087868460591
710	0.003604795253	5.862186809361	+1	0.141986919428	1840.065524118784
720	0.003575270945	5.016468276456	+1	0.140700176372	1377.306856784066
730	0.003546834604	4.376365055829	+1	0.139436772813	1071.070967462493
740	0.003519412084	3.875398867129	+1	0.138196667884	857.867201714650
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760	0.003467338202	3.142814408958	+1	0.135785675387	587.959299958594
770	0.003442565980	2.867292106656	+1	0.134614394946	499.328046148081
780	0.003418562923	2.634031173927	+1	0.133465599027	429.800960111116
790	0.003395279861	2.434139158335	+1	0.132338999080	374.242779205510
800	0.003372670698	2.261054144603	+1	0.131234304389	329.137582122176
810	0.003350692882	2.109825799573	+1	0.130151165292	292.011232811620
820	0.003329307558	1.976645219801	+1	0.129089248798	261.080723929685
830	0.003308479197	1.858536059248	+1	0.128048149964	235.035022160585
840	0.003288173710	1.753145097663	+1	0.127027524565	212.894185570586
850	0.003268360506	1.658582118457	+1	0.126026959407	193.912323450626
860	0.003249010943	1.573315054587	+1	0.125046110276	177.514472176048
870	0.003230098905	1.496082009535	+1	0.124084550687	163.250079988953
880	0.003211599669	1.425839226854	+1	0.123141883984	150.763111225929
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910	0.003158360558	1.249016517042	+1	0.120423163952	121.385237367610

920	0.003141301640	1.199289338560	+1	0.119552061374	113.654851000509
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940	0.003108113084	1.110791305924	+1	0.117860139223	100.476087868022
950	0.003091952940	1.071288878274	+1	0.117038535934	94.833281493928
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970	0.003060432855	1.000291242618	+1	0.115442248620	85.064495398447
980	0.003045048753	0.968307181480	+1	0.114666809830	80.820647465660
990	0.003029899247	0.938389275413	+1	0.113906010773	76.939404287770
1000	0.003014975274	0.910359509341	+1	0.113159560159	73.380831342199
1025	0.002978586999	0.847545761440	+1	0.111353834548	65.679935160249
1050	0.002943421118	0.793517230910	+1	0.109630052619	59.359769993278
1075	0.002909369021	0.746699470060	+1	0.107983267087	54.111178796934
1100	0.002876330902	0.705880444293	+1	0.106409038316	49.708798151977
1125	0.002844219114	0.670106362216	+1	0.104903277520	45.984390664203
1150	0.002812969276	0.638600270694	+1	0.103461789467	42.808338447471
1175	0.002782524800	0.610736702997	+1	0.102080743659	40.081070666357
1200	0.002752830827	0.586011658663	+1	0.100756701741	37.725581681963
1225	0.002723838299	0.564011373587	+1	0.099486508053	35.681168677880
1250	0.002695511912	0.544385419599	+1	0.098267022479	33.898594791056
1275	0.002667819356	0.526841717215	+1	0.097095340044	32.338298915889
1300	0.002640728242	0.511137091886	+1	0.095968837647	30.968419759639
1325	0.002614209646	0.497066559901	+1	0.094885147847	29.762947318921
1350	0.002588240914	0.484451183764	+1	0.093841903067	28.699971678759
1375	0.002562801694	0.473138071841	+1	0.092836921957	27.761320947462
1400	0.002537870163	0.462997144878	+1	0.091868230177	26.931967730115
1425	0.002513426639	0.453916485618	+1	0.090934030348	26.199321551386
1450	0.002489456698	0.445796269114	+1	0.090032502909	25.552452082983
1475	0.002465944614	0.438550291291	+1	0.089161997313	24.982169666906
1500	0.002442876284	0.432103409958	+1	0.088321015495	24.480657349953
1550	0.002398015965	0.421350988862	+1	0.086721945056	23.658056937548
1600	0.002354782402	0.413094570365	+1	0.085224831965	23.040943171468
1650	0.002313088410	0.406986595139	+1	0.083820480028	22.596646685033
1700	0.002272857108	0.402751659462	+1	0.082500677596	22.300355724140

1750	0.002234015971	0.400169593279	+1	0.081258155557	22.133127150702
1800	0.002196501899	0.399060141494	+1	0.080086453549	22.080165211102
1850	0.002160254040	0.399277463403	+1	0.078979845118	22.130120585882
1900	0.002125214473	0.400707537966	+1	0.077933169914	22.274612929934
1950	0.002091328638	0.403255388540	+1	0.076941742297	22.507134899596
2000	0.002058547268	0.406832401752	+1	0.076001229610	22.821972716967
2100	0.001996115312	0.416808569615	+1	0.074257899034	23.683658666720
2200	0.001937558793	0.430310744695	+1	0.072677446036	24.847681962536
2300	0.001882552741	0.447150612273	+1	0.071238596015	26.315691652360
2400	0.001830783816	0.467223253459	+1	0.069923963845	28.099383946750
2500	0.001781985141	0.490448515257	+1	0.068718093918	30.215031163090
2600	0.001735969151	0.516729704938	+1	0.067605693346	32.678341541904
2700	0.001692508814	0.546180248071	+1	0.066576432567	35.528142707133
2800	0.001651400319	0.578972764530	+1	0.065621431680	38.813842527996
2900	0.001612466360	0.615294537914	+1	0.064732574372	42.592337039104
3000	0.001575551462	0.655339346179	+1	0.063902262273	46.927996299827
3100	0.001540516179	0.699331912955	+1	0.063123782672	51.896440967582
3200	0.001507220420	0.747642647471	+1	0.062392225844	57.600350560241
3300	0.001475536141	0.800721106531	+1	0.061703342699	64.166161194006
3400	0.001445350746	0.859071325124	+1	0.061053100116	71.744970018362
3500	0.001416563907	0.923259661523	+1	0.060437688613	80.518022537399
3600	0.001389084669	0.993944861729	+1	0.059853638162	90.706612911103
3700	0.001362824988	1.071988880136	+1	0.059298371248	102.597556408762
3800	0.001337703820	1.158437496241	+1	0.058769621908	116.554355663031
3900	0.001313648212	1.254536065624	+1	0.058265222648	133.036841339884
4000	0.001290592104	1.361777074575	+1	0.057783110246	152.632076127205
4100	0.001268475350	1.481988505683	+1	0.057321400476	176.102357953673
4200	0.001247240431	1.617501607269	+1	0.056878645596	204.466344667098
4300	0.001226834674	1.771261532015	+1	0.056453517248	239.094390132111
4400	0.001207209550	1.947017512439	+1	0.056044770053	281.857527767186
4500	0.001188319560	2.149627049640	+1	0.055651264956	335.363556972310
4600	0.001170124777	2.385479765369	+1	0.055271864556	403.323166730479
4700	0.001152586147	2.663264819567	+1	0.054905713283	491.192128788172

4800	0.001135668401	2.994999833479	+1	0.054551982939	607.214281866949
4900	0.001119337863	3.397798184977	+1	0.054209924764	764.310600225438
5000	0.001103563879	3.896861399127	+1	0.053878815296	983.620468997172
5500	0.001032105431	10.770604051338	+1	0.052366657545	6780.805127463467
6000	0.000970983862	25.494183753078	-1	0.051050899609	37386.829447130629
6500	0.000918070881	5.970275387810	-1	0.049887661895	2377.868042437421
7000	0.000871797296	3.342807793806	-1	0.048845428292	854.399268110094
7500	0.000830965628	2.305990336736	-1	0.047902146452	461.199318534311
8000	0.000794660399	1.752806929967	-1	0.047040477028	299.488773179036
8500	0.000762164181	1.409846849334	-1	0.046246984146	215.987919829023
9000	0.000732905743	1.176998192571	-1	0.045511069937	166.576490963056
9500	0.000706423872	1.008941619170	-1	0.044824251072	134.552277444305
10000	0.000682341678	0.882186087756	-1	0.044179677406	112.401189794012
10500	0.000660347288	0.783338058173	-1	0.043571804987	96.311245010320
11000	0.000640182502	0.704234240764	-1	0.042995851860	84.173894853366
11500	0.000621627683	0.639569739488	-1	0.042448184436	74.733342172490
12000	0.000604498856	0.585797360393	-1	0.041925482307	67.207222015355
12500	0.000588637544	0.540423380981	-1	0.041425126359	61.081333177195
13000	0.000573908990	0.501667011531	-1	0.040944762122	56.008212551996
13500	0.000560195646	0.468204865533	-1	0.040482514979	51.743311893998
14000	0.000547396571	0.439048500347	-1	0.040036672106	48.111790464639
14500	0.000535422649	0.413433696931	-1	0.039605833564	44.984381005582
15000	0.000524197061	0.390770332122	-1	0.039188732937	42.264716307173
16000	0.000503724518	0.352507771549	-1	0.038391597287	37.768922709155
17000	0.000485522071	0.321502099822	-1	0.037638139617	34.207523299775
18000	0.000469228749	0.295913368847	-1	0.036922829594	31.317428604642
19000	0.000454555187	0.274468860416	-1	0.036241256604	28.924991558513
20000	0.000441267394	0.256261313910	-1	0.035589895961	26.911293078712
21000	0.000378562182	0.200989775031	-1	0.038347397137	25.417296282086
22000	0.000365548173	0.188067140193	-1	0.037931870263	24.090676135013
23000	0.000353080252	0.175832025858	-1	0.037544761862	22.834175597433
24000	0.000341301550	0.164571606963	-1	0.037186220823	21.680754583994
25000	0.000330334815	0.154532631157	-1	0.036851322639	20.658004728529

26000	0.000320247251	0.145848524151	-1	0.036531426642	19.780344852437
27000	0.000310943439	0.138323407875	-1	0.036221569585	19.025452417896
28000	0.000302300777	0.131711898992	-1	0.035920140570	18.366033794057
29000	0.000294209864	0.125799369527	-1	0.035627721177	17.778610197660
30000	0.000286572645	0.120396661922	-1	0.035346808563	17.242732200149
31000	0.000279311517	0.115359085420	-1	0.035080470662	16.742900592948
32000	0.000272397555	0.110647573125	-1	0.034828291718	16.275122487546
33000	0.000265814441	0.106249031208	-1	0.034588767586	15.838229238073
34000	0.000259547327	0.102151622425	-1	0.034360335411	15.431198044132
35000	0.000253582617	0.098344629710	-1	0.034141353506	15.053131246935
36000	0.000247905835	0.094814609241	-1	0.033930296651	14.702819900911
37000	0.000242495972	0.091534693980	-1	0.033726452371	14.377521233450
38000	0.000237331761	0.088476633355	-1	0.033529516267	14.074321607725
39000	0.000232393635	0.085614442747	-1	0.033339416065	13.790546591628
40000	0.000227663499	0.082924125391	-1	0.033156291616	13.523725165931
41000	0.000223125350	0.080385237239	-1	0.032980310633	13.271761162681
42000	0.000218767263	0.077985607217	-1	0.032811089932	13.033451392419
43000	0.000214578939	0.075715577420	-1	0.032648137609	12.807853805894
44000	0.000210550793	0.073566097974	-1	0.032491025551	12.594084850628
45000	0.000206673834	0.071528678461	-1	0.032339398069	12.391321612394
46000	0.000202939702	0.069595349860	-1	0.032192946770	12.198783714192
47000	0.000199340356	0.067758633643	-1	0.032051379837	12.015735610520
48000	0.000195868294	0.066011478736	-1	0.031914462586	11.841479030212
49000	0.000192516428	0.064347224948	-1	0.031782008404	11.675351080388
50000	0.000189278145	0.062759577979	-1	0.031653893676	11.516722558397
55000	0.000174595215	0.055800188240	-1	0.031072803277	10.819284297275
60000	0.000162016394	0.050141628611	-1	0.030575899415	10.249021861754
65000	0.000151106875	0.045450431622	-1	0.030147637374	9.773255883265
70000	0.000141546266	0.041498611617	-1	0.029775949432	9.369705894625
75000	0.000133092627	0.038124782476	-1	0.029451451320	9.022659633207
80000	0.000125561557	0.035212846559	-1	0.029165758991	8.720628109358
85000	0.000118809276	0.032676548430	-1	0.028911741523	8.455009407830
90000	0.000112716019	0.030446909266	-1	0.028685962443	8.219473567157

95000	0.000107185771	0.028470404672	-1	0.028486237080	8.009176812207
100000	0.000102145974	0.026709602041	-1	0.028306248073	7.819920281959
105000	0.000097532499	0.025131471005	-1	0.028143418138	7.648573262148
110000	0.000093293222	0.023709885514	-1	0.027995675448	7.492702687630
115000	0.000089384054	0.022422784979	-1	0.027861467237	7.350164048969
120000	0.000085767641	0.021252816971	-1	0.027738798339	7.219277657374
125000	0.000082411978	0.020185163343	-1	0.027626036595	7.098562416610
130000	0.000079289828	0.019207559477	-1	0.027521903844	6.986852268453
135000	0.000076377506	0.018309328377	-1	0.027425468679	6.883109151274
140000	0.000073654592	0.017481647477	-1	0.027335749652	6.786489201772
145000	0.000071103145	0.016716776317	-1	0.027251960121	6.696227653468
150000	0.000068707560	0.016008196030	-1	0.027173340402	6.611694936082
155000	0.000066454017	0.015350131018	-1	0.027099297681	6.532318284663
160000	0.000064330263	0.014737627797	-1	0.027029295601	6.457628402803
165000	0.000062325396	0.014166267686	-1	0.026962921912	6.387193294576
170000	0.000060429850	0.013632274538	-1	0.026899730161	6.320643876190
175000	0.000058635031	0.013132252075	-1	0.026839362758	6.257637451997
180000	0.000056933157	0.012663219915	-1	0.026781480659	6.197883585229
185000	0.000055317228	0.012222495031	-1	0.026725817380	6.141114833576
190000	0.000053781017	0.011807778475	-1	0.026672077108	6.087114854165
195000	0.000052318853	0.011416948776	-1	0.026620041338	6.035672561643
200000	0.000050925466	0.011047942569	-1	0.026569639895	5.986552735938
205000	0.000049596069	0.010698905998	-1	0.026520826258	5.939539325832
210000	0.000048326489	0.010368447091	-1	0.026473359386	5.894520338059
215000	0.000047112959	0.010055349651	-1	0.026426955615	5.851404262901
220000	0.000045951980	0.009758457512	-1	0.026381391698	5.810096251511
225000	0.000044840324	0.009476677786	-1	0.026336490559	5.770496710565
230000	0.000043774983	0.009208975335	-1	0.026292118889	5.732503420529
235000	0.000042753179	0.008954371822	-1	0.026248195802	5.696011458208
240000	0.000041772318	0.008711937466	-1	0.026204685388	5.660912758530
245000	0.000040829993	0.008480792581	-1	0.026161596074	5.627096706610
250000	0.000039923949	0.008260104204	-1	0.026118982381	5.594452952355
255000	0.000039052140	0.008049127640	-1	0.026076876241	5.562878803164

260000	0.000038212763	0.007847331850	-1	0.026035100881	5.532325060367
265000	0.000037403823	0.007653968584	-1	0.025994293553	5.502782811249
270000	0.000036623884	0.007468682443	-1	0.025954047090	5.474202800682
275000	0.000035871580	0.007291119720	-1	0.025914003573	5.446535853079
280000	0.000035145518	0.007120848090	-1	0.025874111692	5.419740149408
285000	0.000034444387	0.006957458522	-1	0.025834326459	5.393772764833
290000	0.000033766952	0.006800554824	-1	0.025794639991	5.368589753217
295000	0.000033112214	0.006649889657	-1	0.025754610807	5.344128784094
300000	0.000032478977	0.006505025916	-1	0.025714502472	5.320352727270

Electron Elastic Scattering Sampling Data
Solution for Z = 91

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.012872132462	0.096655663454	+1	0.154996264711	1.491265850430
52	0.012207802681	0.103521855967	+1	0.160932155285	1.773174823472
54	0.011666576827	0.111448168630	+1	0.167099294073	2.105536083411
56	0.011228344362	0.120562496487	+1	0.173492691320	2.497571003046
58	0.010876620845	0.130991125479	+1	0.180102012938	2.959836186578
60	0.010597761328	0.142863903292	+1	0.186912598684	3.504498714742
62	0.010380448651	0.156321262108	+1	0.193907013555	4.145757365990
64	0.010214830160	0.171508095955	+1	0.201064215125	4.900133801009
66	0.010092824775	0.188594981005	+1	0.208362663249	5.787401789332
68	0.010007403449	0.207771966261	+1	0.215779743071	6.831224280426
70	0.009952278669	0.229249895095	+1	0.223291420757	8.060089771835
72	0.009922091650	0.253279665273	+1	0.230873657119	9.508979391697
74	0.009911993219	0.280145533027	+1	0.238502826985	11.220798327302
76	0.009917688044	0.310183230684	+1	0.246154748361	13.248903698808
78	0.009935353688	0.343789680599	+1	0.253806349293	15.660230990431
80	0.009961550025	0.381432853554	+1	0.261435102484	18.539215526825
82	0.009993172319	0.423674051808	+1	0.269018007971	21.993548024892
84	0.010027531294	0.471192576926	+1	0.276534649225	26.162096679873
86	0.010062193537	0.524809840052	+1	0.283963498314	31.225128113196
88	0.010095071566	0.585538302196	+1	0.291284569075	37.420189482470
90	0.010124417798	0.654635315634	+1	0.298479188200	45.064056951096
92	0.010148712202	0.733670768645	+1	0.305527446373	54.584173011386
94	0.010166837837	0.824664413169	+1	0.312413362868	66.570746336552
96	0.010177897964	0.930211976492	+1	0.319119598740	81.849045972573
98	0.010181282812	1.053721654637	+1	0.325629272295	101.599225396582
100	0.010176667165	1.199754147799	+1	0.331925988093	127.549916947013
105	0.010130146027	1.711259245219	+1	0.346641917721	240.560116909703
110	0.010038390302	2.619380106279	+1	0.359764362251	525.422972391998

115	0.009911912636	4.626784241152	+1	0.371105426633	1534.680614699559
120	0.009764477880	12.537553926734	+1	0.380573751651	10576.284524664434
125	0.009611005739	29.237013844503	-1	0.388095734146	57783.572348148125
130	0.009464338225	6.876489276276	-1	0.393673761024	3680.851777009747
135	0.009335353788	3.868950633375	-1	0.397335520797	1318.087038146997
140	0.009231123730	2.687880078135	-1	0.399165410173	706.869828139701
145	0.009156154076	2.063161878604	-1	0.399269879027	454.589005593511
150	0.009111774266	1.680580643531	-1	0.397785410634	323.626135244261
155	0.009097405338	1.425250635400	-1	0.394862014168	245.690393925842
160	0.009110573496	1.245067079635	-1	0.390660446962	194.929546383111
165	0.009147737539	1.113066619038	-1	0.385348173830	159.731301459506
170	0.009204601454	1.013874103903	-1	0.379090257252	134.198074846746
175	0.009276376309	0.938083586569	-1	0.372054970130	115.056473274475
180	0.009358108729	0.879609416952	-1	0.364405097639	100.352491075647
185	0.009444893216	0.834336859372	-1	0.356300473723	88.853403101026
190	0.009532658146	0.799451769756	-1	0.347876598533	79.743173886156
195	0.009617258554	0.772865290631	-1	0.339271998472	72.459742725800
200	0.009693701924	0.752842220490	-1	0.330647611700	66.600586952523
205	0.009757776439	0.738037112168	-1	0.322147463318	61.871218139091
210	0.009808301495	0.727665877609	-1	0.313837013236	58.054501017854
215	0.009844832452	0.721146688678	-1	0.305762198429	54.986244308312
220	0.009866969628	0.717973736049	-1	0.297967201108	52.539771245833
225	0.009874403889	0.717695227263	-1	0.290493041120	50.615902981610
230	0.009866930639	0.719895003428	-1	0.283376553353	49.135770230399
235	0.009844479667	0.724180675070	-1	0.276649327632	48.035594724277
240	0.009807120742	0.730173751684	-1	0.270337205488	47.262816957254
245	0.009755057579	0.737502201377	-1	0.264460273245	46.773203786262
250	0.009688621701	0.745797857959	-1	0.259032718275	46.528732106113
255	0.009608518147	0.754744857349	-1	0.254056561581	46.497460904811
260	0.009516490211	0.764238876653	-1	0.249503708315	46.657852497079
265	0.009414365836	0.774229201237	-1	0.245340734532	46.993465275602
270	0.009303781459	0.784667634655	-1	0.241536151454	47.490740687651
275	0.009186199505	0.795507451189	-1	0.238060600249	48.138369967044

280	0.009062913043	0.806703826849	-1	0.234886641101	48.926883888066
285	0.008935071128	0.818212336814	-1	0.231988925664	49.848163439792
290	0.008803680981	0.829989001904	-1	0.229343983987	50.895178496494
295	0.008669629622	0.841992842064	-1	0.226929923603	52.061868700221
300	0.008533692817	0.854181745280	-1	0.224726762773	53.342721983059
310	0.008259026209	0.879065883589	-1	0.220874250934	56.234132824875
320	0.007985188852	0.904883015208	-1	0.217628096257	59.569385581828
330	0.007716393983	0.931974410375	-1	0.214853940204	63.364426293696
340	0.007455610326	0.960661816159	-1	0.212443409176	67.643425268875
350	0.007204873875	0.991253865052	-1	0.210309041627	72.438275533656
360	0.006965487694	1.024074636984	-1	0.208380419228	77.791545054631
370	0.006738149947	1.059527768798	-1	0.206602119929	83.765760453649
380	0.006523185731	1.098058019270	-1	0.204929630550	90.439560433666
390	0.006320664892	1.140138301102	-1	0.203327358029	97.907538526530
400	0.006130469093	1.186289840121	-1	0.201766634108	106.284518907292
410	0.005952298391	1.237086159366	-1	0.200225814212	115.710631353500
420	0.005785576202	1.293125924049	-1	0.198692738636	126.357090922277
430	0.005629662127	1.355079396005	-1	0.197159618787	138.432687557928
440	0.005484041512	1.423824075258	-1	0.195617540857	152.204227344514
450	0.005348080762	1.500298889145	-1	0.194063009430	167.995240593694
460	0.005221241108	1.585706409384	-1	0.192491875005	186.222473103619
470	0.005102860918	1.681399291240	-1	0.190905014590	207.408206660307
480	0.004992315108	1.789027167023	-1	0.189304030627	232.223837173461
490	0.004889045408	1.910653565894	-1	0.187690275069	261.547396995088
500	0.004792551258	2.048887517970	-1	0.186064840357	296.545167476015
510	0.004702363212	2.207041793597	-1	0.184429152605	338.789123504207
520	0.004617980387	2.389280055731	-1	0.182786598462	390.418468897781
530	0.004538939576	2.601040144496	-1	0.181140425559	454.422464686258
540	0.004464832739	2.849596214140	-1	0.179493340513	535.087496985659
550	0.004395295994	3.144897491954	-1	0.177847477988	638.738080468859
560	0.004329995412	3.500865601053	-1	0.176204917372	775.008458420087
570	0.004268591024	3.937461572482	-1	0.174568402116	959.113881911882
580	0.004210770885	4.484522490003	-1	0.172940535923	1216.266111450863

590	0.004156257892	5.188814043339	-1	0.171323372537	1590.754933856062
600	0.004104806843	6.127995334986	-1	0.169718530629	2166.296903630595
610	0.004056191631	7.441023320162	-1	0.168127528046	3116.975273433371
620	0.004010187968	9.403239326894	-1	0.166552019120	4855.283943570369
630	0.003966592682	12.648517268175	-1	0.164993573116	8565.750751444171
640	0.003925221837	19.035133964700	-1	0.163453344785	18909.770660622806
650	0.003885911807	37.361916949012	-1	0.161932278578	70991.518398763335
660	0.003862745895	119.636379664134	-1	0.160716164177	712724.651222946700
670	0.003812877334	43.396545459841	+1	0.158950824960	95134.959732519346
680	0.003778874240	20.710981472262	+1	0.157491926900	22159.699781164800
690	0.003746382597	13.520325585372	+1	0.156054971041	9653.634062041350
700	0.003715293471	9.993311421780	+1	0.154640370601	5389.092828727827
710	0.003685507143	7.899986805450	+1	0.153248313635	3440.015918595788
720	0.003656929120	6.514874382271	+1	0.151879054970	2388.724363904356
730	0.003629471643	5.531299776061	+1	0.150532756738	1757.496136043043
740	0.003603055184	4.797301997264	+1	0.149209453995	1348.850386214525
750	0.003577607801	4.228998808470	+1	0.147909158243	1069.108007033660
760	0.003553062771	3.776304153711	+1	0.146631782493	869.175287758661
770	0.003529357719	3.407447358053	+1	0.145377210195	721.294115131036
780	0.003506434970	3.101319951479	+1	0.144145261668	608.813935318591
790	0.003484241680	2.843348443254	+1	0.142935769744	521.253003492573
800	0.003462729469	2.623146935099	+1	0.141748485726	451.744220837435
810	0.003441853436	2.433114087542	+1	0.140583169565	395.635816553073
820	0.003421572429	2.267549287833	+1	0.139439529296	349.682764150806
830	0.003401847900	2.122100798735	+1	0.138317219629	311.567376150158
840	0.003382644862	1.993392027028	+1	0.137215933305	279.599089492118
850	0.003363929868	1.878762406595	+1	0.136135343136	252.520971222911
860	0.003345672526	1.776084784310	+1	0.135075097574	229.381979459598
870	0.003327845857	1.683634238222	+1	0.134034815829	209.450883011194
880	0.003310423774	1.600002476480	+1	0.133014150022	192.159267298187
890	0.003293382042	1.524027612666	+1	0.132012680773	177.059464656972
900	0.003276698455	1.454745846610	+1	0.131030083373	163.795789425719
910	0.003260352173	1.391345394508	+1	0.130065959391	152.081512464647

920	0.003244324529	1.333139146439	+1	0.129119944263	141.683770325780
930	0.003228597978	1.279541326944	+1	0.128191615643	132.411740171867
940	0.003213156631	1.230052057382	+1	0.127280612281	124.108352059813
950	0.003197984890	1.184241626486	+1	0.126386555338	116.643223141729
960	0.003183067836	1.141737829809	+1	0.125509082791	109.907280992143
970	0.003168393064	1.102215490509	+1	0.124647844188	103.808475702898
980	0.003153948483	1.065390688765	+1	0.123802459438	98.268917528662
990	0.003139721965	1.031015100000	+1	0.122972588148	93.222491331900
1000	0.003125703451	0.998869259587	+1	0.122157882348	88.612499653176
1025	0.003091502079	0.927038521701	+1	0.120185289399	78.693376066977
1050	0.003058410906	0.865474182781	+1	0.118299883248	70.613009343199
1075	0.003026319065	0.812280272296	+1	0.116496610763	63.945398291226
1100	0.002995125243	0.766008206283	+1	0.114770891262	58.383267594731
1125	0.002964743089	0.725527065156	+1	0.113118547945	53.699582722488
1150	0.002935110354	0.689921659027	+1	0.111535209890	49.721113865051
1175	0.002906173526	0.658460153494	+1	0.110016880189	46.315915102841
1200	0.002877881664	0.630555228451	+1	0.108560020984	43.382589410981
1225	0.002850188763	0.605727000454	+1	0.107161322010	40.841720209473
1250	0.002823063038	0.583570949144	+1	0.105817474174	38.629360013897
1275	0.002796475164	0.563751196537	+1	0.104525410329	36.694416051775
1300	0.002770396230	0.545989244128	+1	0.103282378512	34.995942169687
1325	0.002744800248	0.530050356947	+1	0.102085847913	33.500586983727
1350	0.002719668802	0.515730843945	+1	0.100933303233	32.180457681314
1375	0.002694985277	0.502856699176	+1	0.099822432416	31.012482640529
1400	0.002670732657	0.491280425902	+1	0.098751105243	29.977626413519
1425	0.002646894428	0.480875068832	+1	0.097717394240	29.059982117470
1450	0.002623459635	0.471527990636	+1	0.096719356599	28.245837230172
1475	0.002600417126	0.463141938499	+1	0.095755253499	27.523666408779
1500	0.002577755132	0.455632129232	+1	0.094823417309	26.883669156097
1550	0.002533533458	0.442953560164	+1	0.093050574301	25.817904275327
1600	0.002490726708	0.432993213979	+1	0.091389481572	24.994084615520
1650	0.002449270532	0.425361644356	+1	0.089830239185	24.371619335443
1700	0.002409109884	0.419748457196	+1	0.088363939405	23.919520701686

1750	0.002370191495	0.415906235706	+1	0.086982743046	23.614157786269
1800	0.002332468849	0.413634322836	+1	0.085679582779	23.437156712704
1850	0.002295896709	0.412770443782	+1	0.084448179681	23.374334623552
1900	0.002260432356	0.413184807919	+1	0.083282879613	23.414861603278
1950	0.002226035123	0.414769457695	+1	0.082178626442	23.550246795790
2000	0.002192666642	0.417426131322	+1	0.081130703822	23.773205338120
2100	0.002128869188	0.425658726421	+1	0.079187418567	24.461861861553
2200	0.002068751752	0.437494254111	+1	0.077424570956	25.459478072614
2300	0.002012008540	0.452724937257	+1	0.075819892278	26.763419983806
2400	0.001958400171	0.471182379119	+1	0.074353137234	28.376471412265
2500	0.001907739255	0.492707321456	+1	0.073005669229	30.303754536715
2600	0.001859823796	0.517214243378	+1	0.071762410205	32.559407340562
2700	0.001814446783	0.544783181009	+1	0.070611834371	35.175481743982
2800	0.001771420676	0.575551089752	+1	0.069544034233	38.193554638034
2900	0.001730580458	0.609667382084	+1	0.068549969645	41.661421339819
3000	0.001691781665	0.647285931744	+1	0.067621269977	45.632861017456
3100	0.001654892381	0.688588109999	+1	0.066750522881	50.170945985084
3200	0.001619777079	0.733891295438	+1	0.065932237535	55.362398081212
3300	0.001586310795	0.783581306325	+1	0.065161647712	61.313464261591
3400	0.001554383421	0.838087899665	+1	0.064434275353	68.149990700661
3500	0.001523897002	0.897886187811	+1	0.063745877585	76.020878952434
3600	0.001494762092	0.963526644170	+1	0.063092609047	85.106276849047
3700	0.001466890322	1.035735097465	+1	0.062471570531	95.638707139067
3800	0.001440200671	1.115385023657	+1	0.061880229474	107.909537454366
3900	0.001414619389	1.203504737878	+1	0.061316139046	122.282330985450
4000	0.001390080307	1.301311028094	+1	0.060777014196	139.214317022743
4100	0.001366522789	1.410273482350	+1	0.060260740720	159.289375901261
4200	0.001343888297	1.532253100211	+1	0.059765676480	183.276564367953
4300	0.001322122419	1.669569704512	+1	0.059290355988	212.191899862963
4400	0.001301175464	1.825123833883	+1	0.058833381525	247.392500269568
4500	0.001281001935	2.002592329408	+1	0.058393437652	290.721883683757
4600	0.001261559859	2.206718638377	+1	0.057969301766	344.735039392531
4700	0.001242809089	2.443795475914	+1	0.057559967311	413.071460078249

4800	0.001224712881	2.722288785690	+1	0.057164551962	501.036440505285
4900	0.001207237189	3.053829334976	+1	0.056782169915	616.585945363290
5000	0.001190348746	3.454885959577	+1	0.056412061994	772.091957048002
5500	0.001113755657	8.071230084874	+1	0.054721800241	3801.310043130380
6000	0.001049949387	102.218546858953	-1	0.053249378285	564601.819832294710
6500	0.000991248550	7.619477819686	-1	0.051951060750	3627.078733613166
7000	0.000941440874	3.891199833715	-1	0.050786962775	1080.651767482152
7500	0.000897445976	2.595183513129	-1	0.049733981928	543.624817405450
8000	0.000858293528	1.938777590624	-1	0.048772875121	340.079467904675
8500	0.000823220766	1.543308918607	-1	0.047888707530	239.620345500063
9000	0.000791618972	1.279632042739	-1	0.047069660044	181.873704466188
9500	0.000762996781	1.091683808416	-1	0.046306291691	145.201146113925
10000	0.000736951487	0.951205714896	-1	0.045590945823	120.216125359774
10500	0.000713149981	0.842407961273	-1	0.044917395387	102.280163251870
11000	0.000691315625	0.755807853562	-1	0.044280312942	88.877541549320
11500	0.000671213379	0.685319804020	-1	0.043675559760	78.533837585629
12000	0.000652645588	0.626909575212	-1	0.043099406190	70.341565032531
12500	0.000635442482	0.577765102227	-1	0.042548881840	63.710801066456
13000	0.000619459190	0.535890259992	-1	0.042021314649	58.246280124550
13500	0.000604569550	0.499810148152	-1	0.041514573994	53.671987581488
14000	0.000590664660	0.468428362652	-1	0.041026680929	49.791862657544
14500	0.000577649099	0.440900298868	-1	0.040556052947	46.461743318301
15000	0.000565439911	0.416576249934	-1	0.040101224828	43.574730020461
16000	0.000543153526	0.375576448393	-1	0.039234220379	38.821486058063
17000	0.000523313681	0.342411796869	-1	0.038417424483	35.074124416447
18000	0.000505531265	0.315078918137	-1	0.037644404799	32.045607310407
19000	0.000489494533	0.292197234666	-1	0.036910043535	29.547601566686
20000	0.000474951024	0.272785298057	-1	0.036210214800	27.451737917467
21000	0.000408041470	0.214186406121	-1	0.038848596818	25.750124035831
22000	0.000393959317	0.200466763206	-1	0.038386165924	24.374971439464
23000	0.000380480581	0.187486058832	-1	0.037952154766	23.074885872437
24000	0.000367754516	0.175545181059	-1	0.037547861105	21.883490727773
25000	0.000355908245	0.164903314074	-1	0.037169507447	20.828770966056

26000	0.000345009429	0.155699158865	-1	0.036809540968	19.925008647470
27000	0.000334954677	0.147724415542	-1	0.036462777882	19.148716332848
28000	0.000325612680	0.140718596106	-1	0.036127093753	18.471432237023
29000	0.000316866493	0.134453944195	-1	0.035802521514	17.868748231681
30000	0.000308611692	0.128729867390	-1	0.035490973932	17.319469178901
31000	0.000300765623	0.123392853892	-1	0.035195023417	16.807556992919
32000	0.000293296744	0.118401306390	-1	0.034914161712	16.328836329624
33000	0.000286186916	0.113741193179	-1	0.034646918577	15.882045849046
34000	0.000279419537	0.109399862762	-1	0.034391763321	15.466080425863
35000	0.000272979419	0.105365898480	-1	0.034147104346	15.079973894731
36000	0.000266850563	0.101624992994	-1	0.033911456977	14.722441151645
37000	0.000261010180	0.098148691433	-1	0.033684046449	14.390635817801
38000	0.000255435313	0.094907069051	-1	0.033464492526	14.081547840799
39000	0.000250104921	0.091872614646	-1	0.033252629411	13.792411337188
40000	0.000244999474	0.089019909245	-1	0.033048509302	13.520682485506
41000	0.000240101799	0.086327290105	-1	0.032852221635	13.264198941778
42000	0.000235398969	0.083781876935	-1	0.032663344972	13.021715615917
43000	0.000230879755	0.081373461916	-1	0.032481361482	12.792259894405
44000	0.000226533753	0.079092464682	-1	0.032305826351	12.574919255884
45000	0.000222351230	0.076929917982	-1	0.032136351653	12.368841179856
46000	0.000218323091	0.074877379950	-1	0.031972615635	12.173223885115
47000	0.000214440670	0.072926959404	-1	0.031814297214	11.987307808363
48000	0.000210695781	0.071071203348	-1	0.031661133742	11.810377419206
49000	0.000207080812	0.069303076254	-1	0.031512913351	11.641749920903
50000	0.000203588596	0.067615921763	-1	0.031369486934	11.480780898530
55000	0.000187757645	0.060214917098	-1	0.030717870915	10.773572682094
60000	0.000174199797	0.054189408308	-1	0.030159091327	10.195945842092
65000	0.000162444702	0.049187406596	-1	0.029675937454	9.714457353646
70000	0.000152146126	0.044968317537	-1	0.029255073785	9.306338849091
75000	0.000143042890	0.041362087045	-1	0.028885945807	8.955547996328
80000	0.000134934228	0.038244965836	-1	0.028560147873	8.650434451794
85000	0.000127662643	0.035524153231	-1	0.028271408588	8.382376464834
90000	0.000121101824	0.033129998583	-1	0.028013342612	8.144749707228

95000	0.000115151394	0.031007951763	-1	0.027781438131	7.932438274566
100000	0.000109727918	0.029113885206	-1	0.027573168378	7.741561197652
105000	0.000104766464	0.027415599853	-1	0.027383488471	7.568734343127
110000	0.000100209853	0.025885384408	-1	0.027209689619	7.411461679347
115000	0.000096008485	0.024498844538	-1	0.027050623329	7.267629799692
120000	0.000092119491	0.023235740418	-1	0.026906061161	7.135691114904
125000	0.000088511274	0.022082021165	-1	0.026772854011	7.014036099031
130000	0.000085154704	0.021024842193	-1	0.026649390801	6.901466915860
135000	0.000082024128	0.020052815797	-1	0.026534610559	6.796932920174
140000	0.000079097490	0.019156525206	-1	0.026427450747	6.699579200761
145000	0.000076355447	0.018327710435	-1	0.026327058181	6.608635882744
150000	0.000073781087	0.017559375176	-1	0.026232665436	6.523474136269
155000	0.000071359457	0.016845334552	-1	0.026143645914	6.443521211679
160000	0.000069077485	0.016180325446	-1	0.026059383147	6.368295015939
165000	0.000066923519	0.015559653275	-1	0.025979371433	6.297352565759
170000	0.000064887152	0.014979263282	-1	0.025903121415	6.230324742559
175000	0.000062959032	0.014435500687	-1	0.025830251999	6.166871677568
180000	0.000061130835	0.013925177326	-1	0.025760397309	6.106699368647
185000	0.000059395069	0.013445417944	-1	0.025693263072	6.049535691633
190000	0.000057745010	0.012993755400	-1	0.025628529547	5.995163684766
195000	0.000056174547	0.012567914915	-1	0.025565939338	5.943369332449
200000	0.000054678015	0.012165682970	-1	0.025505379121	5.893916207919
205000	0.000053250270	0.011785060814	-1	0.025446780645	5.846587286157
210000	0.000051886830	0.011424559921	-1	0.025389877609	5.801268848397
215000	0.000050583613	0.011082858544	-1	0.025334402601	5.757868641035
220000	0.000049336862	0.010758716532	-1	0.025280121965	5.716291262250
225000	0.000048143093	0.010450958083	-1	0.025226843770	5.676436759211
230000	0.000046999074	0.010158466252	-1	0.025174429067	5.638202307295
235000	0.000045901813	0.009880185919	-1	0.025122775857	5.601481294278
240000	0.000044848536	0.009615114686	-1	0.025071833078	5.566164493405
245000	0.000043836640	0.009362305835	-1	0.025021582344	5.532142733815
250000	0.000042863723	0.009120858281	-1	0.024972052460	5.499301897154
255000	0.000041927569	0.008889964197	-1	0.024923265943	5.467541465550

260000	0.000041026230	0.008669040101	-1	0.024875070605	5.436812278821
265000	0.000040157945	0.008457589974	-1	0.024827247061	5.407074534522
270000	0.000039320440	0.008254600654	-1	0.024781003960	5.378331723222
275000	0.000038512613	0.008060021104	-1	0.024735168422	5.350509776695
280000	0.000037732971	0.007873383704	-1	0.024689682820	5.323566645664
285000	0.000036980108	0.007694242668	-1	0.024644503343	5.297458369650
290000	0.000036252699	0.007522172505	-1	0.024599601372	5.272140187085
295000	0.000035549491	0.007356764238	-1	0.024554972923	5.247566861666
300000	0.000034869610	0.007197887609	-1	0.024509849353	5.223665814789

Electron Elastic Scattering Sampling Data
Solution for Z = 92

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.013871331236	0.082136685964	+1	0.133833188214	0.976518771216
52	0.013077145306	0.087080750038	+1	0.139530188750	1.158673415445
54	0.012420155638	0.092865847835	+1	0.145487282286	1.374173478300
56	0.011878629736	0.099596091973	+1	0.151703534904	1.629403929218
58	0.011434666339	0.107368166863	+1	0.158172483365	1.931586039156
60	0.011073406923	0.116276349682	+1	0.164883174778	2.288907662201
62	0.010782520022	0.126418555792	+1	0.171821416332	2.710727886659
64	0.010551241098	0.137889620076	+1	0.178968390331	3.207644858226
66	0.010370801695	0.150800891786	+1	0.186304854112	3.792044521172
68	0.010233554342	0.165271208251	+1	0.193809493164	4.478301146519
70	0.010132681753	0.181426664249	+1	0.201458509905	5.283153030622
72	0.010062441456	0.199417652490	+1	0.209228479644	6.226618049475
74	0.010017578586	0.219404587464	+1	0.217094592021	7.332322356381
76	0.009993488753	0.241575769403	+1	0.225031824904	8.628811301095
78	0.009986064531	0.266146537924	+1	0.233015522936	10.150637592981
80	0.009991561300	0.293361071251	+1	0.241020736304	11.939761832142
82	0.010006626441	0.323506967647	+1	0.249022477359	14.047840620283
84	0.010028272015	0.356916949638	+1	0.256997225122	16.538602244327
86	0.010053775748	0.393980346160	+1	0.264920608313	19.491219577115
88	0.010080748677	0.435158302057	+1	0.272769572536	23.004991722075
90	0.010107108498	0.480996728638	+1	0.280521894990	27.205145222757
92	0.010130994360	0.532144935625	+1	0.288154461645	32.250733297334
94	0.010150939336	0.589395252570	+1	0.295647712054	38.346932878674
96	0.010165688116	0.653701623222	+1	0.302980912387	45.759146941818
98	0.010174256433	0.726230450193	+1	0.310133676344	54.835048750438
100	0.010175935434	0.808419130654	+1	0.317086048660	66.035194709299
105	0.010147765251	1.069280763793	+1	0.333474814989	107.994672364229
110	0.010074586007	1.449525438439	+1	0.348280151226	186.463966644798

115	0.009963063401	2.044067516342	+1	0.361268632598	349.754364949357
120	0.009825072934	3.088401622503	+1	0.372315387942	754.874744537701
125	0.009674850490	5.358200862262	+1	0.381317939729	2149.547998391082
130	0.009525735211	13.862973950341	+1	0.388265307911	13599.148022240357
135	0.009389688701	40.841044149632	-1	0.393179110747	116820.539098780630
140	0.009275076555	8.534041633668	-1	0.396150722923	5702.123926735685
145	0.009187701337	4.765594515091	-1	0.397299189580	1953.431867642076
150	0.009129902473	3.316019652049	-1	0.396780781701	1021.792603582581
155	0.009101959807	2.554804456676	-1	0.394766226917	644.941397641028
160	0.009101953754	2.089768678722	-1	0.391437173125	452.179798801279
165	0.009126818510	1.779292226912	-1	0.386978210748	338.943205613714
170	0.009172545873	1.559690513926	-1	0.381567531798	266.102957018133
175	0.009234654055	1.398121213701	-1	0.375380261416	216.201597800969
180	0.009308399642	1.275895460635	-1	0.368580799143	180.419475804174
185	0.009389108466	1.181606706977	-1	0.361324945473	153.880797755748
190	0.009472856198	1.107987354058	-1	0.353741499219	133.692473337623
195	0.009555653784	1.050054786069	-1	0.345958349222	118.033467248628
200	0.009632644740	1.004074587475	-1	0.338122435890	105.698118816620
205	0.009699670630	0.967334443228	-1	0.330364609430	95.865151738172
210	0.009755419393	0.938169340572	-1	0.322742244003	87.965554537649
215	0.009799266210	0.915358016067	-1	0.315294988057	81.587928451713
220	0.009830614706	0.897904913345	-1	0.308061963676	76.426938828598
225	0.009848921522	0.884976609179	-1	0.301080892920	72.251847473894
230	0.009853730205	0.875859018086	-1	0.294387040481	68.885434043778
235	0.009844686410	0.869922906012	-1	0.288012602270	66.189207488521
240	0.009821553033	0.866601017723	-1	0.281986015170	64.053159765257
245	0.009784215204	0.865371832464	-1	0.276331399018	62.388436447589
250	0.009732690828	0.865746754462	-1	0.271068483225	61.121854071507
255	0.009667390071	0.867321800675	-1	0.266205726542	60.194239744550
260	0.009589856204	0.869945669762	-1	0.261721673948	59.563967256415
265	0.009501763597	0.873531980772	-1	0.257589167896	59.198665097484
270	0.009404619875	0.877998983151	-1	0.253782389386	59.071611532018
275	0.009299784581	0.883267155329	-1	0.250277320575	59.160494101526

280	0.009188471755	0.889261300807	-1	0.247051270453	59.446671500862
285	0.009071770287	0.895907438578	-1	0.244083187405	59.914237013613
290	0.008950639551	0.903134648696	-1	0.241353262123	60.549646321717
295	0.008825940822	0.910873927968	-1	0.238843201368	61.341134911409
300	0.008698424321	0.919056692888	-1	0.236535960449	62.278302269355
310	0.008437887720	0.936627031376	-1	0.232459929917	64.561977759355
320	0.008174922822	0.955971730913	-1	0.228979526971	67.378108601937
330	0.007914189761	0.977321285189	-1	0.225968734627	70.725240084892
340	0.007659069893	1.000882210711	-1	0.223325028002	74.612729724161
350	0.007411943568	1.026843697346	-1	0.220965120893	79.059165309755
360	0.007174430315	1.055414061390	-1	0.218821345909	84.094850613891
370	0.006947587045	1.086918779061	-1	0.216838311762	89.773128583474
380	0.006732040301	1.121724760058	-1	0.214971149739	96.163290265376
390	0.006528096590	1.160221954881	-1	0.213183988836	103.349499045956
400	0.006335828877	1.202842667539	-1	0.211447933926	111.434329109132
410	0.006155095889	1.250068567058	-1	0.209740916813	120.543417325270
420	0.005985459258	1.302419956045	-1	0.208049946848	130.832673889778
430	0.005826414295	1.360499794950	-1	0.206365681567	142.493510329190
440	0.005677463034	1.425031365948	-1	0.204680600969	155.762840571478
450	0.005538114136	1.496883810329	-1	0.202988667667	170.935899821962
460	0.005407859095	1.577091969974	-1	0.201285965907	188.382898938935
470	0.005286077124	1.666839923932	-1	0.199572766391	208.567723062167
480	0.005172174102	1.767564868984	-1	0.197850208092	232.081548485959
490	0.005065618040	1.881054165737	-1	0.196119200320	259.689461775593
500	0.004965929086	2.009550840075	-1	0.194380448009	292.395989384121
510	0.004872649589	2.155868468100	-1	0.192635129888	331.535920825212
520	0.004785287461	2.323512702463	-1	0.190886296932	378.901471259465
530	0.004703384264	2.516999537500	-1	0.189136929833	436.954215615894
540	0.004626535569	2.742285004307	-1	0.187389497075	509.156991889073
550	0.004554379647	3.007368627905	-1	0.185645948355	600.503428672656
560	0.004486583496	3.323221319576	-1	0.183908160594	718.404104658384
570	0.004422804730	3.705175920106	-1	0.182178740970	874.197719793158
580	0.004362726879	4.175475645823	-1	0.180460123294	1085.972358307457

590	0.004306070772	4.767720662138	-1	0.178754271126	1384.047749924631
600	0.004252587042	5.535147632999	-1	0.177062708992	1822.421385252495
610	0.004202046125	6.567358557713	-1	0.175386765029	2504.953335808662
620	0.004154220489	8.027474931998	-1	0.173728130869	3652.602968501910
630	0.004108900744	10.247445550208	-1	0.172088209003	5806.709484948986
640	0.004065898161	14.022729664827	-1	0.170468126873	10604.075508684971
650	0.004025046345	21.855320081778	-1	0.168868776416	25113.590341295414
660	0.003986191262	47.821620571013	-1	0.167290853040	117200.501116473240
670	0.003955326513	192.354812246498	+1	0.165566951495	1858418.279272568400
680	0.003943107887	84.959924225605	+1	0.164915669522	364329.187640076680
690	0.003880163189	19.246797839590	+1	0.162692699042	19438.652379898460
700	0.003847917344	12.997716786186	+1	0.161206767497	9052.300593433800
710	0.003817039827	9.774069301601	+1	0.159744678376	5225.033164525250
720	0.003787431674	7.808359353130	+1	0.158306644839	3402.620402206773
730	0.003759002147	6.485425428659	+1	0.156892765065	2394.269494052415
740	0.003731668689	5.534981911927	+1	0.155503089367	1778.200986481754
750	0.003705355348	4.819636595204	+1	0.154137565158	1374.304000127396
760	0.003679993029	4.262154316710	+1	0.152796110544	1095.153120642999
770	0.003655516434	3.815768581173	+1	0.151478544422	894.133805480499
780	0.003631864996	3.450522081761	+1	0.150184710033	744.548191136786
790	0.003608983078	3.146335007116	+1	0.148914404066	630.207304533976
800	0.003586820587	2.889245420851	+1	0.147667326798	540.829603303784
810	0.003565329713	2.669246039834	+1	0.146443241273	469.631285324946
820	0.003544467596	2.478963230726	+1	0.145241800696	411.984276705110
830	0.003524193092	2.312857274498	+1	0.144062676657	364.647744962149
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850	0.003485261841	2.037134106794	+1	0.141770030342	292.225382199647
860	0.003466537988	1.921596473729	+1	0.140655776620	264.164209855184
870	0.003448267927	1.817971386296	+1	0.139562385451	240.146702952463
880	0.003430425362	1.724556493934	+1	0.138489485169	219.429099984403
890	0.003412984403	1.639961184786	+1	0.137436658778	201.432100814910
900	0.003395921358	1.563035808642	+1	0.136403524222	185.698491396012
910	0.003379213795	1.492821872174	+1	0.135389716522	171.863538453388

920	0.003362842052	1.428510441709	+1	0.134394796713	159.632570670184
930	0.003346787619	1.369417004061	+1	0.133418367849	148.766156438822
940	0.003331032620	1.314959285172	+1	0.132460028680	139.068216030453
950	0.003315561247	1.264638692820	+1	0.131519402546	130.376852580077
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1000	0.003241957464	1.061862982945	+1	0.127068573108	97.988093489123
1025	0.003207182677	0.983635688389	+1	0.124991205832	86.626127507206
1050	0.003173562047	0.916731199460	+1	0.123004990533	77.411549815811
1075	0.003140976305	0.859019296196	+1	0.121104618642	69.836700161782
1100	0.003109316442	0.808882377576	+1	0.119285425012	63.538171570448
1125	0.003078489813	0.765061063268	+1	0.117542973330	58.248708806544
1150	0.003048429273	0.726542594551	+1	0.115872768515	53.765905994657
1175	0.003019076021	0.692519587370	+1	0.114270603364	49.936256861339
1200	0.002990376033	0.662345425645	+1	0.112732764003	46.642192322746
1225	0.002962279669	0.635493764026	+1	0.111255793299	43.792060481672
1250	0.002934751942	0.611522039032	+1	0.109836272392	41.312376241256
1275	0.002907762104	0.590063701944	+1	0.108470972353	39.144576918782
1300	0.002881279526	0.570815531429	+1	0.107157108325	37.241913790649
1325	0.002855275766	0.553521987037	+1	0.105891989628	35.566332202954
1350	0.002829732470	0.537961845793	+1	0.104673031572	34.086121911997
1375	0.002804631444	0.523946321510	+1	0.103497783720	32.775099450426
1400	0.002779955328	0.511315632075	+1	0.102364053835	31.611712551385
1425	0.002755687306	0.499932198854	+1	0.101269821341	30.577951413444
1450	0.002731815706	0.489675023207	+1	0.100213075474	29.658419864822
1475	0.002708329116	0.480439050534	+1	0.099191930359	28.840105530929
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1550	0.002640071719	0.458001469599	+1	0.096325695022	26.890214596317
1600	0.002596316121	0.446735561915	+1	0.094564411698	25.931412420524
1650	0.002553887063	0.437913224348	+1	0.092910575572	25.189895851483
1700	0.002512731137	0.431212824965	+1	0.091354554641	24.631775693253

1750	0.002472797584	0.426377102916	+1	0.089887850602	24.231101251797
1800	0.002434043628	0.423179529750	+1	0.088503385327	23.966521082491
1850	0.002396428083	0.421434923895	+1	0.087194903859	23.821364821452
1900	0.002359911268	0.421006451462	+1	0.085956351121	23.783538739897
1950	0.002324454268	0.421782972058	+1	0.084782272793	23.843700068181
2000	0.002290021250	0.423659260454	+1	0.083667756417	23.993576944065
2100	0.002224088564	0.430387032096	+1	0.081600353263	24.538960322173
2200	0.002161846478	0.440751449837	+1	0.079724136082	25.391706560505
2300	0.002103041863	0.454472863738	+1	0.078014175663	26.540100421613
2400	0.002047399370	0.471386629632	+1	0.076450768383	27.985626797531
2500	0.001994722735	0.491325974551	+1	0.075014967964	29.730865871725
2600	0.001944838935	0.514165474160	+1	0.073690200449	31.783540720618
2700	0.001897545871	0.539957168356	+1	0.072464195654	34.170013454514
2800	0.001852659389	0.568807322785	+1	0.071326403663	36.925176384398
2900	0.001810016061	0.600834057422	+1	0.070267208850	40.089220655040
3000	0.001769473062	0.636158239662	+1	0.069277795309	43.707170746571
3100	0.001730898375	0.674925982297	+1	0.068350323173	47.831837133092
3200	0.001694155842	0.717410098937	+1	0.067478947434	52.536683682290
3300	0.001659118753	0.763944132120	+1	0.066658561381	57.911443794878
3400	0.001625675852	0.814895263671	+1	0.065884379691	64.061305414424
3500	0.001593727817	0.870666018898	+1	0.065151886801	71.109568686684
3600	0.001563183845	0.931719692176	+1	0.064457011538	79.204050003359
3700	0.001533953485	0.998672856910	+1	0.063796638920	88.534939777728
3800	0.001505952995	1.072263894267	+1	0.063168027986	99.338456137912
3900	0.001479107886	1.153351869745	+1	0.062568600006	111.905651627211
4000	0.001453349615	1.242941040521	+1	0.061995875345	126.597640231055
4100	0.001428615823	1.342231817455	+1	0.061447596773	143.869365661375
4200	0.001404846073	1.452736786638	+1	0.060922012663	164.313039884082
4300	0.001381984150	1.576316586784	+1	0.060417530858	188.698264892993
4400	0.001359978535	1.715267403701	+1	0.059932668402	218.035299296656
4500	0.001338782240	1.872444138680	+1	0.059465995897	253.666827477124
4600	0.001318351447	2.051470946576	+1	0.059016206086	297.413294250380
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5000	0.001243497972	3.106633097349	+1	0.057365749830	623.592002193461
5500	0.001162955495	6.496452325662	+1	0.055575909804	2461.408505816291
6000	0.001093926689	52.065656005874	+1	0.054019885971	144069.979249956410
6500	0.001034066229	10.065600307409	-1	0.052645870756	5979.562491838296
7000	0.000981643965	4.535304471470	-1	0.051416211122	1384.816469000760
7500	0.000935329435	2.906235990451	-1	0.050304691318	642.307405220698
8000	0.000894102363	2.129074714005	-1	0.049291033045	385.968437960008
8500	0.000857161598	1.675323762429	-1	0.048359415945	265.490130281303
9000	0.000823868513	1.378591494058	-1	0.047497339002	198.309252860694
9500	0.000793706717	1.169840543554	-1	0.046694787355	156.525933026663
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10500	0.000741159669	0.896433016475	-1	0.045237246491	108.598169383801
11000	0.000718134331	0.802354442494	-1	0.044569983354	93.871248636905
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12000	0.000677341704	0.663173612771	-1	0.043335510678	73.713529571295
12500	0.000659188819	0.610372654304	-1	0.042761155916	66.566321477132
13000	0.000642319857	0.565496010929	-1	0.042211457211	60.703258385195
13500	0.000626602369	0.526912984233	-1	0.041684114068	55.815009063724
14000	0.000611922008	0.493416547843	-1	0.041177015759	51.683195306981
14500	0.000598178438	0.464081079388	-1	0.040688445462	48.148188333367
15000	0.000585284432	0.438197005195	-1	0.040216814631	45.092180152995
16000	0.000561743937	0.394645692659	-1	0.039319262585	40.078849924915
17000	0.000540783067	0.359488734453	-1	0.038475429141	36.143158637154
18000	0.000521992474	0.330561903582	-1	0.037678336221	32.973758965734
19000	0.000505044375	0.306379346842	-1	0.036922430249	30.367495910286
20000	0.000489672940	0.285887997885	-1	0.036203221170	28.186561135138
21000	0.000424157975	0.226035693133	-1	0.038675647010	26.274591575541
22000	0.000409445613	0.211559409361	-1	0.038190492803	24.846730626729
23000	0.000395374437	0.197876915643	-1	0.037733090609	23.499244166704
24000	0.000382096849	0.185300450343	-1	0.037305505619	22.266399642974
25000	0.000369741584	0.174097968475	-1	0.036904943393	21.176519632997

26000	0.000358375682	0.164411734831	-1	0.036524719363	20.243777319745
27000	0.000347890476	0.156020853485	-1	0.036159632268	19.443462700160
28000	0.000338149118	0.148650604722	-1	0.035807227188	18.745902535182
29000	0.000329030135	0.142061168562	-1	0.035467142642	18.125724499202
30000	0.000320425299	0.136041566435	-1	0.035140836952	17.560953240534
31000	0.000312249100	0.130430440075	-1	0.034830465905	17.034982846130
32000	0.000304468349	0.125183699003	-1	0.034535474386	16.543445125452
33000	0.000297063595	0.120286170170	-1	0.034254448007	16.084979173188
34000	0.000290017060	0.115724227150	-1	0.033985920875	15.658395482471
35000	0.000283312487	0.111485562104	-1	0.033728374707	15.262648431093
36000	0.000276932843	0.107554920706	-1	0.033480384301	14.896375109241
37000	0.000270854203	0.103902310664	-1	0.033241155243	14.556622138698
38000	0.000265052648	0.100496272709	-1	0.033010251391	14.240270836982
39000	0.000259506201	0.097307850418	-1	0.032787457770	13.944461973417
40000	0.000254194551	0.094310312019	-1	0.032572767870	13.666566261963
41000	0.000249099787	0.091480893905	-1	0.032366213921	13.404353975552
42000	0.000244208377	0.088806069877	-1	0.032167347835	13.156536243567
43000	0.000239508545	0.086275056283	-1	0.031975658907	12.922105015167
44000	0.000234989360	0.083877785882	-1	0.031790689245	12.700116974483
45000	0.000230640663	0.081604806371	-1	0.031612057782	12.489691449755
46000	0.000226452869	0.079447269270	-1	0.031439415036	12.290000723918
47000	0.000222416958	0.077396860403	-1	0.031272446629	12.100262074224
48000	0.000218524375	0.075445758998	-1	0.031110868937	11.919735537487
49000	0.000214767157	0.073586585238	-1	0.030954457717	11.747720599402
50000	0.000211137844	0.071812325271	-1	0.030803054562	11.583551004277
55000	0.000194689271	0.064026216428	-1	0.030114368029	10.862676141838
60000	0.000180607398	0.057682514302	-1	0.029522577583	10.274350512795
65000	0.000168401637	0.052412061664	-1	0.029009776050	9.784240984685
70000	0.000157710951	0.047962770788	-1	0.028562052424	9.369019168787
75000	0.000148263281	0.044156462120	-1	0.028168438628	9.012258387687
80000	0.000139849168	0.040863518028	-1	0.027820175428	8.702062180266
85000	0.000132304963	0.037987259649	-1	0.027510214878	8.429568238395
90000	0.000125500112	0.035453545278	-1	0.027233304681	8.188103594848

95000	0.000119329228	0.033206009010	-1	0.026983903096	7.972411305001
100000	0.000113705483	0.031199468175	-1	0.026757996667	7.778428000417
105000	0.000108558851	0.029396852781	-1	0.026553540261	7.602941605252
110000	0.000103831549	0.027770411546	-1	0.026366941752	7.443350150577
115000	0.000099476116	0.026297710279	-1	0.026194149411	7.297283114126
120000	0.000095447671	0.024957076794	-1	0.026034856131	7.163155461077
125000	0.000091709069	0.023730869250	-1	0.025888432258	7.039541691717
130000	0.000088229680	0.022605392678	-1	0.025753551320	6.925249218074
135000	0.000084984982	0.021570098330	-1	0.025627792328	6.819107100729
140000	0.000081951893	0.020614958751	-1	0.025510165850	6.720255598214
145000	0.000079110298	0.019731244241	-1	0.025399819435	6.627915558901
150000	0.000076442617	0.018911600939	-1	0.025295917466	6.541445205004
155000	0.000073933342	0.018149520482	-1	0.025197768990	6.460257774319
160000	0.000071568884	0.017439433542	-1	0.025104770739	6.383868451473
165000	0.000069337118	0.016776361734	-1	0.025016435994	6.311832541712
170000	0.000067227254	0.016156032075	-1	0.024932245234	6.243773417962
175000	0.000065229615	0.015574603622	-1	0.024851764298	6.179342642047
180000	0.000063335559	0.015028703884	-1	0.024774615510	6.118242186955
185000	0.000061537295	0.014515292034	-1	0.024700485744	6.060196855774
190000	0.000059827851	0.014031756406	-1	0.024629050274	6.004986818513
195000	0.000058200882	0.013575688813	-1	0.024560039789	5.952394940094
200000	0.000056650537	0.013144752075	-1	0.024493307601	5.902180022535
205000	0.000055171478	0.012736833080	-1	0.024428752381	5.854122159665
210000	0.000053759059	0.012350347885	-1	0.024366117180	5.808105230661
215000	0.000052409041	0.011983897027	-1	0.024305138362	5.764037273452
220000	0.000051117519	0.011636165697	-1	0.024245571021	5.721819643648
225000	0.000049880883	0.011305900287	-1	0.024187237618	5.681351728251
230000	0.000048695787	0.010991919691	-1	0.024129984650	5.642528617079
235000	0.000047559124	0.010693101942	-1	0.024073703185	5.605242237296
240000	0.000046468016	0.010408387261	-1	0.024018322765	5.569383012636
245000	0.000045419782	0.010136765700	-1	0.023963821705	5.534838812227
250000	0.000044411923	0.009877285340	-1	0.023910197433	5.501494978422
255000	0.000043442152	0.009629086983	-1	0.023857458527	5.469249144207

260000	0.000042508442	0.009391546362	-1	0.023805462844	5.438052256180
265000	0.000041608971	0.009164142401	-1	0.023753981332	5.407863549989
270000	0.000040741480	0.008945855637	-1	0.023703998856	5.378675672852
275000	0.000039904624	0.008736466851	-1	0.023654789613	5.350430052056
280000	0.000039096954	0.008535577603	-1	0.023606069075	5.323078052567
285000	0.000038317020	0.008342713516	-1	0.023557785701	5.296574007505
290000	0.000037563444	0.008157419590	-1	0.023509914136	5.270874012581
295000	0.000036834939	0.007979264090	-1	0.023462432385	5.245930866714
300000	0.000036130560	0.007808086213	-1	0.023414668377	5.221675428603

Electron Elastic Scattering Sampling Data
Solution for Z = 93

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.014961214946	0.071319858306	+1	0.115293230713	0.655719012941
52	0.014034408534	0.074858127517	+1	0.120588375326	0.775276357016
54	0.013258183508	0.079078491497	+1	0.126163547799	0.917087981815
56	0.012609427564	0.084073257644	+1	0.132021828754	1.085715680713
58	0.012069000106	0.089923114504	+1	0.138161109942	1.286309614375
60	0.011620940546	0.096702566715	+1	0.144574760752	1.524678210499
62	0.011251971259	0.104485700790	+1	0.151252924919	1.807400729749
64	0.010950485554	0.113340064722	+1	0.158180373928	2.141813164829
66	0.010707033226	0.123344497265	+1	0.165341533929	2.536363313139
68	0.010513364554	0.134579348407	+1	0.172717906028	3.000635545689
70	0.010362144449	0.147126489476	+1	0.180287744906	3.545522546952
72	0.010247252006	0.161084080586	+1	0.188029837154	4.183770928963
74	0.010163024588	0.176550327401	+1	0.195919988149	4.929967674736
76	0.010104577121	0.193640819064	+1	0.203933943847	5.801315740010
78	0.010067527080	0.212483580811	+1	0.212047034964	6.818046160783
80	0.010047855227	0.233218688600	+1	0.220233506514	8.003997617956
82	0.010041996412	0.256010636100	+1	0.228467793265	9.387776883666
84	0.010046694645	0.281041079580	+1	0.236724510353	11.003481500778
86	0.010058987107	0.308519580386	+1	0.244977801995	12.892257834888
88	0.010076217869	0.338687024627	+1	0.253202424389	15.103961779178
90	0.010096009449	0.371818463099	+1	0.261373573706	17.699134339811
92	0.010116204550	0.408232573494	+1	0.269465818500	20.751822396230
94	0.010135007702	0.448304124218	+1	0.277456525451	24.353419863298
96	0.010150817567	0.492466677361	+1	0.285322047577	28.616676763415
98	0.010162283888	0.541227378350	+1	0.293038920294	33.681684285957
100	0.010168317380	0.595179709578	+1	0.300583838130	39.723257858665
105	0.010154980386	0.757809749633	+1	0.318556872913	60.704700790810
110	0.010098251503	0.973767931719	+1	0.335050106053	94.942921926774

115	0.010000087094	1.269373556104	+1	0.349775551008	153.425093674819
120	0.009869660961	1.693012008726	+1	0.362558857771	260.177177911951
125	0.009719836008	2.341168465072	+1	0.373248157670	474.649761740418
130	0.009564238406	3.443031874397	+1	0.381796532630	978.445553859503
135	0.009415975600	5.697059732446	+1	0.388195686742	2547.050867239669
140	0.009285090887	12.771871264823	+1	0.392522909535	12127.815315537566
145	0.009184378666	220.637206624489	-1	0.394887793939	3443014.996645752300
150	0.009102062225	12.328473276491	-1	0.395463428413	11703.036463104367
155	0.009055320518	6.372514729257	-1	0.394422126696	3348.875214079556
160	0.009037874175	4.324107567647	-1	0.391966810394	1627.389691699392
165	0.009047286640	3.294264366719	-1	0.388300514773	983.664975771045
170	0.009079862600	2.678827961653	-1	0.383619978316	669.425341558081
175	0.009131343873	2.272711723800	-1	0.378116050221	490.778439359937
180	0.009197044989	1.987004254108	-1	0.371965355743	378.729598844936
185	0.009272331471	1.776953110898	-1	0.365332183903	303.520938102328
190	0.009353197316	1.617713254034	-1	0.358350308770	250.512931795805
195	0.009435593369	1.494182750553	-1	0.351149058321	211.753563683407
200	0.009514642350	1.396355972004	-1	0.343872764171	182.579537225138
205	0.009586115385	1.317549356781	-1	0.336648209884	160.118778390899
210	0.009648453602	1.253613171021	-1	0.329530209724	142.538125041899
215	0.009700769716	1.201613124226	-1	0.322555622924	128.599050150616
220	0.009742340989	1.159327568178	-1	0.315758758828	117.434839456091
225	0.009772058174	1.124944777504	-1	0.309179587545	108.421425046786
230	0.009789572384	1.097111646284	-1	0.302845976487	101.104583351438
235	0.009794175954	1.074649117802	-1	0.296790412003	95.142741632809
240	0.009785394670	1.056579125678	-1	0.291040957546	90.276140285884
245	0.009762865602	1.042059129758	-1	0.285622649571	86.303605006063
250	0.009726352320	1.030350204559	-1	0.280557007415	83.066681514404
255	0.009676026131	1.020860350537	-1	0.275855324241	80.441394599621
260	0.009613249091	1.013324228963	-1	0.271499668624	78.338718054825
265	0.009539548427	1.007564974040	-1	0.267466243165	76.688960759764
270	0.009456310975	1.003420874633	-1	0.263732628786	75.435254889859
275	0.009364792310	1.000741249267	-1	0.260277851711	74.530668449743

280	0.009266120664	0.999386073653	-1	0.257082263622	73.936297430158
285	0.009161313163	0.999224503979	-1	0.254127500158	73.619589062587
290	0.009051283361	1.000134488174	-1	0.251396373040	73.553150984417
295	0.008936842635	1.001998343097	-1	0.248872998792	73.713499918177
300	0.008818721230	1.004707740431	-1	0.246542364351	74.080650321154
310	0.008574362891	1.012393292341	-1	0.242397114136	75.376880514689
320	0.008324413283	1.023116111741	-1	0.238825488390	77.372789389543
330	0.008073904886	1.036927010969	-1	0.235709249421	80.032369350410
340	0.007826554062	1.053858453974	-1	0.232951925499	83.337434688704
350	0.007585053119	1.073936118526	-1	0.230474935508	87.283954274042
360	0.007351312646	1.097223340176	-1	0.228213803816	91.883762948494
370	0.007126729058	1.123936642004	-1	0.226114306098	97.176273191464
380	0.006912226610	1.154343234345	-1	0.224132246711	103.218351709992
390	0.006708354944	1.188734148381	-1	0.222232330198	110.081768929252
400	0.006515378279	1.227441657531	-1	0.220386198335	117.856087636283
410	0.006333311007	1.270846480380	-1	0.218572283958	126.652708286871
420	0.006161871263	1.319388002881	-1	0.216777262494	136.613589271383
430	0.006000676409	1.373584595501	-1	0.214991625405	147.913869697086
440	0.005849325184	1.434062990011	-1	0.213207752976	160.769724382132
450	0.005707405275	1.501580151083	-1	0.211419578260	175.449361675698
460	0.005574468027	1.577040571962	-1	0.209623142516	192.287683493624
470	0.005449945770	1.661485031036	-1	0.207818538833	211.703207104159
480	0.005333282919	1.756178018734	-1	0.206006655311	234.226218677901
490	0.005223979288	1.862684246801	-1	0.204188278155	260.536682319645
500	0.005121579860	1.982954275907	-1	0.202364024794	291.517966025705
510	0.005025648863	2.119420737523	-1	0.200534961837	328.331439632129
520	0.004935705386	2.275083535195	-1	0.198704042472	372.516894963259
530	0.004851300846	2.453773175006	-1	0.196874153652	426.160625526688
540	0.004772038090	2.660475568811	-1	0.195047629209	492.148128272826
550	0.004697560739	2.901794419456	-1	0.193226349647	574.563345164328
560	0.004627541550	3.186628462169	-1	0.191412166477	679.333109627540
570	0.004561637159	3.527160510638	-1	0.189607608398	815.293903458200
580	0.004499530556	3.940641030512	-1	0.187815066528	996.113283915282

590	0.004440940291	4.452367206279	-1	0.186036415303	1243.854893695688
600	0.004385617993	5.100973295186	-1	0.184273158339	1596.019579875473
610	0.004333333471	5.948498031504	-1	0.182526607731	2120.561290292797
620	0.004283854360	7.101050040276	-1	0.180798378345	2951.049111922916
630	0.004236967230	8.756679670142	-1	0.179089894626	4380.520118540082
640	0.004192481308	11.332578391023	-1	0.177402228710	7159.225786272892
650	0.004150227620	15.884093508474	-1	0.175736226941	13720.333298401298
660	0.004110048143	26.079314661689	-1	0.174092596854	36070.699594511927
670	0.004071789625	69.415792628433	-1	0.172472096399	249180.732432023560
680	0.004035309814	111.832126375096	+1	0.170875350905	641849.309464263730
690	0.003952160097	87.399459425200	+1	0.170972044279	401575.063890110060
700	0.003967188820	17.721617348809	+1	0.167754813365	16790.670010338647
710	0.003935325628	12.384487197894	+1	0.166231516317	8364.909503631823
720	0.003904790904	9.484926117282	+1	0.164733113966	5003.393509389748
730	0.003875489270	7.664738564857	+1	0.163259746626	3330.695085399563
740	0.003847336194	6.416662342583	+1	0.161811418816	2378.796608818882
750	0.003820252170	5.508229376133	+1	0.160388055731	1785.748516627078
760	0.003794166800	4.817880818773	+1	0.158989567179	1391.320004592088
770	0.003769011594	4.275852944097	+1	0.157615791302	1115.690395740906
780	0.003744722925	3.839269681511	+1	0.156266548738	915.474459454049
790	0.003721242983	3.480320056787	+1	0.154941596199	765.435111388147
800	0.003698519391	3.180182129220	+1	0.153640686143	650.081000986423
810	0.003676503240	2.925657819122	+1	0.152363521668	559.472346855356
820	0.003655147974	2.707211658022	+1	0.151109767674	486.991201802856
830	0.003634411963	2.517791228916	+1	0.149879097720	428.095296733049
840	0.003614255063	2.352068331007	+1	0.148671126834	379.582732902272
850	0.003594641709	2.205943760807	+1	0.147485510684	339.143876567588
860	0.003575538175	2.076211295626	+1	0.146321885771	305.078335266943
870	0.003556912544	1.960321660509	+1	0.145179838899	276.110295900590
880	0.003538737160	1.856225925430	+1	0.144058950719	251.268088286347
890	0.003520984220	1.762261727336	+1	0.142958843415	229.802128175981
900	0.003503628534	1.677065841649	+1	0.141879104809	211.126197891043
910	0.003486647416	1.599507814515	+1	0.140819344999	194.776112386576

920	0.003470018746	1.528638731992	+1	0.139779131943	180.379753075572
930	0.003453724324	1.463661279345	+1	0.138758076220	167.636919260167
940	0.003437743774	1.403899271753	+1	0.137755733018	156.303118967513
950	0.003422061185	1.348777500808	+1	0.136771721971	146.177803412690
960	0.003406659064	1.297801639607	+1	0.135805642837	137.094992504406
970	0.003391523564	1.250543266414	+1	0.134857116910	128.916009326981
980	0.003376640095	1.206631500680	+1	0.133925754041	121.524736919972
990	0.003361995504	1.165743315453	+1	0.133011170457	114.823228567128
1000	0.003347577565	1.127596390810	+1	0.132113021810	108.728481052372
1025	0.003312451985	1.042653787761	+1	0.129937081279	95.704320089592
1050	0.003278525638	0.970163218634	+1	0.127855628067	85.187991490194
1075	0.003245669686	0.907741946549	+1	0.125863242574	76.575519843854
1100	0.003213768105	0.853586867039	+1	0.123955061167	69.436932585311
1125	0.003182721394	0.806301841472	+1	0.122126548259	63.458160172407
1150	0.003152456444	0.764769222315	+1	0.120373060273	58.402719055692
1175	0.003122909601	0.728101551659	+1	0.118690285437	54.092153492503
1200	0.003094022313	0.695589324393	+1	0.117074383128	50.390220469371
1225	0.003065741343	0.666656890013	+1	0.115521825071	47.191152771513
1250	0.003038029441	0.640821401056	+1	0.114029005648	44.410409207043
1275	0.003010852522	0.617683979328	+1	0.112592670509	41.980926104465
1300	0.002984178482	0.596914660659	+1	0.111209871287	39.849161950003
1325	0.002957977424	0.578236383336	+1	0.109877876407	37.971743227335
1350	0.002932228858	0.561409819597	+1	0.108593974761	36.312623266249
1375	0.002906914440	0.546231211936	+1	0.107355656058	34.842117900065
1400	0.002882015781	0.532528006534	+1	0.106160659791	33.535811411326
1425	0.002857514198	0.520152027767	+1	0.105006863830	32.373352224206
1450	0.002833398968	0.508972524378	+1	0.103892219787	31.337325417699
1475	0.002809658766	0.498875955368	+1	0.102814779786	30.413024946856
1500	0.002786281855	0.489764366389	+1	0.101772796274	29.588083710328
1550	0.002740576436	0.474162873174	+1	0.099788697537	28.195473962534
1600	0.002696216813	0.461590837443	+1	0.097927618082	27.090848469514
1650	0.002653141997	0.451598732470	+1	0.096178827485	26.223161454551
1700	0.002611303659	0.443828360539	+1	0.094532664571	25.553462528374

1750	0.002570655667	0.437994580217	+1	0.092980631710	25.052035603185
1800	0.002531158205	0.433865074461	+1	0.091515001495	24.695643022806
1850	0.002492769315	0.431253196000	+1	0.090128964101	24.466395760421
1900	0.002455454900	0.430007369368	+1	0.088816349859	24.350289627909
1950	0.002419180289	0.430001862017	+1	0.087571590251	24.336256444480
2000	0.002383911986	0.431125080703	+1	0.086389626432	24.415023713619
2100	0.002316265812	0.436414031689	+1	0.084196193002	24.824195317753
2200	0.002252275992	0.445389945259	+1	0.082204467583	25.543256276665
2300	0.002191710777	0.457734306705	+1	0.080388281052	26.554983385450
2400	0.002134350155	0.473215177302	+1	0.078725445048	27.852185502000
2500	0.002079940283	0.491698334942	+1	0.077198623838	29.439323975707
2600	0.002028328997	0.513031997945	+1	0.075790107064	31.319590423335
2700	0.001979335434	0.537232097899	+1	0.074486501345	33.513366099296
2800	0.001932781587	0.564378026752	+1	0.073276599383	36.050028727419
2900	0.001888509472	0.594560695854	+1	0.072150239070	38.963575431176
3000	0.001846378371	0.627874143171	+1	0.071098131551	42.292166966231
3100	0.001806259658	0.664435220436	+1	0.070112057148	46.080556214747
3200	0.001768017147	0.704480679948	+1	0.069185776607	50.391970931157
3300	0.001731524669	0.748300772991	+1	0.068313849097	55.303349408534
3400	0.001696671224	0.796212645490	+1	0.067491205774	60.904186481333
3500	0.001663356273	0.848561394451	+1	0.066713032782	67.298527946169
3600	0.001631489710	0.905741775226	+1	0.065975042203	74.610051596451
3700	0.001600979339	0.968285550226	+1	0.065273891101	82.997730324472
3800	0.001571740697	1.036826320364	+1	0.064606660771	92.657392171649
3900	0.001543697220	1.112093943552	+1	0.063970574478	103.827747393143
4000	0.001516780213	1.194932906219	+1	0.063363001172	116.801471933570
4100	0.001490925765	1.286343352118	+1	0.062781539148	131.943026917471
4200	0.001466071872	1.387580650575	+1	0.062224289762	149.722045655406
4300	0.001442161023	1.500175554810	+1	0.061689571904	170.741140164394
4400	0.001419140189	1.625989622687	+1	0.061175777820	195.778412203874
4500	0.001396961044	1.767309061285	+1	0.060681387850	225.851085323733
4600	0.001375579034	1.926984057355	+1	0.060204997932	262.310303254213
4700	0.001354951007	2.108678559090	+1	0.059745462644	306.996941738416

4800	0.001335037036	2.317113402980	+1	0.059301737871	362.453218866737
4900	0.001315800698	2.558464999527	+1	0.058872859304	432.262765613401
5000	0.001297207117	2.840967682109	+1	0.058457876221	521.600378008926
5500	0.001212827960	5.493015121990	+1	0.056564763539	1761.024858409709
6000	0.001140475384	22.044574545115	+1	0.054920140708	25855.480508130848
6500	0.001077707143	14.142891595757	-1	0.053468760664	11213.563333351261
7000	0.001022710178	5.329121431963	-1	0.052171320742	1813.445557050520
7500	0.000974111244	3.258568028639	-1	0.050998772522	764.807131278926
8000	0.000930836215	2.336406255524	-1	0.049930209407	439.701376437546
8500	0.000892048259	1.816051518565	-1	0.048948906384	294.803282910165
9000	0.000857079590	1.482655026069	-1	0.048041649503	216.552516667656
9500	0.000825390316	1.251284369134	-1	0.047197860743	168.922804374962
10000	0.000796538815	1.081635037566	-1	0.046408929787	137.458618749568
10500	0.000770159218	0.952120686755	-1	0.045667826687	115.397016010246
11000	0.000745947859	0.850174061465	-1	0.044968556251	99.215471476015
11500	0.000723646749	0.767929141619	-1	0.044306400257	86.914655807230
12000	0.000703038854	0.700268282864	-1	0.043677117618	77.294178677293
12500	0.000683937599	0.643680925693	-1	0.043077312118	69.589944897290
13000	0.000666183696	0.595706700715	-1	0.042503927573	63.298641929680
13500	0.000649638688	0.554548639111	-1	0.041954490125	58.074080633617
14000	0.000634182527	0.518881980216	-1	0.041426748568	53.673331658496
14500	0.000619710329	0.487695984420	-1	0.040918832099	49.919870329579
15000	0.000606130751	0.460217416769	-1	0.040429064873	46.683962161393
16000	0.000581333401	0.414064344747	-1	0.039498398587	41.394317660780
17000	0.000559248453	0.376880903367	-1	0.038625137550	37.258913261741
18000	0.000539446284	0.346336075504	-1	0.037801734390	33.940321354779
19000	0.000521583033	0.320835185297	-1	0.037022163172	31.219518575188
20000	0.000505379764	0.299251314658	-1	0.036281581649	28.948629488251
21000	0.000440862511	0.238084826040	-1	0.038603282178	26.835464862542
22000	0.000425504915	0.222844645347	-1	0.038094315688	25.351977360407
23000	0.000410827018	0.208454172138	-1	0.037612600519	23.954484518998
24000	0.000396984258	0.195236847394	-1	0.037160952787	22.677921448288
25000	0.000384106959	0.183469412074	-1	0.036737491514	21.550958458718

26000	0.000372261708	0.173297828097	-1	0.036336319626	20.587652360032
27000	0.000361334226	0.164488005778	-1	0.035952232862	19.761985299931
28000	0.000351182242	0.156751025345	-1	0.035582430251	19.043016300757
29000	0.000341679723	0.149834857247	-1	0.035226168974	18.404357318206
30000	0.000332714647	0.143518050402	-1	0.034884471567	17.823213256194
31000	0.000324198542	0.137631273436	-1	0.034559110579	17.282385448814
32000	0.000316096513	0.132127927134	-1	0.034249470220	16.777299861528
33000	0.000308387827	0.126991684542	-1	0.033954192388	16.306492050096
34000	0.000301053487	0.122207923748	-1	0.033671860809	15.868679918754
35000	0.000294076143	0.117763423410	-1	0.033401023821	15.462733626158
36000	0.000287437686	0.113642022206	-1	0.033140301899	15.087213765016
37000	0.000281113093	0.109812135950	-1	0.032888880603	14.739046270838
38000	0.000275077435	0.106240746425	-1	0.032646277655	14.415002211506
39000	0.000269307772	0.102897463242	-1	0.032412218997	14.112123386121
40000	0.000263783018	0.099754251316	-1	0.032186639396	13.827692299586
41000	0.000258484504	0.096787232329	-1	0.031969512279	13.559406366734
42000	0.000253398074	0.093982181831	-1	0.031760383446	13.305932457631
43000	0.000248511378	0.091327794343	-1	0.031558722818	13.066224639711
44000	0.000243812983	0.088813481450	-1	0.031364075851	12.839307653686
45000	0.000239292217	0.086429337248	-1	0.031176043432	12.624271097494
46000	0.000234939119	0.084166067153	-1	0.030994274926	12.420258240372
47000	0.000230744187	0.082014952133	-1	0.030818439082	12.226462627352
48000	0.000226698555	0.079967795620	-1	0.030648245661	12.042120090057
49000	0.000222793895	0.078016844351	-1	0.030483457934	11.866507007525
50000	0.000219022434	0.076154785004	-1	0.030323894210	11.698939769303
55000	0.000201933055	0.067980000718	-1	0.029597393705	10.963537229823
60000	0.000187306863	0.061314515096	-1	0.028972062223	10.363824649081
65000	0.000174632450	0.055772029245	-1	0.028429239522	9.864535086072
70000	0.000163533641	0.051088994447	-1	0.027954398966	9.441744440191
75000	0.000153727106	0.047079101128	-1	0.027536144505	9.078625652265
80000	0.000144994859	0.043606865128	-1	0.027165353933	8.762994996537
85000	0.000137166491	0.040571352648	-1	0.026834652892	8.485806105069
90000	0.000130106340	0.037895054162	-1	0.026538528510	8.240225305526

95000	0.000123704700	0.035519029030	-1	0.026271304147	8.020896506935
100000	0.000117871363	0.033396085140	-1	0.026028776811	7.823669801066
105000	0.000112533899	0.031487773903	-1	0.025808440809	7.645241582072
110000	0.000107630892	0.029763998557	-1	0.025607405843	7.483020038228
115000	0.000103109632	0.028198892231	-1	0.025423553361	7.334753203456
120000	0.000098932422	0.026776180657	-1	0.025251596969	7.198452202395
125000	0.000095057472	0.025475051096	-1	0.025092285829	7.072766834764
130000	0.000091453067	0.024281170008	-1	0.024944101340	6.956473862325
135000	0.000088088741	0.023180025742	-1	0.024807685941	6.848623582363
140000	0.000084944013	0.022163545735	-1	0.024679942986	6.748184687328
145000	0.000081998082	0.021222615883	-1	0.024559905247	6.654357333584
150000	0.000079232635	0.020349454442	-1	0.024446756097	6.566492606301
155000	0.000076631534	0.019537193500	-1	0.024339796706	6.483997063371
160000	0.000074180625	0.018779972789	-1	0.024238379331	6.406377160962
165000	0.000071867290	0.018072546022	-1	0.024141983740	6.333181111872
170000	0.000069680382	0.017410410649	-1	0.024050087538	6.264025857574
175000	0.000067609888	0.016789515039	-1	0.023962249678	6.198557134332
180000	0.000065646807	0.016206296933	-1	0.023878075512	6.136472797866
185000	0.000063783034	0.015657561177	-1	0.023797206199	6.077493178034
190000	0.000062011345	0.015140545906	-1	0.023719310559	6.021393196194
195000	0.000060325165	0.014652708089	-1	0.023644111344	5.967953757839
200000	0.000058718405	0.014191577723	-1	0.023571439648	5.916931817808
205000	0.000057185556	0.013754924346	-1	0.023501161268	5.868101137582
210000	0.000055721782	0.013341069570	-1	0.023433022171	5.821345369078
215000	0.000054322682	0.012948533541	-1	0.023366751367	5.776569480009
220000	0.000052984214	0.012575919355	-1	0.023302119411	5.733674146658
225000	0.000051702625	0.012221902177	-1	0.023238933727	5.692556436155
230000	0.000050474441	0.011885228018	-1	0.023177042351	5.653110683550
235000	0.000049296451	0.011564710707	-1	0.023116325187	5.615227100107
240000	0.000048165671	0.011259223267	-1	0.023056706259	5.578793745423
245000	0.000047079321	0.010967699734	-1	0.022998138318	5.543697057264
250000	0.000046034816	0.010689126973	-1	0.022940613669	5.509821020789
255000	0.000045029778	0.010422591897	-1	0.022884128779	5.477063016073

260000	0.000044062111	0.010167425036	-1	0.022828551321	5.445371118657
265000	0.000043129885	0.009923047781	-1	0.022773715097	5.414708431216
270000	0.000042231253	0.009688858924	-1	0.022719557201	5.385035138770
275000	0.000041363958	0.009463757533	-1	0.022667125912	5.356341162663
280000	0.000040526912	0.009247741948	-1	0.022615313897	5.328555169678
285000	0.000039718600	0.009040307246	-1	0.022564066513	5.301632242313
290000	0.000038937599	0.008840969238	-1	0.022513351220	5.275526718951
295000	0.000038182577	0.008649267520	-1	0.022463141877	5.250190347286
300000	0.000037452285	0.008464780684	-1	0.022413381883	5.225574085153

Electron Elastic Scattering Sampling Data
Solution for Z = 94

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.015064102038	0.080840653256	+1	0.117745094590	0.762611778862
52	0.014014935125	0.083407347082	+1	0.122042903850	0.883893377712
54	0.013127465344	0.086326364067	+1	0.126579790035	1.021880081009
56	0.012377926129	0.089744358461	+1	0.131375600443	1.180385653585
58	0.011746539705	0.093779696810	+1	0.136443400229	1.363699650517
60	0.011216763769	0.098530015438	+1	0.141790088121	1.576598070610
62	0.010774785387	0.104080092874	+1	0.147417649346	1.824392869379
64	0.010408623563	0.110500409206	+1	0.153321504305	2.112889597933
66	0.010108457517	0.117862807386	+1	0.159495214284	2.448611340029
68	0.009865747517	0.126233796524	+1	0.165927784618	2.838742639840
70	0.009672987518	0.135677103967	+1	0.172604312880	3.291231726961
72	0.009523928991	0.146265551251	+1	0.179509601221	3.815124416590
74	0.009412808070	0.158065890823	+1	0.186623591810	4.420367642815
76	0.009334719777	0.171156933751	+1	0.193926558365	5.118418251788
78	0.009285244988	0.185621137270	+1	0.201396789117	5.922261250016
80	0.009260326864	0.201544885469	+1	0.209010602704	6.846678231803
82	0.009256409569	0.219031157069	+1	0.216745283800	7.909030716291
84	0.009270135527	0.238184949144	+1	0.224575884935	9.129145862918
86	0.009298459601	0.259129402055	+1	0.232478046316	10.530465749526
88	0.009338571528	0.282001256274	+1	0.240427233982	12.140496535045
90	0.009387839379	0.306950587830	+1	0.248398251670	13.991512739710
92	0.009443827318	0.334152986061	+1	0.256366662718	16.122169538989
94	0.009504332452	0.363803252003	+1	0.264308585324	18.578218851951
96	0.009567281204	0.396125187305	+1	0.272200035108	21.414560227161
98	0.009630767150	0.431373319803	+1	0.280017162367	24.697059343626
100	0.009693032208	0.469835187407	+1	0.287735679834	28.504779996816
105	0.009833917266	0.582392414804	+1	0.306456035369	41.006016403914
110	0.009941069725	0.724233039336	+1	0.324107463205	59.642593960558

115	0.010003280264	0.905521347170	+1	0.340366937170	88.123602216073
120	0.010018869968	1.142284885826	+1	0.354997095420	133.096475694056
125	0.009991991072	1.460160646230	+1	0.367763971498	207.054216481326
130	0.009932192068	1.904637595123	+1	0.378534525243	335.935168350440
135	0.009851716059	2.562013159794	+1	0.387200923871	579.596380439089
140	0.009763096821	3.622889501585	+1	0.393754936820	1103.416075787621
145	0.009678166160	5.599242625855	+1	0.398225661543	2502.320430715090
150	0.009605811452	10.518061721002	+1	0.400719358857	8352.938655197439
155	0.009552660494	43.153507568878	+1	0.401374072025	132471.294992154460
160	0.009521936424	24.630822176559	-1	0.400371516548	43851.184323048859
165	0.009514822648	9.753644319784	-1	0.397909253583	7216.577353115393
170	0.009530143353	6.142671924122	-1	0.394196054471	2967.423108782558
175	0.009565505768	4.523083996608	-1	0.389442127818	1650.022833073113
180	0.009617266040	3.608244820679	-1	0.383851332257	1066.843412765561
185	0.009681427133	3.023628831848	-1	0.377616295001	755.118575719479
190	0.009754108043	2.620435470402	-1	0.370899106673	567.893078476479
195	0.009831225319	2.327459981221	-1	0.363856020400	446.182735654673
200	0.009907696031	2.105771247278	-1	0.356659058954	362.358430663139
205	0.009978997158	1.932688623263	-1	0.349459097592	302.099736455742
210	0.010043089293	1.794913621702	-1	0.342326228016	257.415308243302
215	0.010098608841	1.683732933826	-1	0.335308611686	223.466195046209
220	0.010144304973	1.593031181680	-1	0.328451707044	197.160800591108
225	0.010179043758	1.518368033588	-1	0.321798104938	176.447454377844
230	0.010201821361	1.456422430606	-1	0.315387252859	159.920340838913
235	0.010211763376	1.404639659398	-1	0.309255351312	146.589026951860
240	0.010208136879	1.361001198965	-1	0.303435349030	135.738207599285
245	0.010190130539	1.323830996955	-1	0.297959797238	126.838151592996
250	0.010157950933	1.291930089348	-1	0.292844350166	119.499700359615
255	0.010110952739	1.264118600793	-1	0.288113325978	113.417042015462
260	0.010050668409	1.239914065602	-1	0.283745170573	108.379153194704
265	0.009978633688	1.218941406256	-1	0.279714656332	104.221193632217
270	0.009896236784	1.200863602571	-1	0.275998307686	100.810743088037
275	0.009804738373	1.185382171508	-1	0.272573760731	98.040937756984

280	0.009705284750	1.172226728214	-1	0.269420277587	95.824492257507
285	0.009598910111	1.161154671835	-1	0.266518364799	94.089903174188
290	0.009486536515	1.151943035599	-1	0.263849903190	92.777811970693
295	0.009368996016	1.144389138935	-1	0.261398048464	91.838800209545
300	0.009247034306	1.138306931888	-1	0.259147092048	91.231291652776
310	0.008992982475	1.130060540351	-1	0.255181649393	90.886805019370
320	0.008731302505	1.126791905290	-1	0.251809046998	91.574184772471
330	0.008467704449	1.128271031148	-1	0.248902350406	93.184843466424
340	0.008206414325	1.134269281704	-1	0.246358347383	95.645573863912
350	0.007950488981	1.144572422213	-1	0.244093448756	98.909719199716
360	0.007702135565	1.159034767259	-1	0.242039239182	102.956037225678
370	0.007463060263	1.177706663649	-1	0.240137586162	107.799218060276
380	0.007234422627	1.200700192552	-1	0.238341537596	113.475078306896
390	0.007016934453	1.228160406572	-1	0.236613814111	120.036452249287
400	0.006810962124	1.260273237334	-1	0.234924986233	127.554107199825
410	0.006616583993	1.297280430907	-1	0.233252839593	136.120875025487
420	0.006433559452	1.339495450095	-1	0.231583846131	145.860868598912
430	0.006261529665	1.387311016575	-1	0.229908548015	156.929409680977
440	0.006100098288	1.441215098887	-1	0.228219737244	169.518210762823
450	0.005948843425	1.501811570481	-1	0.226511791796	183.864856415281
460	0.005807298144	1.569830052875	-1	0.224781335007	200.264588470902
470	0.005674860406	1.646118243408	-1	0.223029221077	219.085976773189
480	0.005550944201	1.731711251261	-1	0.221257092019	240.792206163252
490	0.005435013644	1.827887838004	-1	0.219466431028	265.970576630305
500	0.005326582065	1.936232816968	-1	0.217658639455	295.373749243777
510	0.005225179518	2.058709029575	-1	0.215835442319	329.977336325603
520	0.005130287449	2.197711744586	-1	0.214000535084	371.055258764520
530	0.005041418303	2.356256644523	-1	0.212157576214	420.300826285317
540	0.004958142098	2.538214088979	-1	0.210309603915	480.007103712635
550	0.004880074721	2.748620136216	-1	0.208459097879	553.341118159258
560	0.004806859138	2.994114859460	-1	0.206608443376	644.771022651665
570	0.004738120252	3.283551957397	-1	0.204760842942	760.743281438736
580	0.004673513130	3.629096006393	-1	0.202919240504	910.850556007268

590	0.004612731607	4.047954508252	-1	0.201086037359	1109.880181541814
600	0.004555503244	4.565272948520	-1	0.199263213903	1381.593464253205
610	0.004501577573	5.219266246914	-1	0.197452518505	1766.140220438324
620	0.004450700370	6.070817902472	-1	0.195655991909	2335.668464637831
630	0.004402638538	7.223409781524	-1	0.193875518572	3230.681696958529
640	0.004357181800	8.868294606525	-1	0.192112526013	4755.466820636989
650	0.004314145822	11.402597680255	-1	0.190368211321	7674.656292458141
660	0.004273357981	15.808052469084	-1	0.188643586762	14394.776256024665
670	0.004234648946	25.352332483647	-1	0.186939735529	36121.290294088561
680	0.004197862914	61.515107003753	-1	0.185257579652	207431.579663651090
690	0.004162859476	157.565559063201	+1	0.183597842357	1344118.881697970200
700	0.004129512211	34.400833324318	+1	0.181961045497	65327.855294054556
710	0.004097705528	19.171977198636	+1	0.180347640125	20681.375614246732
720	0.004067326107	13.226531467889	+1	0.178757996817	10029.227778750041
730	0.004038270370	10.060854295643	+1	0.177192464607	5910.508688426443
740	0.004010443682	8.096152181441	+1	0.175651198825	3897.138458068093
750	0.003983760598	6.758880334361	+1	0.174134343432	2764.578443864599
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770	0.003933513790	5.057378904466	+1	0.171173862261	1602.133183028471
780	0.003909804961	4.483415870476	+1	0.169730175575	1280.413447246763
790	0.003886952477	4.022158404483	+1	0.168310740062	1047.626011231590
800	0.003864898144	3.643618938846	+1	0.166915388027	873.742511746230
810	0.003843587333	3.327575338013	+1	0.165543919161	740.422283158984
820	0.003822970414	3.059886342261	+1	0.164196099939	635.944987030909
830	0.003802964941	2.830468604768	+1	0.162872362394	552.580008503018
840	0.003783633059	2.631527447733	+1	0.161570308179	484.889764990789
850	0.003764829681	2.457688592880	+1	0.160291752014	429.257784088147
860	0.003746552936	2.304505086327	+1	0.159035693004	382.952754602197
870	0.003728768571	2.168573844521	+1	0.157801753283	343.996273791496
880	0.003711444398	2.047198321079	+1	0.156589574713	310.908561954886
890	0.003694551426	1.938216995385	+1	0.155398829775	282.565442155580
900	0.003678061519	1.839876151796	+1	0.154229135355	258.100160113054
910	0.003661949451	1.750736548670	+1	0.153080104921	236.835285638143

920	0.003646192377	1.669604227716	+1	0.151951406354	218.234889398128
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950	0.003600838886	1.465038684235	+1	0.148683092051	174.533360651129
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1025	0.003497478293	1.121151586878	+1	0.141229127907	111.432455522658
1050	0.003465493577	1.040466873741	+1	0.138952052965	98.520792631163
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1150	0.003346278755	0.813220708548	+1	0.130740595311	66.055228522808
1175	0.003318198701	0.772829235257	+1	0.128888524275	60.890548328018
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1250	0.003237106635	0.676809617794	+1	0.123748526945	49.351568708578
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1450	0.003038425769	0.531400550015	+1	0.112523178031	33.855526088741
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1550	0.002946672017	0.492444907897	+1	0.107961631785	30.097624840551
1600	0.002902461933	0.478155638120	+1	0.105889714741	28.755895914575
1650	0.002859312635	0.466621574056	+1	0.103941088809	27.684196745208
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1800	0.002735985794	0.445011610953	+1	0.098736428533	25.678392725935
1850	0.002696843860	0.441283877473	+1	0.097187546584	25.319505309300
1900	0.002658654065	0.438983028932	+1	0.095719823348	25.083454182843
1950	0.002621396356	0.437971433553	+1	0.094327220019	24.956984170013
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2100	0.002515011162	0.441571610726	+1	0.090547646674	25.136440614973
2200	0.002448389469	0.448765798323	+1	0.088315172547	25.660552613921
2300	0.002385015750	0.459348884239	+1	0.086278166803	26.476640911321
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3900	0.001692343895	1.057555520987	+1	0.067824831422	93.394856544211
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5500	0.001331752788	4.497410951359	+1	0.059505865407	1173.067108668364
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6500	0.001183681222	31.424121053178	-1	0.056033559662	51035.748573962795
7000	0.001123301606	6.998879893077	-1	0.054579782458	2873.959750765805
7500	0.001069893022	3.906211197050	-1	0.053267092720	1006.766429958286
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9000	0.000941079780	1.655524872150	-1	0.049962801449	245.446757330230
9500	0.000906150046	1.385232605984	-1	0.049022272169	187.794582473863
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10500	0.000845215222	1.042839867126	-1	0.047320442306	125.089158831684
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12500	0.000749927674	0.697870161388	-1	0.044452726161	73.448068695471
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15000	0.000663719022	0.496344744170	-1	0.041543703062	48.470283718125
16000	0.000636183967	0.446051092865	-1	0.040527681593	42.798508433327
17000	0.000611629000	0.405641926831	-1	0.039577495130	38.392810073431
18000	0.000589582775	0.372517212503	-1	0.038684431089	34.876558109236
19000	0.000569667528	0.344907615761	-1	0.037841545308	32.007275043606
20000	0.000551576636	0.321568709195	-1	0.037043163775	29.622345161499
21000	0.000482234735	0.256352894693	-1	0.039219404951	27.249514997996
22000	0.000465323630	0.239977615696	-1	0.038655077709	25.701279547965
23000	0.000449179451	0.224532844161	-1	0.038118225447	24.246350673348
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27000	0.000394789634	0.177416062798	-1	0.036264879181	19.902804653483
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29000	0.000373183907	0.161729134887	-1	0.035462801170	18.503856483856
30000	0.000363330828	0.154969031150	-1	0.035086250793	17.906211658934
31000	0.000353974815	0.148670269325	-1	0.034727332066	17.350614232826
32000	0.000345077145	0.142782569468	-1	0.034385323911	16.832244375681
33000	0.000336614127	0.137288104969	-1	0.034058882950	16.349506570151
34000	0.000328564182	0.132170917063	-1	0.033746632772	15.900999931402
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41000	0.000281868498	0.104974045330	-1	0.031868123220	13.542131916811
42000	0.000276292659	0.101971624637	-1	0.031637589111	13.283908870587
43000	0.000270936683	0.099130020207	-1	0.031415273754	13.039833197711
44000	0.000265787893	0.096437896576	-1	0.031200692492	12.808892233042
45000	0.000260834507	0.093884678921	-1	0.030993412285	12.590141726989
46000	0.000256065504	0.091460420642	-1	0.030793057825	12.382696205759
47000	0.000251470431	0.089155825028	-1	0.030599259050	12.185719595732
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55000	0.000219927971	0.074104501549	-1	0.029253439782	10.904009884865
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70000	0.000177940467	0.055937669752	-1	0.027439870554	9.363888893028
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85000	0.000149149464	0.044578776183	-1	0.026199845049	8.398693933105
90000	0.000141445595	0.041681482999	-1	0.025870053063	8.150939697964

95000	0.000134462673	0.039105448625	-1	0.025572610042	7.929801840075
100000	0.000128102619	0.036800837289	-1	0.025302750815	7.731030695406
105000	0.000122284750	0.034727240437	-1	0.025056863169	7.551238129039
110000	0.000116942009	0.032852636410	-1	0.024831728309	7.387791653334
115000	0.000112017749	0.031149790897	-1	0.024624764203	7.238386360533
120000	0.000107464389	0.029596864471	-1	0.024433751863	7.101254306420
125000	0.000103241154	0.028175080794	-1	0.024256929053	6.974850457849
130000	0.000099312930	0.026868843243	-1	0.024092834910	6.857951668738
135000	0.000095650297	0.025665324953	-1	0.023939709192	6.749425442013
140000	0.000092230943	0.024556137626	-1	0.023794018803	6.648221073239
145000	0.000089028041	0.023528498838	-1	0.023656999124	6.553690300667
150000	0.000086021780	0.022574129239	-1	0.023527730115	6.465172823420
155000	0.000083191557	0.021683444330	-1	0.023407525441	6.382214194620
160000	0.000080525119	0.020852524259	-1	0.023293609895	6.304172158511
165000	0.000078008920	0.020075919530	-1	0.023185183385	6.230574528657
170000	0.000075630611	0.019348674561	-1	0.023081759571	6.161042799054
175000	0.000073379197	0.018666369635	-1	0.022982896781	6.095223137839
180000	0.000071244838	0.018025138057	-1	0.022888178070	6.032810965137
185000	0.000069218694	0.017421506493	-1	0.022797237949	5.973525292393
190000	0.000067292862	0.016852482613	-1	0.022709721447	5.917139989198
195000	0.000065460158	0.016315311068	-1	0.022625319155	5.863433136472
200000	0.000063713952	0.015807316259	-1	0.022543826621	5.812160575414
205000	0.000062048239	0.015326085241	-1	0.022465065172	5.763094846528
210000	0.000060457724	0.014869784622	-1	0.022388781397	5.716118564090
215000	0.000058937616	0.014436810694	-1	0.022314695570	5.671134897740
220000	0.000057483477	0.014025636549	-1	0.022242579565	5.628044941200
225000	0.000056091214	0.013634823018	-1	0.022172230078	5.586744830430
230000	0.000054757055	0.013263006869	-1	0.022103484198	5.547127628487
235000	0.000053477486	0.012908896318	-1	0.022036205764	5.509083269590
240000	0.000052249252	0.012571266293	-1	0.021970297713	5.472499839789
245000	0.000051069337	0.012248951270	-1	0.021905701789	5.437262365681
250000	0.000049934930	0.011940853513	-1	0.021842376349	5.403254362796
255000	0.000048843436	0.011645971101	-1	0.021780307064	5.370372880098

260000	0.000047792561	0.011363563841	-1	0.021719376864	5.338567123461
265000	0.000046780180	0.011092976371	-1	0.021659457452	5.307799342749
270000	0.000045804324	0.010833596920	-1	0.021600413280	5.278029001970
275000	0.000044863168	0.010584870603	-1	0.021542063649	5.249211505086
280000	0.000043954605	0.010345832315	-1	0.021485019045	5.221319641923
285000	0.000043076955	0.010115891397	-1	0.021429324984	5.194311010150
290000	0.000042228986	0.009894864987	-1	0.021374334833	5.168125529791
295000	0.000041409246	0.009682249685	-1	0.021320012211	5.142714671419
300000	0.000040616365	0.009477561611	-1	0.021266340838	5.118030188894

Electron Elastic Scattering Sampling Data
Solution for Z = 95

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.016300616630	0.074154491085	+1	0.103397667880	0.554483802350
52	0.015119761017	0.076052754150	+1	0.107270149832	0.640685848405
54	0.014111255284	0.078148186929	+1	0.111371150155	0.737901525274
56	0.013250574468	0.080597910251	+1	0.115723427948	0.848925364590
58	0.012517163831	0.083526987526	+1	0.120344116527	0.976945354373
60	0.011893733592	0.087035561042	+1	0.125244951251	1.125540540367
62	0.011365753089	0.091206645467	+1	0.130433045228	1.298708344605
64	0.010920611229	0.096107016767	+1	0.135909555085	1.500841550871
66	0.010547889656	0.101800172183	+1	0.141673388894	1.736859051519
68	0.010238518220	0.108342103185	+1	0.147718851829	2.012162744822
70	0.009984545051	0.115784457661	+1	0.154036276614	2.332699716055
72	0.009779337535	0.124183853639	+1	0.160615266754	2.705156015641
74	0.009616791889	0.133589621873	+1	0.167440095420	3.136792348223
76	0.009491743262	0.144059310257	+1	0.174495099493	3.635839436834
78	0.009399549448	0.155650534069	+1	0.181761936765	4.211436524942
80	0.009335965818	0.168421622819	+1	0.189219772537	4.873778619374
82	0.009297319774	0.182442238297	+1	0.196848559503	5.634601890658
84	0.009280112098	0.197778781550	+1	0.204624801973	6.506951989200
86	0.009281223031	0.214510104065	+1	0.212525812302	7.505970286521
88	0.009297761344	0.232720687240	+1	0.220527810984	8.648976411130
90	0.009326997922	0.252500396661	+1	0.228605817386	9.955821125014
92	0.009366438429	0.273955206057	+1	0.236735814257	11.449840919858
94	0.009413758137	0.297196301424	+1	0.244892937374	13.157839193270
96	0.009466775396	0.322351488652	+1	0.253052589455	15.111349332952
98	0.009523447827	0.349563011678	+1	0.261189978641	17.347294595449
100	0.009581843865	0.378987493792	+1	0.269279576612	19.908876604679
105	0.009724544386	0.463470708993	+1	0.289139034558	28.096757955193
110	0.009846470737	0.566465852426	+1	0.308197403363	39.756258708848

115	0.009931434201	0.692744475333	+1	0.326097155790	56.573147024032
120	0.009972552745	0.849151755166	+1	0.342550486036	81.227695420783
125	0.009968773372	1.045311596131	+1	0.357268233725	118.037558416597
130	0.009926079141	1.296059656012	+1	0.370059650188	174.386614235026
135	0.009854334149	1.624196872029	+1	0.380754409989	263.348642880625
140	0.009765671830	2.068412889806	+1	0.389288869090	410.264988419986
145	0.009672704016	2.697529428528	+1	0.395638172807	668.575531659240
150	0.009586108412	3.650513510353	+1	0.399869624042	1168.804763789917
155	0.009514699762	5.250551331899	+1	0.402090196229	2297.752825471379
160	0.009463850194	8.472272958201	+1	0.402466814195	5658.008055377649
165	0.009436693941	18.211512937213	+1	0.401191124061	24607.739675877059
170	0.009479674466	290.664286302321	+1	0.397702717831	5849672.874227344100
175	0.009453050797	19.419543076819	-1	0.394549435136	27080.061580435780
180	0.009492321250	9.883921377364	-1	0.389627035645	7166.267675002513
185	0.009547724575	6.699261451784	-1	0.383923186630	3334.715099424826
190	0.009615414746	5.111520604779	-1	0.377620091625	1952.427565701258
195	0.009691238175	4.163661122879	-1	0.370893652249	1295.360312644761
200	0.009770015526	3.534457346615	-1	0.363935311127	929.508254295196
205	0.009847028666	3.086621904103	-1	0.356913057415	704.011645394870
210	0.009919723547	2.753179564160	-1	0.349909592367	555.174548095262
215	0.009986198703	2.496758402517	-1	0.342983331954	451.880012727147
220	0.010044725069	2.294581479433	-1	0.336188213870	377.365855442192
225	0.010093763076	2.131946805367	-1	0.329573640742	321.941774699972
230	0.010131939799	1.998908183483	-1	0.323184733843	279.682957294008
235	0.010158044980	1.888469036338	-1	0.317062477840	246.798207529017
240	0.010171062219	1.795545881182	-1	0.311243585822	220.768268203744
245	0.010170128408	1.716336015929	-1	0.305760656626	199.865221839422
250	0.010154551621	1.647920791005	-1	0.300642320386	182.870441084528
255	0.010124121329	1.588139127918	-1	0.295905351430	168.914081945888
260	0.010079970476	1.535717482571	-1	0.291532594020	157.385390531839
265	0.010023490842	1.489711441356	-1	0.287499446922	147.826571173067
270	0.009955956076	1.449321173701	-1	0.283782480346	139.883215631447
275	0.009878531295	1.413861006860	-1	0.280359654468	133.277693814762

280	0.009792293868	1.382743338222	-1	0.277210077810	127.790707519211
285	0.009698223550	1.355458716892	-1	0.274314166163	123.247352756540
290	0.009597207835	1.331561753472	-1	0.271653624221	119.506832109266
295	0.009490049637	1.310658927432	-1	0.269211517222	116.454680864533
300	0.009377473919	1.292404266702	-1	0.266971950472	113.997455811315
310	0.009139282408	1.262838550278	-1	0.263033402948	110.586290406978
320	0.008889987966	1.241657887285	-1	0.259690977296	108.860448097513
330	0.008635789698	1.228008219454	-1	0.256815161625	108.543906793128
340	0.008381342342	1.221148420176	-1	0.254300628508	109.443835960838
350	0.008130066713	1.220444914217	-1	0.252062214317	111.426831581531
360	0.007884492694	1.225408091335	-1	0.250030494439	114.407702120600
370	0.007646702174	1.235821390303	-1	0.248146046807	118.354350009696
380	0.007418185703	1.251571248205	-1	0.246361151057	123.265837720028
390	0.007199895621	1.272604374345	-1	0.244638281416	129.164992617868
400	0.006992399864	1.298933875179	-1	0.242948141544	136.097148361114
410	0.006795930175	1.330650769038	-1	0.241268773342	144.133220391010
420	0.006610399363	1.367941776852	-1	0.239586928273	153.377999038147
430	0.006435578525	1.411087765794	-1	0.237893453903	163.968442238794
440	0.006271165026	1.460465145944	-1	0.236181585299	176.076365781555
450	0.006116810776	1.516563268141	-1	0.234446309839	189.916493067118
460	0.005972104643	1.579995703362	-1	0.232684808759	205.757548067495
470	0.005836486614	1.651492691150	-1	0.230898436424	223.936820997618
480	0.005709404576	1.731962390501	-1	0.229089211517	244.878331436544
490	0.005590348393	1.822528333737	-1	0.227259123674	269.116341466995
500	0.005478850801	1.924588611507	-1	0.225409958613	297.331876760147
510	0.005374457912	2.039870882231	-1	0.223543797962	330.400704285979
520	0.005276661805	2.170479765527	-1	0.221664606612	369.458312152907
530	0.005184986279	2.319055388536	-1	0.219776170586	416.000074511402
540	0.005099011048	2.488958373265	-1	0.217881724028	472.027163312909
550	0.005018356898	2.684520615199	-1	0.215983901030	540.267192307394
560	0.004942672611	2.911393574232	-1	0.214085260160	624.511783482148
570	0.004871580512	3.177014151350	-1	0.212189125715	730.139425723134
580	0.004804732289	3.491447787974	-1	0.210298595914	864.996806036615

590	0.004741818471	3.868665351941	-1	0.208416190538	1040.893355955535
600	0.004682565652	4.328641552670	-1	0.206543983363	1276.277405808201
610	0.004626719481	4.900907261098	-1	0.204683793051	1601.256862517425
620	0.004574022677	5.630930955490	-1	0.202837771661	2067.647827744011
630	0.004524236162	6.592677285613	-1	0.201007795907	2770.903697272393
640	0.004477150145	7.915106685025	-1	0.199195417090	3902.962594435315
650	0.004432574692	9.844912900184	-1	0.197401829303	5898.126767819254
660	0.004390336292	12.920522356149	-1	0.195628095667	9919.953245191338
670	0.004350261316	18.583845937088	-1	0.193875309654	20033.338048510061
680	0.004312187900	32.445424950935	-1	0.192144431048	59596.101878461093
690	0.004275974308	118.634158663210	-1	0.190436217766	777455.017846025640
700	0.004241489455	73.812955042944	+1	0.188751225679	301639.753241960080
710	0.004208615021	27.926255588754	+1	0.187089905241	43989.560440534879
720	0.004177235636	17.119804616830	+1	0.185452664722	16837.194116235809
730	0.004147241920	12.293250286350	+1	0.183839823193	8839.044687014048
740	0.004118537919	9.560496038965	+1	0.182251607504	5441.120682282236
750	0.004091034175	7.803113096630	+1	0.180688149131	3687.893907730671
760	0.004064650324	6.578780038485	+1	0.179149471929	2666.313747628881
770	0.004039307052	5.677488553660	+1	0.177635570488	2019.191244848905
780	0.004014933376	4.986715138300	+1	0.176146401972	1583.464650689547
790	0.003991461710	4.440763002561	+1	0.174681873141	1276.091671593318
800	0.003968831456	3.998680984418	+1	0.173241806463	1051.147079483020
810	0.003946987564	3.633627368341	+1	0.171826042981	881.561009740514
820	0.003925877387	3.327258173615	+1	0.170434324710	750.528549717188
830	0.003905449374	3.066625609277	+1	0.169066405569	647.175587955580
840	0.003885662024	2.842319017781	+1	0.167721937445	564.206896002341
850	0.003866470618	2.647356069438	+1	0.166400677374	496.589570768192
860	0.003847837081	2.476427075682	+1	0.165102313251	440.751708803419
870	0.003829725640	2.325421250079	+1	0.163826476013	394.101662939088
880	0.003812102194	2.191115254765	+1	0.162572851703	354.724951744186
890	0.003794935713	2.070945825637	+1	0.161341097103	321.181937804979
900	0.003778196773	1.962847519627	+1	0.160130873744	292.372815974250
910	0.003761858756	1.865139884447	+1	0.158941836941	267.446095945536

920	0.003745896738	1.776434333796	+1	0.157773519468	245.732275379776
930	0.003730288572	1.695579372808	+1	0.156625511609	226.700685088437
940	0.003715012680	1.621611855374	+1	0.155497359726	209.926173828944
950	0.003700048828	1.553720754878	+1	0.154388665140	195.065106540656
960	0.003685378944	1.491216166806	+1	0.153299016383	181.836713382025
970	0.003670985114	1.433507753224	+1	0.152228033591	170.009963271296
980	0.003656851091	1.380087675324	+1	0.151175422051	159.393404557004
990	0.003642960944	1.330517667446	+1	0.150140817638	149.827348061648
1000	0.003629300578	1.284417373694	+1	0.149123912413	141.177772922777
1025	0.003596068933	1.182262275313	+1	0.146656773591	122.860477315622
1050	0.003564018757	1.095606616750	+1	0.144292123181	108.242157136367
1075	0.003533003168	1.021355012560	+1	0.142024366720	96.389902595020
1100	0.003502891079	0.957193301356	+1	0.139848425164	86.650425838827
1125	0.003473567942	0.901349765287	+1	0.137759541160	78.553749632906
1150	0.003444952606	0.852422187052	+1	0.135752869002	71.751169654412
1175	0.003416973412	0.809306068035	+1	0.133823957780	65.982610882634
1200	0.003389562876	0.771125883296	+1	0.131968754057	61.051620358696
1225	0.003362663545	0.737174626376	+1	0.130183521932	56.806873754945
1250	0.003336235178	0.706865756924	+1	0.128464542653	53.128966689060
1275	0.003310242892	0.679716274646	+1	0.126808303341	49.923679383652
1300	0.003284652548	0.655328568772	+1	0.125211654872	47.116332039310
1325	0.003259434085	0.633370950544	+1	0.123671713354	44.646874366327
1350	0.003234568542	0.613556824919	+1	0.122185543150	42.465603845481
1375	0.003210038775	0.595643805943	+1	0.120750455248	40.531908873452
1400	0.003185827405	0.579427013656	+1	0.119363976477	38.812489510564
1425	0.003161918612	0.564731076244	+1	0.118023827190	37.279708817397
1450	0.003138303503	0.551402114722	+1	0.116727762489	35.910101427035
1475	0.003114973135	0.539306883589	+1	0.115473675544	34.683936604765
1500	0.003091918583	0.528330698667	+1	0.114259656021	33.584654703401
1550	0.003046606156	0.509345349899	+1	0.111944680239	31.712244306007
1600	0.003002328064	0.493770159416	+1	0.109769369979	30.201406684681
1650	0.002959047948	0.481080640774	+1	0.107721943965	28.984469286206
1700	0.002916741789	0.470860902083	+1	0.105791692758	28.010072644689

1750	0.002875385547	0.462780462037	+1	0.103969190935	27.239104788126
1800	0.002834962925	0.456570134861	+1	0.102245848068	26.640986951642
1850	0.002795457723	0.452012165560	+1	0.100614070237	26.191943256140
1900	0.002756855906	0.448929750029	+1	0.099066919015	25.873318324734
1950	0.002719141206	0.447176520866	+1	0.097598150476	25.670305954521
2000	0.002682296680	0.446624845694	+1	0.096202132417	25.570665207591
2100	0.002611150725	0.448728240362	+1	0.093608339381	25.645105864600
2200	0.002543304993	0.454647292313	+1	0.091249305465	26.044470873243
2300	0.002478631776	0.463977071402	+1	0.089094927423	26.737667289373
2400	0.002416958226	0.476442371556	+1	0.087120875559	27.708836130907
2500	0.002358134661	0.491821895660	+1	0.085305698996	28.949121442720
2600	0.002302053240	0.509927912633	+1	0.083629741414	30.453750399652
2700	0.002248562039	0.530734753215	+1	0.082077795838	32.234204923722
2800	0.002197516140	0.554266191467	+1	0.080636638035	34.308648738281
2900	0.002148786492	0.580558480042	+1	0.079294446426	36.698902864488
3000	0.002102252764	0.609652198643	+1	0.078040440242	39.429844082467
3100	0.002057802481	0.641608197060	+1	0.076865127598	42.531152427399
3200	0.002015309747	0.676592372532	+1	0.075761119143	46.046918056975
3300	0.001974655337	0.714813252062	+1	0.074721937774	50.030776957244
3400	0.001935734489	0.756494728175	+1	0.073741583295	54.544051389631
3500	0.001898451727	0.801875429971	+1	0.072814426860	59.656693109916
3600	0.001862718783	0.851226673124	+1	0.071935396261	65.450616906735
3700	0.001828444345	0.904926971214	+1	0.071100531144	72.031239803524
3800	0.001795543539	0.963424244380	+1	0.070306315191	79.526366525897
3900	0.001763939123	1.027222729931	+1	0.069549421475	88.088114129263
4000	0.001733561076	1.096893323677	+1	0.068826723880	97.898480924159
4100	0.001704344495	1.173098016317	+1	0.068135349352	109.178299510766
4200	0.001676225031	1.256667352360	+1	0.067473042739	122.207283705739
4300	0.001649142247	1.348593704506	+1	0.066837751756	137.334595162721
4400	0.001623040282	1.450052549327	+1	0.066227545768	154.996945275656
4500	0.001597868781	1.562442707849	+1	0.065640615013	175.744786889372
4600	0.001573579805	1.687459367325	+1	0.065075253162	200.282410016169
4700	0.001550128493	1.827219468195	+1	0.064530091085	229.531503949134

4800	0.001527471227	1.984360646801	+1	0.064003876740	264.708712631410
4900	0.001505568623	2.162182771192	+1	0.063495422322	307.438291808074
5000	0.001484383278	2.364878760187	+1	0.063003614602	359.927987056683
5500	0.001388077249	4.020499723476	+1	0.060761833154	939.433552372441
6000	0.001305292885	9.277116824353	+1	0.058816706170	4558.650804389205
6500	0.001242808247	105.958083346018	+1	0.056625174620	546675.286392277110
7000	0.001170176836	8.688161530298	-1	0.055571099807	4227.558057881972
7500	0.001114284702	4.454524417170	-1	0.054189512411	1247.927989554770
8000	0.001064454071	2.981140457647	-1	0.052931997735	622.498188565144
8500	0.001019737612	2.234040229622	-1	0.051778999611	386.499925617522
9000	0.000979380634	1.783400097789	-1	0.050714941772	270.512331066568
9500	0.000942770713	1.482567847529	-1	0.049727295976	204.101860367622
10000	0.000909407267	1.267865693947	-1	0.048805863560	162.084030577331
10500	0.000878874251	1.107175078795	-1	0.047942313920	133.556302529812
11000	0.000850826297	0.982589502133	-1	0.047129534736	113.149842033194
11500	0.000824969397	0.883270799630	-1	0.046361827928	97.946201842693
12000	0.000801056046	0.802342798833	-1	0.045634171652	86.250572853570
12500	0.000778873661	0.735189687841	-1	0.044942435735	77.013750840942
13000	0.000758239908	0.678629383745	-1	0.044282958893	69.559903316098
13500	0.000738996252	0.630372323449	-1	0.043652722404	63.433194043534
14000	0.000721005725	0.588750603358	-1	0.043048997823	58.318817402200
14500	0.000704147807	0.552504601207	-1	0.042469517850	53.991325127278
15000	0.000688317872	0.520679710695	-1	0.041912219153	50.287018324026
16000	0.000659379612	0.467458404364	-1	0.040857316358	44.286729132631
17000	0.000633568488	0.424786233391	-1	0.039872449279	39.645645156796
18000	0.000610391262	0.389865647883	-1	0.038948267887	35.954715552345
19000	0.000589452250	0.360800058342	-1	0.038077299134	32.952041828906
20000	0.000570430457	0.336259245125	-1	0.037253481985	30.462777724583
21000	0.000501606224	0.269539107774	-1	0.039296111007	27.889914736020
22000	0.000483952366	0.252332626671	-1	0.038705402338	26.278189741382
23000	0.000467110035	0.236119609184	-1	0.038141940161	24.766368495269
24000	0.000451245555	0.221252156582	-1	0.037610647081	23.390741288810
25000	0.000436495644	0.208030484239	-1	0.037111922325	22.180588992798

26000	0.000422925837	0.196609804444	-1	0.036641787248	21.149432536700
27000	0.000410404237	0.186723770305	-1	0.036194611681	20.268134860344
28000	0.000398769523	0.178045500109	-1	0.035766654817	19.502672877631
29000	0.000387879821	0.170291407356	-1	0.035356088510	18.824277979809
30000	0.000377609655	0.163212392939	-1	0.034962846681	18.208235097678
31000	0.000367859993	0.156618116275	-1	0.034587743750	17.635960719883
32000	0.000358590182	0.150455474869	-1	0.034230009149	17.102398383878
33000	0.000349775033	0.144705385154	-1	0.033888334693	16.605831852089
34000	0.000341391536	0.139350769531	-1	0.033561384296	16.144753700803
35000	0.000333418620	0.134376352071	-1	0.033247785700	15.717842601645
36000	0.000325834638	0.129763576268	-1	0.032946231857	15.323457514338
37000	0.000318610715	0.125476945342	-1	0.032655799063	14.958260670789
38000	0.000311718253	0.121479372957	-1	0.032375850751	14.618766606220
39000	0.000305131052	0.117736736042	-1	0.032105959011	14.301791568007
40000	0.000298825101	0.114217665898	-1	0.031845882743	14.004425019971
41000	0.000292779083	0.110895276419	-1	0.031595460110	13.724194211179
42000	0.000286976671	0.107753690740	-1	0.031354157396	13.459665495472
43000	0.000281403549	0.104780207857	-1	0.031121413916	13.209711656809
44000	0.000276046435	0.101962961000	-1	0.030896725538	12.973280792107
45000	0.000270893014	0.099290852990	-1	0.030679655604	12.749394830169
46000	0.000265931801	0.096753481977	-1	0.030469811022	12.537134846011
47000	0.000261151831	0.094341098561	-1	0.030266818103	12.335639585927
48000	0.000256542851	0.092044557001	-1	0.030070333979	12.144095172634
49000	0.000252095309	0.089855185890	-1	0.029880083795	11.961732840252
50000	0.000247800270	0.087764813117	-1	0.029695830470	11.787823815811
55000	0.000228348534	0.078577437719	-1	0.028856196571	11.025729965883
60000	0.000211714240	0.071070717807	-1	0.028132394522	10.405583385795
65000	0.000197310188	0.064814782875	-1	0.027502927589	9.890165810046
70000	0.000184705054	0.059516756418	-1	0.026951130146	9.454322781456
75000	0.000173574214	0.054969754741	-1	0.026463950984	9.080418629438
80000	0.000163669364	0.051023198291	-1	0.026031259377	8.755716114005
85000	0.000154792934	0.047565317867	-1	0.025644161076	8.470792976869
90000	0.000146791032	0.044510863534	-1	0.025295789036	8.218472369831

95000	0.000139538744	0.041792618863	-1	0.024981201418	7.993293998743
100000	0.000132934035	0.039358674228	-1	0.024695454228	7.790920249942
105000	0.000126892899	0.037166840229	-1	0.024434796547	7.607890728559
110000	0.000121345563	0.035183703402	-1	0.024195898495	7.441517294425
115000	0.000116233169	0.033380879320	-1	0.023976039166	7.289447299048
120000	0.000111506239	0.031735570109	-1	0.023772905957	7.149876353010
125000	0.000107122440	0.030228212631	-1	0.023584606710	7.021225978620
130000	0.000103045545	0.028842698606	-1	0.023409460974	6.902235979427
135000	0.000099244004	0.027564885951	-1	0.023246155330	6.791787403591
140000	0.000095689906	0.026382446520	-1	0.023093928207	6.689006227827
145000	0.000092365447	0.025289727162	-1	0.022948243529	6.592846773352
150000	0.000089245525	0.024274580610	-1	0.022810553979	6.502793912652
155000	0.000086311547	0.023329035640	-1	0.022680228955	6.418247372180
160000	0.000083546044	0.022445366888	-1	0.022557513203	6.338765040947
165000	0.000080934457	0.021617452719	-1	0.022442083114	6.263901009788
170000	0.000078466314	0.020841935489	-1	0.022331859502	6.193164890589
175000	0.000076129987	0.020114046836	-1	0.022226460557	6.126203170387
180000	0.000073915229	0.019429694617	-1	0.022125465699	6.062706014836
185000	0.000071812840	0.018785193354	-1	0.022028523177	6.002389836575
190000	0.000069814597	0.018177385790	-1	0.021935264529	5.945023748211
195000	0.000067913013	0.017603359059	-1	0.021845376448	5.890383972053
200000	0.000066101222	0.017060299094	-1	0.021758620513	5.838220291721
205000	0.000064372980	0.016545652508	-1	0.021674811488	5.788303661951
210000	0.000062722798	0.016057492597	-1	0.021593675304	5.740512499505
215000	0.000061145678	0.015594113544	-1	0.021514947269	5.694749686321
220000	0.000059637016	0.015153904710	-1	0.021438392404	5.650913790580
225000	0.000058192562	0.014735340413	-1	0.021363808112	5.608898854483
230000	0.000056808385	0.014336982928	-1	0.021291016152	5.568596224824
235000	0.000055480852	0.013957463420	-1	0.021219881121	5.529894199974
240000	0.000054206584	0.013595487620	-1	0.021150288581	5.492678184661
245000	0.000052982449	0.013249822697	-1	0.021082169058	5.456832440540
250000	0.000051805525	0.012919303671	-1	0.021015471738	5.422239449375
255000	0.000050673137	0.012602874152	-1	0.020950159458	5.388792825875

260000	0.000049582884	0.012299741938	-1	0.020886122421	5.356442141692
265000	0.000048532566	0.012009207195	-1	0.020823244131	5.325148973782
270000	0.000047520114	0.011730603780	-1	0.020761409683	5.294871976246
275000	0.000046543610	0.011463314121	-1	0.020700491974	5.265567492734
280000	0.000045601271	0.011206768275	-1	0.020640346494	5.237190676919
285000	0.000044691222	0.010960181357	-1	0.020581221458	5.209701874530
290000	0.000043811488	0.010722550518	-1	0.020523798901	5.183067795612
295000	0.000042961031	0.010493905694	-1	0.020467155826	5.157224027249
300000	0.000042138434	0.010273733195	-1	0.020411265539	5.132119954248

Electron Elastic Scattering Sampling Data
Solution for Z = 96

Energy (eV)	Gamma	Delta	+/-1	A*	A
50	0.018720078000	0.050756318300	+1	0.073686891670	0.222465172091
52	0.017395819320	0.051789875458	+1	0.077367074730	0.258087067599
54	0.016256218101	0.053191071676	+1	0.081335649733	0.300225276034
56	0.015275490373	0.055049030708	+1	0.085601962553	0.350583677820
58	0.014431925285	0.057431555952	+1	0.090173006030	0.411124537966
60	0.013707147476	0.060392664917	+1	0.095053314574	0.484100561928
62	0.013085633357	0.063978874874	+1	0.100245309829	0.572095645888
64	0.012553817299	0.068228307603	+1	0.105747291995	0.678021948373
66	0.012100447015	0.073181345800	+1	0.111557130654	0.805223248178
68	0.011715657308	0.078875031634	+1	0.117669238933	0.957452157017
70	0.011390769080	0.085344370894	+1	0.124074747052	1.138903054099
72	0.011118522817	0.092630320282	+1	0.130764856680	1.354350340156
74	0.010892196923	0.100767322258	+1	0.137725542013	1.609029054068
76	0.010706112811	0.109796953407	+1	0.144943051060	1.908883695764
78	0.010555147510	0.119760082652	+1	0.152400977331	2.260528817946
80	0.010434613714	0.130696764748	+1	0.160080078601	2.671319301893
82	0.010340479929	0.142655603033	+1	0.167961750551	3.149653934240
84	0.010268894690	0.155680316830	+1	0.176023597233	3.704817839406
86	0.010216448594	0.169823185885	+1	0.184243442081	4.347446878250
88	0.010179996397	0.185138854960	+1	0.192597781330	5.089577864293
90	0.010156583231	0.201683443272	+1	0.201061320749	5.944825049421
92	0.010143544871	0.219523373541	+1	0.209609205036	6.928935620355
94	0.010138400151	0.238725952456	+1	0.218215509353	8.059778853418
96	0.010138855359	0.259367809255	+1	0.226853987417	9.358011069045
98	0.010142786792	0.281532220618	+1	0.235497600286	10.847388765753
100	0.010148208407	0.305308080705	+1	0.244118222334	12.555186645084
105	0.010157412663	0.372491868141	+1	0.265394698964	18.000833305577
110	0.010144803213	0.452303498910	+1	0.285961248353	25.671158744018

115	0.010095631423	0.547141352835	+1	0.305399941761	36.497884224691
120	0.010005178260	0.660268047590	+1	0.323371943477	51.844464667706
125	0.009874947157	0.795799901239	+1	0.339536526249	73.671097935634
130	0.009713426252	0.959625244137	+1	0.353666378725	104.915858566724
135	0.009532639148	1.159629752225	+1	0.365564921360	149.948615760840
140	0.009346160714	1.407615977160	+1	0.375158122148	215.696078078692
145	0.009167277928	1.720848264809	+1	0.382423772013	313.399033618753
150	0.009006613821	2.127045286108	+1	0.387441838987	462.929161749987
155	0.008872352542	2.671929485626	+1	0.390340603778	701.779652880147
160	0.008768910005	3.438593960728	+1	0.391310174098	1109.210850193111
165	0.008698296280	4.592663102228	+1	0.390567666612	1876.111124191571
170	0.008659720826	6.521623488252	+1	0.388349593728	3565.646863827877
175	0.008650934625	10.387177708756	+1	0.384897478200	8482.176259764836
180	0.008668173371	22.004592300776	+1	0.380446568125	35552.231437681206
185	0.008739444320	330.108393049439	+1	0.374636138491	7427468.536581595400
190	0.008763598820	23.470751371090	-1	0.369403442043	38058.507130086553
195	0.008832853491	11.877878138013	-1	0.363177168204	9789.552614233024
200	0.008909610024	8.011045102399	-1	0.356728484368	4453.452800181028
205	0.008988996665	6.076381815238	-1	0.350220120935	2555.250596874397
210	0.009068097673	4.918452312262	-1	0.343731447064	1666.240263138875
215	0.009144627732	4.150563798233	-1	0.337317463933	1179.168102433695
220	0.009216512703	3.606017475880	-1	0.331028105419	883.607576303600
225	0.009281882813	3.201104366417	-1	0.324908460352	690.896672091975
230	0.009339067390	2.889138801929	-1	0.318999054336	558.371107882972
235	0.009386585480	2.641995612668	-1	0.313336207637	463.417870494460
240	0.009423133208	2.441690202594	-1	0.307952291065	393.134499076845
245	0.009447594968	2.276170494224	-1	0.302875951902	339.719884499799
250	0.009459016286	2.137038224973	-1	0.298132300321	298.229919328187
255	0.009456904420	2.018410063806	-1	0.293735968438	265.424434799409
260	0.009442026543	1.916492137534	-1	0.289670943955	239.147919837423
265	0.009415406018	1.828480709171	-1	0.285914564215	217.881685090557
270	0.009378015951	1.752156945348	-1	0.282445201277	200.521303701953
275	0.009330759390	1.685738221439	-1	0.279242324193	186.249571565658

280	0.009274489507	1.627776889311	-1	0.276286630525	174.452553630632
285	0.009209983270	1.577079546698	-1	0.273559984166	164.662177762390
290	0.009137974867	1.532657416487	-1	0.271045485328	156.517455344771
295	0.009059129477	1.493676459251	-1	0.268727491946	149.736063433492
300	0.008974064993	1.459434218354	-1	0.266591359957	144.095550438869
310	0.008788148137	1.403052123361	-1	0.262803709944	135.577620351301
320	0.008587095959	1.360527204841	-1	0.259549833762	129.981467802994
330	0.008376902274	1.329723678891	-1	0.256712694441	126.663098422909
340	0.008162193595	1.308951742101	-1	0.254197173870	125.183729519208
350	0.007946485759	1.296869224381	-1	0.251926468729	125.241822601298
360	0.007732503310	1.292454827776	-1	0.249838089553	126.635194018475
370	0.007522638819	1.295092148156	-1	0.247878427002	129.248782024536
380	0.007318701788	1.304356276681	-1	0.246004528452	133.020713857705
390	0.007121956880	1.319944725958	-1	0.244183051762	137.927501571708
400	0.006933244235	1.341666856912	-1	0.242388300206	143.978485943367
410	0.006753069283	1.369449096029	-1	0.240601292645	151.215814017196
420	0.006581626742	1.403356481589	-1	0.238810737328	159.722149429280
430	0.006418945127	1.443567991534	-1	0.237009071558	169.615211971668
440	0.006264943742	1.490372468783	-1	0.235190980779	181.049474999009
450	0.006119464296	1.544176182299	-1	0.233352838555	194.222093973354
460	0.005982264914	1.605515832384	-1	0.231492871704	209.383312389766
470	0.005852959569	1.675065623822	-1	0.229612728945	226.852257801785
480	0.005731146594	1.753674975971	-1	0.227714746363	247.031183399509
490	0.005616447013	1.842406382474	-1	0.225801171430	270.427744678177
500	0.005508502764	1.942583579560	-1	0.223874013530	297.687543111150
510	0.005406954766	2.055848969972	-1	0.221935562888	329.639923694578
520	0.005311383883	2.184217698628	-1	0.219989677241	367.360395781944
530	0.005221391553	2.330217119500	-1	0.218040041912	412.261420720851
540	0.005136620345	2.497055891347	-1	0.216089765535	466.225621814372
550	0.005056748758	2.688854605827	-1	0.214141462575	531.806064682050
560	0.004981474022	2.910968884031	-1	0.212197540413	612.532323299974
570	0.004910469344	3.170429157434	-1	0.210261034109	713.384478751020
580	0.004843427977	3.476691969187	-1	0.208334728029	841.573904490828

590	0.004780079903	3.842803188160	-1	0.206420922255	1007.864837989221
600	0.004720183389	4.287254277868	-1	0.204521445471	1228.897945730104
610	0.004663514837	4.837121260845	-1	0.202637878805	1531.499032276688
620	0.004609840592	5.533606147695	-1	0.200772105157	1961.149041612645
630	0.004558945902	6.442724496979	-1	0.198925770089	2600.039384136921
640	0.004510639121	7.677305214624	-1	0.197100177764	3609.330996265916
650	0.004464746546	9.447372498164	-1	0.195296301090	5341.271207629848
660	0.004421112862	12.193521858707	-1	0.193515002292	8692.822539688554
670	0.004379576241	17.022532243701	-1	0.191757175480	16547.019516209803
680	0.004339989221	27.732325606983	-1	0.190023600503	42886.720933379802
690	0.004302217604	71.671710493918	-1	0.188314789469	279674.682211475270
700	0.004266143874	131.019423760550	+1	0.186631190742	926373.047491017730
710	0.004231656419	34.056449648863	+1	0.184973017956	63761.627155254122
720	0.004198646669	19.448020284413	+1	0.183340576146	21174.605088650769
730	0.004167013415	13.552198622033	+1	0.181734052927	10467.653940945575
740	0.004136665561	10.367025259738	+1	0.180153507151	6234.016159476999
750	0.004107520306	8.373846483859	+1	0.178598941498	4138.152727566156
760	0.004079500158	7.009895588256	+1	0.177070254638	2949.485061021369
770	0.004052530961	6.018455424373	+1	0.175567365797	2210.713361539936
780	0.004026544354	5.265720612454	+1	0.174090108324	1720.254031299151
790	0.004001475819	4.675111794121	+1	0.172638276792	1378.013718339012
800	0.003977268068	4.199637444888	+1	0.171211640038	1129.706853242666
810	0.003953868852	3.808853667875	+1	0.169809926416	943.811727895515
820	0.003931225592	3.482169577472	+1	0.168432822079	801.005794183875
830	0.003909291042	3.205160255804	+1	0.167079989963	688.907585625819
840	0.003888021877	2.967426953780	+1	0.165751097140	599.288262708675
850	0.003867376914	2.761284199105	+1	0.164445768533	526.504970746157
860	0.003847319313	2.580925090344	+1	0.163163641522	466.581578464420
870	0.003827813455	2.421877510326	+1	0.161904321185	416.650093008186
880	0.003808826501	2.280644808136	+1	0.160667409824	374.600515413455
890	0.003790326906	2.154456495535	+1	0.159452479709	338.853208932785
900	0.003772286594	2.041087569699	+1	0.158259141898	308.205994283212
910	0.003754679732	1.938730195966	+1	0.157087010568	281.730675835485

920	0.003737480565	1.845897414070	+1	0.155935637228	258.700657830083
930	0.003720667131	1.761355900101	+1	0.154804610270	238.540755207745
940	0.003704216540	1.684077525113	+1	0.153693490532	220.791735388143
950	0.003688109361	1.613198561080	+1	0.152601916779	205.083243844626
960	0.003672326018	1.547985769483	+1	0.151529465648	191.113387222007
970	0.003656849924	1.487811859357	+1	0.150475728090	178.633875803233
980	0.003641664002	1.432139423471	+1	0.149440322845	167.439616079923
990	0.003626752229	1.380504280846	+1	0.148422824158	157.359615877175
1000	0.003612100836	1.332504654610	+1	0.147422889896	148.250699357086
1025	0.003576523077	1.226210651671	+1	0.144997370980	128.977066117010
1050	0.003542306893	1.136113248680	+1	0.142673102976	113.610817628401
1075	0.003509295633	1.058956605614	+1	0.140444489927	101.161387679779
1100	0.003477349081	0.992311634819	+1	0.138306419884	90.936654484709
1125	0.003446348092	0.934321742444	+1	0.136254171272	82.439569502831
1150	0.003416198695	0.883521254120	+1	0.134282870332	75.302241068097
1175	0.003386819865	0.838757289275	+1	0.132388016735	69.250571030450
1200	0.003358137297	0.799116030470	+1	0.130565563744	64.077624234725
1225	0.003330084775	0.763861259219	+1	0.128811781963	59.624311434294
1250	0.003302613240	0.732381183592	+1	0.127122891817	55.764990743011
1275	0.003275681347	0.704173428347	+1	0.125495424803	52.400725090518
1300	0.003249247690	0.678824664078	+1	0.123926270848	49.453156455082
1325	0.003223275661	0.655989319320	+1	0.122412504444	46.859171748271
1350	0.003197740233	0.635370708635	+1	0.120951290224	44.566778526153
1375	0.003172615428	0.616717494480	+1	0.119539935341	42.533454839445
1400	0.003147880022	0.599817373919	+1	0.118176077011	40.724335933522
1425	0.003123512267	0.584488632463	+1	0.116857443066	39.110479213071
1450	0.003099496632	0.570571684100	+1	0.115581849157	37.667325794780
1475	0.003075821656	0.557928134642	+1	0.114347238311	36.374159660230
1500	0.003052471953	0.546438941786	+1	0.113151713995	35.213637586684
1550	0.003006705918	0.526519264124	+1	0.110871004858	33.233415438057
1600	0.002962128344	0.510114875470	+1	0.108726583619	31.631104454384
1650	0.002918676965	0.496683989449	+1	0.106706969400	30.335933526047
1700	0.002876306408	0.485795638144	+1	0.104801755075	29.294055764559

1750	0.002834975358	0.477107100996	+1	0.103001786658	28.464416518636
1800	0.002794652002	0.470339992013	+1	0.101298763016	27.814978893824
1850	0.002755304709	0.465269201314	+1	0.099685287638	27.320827111236
1900	0.002716908648	0.461711446903	+1	0.098154625434	26.962341377343
1950	0.002679437978	0.459514995584	+1	0.096700749646	26.723948331055
2000	0.002642865720	0.458548349848	+1	0.095318188991	26.592827901911
2100	0.002572325100	0.459892681822	+1	0.092747643726	26.614030050263
2200	0.002505137866	0.465124378096	+1	0.090407780630	26.970216318245
2300	0.002441151194	0.473817075133	+1	0.088269292505	27.627640085343
2400	0.002380201713	0.485659191764	+1	0.086307594799	28.566271687257
2500	0.002322128561	0.500410806370	+1	0.084501647182	29.774939795508
2600	0.002266776263	0.517900226239	+1	0.082833415520	31.250335313666
2700	0.002213954732	0.538123390742	+1	0.081289172529	33.006367617735
2800	0.002163530560	0.561090283473	+1	0.079855618137	35.059735649245
2900	0.002115396660	0.586807397370	+1	0.078520294264	37.428841997768
3000	0.002069433073	0.615308413556	+1	0.077272667567	40.137621044773
3100	0.002025525556	0.646648707131	+1	0.076103400527	43.214904081211
3200	0.001983550543	0.680986156706	+1	0.075005198773	46.703629450374
3300	0.001943390815	0.718519331764	+1	0.073971630566	50.655948179185
3400	0.001904941273	0.759462784854	+1	0.072996730925	55.131602755773
3500	0.001868109271	0.804044397367	+1	0.072074950041	60.198528298339
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3700	0.001798944253	0.905266242923	+1	0.070371704451	72.447342572280
3800	0.001766437750	0.962701239337	+1	0.069582769778	79.855508677756
3900	0.001735211562	1.025313101526	+1	0.068831146372	88.307963236593
4000	0.001705196413	1.093648353398	+1	0.068113713383	97.980295033989
4100	0.001676328878	1.168338716387	+1	0.067427593562	109.084828847175
4200	0.001648545031	1.250178859842	+1	0.066770519946	121.890348993469
4300	0.001621785375	1.340115514817	+1	0.066140450380	136.731309479863
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4900	0.001479932218	2.131654189265	+1	0.062828777846	301.957723792152
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5500	0.001363864022	3.907916728068	+1	0.060123839334	898.370680404798
6000	0.001282094143	8.699885617909	+1	0.058200531498	4062.302868071747
6500	0.001217624528	92.814931024681	+1	0.056185806863	425194.906933167190
7000	0.001148648053	9.357364879169	-1	0.054992649464	4904.409805802076
7500	0.001093440237	4.649765196204	-1	0.053627896879	1359.942638396220
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8500	0.001000053543	2.294834023793	-1	0.051245929700	407.974663764866
9000	0.000960187388	1.825977910229	-1	0.050194336210	283.734039422193
9500	0.000924018928	1.514637157512	-1	0.049218294959	213.180612282284
10000	0.000891054281	1.293235232444	-1	0.048307767689	168.793457563640
10500	0.000860883588	1.127964025350	-1	0.047454518808	138.782030994196
11000	0.000833166291	1.000079889106	-1	0.046651532297	117.382376510282
11500	0.000807613191	0.898289925280	-1	0.045893191623	101.479036228138
12000	0.000783980402	0.815451915481	-1	0.045174510020	89.270301785373
12500	0.000762058535	0.746784759011	-1	0.044491417989	79.644782749221
13000	0.000741668353	0.688999499095	-1	0.043840274539	71.888515258505
13500	0.000722653748	0.639734097860	-1	0.043218094694	65.521163363626
14000	0.000704879566	0.597270529027	-1	0.042622166003	60.211684137796
14500	0.000688227461	0.560313099583	-1	0.042050228281	55.723368570975
15000	0.000672593989	0.527880644436	-1	0.041500232972	51.884627534367
16000	0.000644026420	0.473681469769	-1	0.040459255043	45.673173481453
17000	0.000618562863	0.430263006651	-1	0.039487434068	40.874587071812
18000	0.000595715701	0.394760055877	-1	0.038575454266	37.062171461183
19000	0.000575094280	0.365232280153	-1	0.037715883672	33.963147923308
20000	0.000556380619	0.340320039937	-1	0.036902677869	31.395700837247
21000	0.000493431160	0.275133140962	-1	0.038838584536	28.716049395092
22000	0.000476079279	0.257573787757	-1	0.038253815454	27.049761371197
23000	0.000459525805	0.241037516969	-1	0.037695593546	25.488145583301
24000	0.000443934755	0.225880501135	-1	0.037168852549	24.068221563640
25000	0.000429440751	0.212405393953	-1	0.036674158107	22.819736515055

26000	0.000416108071	0.200767407193	-1	0.036207779491	21.756236006832
27000	0.000403806539	0.190693575969	-1	0.035764248714	20.847465644441
28000	0.000392377387	0.181851104311	-1	0.035339788204	20.058291566273
29000	0.000381680712	0.173950680629	-1	0.034932576341	19.359003632014
30000	0.000371593161	0.166739089033	-1	0.034542435131	18.724139599654
31000	0.000362017354	0.160022830953	-1	0.034170063512	18.134560123023
32000	0.000352913248	0.153747520671	-1	0.033814708276	17.585022232123
33000	0.000344256005	0.147893325832	-1	0.033475103071	17.073712976956
34000	0.000336022921	0.142442529592	-1	0.033149953560	16.599042266510
35000	0.000328193244	0.137379264544	-1	0.032837946614	16.159618044248
36000	0.000320745632	0.132684363450	-1	0.032537822846	15.753719868763
37000	0.000313651666	0.128321651092	-1	0.032248672617	15.377903601134
38000	0.000306883229	0.124253313759	-1	0.031969864284	15.028570034878
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40000	0.000294222056	0.116863530605	-1	0.031441766484	14.396513451354
41000	0.000288284788	0.113482860840	-1	0.031192047242	14.108248110912
42000	0.000282586669	0.110286275409	-1	0.030951314742	13.836159746893
43000	0.000277113618	0.107260832633	-1	0.030719012061	13.579083242261
44000	0.000271852603	0.104394417683	-1	0.030494654251	13.335934096498
45000	0.000266791489	0.101675686843	-1	0.030277814640	13.105700913750
46000	0.000261918961	0.099094032599	-1	0.030068111336	12.887437995251
47000	0.000257224299	0.096639532708	-1	0.029865174543	12.680255159263
48000	0.000252697438	0.094302838736	-1	0.029668675529	12.483312129180
49000	0.000248328996	0.092075149480	-1	0.029478335703	12.295817730654
50000	0.000244110179	0.089948142164	-1	0.029293925266	12.117023868983
55000	0.000225001725	0.080598765627	-1	0.028452632379	11.333597302937
60000	0.000208657717	0.072957805247	-1	0.027726050705	10.696180097295
65000	0.000194501712	0.066587597284	-1	0.027093097167	10.166450562997
70000	0.000182110826	0.061190389294	-1	0.026537369812	9.718523060255
75000	0.000171166766	0.056555963425	-1	0.026045991965	9.334253425484
80000	0.000161424822	0.052531594338	-1	0.025608680265	9.000551002376
85000	0.000152693554	0.049003367983	-1	0.025217163956	8.707714236555
90000	0.000144821165	0.045884603919	-1	0.024864693287	8.448391981131

95000	0.000137685071	0.043107530222	-1	0.024546089488	8.216959284347
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105000	0.000125237859	0.038378497597	-1	0.023991049757	7.820762313122
110000	0.000119775798	0.036349432941	-1	0.023747829453	7.649704805932
115000	0.000114741467	0.034503635254	-1	0.023523977784	7.493346696925
120000	0.000110086162	0.032818065342	-1	0.023317113911	7.349833143200
125000	0.000105768129	0.031272946151	-1	0.023125248847	7.217539972251
130000	0.000101751662	0.029851871163	-1	0.022946723178	7.095174046582
135000	0.000098005419	0.028540189621	-1	0.022780415058	6.981599638024
140000	0.000094506823	0.027329297677	-1	0.022622852728	6.875734928706
145000	0.000091230529	0.026207010320	-1	0.022474030555	6.776809941241
150000	0.000088155188	0.025163639545	-1	0.022333553029	6.684171702413
155000	0.000085261966	0.024190626963	-1	0.022201159048	6.597230863141
160000	0.000082533980	0.023280417588	-1	0.022076835667	6.515517074468
165000	0.000079959592	0.022428987980	-1	0.021958413306	6.438447725010
170000	0.000077526150	0.021630954695	-1	0.021845446352	6.365628465916
175000	0.000075222419	0.020881565931	-1	0.021737487180	6.296691128957
180000	0.000073038354	0.020176686587	-1	0.021634089750	6.231317274378
185000	0.000070964911	0.019512582450	-1	0.021534871035	6.169213289873
190000	0.000068994010	0.018886055282	-1	0.021439438956	6.110141034256
195000	0.000067118283	0.018294135237	-1	0.021347475532	6.053870791763
200000	0.000065330971	0.017733954804	-1	0.021258731834	6.000146131871
205000	0.000063625946	0.017202913846	-1	0.021173010443	5.948732014823
210000	0.000061997798	0.016699039839	-1	0.021090044808	5.899503742523
215000	0.000060441620	0.016220591086	-1	0.021009572068	5.852360697683
220000	0.000058952881	0.015765923916	-1	0.020931355127	5.807198009746
225000	0.000057527404	0.015333478300	-1	0.020855194580	5.763906834245
230000	0.000056161325	0.014921784419	-1	0.020780913608	5.722375698310
235000	0.000054851062	0.014529444055	-1	0.020708370386	5.682489950119
240000	0.000053593298	0.014155130403	-1	0.020637455041	5.644131987809
245000	0.000052384940	0.013797589176	-1	0.020568080831	5.607183640239
250000	0.000051223130	0.013455622800	-1	0.020500201602	5.571523443046
255000	0.000050105225	0.013128153350	-1	0.020433768103	5.537043051047

260000	0.000049028860	0.012814365498	-1	0.020368675804	5.503690505895
265000	0.000047991855	0.012513537704	-1	0.020304814333	5.471427121686
270000	0.000046992187	0.012224991373	-1	0.020242062879	5.440208277856
275000	0.000046027937	0.011948073491	-1	0.020180326362	5.409992294362
280000	0.000045097345	0.011682180242	-1	0.020119491256	5.380731512608
285000	0.000044198759	0.011426763081	-1	0.020059408258	5.352377842195
290000	0.000043330355	0.011180936245	-1	0.020000490903	5.324891722532
295000	0.000042490437	0.010943884147	-1	0.019943132177	5.298232125806
300000	0.000041677999	0.010715573782	-1	0.019886565639	5.272333485206

APPENDIX B

Appendix B contains the complete Verilog HDL hardware designs for key portions of the FPGA implementation of Monte Carlo electron transport described in this dissertation. Verilog HDL code for the following key aspects of the Monte Carlo program include:

- Top Level control modules and particle Stack (Dependencies of these modules are below)
  - Mersenne Twister pseudo-random number generator
  - Sampling of the number of mean free paths between electron interactions
  - Cashwell and Everett coordinate transformation
  - Cross section lookup
  - Polar angle elastic scattering coefficient lookup
  - Sampling of polar angle of collision from elastic scattering events
  - Knock-on electron energy sampling
  - Determination of interaction subshell for electron impact ionization
  - Knock-on electron polar angle deflection calculation (for both primary and secondary electrons)

The Verilog HDL code for each of these aspects of the program is included below in the same order that it is listed above. Please note that all these designs have been optimized for the Xilinx Virtex-II Pro 100 FPGA, and will not be compatible with other FPGAs without modification. Note, that in many cases Xilinx cores have been utilized from the Xilinx ISE 6.3.03i core generator. Obviously, the Xilinx specific core files will not be included; however, the Verilog files generated for a specific core will be included in order to document the specific parameters of each core. In addition, at the end of each code section, an FPGA synthesis utilization report from the Xilinx ISE program will be given for that specific portion of the design, as implemented on the Xilinx Virtex-II Pro 100 FPGA. Many modules will be presented for each code section, and interdependencies should be obvious from function calls. It is important to note that many additional changes were made directly to the netlists after synthesis and implementation to correct timing issues and other errors. These changes are not critical for documentation of the hardware methods used, which is best done by the behavioral Verilog code in this section.

I haven't included complete code portions for each test case described in this dissertation, although the majority of the Verilog modules will have been unchanged. Specifically, the designes to determine the dose to endosteal bone surface cells has been included, because it is the more complex and real-world example of the test cases run.

TOP LEVEL CONTROL MODULES AND PARTICLE STACK

```
//////////////////////////////////////////////////
//
//          GOD MODULE
//
//   - Top level Monte Carlo Module
//   - Connects the particle stack to the control module
//   - Responsible for tallies
//   - Responsible for generating source particles
//   - Communicates with FPGA Board control module
//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//////////////////////////////////////////////////


//// Spatial units have been defined in the matlab cross-section
////  generation script to be 0.1 nm
////
////  our 30 bit coordinate system will be:
////  XXXXXXXXXXXXXXXXXXXXXX.XXXXXXXX
////  This will cover the maximum penetration depth
////  of a 300 KeV electron.  The least significant
////  8 bits will contain fractional values of 0.1 nm

`define NUMHIST 24'd10000000
// better not make this number exceed 2^24-1, or there will be trouble
// if bitwidths are not adjusted below
```

```
module GOD(clk, fclk, reset, complete, getaddress, doseval);

  input clk, fclk, reset;
  // CLK - input from DCM
  // FCLK - input from DCM = CLK*2

  input [9:0] getaddress;  //Board control module will request the dose
                           //at a specific memory address when computation
                           //is complete.

  output complete;  //when computation of defined histories
                    //has been completed, output a 1 to the
                    //board control module

  output [49:0] doseval; //dose value at "getaddress" to
                         //board control module




   wire materialin;         // what material does the particle start in?
   wire [22:0] energyin;    // in 1/16 eV
   wire [17:0] Uin, Vin, Win;   // signed 2's comp
   wire [17:0] muin;        // signed 2's comp
   wire [29:0] Xin, Yin, Zin;   // unsigned value
   wire [21:0] phi, phiin;       // range = 0->1 (2*pi == 1)
   wire rejectedin;


   wire [22:0] energyprime_out, energysec_out;   // in 1/16 eV
```

```
wire [17:0] Up_out, Vp_out, Wp_out;   // signed 2's comp
wire [17:0] mup_out, musec_out;
wire [29:0] Xp_out, Yp_out, Zp_out;   // unsigned value
wire [19:0] TotalEnergyLost;
wire materialp_out;
wire rejected_out;
wire no_output;

wire [208:0] dataout;

//////////////////////////////////////////////////////////////////
//   Source Declaration
//////////////////////////////////////////////////////////////////
wire materialSOURCE;                //material starting point
wire [22:0] energySOURCE;             //source energy
wire [29:0] XSOURCE, YSOURCE, ZSOURCE; //source starting coord
wire [17:0] USOURCE, VSOURCE, WSOURCE; //source direction
wire [17:0] MUSOURCE;                 //source angle (should be 1)
wire rejectedSOURCE;                //should be 0

assign materialSOURCE = 0;
assign energySOURCE = {19'd60000, 4'b0};  //eV
assign XSOURCE = 30'b011011011111011111100000000000; //180.1720 um
assign YSOURCE = 30'b011111111100100111000000000000; //209.3680 um
assign ZSOURCE = 30'b011110100001001000000000000000; //200 um
assign USOURCE = 18'b011110000100011111; // 0.939689
assign VSOURCE = 18'b000000000000000000; // 0.0
assign WSOURCE = 18'b001010111100011110; // 0.342026
assign MUSOURCE = 18'b011111111111111111; // 1
assign rejectedSOURCE = 0;
//////////////////////////////////////////////////////////////////
//////////////////////////////////////////////////////////////////
```

```
wire [24:0] reducedX;
wire [21:0] reducedY;
wire [4:0] indexX;
wire [7:0] indexY;
wire [35:0] rYm642, ZmB2;
wire [49:0] doseout, dosein;
wire [9:0] null6;


reg [30:0] Xml, Yml, ZmB, ZmBr1;
reg [22:0] rYm64;
reg ats, noro, noror1, noror2, noror3, rxlt7,
     loading, dosewe;
reg [34:0] SoS;
reg [19:0] TELR1, TELR2, TELR3, TELR4, TELR5;
reg com; //complete



reg adddata, subdata, subdata2, delnoin2, delnoin3;
reg [208:0] datain;
reg [23:0] sourcecounter;
reg [10:0] startupcounter1;
reg [9:0] doseaddr, finalindex, finalindexR1, finalindexR2;
reg noadd, noadd2, delnoin;


reg [208:0] deldat1, deldat2, deldat3;

onemt1 MT_SEED1(clk, Fclk, reset, {null6,phi});  //MT Random number generator seeded
                                        //with skip-ahead seed 1

particlestack ps(adddata, subdata, datain, dataout, empty, clk, reset);
```

```
 assign {materialin, energyin, Xin, Yin, Zin, Uin, Vin, Win, muin, phiin, rejectedin} = deldat3;

 control C(delnoin3, materialin, energyin, Xin, Yin, Zin, Uin, Vin, Win, muin, phiin, rejectedin,
          materialp_out, energyprime_out, Xp_out, Yp_out, Zp_out,
            Up_out, Vp_out, Wp_out, mup_out, rejected_out,
                 energysec_out, musec_out, TotalEnergyLost, no_output, clk, fclk, reset);

doseram dr(doseaddr,     clk,        dosein,   doseout, dosewe); //10x50 read before write
                                     //wide enough to store ~7e13 eV per bin

mul18b18os square1(clk, rYm64[22:5], rYm64[22:5], rYm642),
         square2(clk, ZmBr1[22:5], ZmBr1[22:5], ZmB2);

assign complete = com;
assign doseval = doseout;


assign reducedX = Xml[24:0];
assign reducedY = Yml[21:0];
assign indexX = Xml[29:25];
assign indexY = Yml[29:22];


assign dosein = (loading == 1) ? 0 : doseout + TELR5;


always @(posedge clk)
begin

  if(reset == 1)
  begin
     com <= 0;
```

```
    sourcecounter <= 0;
    startupcounter1 <= 0;
    subdata <= 1'b0;
    adddata <= 1'b0;
    noadd <= 1;
    doseaddr <= 0;
    dosewe <= 1;
    loading <= 1;
end
else
begin
  if(startupcounter1 < 1024)
    begin
      subdata <= 1'b1;
      adddata <= 1'b0;
      startupcounter1 <= startupcounter1 + 1;
      doseaddr <= doseaddr + 1;
    end
  else
    begin
        if(startupcounter1 == 1024)
          begin
             dosewe <= 0;
             startupcounter1<= startupcounter1 + 1;
          end


        loading <= 0;
        if(no_output == 1)
         begin
           subdata <= 1'b1;  //get a new particle off the stack
           adddata <= 1'b0;
           deldat1 <= {materialSOURCE, energySOURCE, XSOURCE, YSOURCE, ZSOURCE, USOURCE, VSOURCE,
```

```
            WSOURCE, MUSOURCE, phi, rejectedSOURCE};
 end
else
 begin
 if(energyprime_out == 0)  // a particle died
  begin
   subdata <= 1'b1;  //get a new particle off the stack
   adddata <= 1'b0;
   deldat1 <= {materialSOURCE, energySOURCE, XSOURCE, YSOURCE, ZSOURCE, USOURCE, VSOURCE,
            WSOURCE, MUSOURCE, phi, rejectedSOURCE};
  end
 else
  begin
  if(energysec_out == 0)  // no delta-ray
   begin
    adddata <= 1'b0;
    subdata <= 1'b0;
    deldat1 <= {materialp_out, energyprime_out, Xp_out, Yp_out, Zp_out, Up_out, Vp_out,
             Wp_out, mup_out, phi, rejected_out};
   end
  else   // we have an energetic delta-ray
   begin
    adddata <= 1'b1;
    subdata <= 1'b0;
    datain <= {materialp_out, energyprime_out, Xp_out, Yp_out, Zp_out, Up_out, Vp_out,
             Wp_out, mup_out, phi, rejected_out};
    deldat1 <= {materialp_out, energysec_out, Xp_out, Yp_out, Zp_out, Up_out, Vp_out,
             Wp_out, musec_out, {~phi[21], phi[20:0]}, rejected_out};
   end
  end
end

if(sourcecounter <= (`NUMHIST - 1))
```

```
begin

    Xml <= {1'b0, Xp_out} - {1'b0, 30'b010000000000000000000000000000}; //104.8576 um
    Yml <= {1'b0, Yp_out} - {1'b0, 30'b011000000000000000000000000000}; //157.2864 um
    ZmB <= {1'b0, Zp_out} - {1'b0, 30'b011111101100101010100000000000}; //207.7352 um
    noro <= (no_output | rejected_out);
    TELR1 <= TotalEnergyLost;

    ZmBr1 <= ZmB;
    ats <= (ZmB[30:22] == 9'b0) ? 1 : ((ZmB[30:22] == 9'b111111111) ? 1 : 0)
         & (~Xml[30]) & (~Yml[30]) & (~Xml[29]) & (~Yml[29]) & (~Yml[28]);
    rYm64 <= {1'b0, reducedY} - {1'b0, 22'b0110010000000000000000};  //0.64 um
    rxlt7 <= (reducedX < 25'b1001011011001000000000000) ? 1'b1 : 1'b0; //7.72 um
    TELR2 <= TELR1;
    noror1 <= noro;
    finalindex <= {indexX[3:0], indexY[5:0]};

    //rYm642
    //ZmB2
    TELR3 <= TELR2;
    noror2 <= (~noror1) & ats & rxlt7;
    finalindexR1 <= finalindex;

    SoS <= rYm642[33:0] + ZmB2[33:0];  //we know they're both positive
    TELR4 <= TELR3;
    noror3 <= noror2;
    finalindexR2 <= finalindexR1;

    dosewe <= ((SoS[34:0] <= 35'b00010011100010000000000000000000000) ? 1 : 0) & noror3;
    TELR5 <= TELR4;
    doseaddr <= finalindexR2;

    noadd <= 0;
```

```
deldat2 <= deldat1;
delnoin2 <= delnoin;
subdata2 <= subdata;
noadd2 <= noadd;


case ({noadd2, subdata2, empty})
   3'b000 : begin
      deldat3 <= deldat2;
      sourcecounter <= sourcecounter;
      delnoin3 <= 1'b0;
   end
   3'b001 : begin
      deldat3 <= deldat2;
      sourcecounter <= sourcecounter;
      delnoin3 <= 1'b0;
   end
   3'b010 : begin
      deldat3 <= dataout;
      sourcecounter <= sourcecounter;
      delnoin3 <= 1'b0;
   end
   3'b011 : begin
      deldat3 <= deldat2;
      sourcecounter <= sourcecounter + 1;
      delnoin3 <= 1'b0;
   end
   3'b100 : begin
      deldat3 <= deldat2;
      sourcecounter <= sourcecounter;
      delnoin3 <= 1'b0;
   end
```

```
                3'b101 : begin
                    deldat3 <= deldat2;
                    sourcecounter <= sourcecounter;
                    delnoin3 <= 1'b0;
                end
                3'b110 : begin
                    deldat3 <= dataout;
                    sourcecounter <= sourcecounter;
                    delnoin3 <= 1'b0;
                end
                3'b111 : begin
                    deldat3 <= deldat2;
                    sourcecounter <= sourcecounter;
                    delnoin3 <= 1'b1;
                end
            endcase

        end
        else
            noadd <= 1;
            com <= 1;
            doseaddr <= getaddress;
    end
  end
end



endmodule
```

```
//////////////////////////////////////////////////////
//
//   Particle Stack Module
//
//   Stores particles in a "stack" manner for control module
//
//
//   adddata = 1/0 (new data to add to the stack?)
//   subdata = 1/0 (get the top element from the stack?)
//       ^-- BOTH CANNOT BE 1
//   datain = data to add if adding
//   dataout = data off the top (ready 1 clk cycle after subdata)
//   empty = 1/0 (Is the stack empty?)
//
//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//////////////////////////////////////////////////////



module particlestack(adddata, subdata, datain, dataout, empty, clk, reset);
    input clk, adddata, subdata, reset;
    input [208:0] datain;
    output empty;
    output [208:0] dataout;


    reg [8:0] cv;
    reg ramempty;
```

```
wire [208:0] memdouta, memdoutb;
wire [8:0] cvp1;

assign dataout = memdoutb;
assign empty = ramempty;
assign cvp1 = cv + 1;

stackramdp strmdp(cvp1, cv, clk, clk, datain, 209'bx, memdouta, memdoutb, adddata, 1'b0);


always @(posedge clk)
begin
  // $display("cv = %d, topval = %d, memdataout = %d", cv, topval, memdataout);
   if(reset == 0)
   begin
     //  adddata and subdata can never both == 1
     if(adddata == 1)
     begin
        if(ramempty == 1)
          ramempty <= 0;

        cv <= cv + 1;
     end
     if(subdata == 1)
     begin

        if(cv != 0)
          cv <= cv - 1;


        if(cv == 0)
          ramempty <= 1;
     end
```

```
      end
      if(reset == 1)
        begin
        cv <= 0;
        rameempty <= 1;
        end
    end
endmodule
```

```
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file stackramdp.v when simulating
```

```
// the core, stackramdp. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module stackramdp (
        addra,
        addrb,
        clka,
        clkb,
        dina,
        dinb,
        douta,
        doutb,
        wea,
        web);

input [8 : 0] addra;
input [8 : 0] addrb;
input clka;
input clkb;
input [208 : 0] dina;
input [208 : 0] dinb;
output [208 : 0] douta;
output [208 : 0] doutb;
input wea;
input web;

// synopsys translate_off



        BLKMEMDP_V6_1 #(
```

```
9,          // c_addra_width
9,          // c_addrb_width
"0",        // c_default_data
512,        // c_depth_a
512,        // c_depth_b
0,          // c_enable_rlocs
1,          // c_has_default_data
1,          // c_has_dina
1,          // c_has_dinb
1,          // c_has_douta
1,          // c_has_doutb
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
1,          // c_has_wea
1,          // c_has_web
18,         // c_limit_data_pitch
"mif_file_16_1",    // c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
209,        // c_width_a
```

```
		209,	// c_width_b
		0,	// c_write_modea
		0,	// c_write_modeb
		"0",	// c_ybottom_addr
		1,	// c_yclka_is_rising
		1,	// c_yclkb_is_rising
		1,	// c_yena_is_high
		1,	// c_yenb_is_high
		"hierarchy1",	// c_yhierarchy
		0,	// c_ymake_bmm
		"16kx1", // c_yprimitive_type
		1,	// c_ysinita_is_high
		1,	// c_ysinitb_is_high
		"1024",	// c_ytop_addr
		0,	// c_yuse_single_primitive
		1,	// c_ywea_is_high
		1,	// c_yweb_is_high
		1)	// c_yydisable_warnings
inst (
		.ADDRA(addra),
		.ADDRB(addrb),
		.CLKA(clka),
		.CLKB(clkb),
		.DINA(dina),
		.DINB(dinb),
		.DOUTA(douta),
		.DOUTB(doutb),
		.WEA(wea),
		.WEB(web),
		.ENA(),
		.ENB(),
		.NDA(),
		.NDB(),
```

```
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB());

// synopsys translate_on

endmodule
```

```
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file doseram.v when simulating
```

```
// the core, doseram. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module doseram (
        addr,
        clk,
        din,
        dout,
        we);

input [9 : 0] addr;
input clk;
input [49 : 0] din;
output [49 : 0] dout;
input we;

// synopsys translate_off

        BLKMEMSP_V6_1 #(
                10,     // c_addr_width
                "0",    // c_default_data
                1024,   // c_depth
                0,      // c_enable_rlocs
                1,      // c_has_default_data
                1,      // c_has_din
                0,      // c_has_en
                0,      // c_has_limit_data_pitch
                0,      // c_has_nd
                0,      // c_has_rdy
                0,      // c_has_rfd
                0,      // c_has_sinit
                1,      // c_has_we
```

```
                18,         // c_limit_data_pitch
                "mif_file_16_1",    // c_mem_init_file
                0,          // c_pipe_stages
                0,          // c_reg_inputs
                "0",        // c_sinit_value
                50,         // c_width
                1,          // c_write_mode
                "0",        // c_ybottom_addr
                1,          // c_yclk_is_rising
                1,          // c_yen_is_high
                "hierarchy1",       // c_yhierarchy
                0,          // c_ymake_bmm
                "16kx1", // c_yprimitive_type
                1,          // c_ysinit_is_high
                "1024",   // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywe_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDR(addr),
                .CLK(clk),
                .DIN(din),
                .DOUT(dout),
                .WE(we),
                .EN(),
                .ND(),
                .RFD(),
                .RDY(),
                .SINIT());

// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////
//
//   Control Module for Endosteal Bone Surface
//   cells.
//
//   Cell nucleus shape, size and distance from min.
//    bone is as defined by the following article:
//
//   E. L. Lloyd and C. B. Henning, Cells at risk for
//     the production of bone tumors in radium exposed
//     individuals: an electron microscope study.
//     Health Physics 44 supp. 148 (1983)
//
//   Cell material composition is taken to be adult red
//   bone marrow.  Both Min. Bone compositions and RBM
//   compositions are as described in ICRU 37 (Stopping
//   powers for Electrons and Positrons)
//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//////////////////////////////////////////////////


// Spatial units have been defined in the matlab cross-section
//  generation script to be 0.1 nm
//
//  our 30 bit coordinate system will be:
//  XXXXXXXXXXXXXXXXXXXXX.XXXXXXXX
//  This will cover the maximum penetration depth
//  of a 300 KeV electron.  The least significant
//  8 bits will contain fractional values of 0.1 nm
```

```
`define BARRIER 30'b10000000000000000000000000000  //209.7152 um


module control(no_input, material, energy, X, Y, Z, U, V, W, mu, phi, rejected,
               materialp_out, energyprime_out, Xp_out, Yp_out, Zp_out,
                 Up_out, Vp_out, Wp_out, mup_out, rejected_out,
                       energysec_out, musec_out, TotalEnergyLost, no_output, clk, fclk, reset);

   input material;         // what material does the particle start in?
   input [22:0] energy;    // in eV
   input [17:0] U, V, W;   // signed 2's comp
   input [17:0] mu;        // signed 2's comp
   input [29:0] X, Y, Z;   // unsigned value
   input [21:0] phi;       // range = 0->1 (2*pi == 1)
   input rejected;
   input no_input;         // delay this signal to the output.
   input reset;


   input clk, fclk;

   output [22:0] energyprime_out, energysec_out;   // in eV
   output [17:0] Up_out, Vp_out, Wp_out;   // signed 2's comp
   output [17:0] mup_out, musec_out;
   output [29:0] Xp_out, Yp_out, Zp_out;   // unsigned value
   output [19:0] TotalEnergyLost;
   output materialp_out;
   output rejected_out;
   output no_output;



   wire [1:0] interaction_type;
```

```
wire [2:0] interaction_atom;
wire [23:0] total_cross;
wire [11:0] avelost, avelostd1, avelostd2;

wire [16:0] invout, invWabs;
wire [4:0] invoutsh, invWabss;

wire null1, null2;
wire [6:0] null7;

wire [16:0] dist2n, redBmZ;
wire [17:0] Zsout;

// elast ////////
wire [16:0] gamma, delta, astar;
wire [5:0] gshift, dshift, ashift;
wire [22:0] energyd, energyd2, energyd3, energyd4;
wire [17:0] elscatmu, elscatmud1;
//////////////////

wire [17:0] Xd3p, Xd4p;
wire [16:0] nMFP, ifsksave, ifsksaveD;
wire [2:0] nMFPs;
wire [17:0] Ud, Vd, Wd, Ud2, Vd2, Wd2, Ud3, Vd3, Wd3, Ucoord, Vcoord, Wcoord;
wire [17:0] Up, Vp, Wp;
wire [17:0] psU, psV, psW;
wire [38:0] psUdp, psVdp, psWdp;
wire [29:0] Xd, Yd, Zd, nXd, nYd, nZd, Xd2, Yd2, Zd2, Xd3, Yd3, Zd3,
     nXd2, nYd2, nZd2, Xpo, Ypo, Zpo;
wire materiald;
wire [32:0] SEZsout;
wire [4:0] redBmZs, ifsksaveSD;
wire [1:0] interaction_typed1, interaction_typed2, inttypemidd1, inttypemidd2, interaction_typed3;
```

```
wire rejsrd3, ZltBd3, matd2, matd3, matd4;

// E-I-I events ///
wire [15:0] BE, BEd1;
wire [19:0] Elostpo;
wire TgreaterW; // is T greater than W?
wire [22:0] Wout, Tout, Wpo, Tpo;   // respective energies of primary & secondary electrons
wire rejectme, rejectmed1, ZltBd1, ZltBd2, actrej;
wire [17:0] primary_mu, secondary_mu;
//////////////////
wire [9:0] elindex, elindexd;
wire no_inputd1, no_inputd2, no_inputd3, no_inputd4;

////////////////////////////////
//  Random Numbers
wire [16:0] RAND1, RAND2;
wire [23:0] RAND3;
wire [15:0] RAND4;
wire [16:0] SIG2, SIG3;
wire SIG1;
wire [21:0] RANDEL1, RANDEL2;
////////////////////////////////

reg [17:0] Xd4pr1, Xd4pr2;
reg [15:0] BEr1, BEd2, BEd3;
reg [19:0] totalElost, totalElostr1, totalElostr2;
reg [16:0] Wmag, redBmZr1, redBmZr2;
reg [30:0] BmZ;
reg [4:0] shiftD, shiftDr1, redBmZsr1, redBmZsr2;
reg [4:0] shiftDr2, shiftDr3, shiftDr4, shiftDr5, shiftDr6, shiftDr7;
reg [5:0] ifsksaveS;
reg [4:0] ifsksaveSr1;
reg [16:0] ifsksaver1;
```

```
reg [16:0] dist2nr1, dist2nr2, dist2nr3, dist2nr4, dist2nr5, dist2nr6;
reg [4:0] cnt1, cnt2, cnt3, cnt4, cnt5, cnt6, cnt7, cnt8, cnt9;
reg [32:0] shiftedZsout;
reg [29:0] ZsoutpZ, absBmZ;
reg [38:0] psUd, psVd, psWd;
reg [17:0] Udr1, Udr2, Udr3, Udr4, Udr5, elscatmud1r1, elscatmud1r2, elscatmud1r3;
reg [17:0] Vdr1, Vdr2, Vdr3, Vdr4, Vdr5;
reg [17:0] Wdr1, Wdr2, Wdr3, Wdr4, Wdr5;
reg [22:0] energyd2r1;
reg [6:0] atomcode;
reg [29:0] Xdr1, Xdr2, Xdr3, Xdr4, Xdr5, nXf;
reg [29:0] Ydr1, Ydr2, Ydr3, Ydr4, Ydr5, nYf;
reg [29:0] Zdr1, Zdr2, Zdr3, Zdr4, Zdr5, Zdr6, Zdr7, nZf;
reg [30:0] nX, nY, nZ;
reg [17:0] Ur1, Ur2, Ur3, Vr1, Vr2, Vr3, Wr1, Wr2, Wr3, mur1, mur2, mur3;
reg [17:0] PrimMUpo, SecMUpo;
reg ZltB, ZltBr1, ZltBr2, ZltBr3;
reg matdr1, matdr2, matdr3, matdr4;
reg [22:0] Wprime, Tprime, Wpreout, Tpreout, Wpreoutr1, Wpreoutr2, Tpreoutr1, Tpreoutr2;
reg [22:0] energyd4r1, energyd4r2, energyd4r3;
reg [9:0] elindexr1, elindexr2, elindexr3;
reg rejectmed1r1, rejectmed1r2, rejectmed1r3, rejsr1, rejsr2, rejsr3, rejectmed1r4,
     rejsr4, rejsr5, rejsr6;
reg [1:0] inttpr1, inttpr2, inttpr3;
reg rejsrd3r1, ZltBd3r1, rejsrd3r2, ZltBd3r2, rejsrd3r3, ZltBd3r3, rejector,
    matd4r1, matd4r2, matd4r3, matd4r4, matd4r5, matpo;
reg [21:0] phir1;
reg no_inputd5;
```

```
onemt2 MT_SEED2(clk, Fclk, reset, {RAND1[14:0],RAND2});  //MT Random number generator seeded
```

```
                                        //with skip-ahead seed 2

onemt3 MT_SEED3(clk, Fclk, reset, {RAND4[5:0],RAND3,RAND1[16:15]});  //MT Random number generator seeded
                                            //with skip-ahead seed 3

onemt4 MT_SEED4(clk, Fclk, reset, {RANDEL1, RAND4[15:6]});  //MT Random number generator seeded
                                             //with skip-ahead seed 4

onemt5 MT_SEED5(clk, Fclk, reset, {SIG2[14:0],SIG3});  //MT Random number generator seeded
                                            //with skip-ahead seed 5

onemt6 MT_SEED6(clk, Fclk, reset, {null7,RANDEL2,SIG1,SIG2[16:15]});  //MT Random number generator seeded
                                            //with skip-ahead seed 6


// Perform the cashwell & everett transformation for a given
// mu / phi (input) and UVW (input).  Performed first from
// scattering values carried over from a previous interaction.
// This eliminates the need to perform two of these in a given
// interaction if the interaction type is ionization
cashwell c1(Ur3, Vr3, Wr3, mur3, phir1, Up, Vp, Wp, clk);

// Return the total cross section, interaction type (elastic scatter,
//  ionization or excitation) and determine the atom with which this
//  interaction ocurred in a given material.
getcross gc(energy[22:4], rejected, clk, material, RAND1, RAND2,
     interaction_type, interaction_atom, total_cross, elindex);

////////////////////////////////////////////////////////////////////////
// Modules for electron-impact-ionization

// Determines the binding energy of a subshell of interaction
//  using the methods described in the dissertation
```

```
choose cho(energyd2r1[22:4], atomcode, RAND4, clk, BE);

//  Samples the MOTT differential electron
//  impact ionization cross section
//  Algorithm uses three uniformly distributed pseudo random numbers
//  sig1, sig2, sig3, where sig1 is a 1 bit random number
//
//  START
//  if(sig1 == 1)
//    W = (-1 / ((inv(B) - inv(T)) * sig2 - inv(B))) - B
//  else
//    W = T - (1 / ((inv(B) - inv(T) * sig2 + inv(T))))
//  end
//
//  xp = (1 / ((W + B) ^ 2)) + (1 / ((T - W) ^ 2))
//  xm = 1 / ((W+B)*(T-W))
//
//  if((sig3 * xp) <= (xp - xm))
//    return W
//  else
//    goto START
//  end
//  This algorithm uses a partial rejection method, but its rejection
//  efficiency is high.  For most situations where the incident electron
//  energy is significantly greater than the electron binding energy, the efficiency
//  is near to 100%.  The worst-case efficiency as T approaches B is 50%.
mott   mot1(SIG1, SIG2, SIG3, energyd3, {3'b0, BEr1}, clk, Wout, Tout, rejectme);
assign TgreaterW = (Tout >= Wout) ? 1 : 0;


//  Determines the emission angles (mu values)
//   of the primary and secondary electrons following an
//   electron impact ionization event.
```

```
//   This function uses formulae which are based on:
//   M. J. Berger, 2nd symp. on Microdosimetry (1969) p. 541
mott_angles ma1(Wprime[22:4], Tprime[22:4], clk, energyd4r2[22:4], primary_mu, secondary_mu);
////////////////////////////////////////////////////////////////////

// determine the average energy lost in an excitation
getEloss  gele(interaction_atom, elindexr3, clk, avelost);

////////////////////////////////////////////////////////////////////
// Modules for elastic scattering
// The first module determines the elastic scattering coefficients
//  given an elastic scatter even with a particular atom.
//  The second module determines the polar angle of collision.
//
//  The coefficients and methods are as published in the paper
//  by A.S. Pasciak and J.R. Ford in the paper titled
//  "An Accurate Approximation for the Highly Efficient Sampling
//  of Polar Scattering Angle of Electron Elastic
//  Single-Scattering Events"  Published in SCANNING, vol 28(6)
//  pp. 333-341 (2006)
Elookup el1(energyd2[22:4], interaction_atom, clk, gamma, gshift, delta, dshift, astar, ashift, pm1);
elast   el(gamma, gshift, delta, dshift, astar, ashift, pm1, RANDEL1, RANDEL2, clk, elscatmu);
////////////////////////////////////////////////////////////////////

// HDL-GEN: reduce2('reduce30to17.v', 'reduce30to17', 30, 17, 1);

reduce30to17 red30i(absBmZ, redBmZ, redBmZs, clk);


control_invert si(total_cross, clk, invout, invoutsh);
control_invert s2({Wmag, 7'b0}, clk, invWabs, invWabss);

// Find the number of mean-free-paths until the next collision
```

```
MFP mp(RAND3, nMFP, nMFPs, clk);  // no need to ever pipe this


mul18to18 m1({1'b0, nMFP}, {1'b0, invout}, {null1, dist2n}, clk),
        m2(Wd,{1'b0, dist2nr1}, Zsout, clk),
        m3({1'b0, redBmZr2}, {1'b0, invWabs}, {null2, ifsksave}, clk),
        m4({1'b0, dist2nr6}, Udr5, psU, clk),
        m5({1'b0, dist2nr6}, Vdr5, psV, clk),
        m6({1'b0, dist2nr6}, Wdr5, psW, clk);

// we need to use some blockram to carry data through the calculations
//  this should preserve a lot of slice flip-flops
//  single-port blockram, read-before-write, 72 wide, 32 deep

delay_72_32  d72_32_1(cnt1, clk, {inttypemidd1, Up,Vp,Wp}, {inttypemidd2, Ud,Vd,Wd}, 1'b1),   //57
          d72_32_3(cnt3, clk, {no_inputd1, no_inputd2, ZltBr2, interaction_type, material, Z},  //34
                {no_inputd2, no_inputd3, ZltBd1, interaction_typed1, materiald, Zd}, 1'b1),
          d72_32_4(cnt4, clk, {elscatmu, interaction_type, rejectme, ZltBd1, ifsksaver1, ifsksaveSr1}, //44
                {elscatmud1, inttypemidd1, rejectmed1, ZltBd2, ifsksaveD, ifsksaveSD}, 1'b1),
          d72_32_5(cnt5, clk, {no_inputd3, matd3, rejectmed1r2, Xd2[29:12], ZltBd2, interaction_typed2},
                {no_inputd4, matd4, actrej, Xd3p, ZltBd3, interaction_typed3}, 1'b1),
          d72_32_t(cnt5, clk, {avelost, energyd2, energyd}, {avelostd1, energyd3, energyd2}, 1'b1),
          d72_32_a(cnt6, clk, {Xd3p, totalElostr2}, {Xd4p, Elostpo}, 1'b1), //54
          d72_32_q(cnt6, clk, {Wpreoutr2, Tpreoutr2}, {Wpo, Tpo}, 1'b1),
          d72_32_b(cnt7, clk, {Xd2[11:0], Yd2, Zd2}, {Xd3[11:0], Yd3, Zd3}, 1'b1),
          d72_32_c(cnt8, clk, {nXd[11:0], nYd, nZd}, {nXd2[11:0], nYd2, nZd2}, 1'b1),
          d72_32_d(cnt8, clk, {matd2, nXd[29:12]}, {matd3, nXd2[29:12]}, 1'b1),

          d72_32_h(cnt9, clk, {nXf[11:0], nYf, nZf}, {Xpo[11:0], Ypo, Zpo}, 1'b1),
          d72_32_g(cnt9, clk, {nXf[29:12], Ud3, Vd3, Wd3}, {Xpo[29:12], Ucoord, Vcoord, Wcoord}, 1'b1),
          d72_32_e(cnt2, clk, {no_input, matdr4, Ud, Vd, Wd}, {no_inputd1, matd2, Ud2, Vd2, Wd2}, 1'b1),
          d72_32_f(cnt3, clk, {Ud2, Vd2, Wd2}, {Ud3, Vd3, Wd3}, 1'b1),
          d72_32_2(cnt2, clk, {avelostd1, X, Y}, {avelostd2, Xd, Yd}, 1'b1), //68
```

```
        d72_32_6(cnt2, clk, {elindex, nY[29:0], nZ[29:0]}, {elindexd, nYd, nZd}, 1'b1), //70
        d72_32_7(cnt2, clk, {interaction_typed1, nX[29:0]}, {interaction_typed2, nXd}, 1'b1),
        d72_32_m(cnt2, clk, {energyd3, energy}, {energyd4, energyd}, 1'b1),
        d72_32_8(cnt2, clk, {Xd[29:12], BEr1}, {Xd2[29:12], BEd1}, 1'b1), //34
        d72_32_9(cnt2, clk, {Xd[11:0], Yd, Zdr2}, {Xd2[11:0], Yd2, Zd2}, 1'b1); //FULL


assign Xd3[29:12] = Xd4pr2;

////////////////////////////////////
//      DECIMAL INFORMATION       //
////////////////////////////////////
//
// total_cross = .XXXXXXXXXXXXXXXXXXXXXXXX
// invout = X.XXXXXXXXXXXXXXXX (decimal moves >> invoutsh)
// nMFP = .XXXXXXXXXXXXXXXXX (decimal moves >> nMFPs)
// dist2n = X.XXXXXXXXXXXXXXXX (decimal moves >> shiftD)
// Zsout = SX.XXXXXXXXXXXXXXX (decimal moves >> shiftDr1, S is a sign bit)
// shiftedZout = SXXXXXXXXXXXXXXXX.XXXXXXXXXXXXXXXX ...  but we dont use the lower 8 bits
// ifsksave = X.XXXXXXXXXXXXXXX (decimal moves >> ifsksaveS)

assign SEZsout = {{15{Zsout[17]}},Zsout};

assign psUdp = {{21{psU[17]}},psU};
assign psVdp = {{21{psV[17]}},psV};
assign psWdp = {{21{psW[17]}},psW};


assign energyprime_out = Tpo;
assign energysec_out = Wpo;
assign Up_out = Ucoord;
assign Vp_out = Vcoord;
assign Wp_out = Wcoord;   // signed 2's comp
```

```
assign mup_out = PrimMUpo;
assign musec_out = SecMUpo;
assign Xp_out = Xpo;
assign Yp_out = Ypo;
assign Zp_out = Zpo;  // unsigned value
assign TotalEnergyLost = Elostpo;
assign materialp_out = matpo;
assign rejected_out = rejector;
assign no_output = no_inputd5;



always @(posedge clk)
begin
  if(reset == 1)
    begin
     cnt1 <= 0;
     cnt2 <= 0;
     cnt3 <= 0;
     cnt4 <= 0;
     cnt5 <= 0;
     cnt6 <= 0;
     cnt7 <= 0;
     cnt8 <= 0;
     cnt9 <= 0;
    end
  else
   begin

   ////////////////////////////////////////////////////////////////////
   ///  VALUES THAT ARE ALL READY TO OUTPUT (but not necessarily synced)
   ////////////////////////////////////////////////////////////////////
```

```
case ({rejsr2, ZltBd3r3, inttpr3})
   4'b0000: PrimMUpo <= elscatmud1r3;  //elastic scatter
   4'b0001: PrimMUpo <= primary_mu;      //ionization
   4'b0010: PrimMUpo <= 18'b011111111111111111; //excitation
   default: PrimMUpo <= 18'b011111111111111111;
endcase

SecMUpo <= secondary_mu;  //this wont be used unless we have an ionization
                  //so it doesn't matter that it has a value during other events

case ({rejectmed1r1, ZltBd2, interaction_typed2})
   // sucessful interaction
   4'b0000: begin
         Tpreout <= energyd4r2;  //elastic scatter
         Wpreout <= 0;
         totalElost <= 0;
         end
   4'b0001: begin
         Tpreout <= Tprime;      //ionization
         Wpreout <= Wprime;
         totalElost <= {BEd3,4'b0};
         end
   4'b0010: begin
         Tpreout <= energyd4r2 - avelostd2;  //excitation
         Wpreout <= 0;
         totalElost <= avelostd2;
         end

   default: begin
         Tpreout <= energyd4r2;
         Wpreout <= 0;
         totalElost <= 0;
         end
```

```
endcase
Xd4pr1 <= Xd4p;
Xd4pr2 <= Xd4pr1;

totalElostr1 <= (Wpreout <= {19'd50,4'b0}) ? totalElost + Wpreout : totalElost;
totalElostr2 <= (Tpreoutr1 <= {19'd50,4'b0}) ? totalElostr1 + Tpreoutr1 : totalElostr1;
Wpreoutr1 <= (Wpreout <= {19'd50,4'b0}) ? 0 : Wpreout;
Wpreoutr2 <= Wpreoutr1;
Tpreoutr1 <= Tpreout;
Tpreoutr2 <= (Tpreoutr1 <= {19'd50,4'b0}) ? 0 : Tpreoutr1;


rejsr6 <= rejsr5;
nXf <= (rejectmed1r2 == 1) ? Xd3 : nXd2;      //FINAL VALUES READY
nYf <= (rejectmed1r2 == 1) ? Yd3 : nYd2;      //FINAL VALUES READY
nZf <= (rejectmed1r2 == 1) ? Zd3 : nZd2;      //FINAL VALUES READY
//////////////////////////////////////////////////////////////////

matd4r1 <= matd4;
matd4r2 <= matd4r1;
matd4r3 <= matd4r2;
matd4r4 <= matd4r3;
matd4r5 <= matd4r4;
matpo <= matd4r5;

no_inputd5 <= no_inputd4;

inttpr1 <= interaction_typed3;
inttpr2 <= inttpr1; inttpr3 <= inttpr2;
ZltBd3r1 <= ZltBd3;
ZltBd3r2 <= ZltBd3r1;
ZltBd3r3 <= ZltBd3r2;
rejector <= rejsr2;
```

```
elscatmud1r1 <= elscatmud1; elscatmud1r2 <= elscatmud1r1; elscatmud1r3 <= elscatmud1r2;

elindexr1 <= elindexd; elindexr2 <= elindexr1; elindexr3 <= elindexr2;
BEd2 <= BEd1; BEd3 <= BEd2;

rejectmed1r1 <= rejectme;
rejectmed1r2 <= (interaction_typed2 == 2'b01) ? rejectmed1r1 : 1'b0;
rejsr1 <= actrej; rejsr2 <= rejsr1;


Ur1 <= U;       Ur2 <= Ur1;       Ur3 <= Ur2;
Vr1 <= V;       Vr2 <= Vr1;       Vr3 <= Vr2;
Wr1 <= W;       Wr2 <= Wr1;       Wr3 <= Wr2;
mur1 <= mu;     mur2 <= mur1;     mur3 <= mur2;

energyd2r1 <= energyd2;
BEr1 <= BE;

Tprime <= (TgreaterW == 1) ? Tout : Wout;
Wprime <= (TgreaterW == 1) ? Wout : Tout;

energyd4r1 <= energyd4;
energyd4r2 <= energyd4r1;

phir1 <= phi;

case (interaction_atom)
   3'b000: atomcode <= 7'd1;
   3'b001: atomcode <= 7'd6;
   3'b010: atomcode <= 7'd7;
   3'b011: atomcode <= 7'd8;
   3'b100: atomcode <= 7'd15;
```

```
    3'b101: atomcode <= 7'd20;
    3'b110: atomcode <= 7'd19;
    3'b111: atomcode <= 7'd26;
endcase


psUd <= psUdp << shiftDr7;
psVd <= psVdp << shiftDr7;
psWd <= psWdp << shiftDr7;

nX <= {1'b0, Xdr4} + psUd[38:8];  // shave the top bit
nY <= {1'b0, Ydr4} + psVd[38:8];
nZ <= (ZltBr3 == 1) ? `BARRIER : {1'b0, Zdr6} + psWd[38:8];

dist2nr1 <= dist2n;
dist2nr2 <= dist2nr1;
dist2nr3 <= dist2nr2;
dist2nr4 <= dist2nr3;
dist2nr5 <= dist2nr4;
dist2nr6 <= (ZltB == 1) ? ifsksaveD : dist2nr5;


Wmag <= (W[17] == 1) ? ~W + 1 : W[16:0];
matdr1 <= materiald;
matdr2 <= matdr1;
matdr3 <= matdr2;
matdr4 <= (ZltB == 1) ? ~matdr3 : matdr3;
BmZ <= `BARRIER - Z;
absBmZ <= (BmZ[30] == 1) ? ~BmZ + 1 : BmZ[29:0];
redBmZr1 <= redBmZ;
redBmZr2 <= redBmZr1;
redBmZsr1 <= redBmZs;
redBmZsr2 <= redBmZsr1;
```

```
ifsksaveS <= 22 + invWabss - redBmZsr2;

ifsksaver1 <= (ifsksaveS[5] == 1) ? 0 : ifsksave;
ifsksaveSr1 <= (ifsksaveS[5] == 1) ? 0 : ifsksaveS[4:0];

shiftD <= nMFPs + invoutsh;
shiftDr1 <= shiftD;
shiftDr2 <= shiftDr1;
shiftDr3 <= shiftDr2;
shiftDr4 <= shiftDr3;
shiftDr5 <= shiftDr4;
shiftDr6 <= (ZltB == 1) ? ifsksaveSD : shiftDr5;
shiftDr7 <= shiftDr6;

shiftedZsout <= SEZsout << shiftDr2[3:0];
ZsoutpZ <= {{5{shiftedZsout[32]}}, shiftedZsout[32:8]} + Zdr1;

ZltB <= (ZsoutpZ < `BARRIER) ? ((matdr2 == 1) ? 1'b1 : 1'b0) :
     ((matdr2 == 1) ? 1'b0 : 1'b1);  // did we have a barrier crossing?

ZltBr1 <= ZltB; ZltBr2 <= ZltBr1; ZltBr3 <= ZltBr2;

Udr1 <= Ud;  Udr2 <= Udr1;  Udr3 <= Udr2;  Udr4 <= Udr3;  Udr5 <= Udr4;
Vdr1 <= Vd;  Vdr2 <= Vdr1;  Vdr3 <= Vdr2;  Vdr4 <= Vdr3;  Vdr5 <= Vdr4;
Wdr1 <= Wd;  Wdr2 <= Wdr1;  Wdr3 <= Wdr2;  Wdr4 <= Wdr3;  Wdr5 <= Wdr4;

Xdr1 <= Xd; Xdr2 <= Xdr1; Xdr3 <= Xdr2; Xdr4 <= Xdr3; Xdr5 <= Xdr4;
Ydr1 <= Yd; Ydr2 <= Ydr1; Ydr3 <= Ydr2; Ydr4 <= Ydr3; Ydr5 <= Ydr4;
Zdr1 <= Zd; Zdr2 <= Zdr1; Zdr3 <= Zdr2; Zdr4 <= Zdr3; Zdr5 <= Zdr4;
        Zdr6 <= Zdr5; Zdr7 <= Zdr6;

////////////////////////////////////
```

```
//  COUNTERS ////////////////////
if(cnt1 >= 14)
   begin
   cnt1 <= 0;
   end
else
   begin
   cnt1 <= cnt1 + 1;
   end

if(cnt5 >= 10)
   begin
   cnt5 <= 0;
   end
else
   begin
   cnt5 <= cnt5 + 1;
   end

if(cnt6 >= 11)
   begin
   cnt6 <= 0;
   end
else
   begin
   cnt6 <= cnt6 + 1;
   end

if(cnt9 >= 12)
   begin
   cnt9 <= 0;
   end
else
```

```
  begin
  cnt9 <= cnt9 + 1;
  end

cnt2 <= cnt2 + 1;  //simple counter, d= 32

if(cnt3 >= 29)
   begin
   cnt3 <= 0;
   end
else
   begin
   cnt3 <= cnt3 + 1;
   end

if(cnt7 >= 25)
   begin
   cnt7 <= 0;
   end
else
   begin
   cnt7 <= cnt7 + 1;
   end

if(cnt8 >= 20)
   begin
   cnt8 <= 0;
   end
else
   begin
   cnt8 <= cnt8 + 1;
   end
```

```
        if(cnt4 >= 23)
          begin
          cnt4 <= 0;
          end
        else
          begin
          cnt4 <= cnt4 + 1;
          end
       ////////////////////////////
       ////////////////////////////
    end
   end

endmodule
```

```
//////////////////////////////////////////////////////////////
// compute the inversion of a number between 0 and 1
//  perform the computation in duplicate to preserve blockram
// computes equivilancy to ~floating point. shifts are all positive
//////////////////////////////////////////////////////////////

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//


// INPUT: 34 bits, with the decimal at the left (all less than 0)

// OUTPUT:  mantissa = 23 bits AND always 0.XXXXXXX (unless it is 0)
//          shift = positive multiplicative shift

module control_invert(inputnum, clk, outputnum, outputshift);


  input [23:0] inputnum;
  input clk;

  output [16:0] outputnum;
  output [4:0] outputshift;

  wire [23:0] redo1;
  wire [4:0] shed1;
  wire [53:0] sqramout1, sqramout2;
  wire [35:0] C1;
  wire [17:0] B1;
  wire [34:0] mout1;
```

```
reg [12:0] left1;
reg [35:0] C1r;
reg [22:0] preout1;
reg [4:0] shift1r1, shift1r2, shift1r3;


// HDLgen Command:
// reduce2('reduce24to24.v', 'reduce24to24', 24, 24, 1)

reduce24to24   redsq1(inputnum, redo1, shed1, clk);  // delay = 3

// HDLgen Command:
// makecoe('controlinvram.coe', @(x)((1 ./ ((x + 1)./2))), 10, 17, 1, 36, 0, 1, 0)
// ShiftB = 26,  ShiftC = 34
// requires a 10x54 bit read only blockram loaded with this COE (NO INPUT STAGE!)


controlinvram sqram1 (redo1[22:13], redo1[22:13], clk, clk, sqramout1, sqramout2);

assign C1 = sqramout1[35:0];
assign B1 = sqramout1[53:36];

mult17b18os mmm1 (clk, {left1,4'b0}, B1, mout1);

always @(posedge clk)
  begin
 // delay stage 1
  left1 <= redo1[12:0];
  shift1r1 <= shed1;
  // delay stage 2
  C1r <= C1;
  shift1r2 <= shift1r1;
```

```
    // delay stage 3
    preout1 <= C1r[35:13] + {{9{1'b1}}, mout1[34:21]};
    shift1r3 <= shift1r2;
    end


    assign outputnum = preout1[21:5];
    assign outputshift = shift1r3;


endmodule
```

```
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// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file controlinvram.v when simulating
```

```
// the core, controlinvram. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module controlinvram (
        addra,
        addrb,
        clka,
        clkb,
        douta,
        doutb);

input [9 : 0] addra;
input [9 : 0] addrb;
input clka;
input clkb;
output [53 : 0] douta;
output [53 : 0] doutb;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                10,     // c_addra_width
                10,     // c_addrb_width
                "0",    // c_default_data
                1024,   // c_depth_a
                1024,   // c_depth_b
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_dina
                0,      // c_has_dinb
                1,      // c_has_douta
                1,      // c_has_doutb
```

```
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
0,          // c_has_wea
0,          // c_has_web
18,         // c_limit_data_pitch
"controlinvram.mif",          // c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
54,         // c_width_a
54,         // c_width_b
0,          // c_write_modea
0,          // c_write_modeb
"0",        // c_ybottom_addr
1,          // c_yclka_is_rising
1,          // c_yclkb_is_rising
1,          // c_yena_is_high
1,          // c_yenb_is_high
"hierarchy1",       // c_yhierarchy
0,          // c_ymake_bmm
"16kx1", // c_yprimitive_type
```

```
                1,          // c_ysinita_is_high
                1,          // c_ysinitb_is_high
                "1024",     // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywea_is_high
                1,          // c_yweb_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDRA(addra),
                .ADDRB(addrb),
                .CLKA(clka),
                .CLKB(clkb),
                .DOUTA(douta),
                .DOUTB(doutb),
                .DINA(),
                .DINB(),
                .ENA(),
                .ENB(),
                .NDA(),
                .NDB(),
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB(),
                .WEA(),
                .WEB());


// synopsys translate_on

endmodule
```

```
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*****************************************************************************/
// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).
```

```
// You must compile the wrapper file delay_72_32.v when simulating
// the core, delay_72_32. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module delay_72_32 (
        addr,
        clk,
        din,
        dout,
        we);

input [4 : 0] addr;
input clk;
input [71 : 0] din;
output [71 : 0] dout;
input we;

// synopsys translate_off

        BLKMEMSP_V6_1 #(
                5,      // c_addr_width
                "0",    // c_default_data
                32,     // c_depth
                0,      // c_enable_rlocs
                1,      // c_has_default_data
                1,      // c_has_din
                0,      // c_has_en
                0,      // c_has_limit_data_pitch
                0,      // c_has_nd
                0,      // c_has_rdy
                0,      // c_has_rfd
                0,      // c_has_sinit
```

```
                1,          // c_has_we
                18,         // c_limit_data_pitch
                "mif_file_16_1",    // c_mem_init_file
                0,          // c_pipe_stages
                0,          // c_reg_inputs
                "0",        // c_sinit_value
                72,         // c_width
                1,          // c_write_mode
                "0",        // c_ybottom_addr
                1,          // c_yclk_is_rising
                1,          // c_yen_is_high
                "hierarchy1",       // c_yhierarchy
                0,          // c_ymake_bmm
                "16kx1", // c_yprimitive_type
                1,          // c_ysinit_is_high
                "1024",   // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywe_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDR(addr),
                .CLK(clk),
                .DIN(din),
                .DOUT(dout),
                .WE(we),
                .EN(),
                .ND(),
                .RFD(),
                .RDY(),
                .SINIT())
// synopsys translate_on

endmodule
```

MERSENNE TWISTER PSEUDO-RANDOM NUMBER GENERATOR

```
//
//  Computation of the Mersenne Twister
//   Pseudo-Random Number Generator
//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//
// output = 32 bits, updates with every cycle of clk
// Fclk = clock signal with 1/2 the period of  the standard
//  clock used through the rest of the design (clk).
//
// The MT memory core must be altered for each instantiation
//  of this module in order to change the seed.  Precomputed
//  Skip-Ahead seeds have been computed using our
// Xilinx Virtex-II pro FPGA and are listed in Appendix D
//

module onemt (clk, Fclk, reset, yout);
  input Fclk, clk, reset;
  output [31:0] yout;

  wire [31:0] matrix_A;      //Matrix A constant

  wire [9:0] addra, addrb;
  wire [9:0] nextaddra;
  wire [31:0] douta, doutb;
  reg [9:0] counterN, counterM;

  reg [31:0] preval, gval;       //holds previous value

  wire [31:0] mtkk;                        //holds the next MT value
  wire [31:0] mag;                         //mag01[x] = x * MATRIX_A  for x=0,1
```

```
reg counterS;


assign matrix_A = 32'h9908b0df;


assign nextaddra = (counterN == 623) ? 10'b0 : counterN + 1;
assign addra = (counterS == 0) ? nextaddra : counterN;
assign addrb = counterM;

assign mag = {32{douta[0]}} & matrix_A;
assign mtkk = doutb ^ {1'b0, preval[31], douta[30:1]} ^ mag;

tempermt temper1(gval, yout, clk);

mtmemory1 mtmemorynum1 (addra,addrb,Fclk,Fclk,mtkk,dinb,douta,doutb,counterS,1'b0);


 always @(posedge Fclk)
  begin
   if(reset == 1)
     begin
       counterS <= 0;
       counterN <= 0;
       counterM <= 397;
       preval <= 32'h80000000;
     end
   else
     begin
       counterS <= ~counterS;
       if(counterS == 1)
         begin
```

```
          preval <= douta;
          gval <= mtkk;
          if (counterN == 623)
            begin
             counterN <= 0;
            end
          else
            counterN <= counterN + 1;

        if (counterM == 623)
          begin
           counterM <= 0;
          end
        else
          counterM <= counterM + 1;
        end
      end
    end


endmodule
```

```
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mtmemory1.v when simulating
```

```
// the core, mtmemory1. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mtmemory1 (
        addra,
        addrb,
        clka,
        clkb,
        dina,
        dinb,
        douta,
        doutb,
        wea,
        web);

input [9 : 0] addra;
input [9 : 0] addrb;
input clka;
input clkb;
input [31 : 0] dina;
input [31 : 0] dinb;
output [31 : 0] douta;
output [31 : 0] doutb;
input wea;
input web;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                10,     // c_addra_width
                10,     // c_addrb_width
                "0",    // c_default_data
```

```
624,        // c_depth_a
624,        // c_depth_b
0,          // c_enable_rlocs
0,          // c_has_default_data
1,          // c_has_dina
1,          // c_has_dinb
1,          // c_has_douta
1,          // c_has_doutb
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
1,          // c_has_wea
1,          // c_has_web
18,         // c_limit_data_pitch
"mtmemory1.mif",// c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
32,         // c_width_a
32,         // c_width_b
1,          // c_write_modea
1,          // c_write_modeb
```

```
        "0",        // c_ybottom_addr
        1,          // c_yclka_is_rising
        1,          // c_yclkb_is_rising
        1,          // c_yena_is_high
        1,          // c_yenb_is_high
        "hierarchy1",       // c_yhierarchy
        0,          // c_ymake_bmm
        "16kx1", // c_yprimitive_type
        1,          // c_ysinita_is_high
        1,          // c_ysinitb_is_high
        "1024",   // c_ytop_addr
        0,          // c_yuse_single_primitive
        1,          // c_ywea_is_high
        1,          // c_yweb_is_high
        1)          // c_yydisable_warnings
inst (
        .ADDRA(addra),
        .ADDRB(addrb),
        .CLKA(clka),
        .CLKB(clkb),
        .DINA(dina),
        .DINB(dinb),
        .DOUTA(douta),
        .DOUTB(doutb),
        .WEA(wea),
        .WEB(web),
        .ENA(),
        .ENB(),
        .NDA(),
        .NDB(),
        .RFDA(),
        .RFDB(),
        .RDYA(),
```

```
                .RDYB(),
                .SINITA(),
                .SINITB());

// synopsys translate_on

endmodule
```

```
//  Computation of the MT output tempering
//  Following the simple C code below.
//
//    y = mt[mti++];
//    yp ^= TEMPERING_SHIFT_U(y);
//    yp2 ^= TEMPERING_SHIFT_S(yp) & TEMPERING_MASK_B;
//    yp3 ^= TEMPERING_SHIFT_T(yp2) & TEMPERING_MASK_C;
//    yp4 ^= TEMPERING_SHIFT_L(yp3);
//
//    return y;
//
//
//
// Tempering parameters
//#define TEMPERING_MASK_B 0x9d2c5680
//#define TEMPERING_MASK_C 0xefc60000
//#define TEMPERING_SHIFT_U(y)  (y >> 11)
//#define TEMPERING_SHIFT_S(y)  (y << 7)
//#define TEMPERING_SHIFT_T(y)  (y << 15)
//#define TEMPERING_SHIFT_L(y)  (y >> 18)
//
//
//
////////////////////////////////////////////
//    Alexander Pasciak
//    Research Assistant
//    Department of Nuclear Engineering
//    Texas A&M University
////////////////////////////////////////////
//
//
//
```

```
module tempermt (mtin, yout, clk);
  input [31:0] mtin;
  input clk;
  output [31:0] yout;

  wire [31:0] tempering_shift_u, tempering_shift_s,
                        tempering_shift_t, tempering_shift_l,
                        tempering_mask_b, tempering_mask_c;


  wire [31:0] y, yp, yp2, yp3, yp4;
  reg [31:0] py2, py4;

  assign y = mtin;

  assign tempering_shift_u = y >> 11;
  assign tempering_shift_s = yp << 7;
  assign tempering_shift_t = py2 << 15;
  assign tempering_shift_l = yp3 >> 18;

  assign tempering_mask_b = 32'h9d2c5680;
  assign tempering_mask_c = 32'hefc60000;

  assign yp = y ^ tempering_shift_u;
  assign yp2 = yp ^ (tempering_shift_s & tempering_mask_b);
  assign yp3 = py2 ^ (tempering_shift_t & tempering_mask_c);
  assign yp4 = yp3 ^ tempering_shift_l;

  assign yout = py4;

  always @(posedge clk)
```

```
    begin
        py2 <= yp2;
        py4 <= yp4;
 end

endmodule
```

```
Xilinx ISE Device utilization summary:
---------------------------

Selected Device : 2vp100ff1696-6

 Number of Slices:                      78  out of  44096     0%
 Number of Slice Flip Flops:           119  out of  88192     0%
 Number of 4 input LUTs:               135  out of  88192     0%
 Number of bonded IOBs:                 33  out of   1164     2%
 Number of BRAMs:                        2  out of    444     0%
 Number of GCLKs:                        2  out of     16    12%
```

SAMPLING OF THE NUMBER OF MEAN FREE PATHS BETWEEN ELECTRON INTERACTIONS

```
//////////////////////////////////////////////////////
// Function to determine the number of mean free paths
//  until the next interaction.
//  input number which is in the range 0->1 (random number)
//  Optimized in part for the Virtex-II Pro 100 FPGA
//   ----------------------------------------------

// Input, 24 bits unsigned (from PRNG)
// output 17 bits unsigned (MFP) in range 0->1
// output 3 bits exponent = MFP * 2^MFPShift

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//



module MFP(rndnum, MFPs, MFPShift, clk);

        input [23:0] rndnum;
        input clk;

        output [16:0] MFPs;
        output [2:0] MFPShift;


        wire [16:0] usoutnum;
        wire [2:0] posshift;
        wire [17:0] mout;
```

```
        reg [2:0] posshiftr1;

        nlog2lt1 n1(rndnum, usoutnum, posshift, clk);


        // now lets multiply usoutnum by ln(2) so that our overall
        // computation = -ln(rndnum)

        // HDL GEN:  multiply_round('mul18to18.v', 'mul18to18', 2, 18)

  mul18to18 m1818({1'b0,usoutnum}, 18'b010110001011100100, mout, clk);

  always @(posedge clk)
    begin
      posshiftr1 <= posshift;
    end

        assign MFPs = mout[16:0];
        assign MFPShift = posshiftr1;

endmodule
```

```
//////////////////////////////////////////////////
// Function to perform -log base 2 of an unsigned
//  input numer which is in the range 0->1
//  Optimized in part for the Virtex-II Pro 100 FPGA
//   ----------------------------------------------

// Input, 24 bits unsigned
// output 17 bits unsigned (mantissa) in range 0->1
// output 3 bits exponent = mantissa * 2^posshift

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//


module nlog2lt1(usinnum, usoutnum, posshift, clk);

   input [23:0] usinnum;
   input clk;

   output [16:0] usoutnum;
   output [2:0] posshift;


   wire [23:0] redout;
   wire [4:0] shiout;
   wire [34:0] lmemout;

   wire [17:0] mout;
```

```
wire [16:0] t2, t2p1, t2p2, t2p3, t2p4;
wire [2:0] ss1, ss2, ss3, ss4, ss5;
wire [17:0] C;
wire [16:0] B;

reg [12:0] indelay1;
reg [21:0] Cd1;
reg [4:0] shid1;
reg [21:0] preout;
reg [16:0] usout;
reg [2:0] usouts;

assign usoutnum = usout;
assign posshift = usouts;


// pseudo-float usinnum!
// HDL GEN: reduce2('reduce24to24.v', 'reduce24to24', 24, 24, 1);

reduce24to24 red1(usinnum, redout, shiout, clk);

// For log2 lookup table:
// HDL GEN: makecoe('nlog2ram.coe', @(x)(log2(x+1)), 10, 17, 0, 18, 0, 1, 0)
// ShiftB = 26,  ShiftC = 18
//
// requires a 10x35 bit read only single port blockram loaded with this COE
// (No input stage to the blockram)


nlog2ram nlogram1(redout[22:13],clk,        lmemout);

assign C = lmemout[17:0];
assign B = lmemout[34:18];
```

```
  // HDL GEN:  multiply_round('mul18to18.v', 'mul18to18', 2, 18)

  mul18to18 m1818({1'b0,B}, {{1'b0, indelay1},4'b0}, mout, clk);

  assign t2 = (preout[21:17] == 0)   ? preout[16:0] : t2p1;
          assign t2p1 = (preout[21:18] == 0) ? preout[17:1] : t2p2;
          assign t2p2 = (preout[21:19] == 0) ? preout[18:2] : t2p3;
          assign t2p3 = (preout[21:20] == 0) ? preout[19:3] : t2p4;
          assign t2p4 = (preout[21] == 0)    ? preout[20:4] : preout[21:5];


  assign ss1 = (preout[21:17] == 0) ? 0 : ss2;
          assign ss2 = (preout[21:18] == 0) ? 1 : ss3;
          assign ss3 = (preout[21:19] == 0) ? 2 : ss4;
          assign ss4 = (preout[21:20] == 0) ? 3 : ss5;
          assign ss5 = (preout[21] == 0)    ? 4 : 5;


  always @(posedge clk)
    begin

    indelay1 <= redout[12:0];
    Cd1 <= {shid1, 17'b0} - {5'b0,C[17:1]} - {21'b0, C[0]};
    shid1 <= shiout + 1;
    preout <= Cd1 - {14'b0, mout[16:9]} - {21'b0, mout[8]};

    usout <= t2;
    usouts <= ss1;

    end

endmodule
```

```
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// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file nlog2ram.v when simulating
```

```
// the core, nlog2ram. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module nlog2ram (
        addr,
        clk,
        dout);

input [9 : 0] addr;
input clk;
output [34 : 0] dout;

// synopsys translate_off

        BLKMEMSP_V6_1 #(
                10,     // c_addr_width
                "0",    // c_default_data
                1024,   // c_depth
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_din
                0,      // c_has_en
                0,      // c_has_limit_data_pitch
                0,      // c_has_nd
                0,      // c_has_rdy
                0,      // c_has_rfd
                0,      // c_has_sinit
                0,      // c_has_we
                18,     // c_limit_data_pitch
                "nlog2ram.mif",    // c_mem_init_file
                0,      // c_pipe_stages
                0,      // c_reg_inputs
```

```
                "0",        // c_sinit_value
                35,         // c_width
                0,          // c_write_mode
                "0",        // c_ybottom_addr
                1,          // c_yclk_is_rising
                1,          // c_yen_is_high
                "hierarchy1",       // c_yhierarchy
                0,          // c_ymake_bmm
                "16kx1", // c_yprimitive_type
                1,          // c_ysinit_is_high
                "1024",   // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywe_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDR(addr),
                .CLK(clk),
                .DOUT(dout),
                .DIN(),
                .EN(),
                .ND(),
                .RFD(),
                .RDY(),
                .SINIT(),
                .WE());


// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 26-Jul-2006
//////////////////////////////////////////////////////
// multiply two numbers with rounding
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module mul18to18(Ain, Bin, outputn, clk);

        input [17:0] Ain, Bin;

        output [17:0] outputn;
        input clk;

        wire [35:0] mulout;

        reg [17:0] outputregister;

        // reqires a 18 by 18 un-clocked signed multiplier with the following designation
        mul18b18 mul1(Ain, Bin, mulout);

        always @(posedge clk)
                begin
                outputregister <= mulout[34:17] + mulout[16];
                end
```

```
        assign outputn = outputregister;

endmodule
```

```
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// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mul18b18.v when simulating
```

```
// the core, mul18b18. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mul18b18 (
        a,
        b,
        o);

input [17 : 0] a;
input [17 : 0] b;
output [35 : 0] o;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,      // bram_addr_width
                0,      // c_a_type
                18,     // c_a_width
                18,     // c_baat
                0,      // c_b_constant
                0,      // c_b_type
                "0000000000000001",     // c_b_value
                18,     // c_b_width
                1,      // c_enable_rlocs
                0,      // c_has_aclr
                0,      // c_has_a_signed
                1,      // c_has_b
                0,      // c_has_ce
                0,      // c_has_loadb
                0,      // c_has_load_done
                0,      // c_has_nd
                1,      // c_has_o
```

```
		0,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		36,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.A(a),
		.B(b),
		.O(o),
		.CLK(),
		.Q(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
		.RFD(),
		.ND(),
```

```
                .RDY());

// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 07-Aug-2006
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module reduce24to24(inputbits, outputbits, shiftbits, clk);

        input [23:0] inputbits;
        input clk;

        output [23:0] outputbits;
        output [4:0] shiftbits;

        wire and1, and2, and3, and4, and5;

        wire [26:0] ta1, ta2, ta3, ta4, ta5;

        wire [4:0] sha1, sha2, sha3, sha4, sha5;

        wire [26:0] t2, t2p1, t2p2, t2p3;
        wire [2:0] sumshift, ss1, ss2, ss3;

        reg [4:0] shap1, shap2;
        reg [4:0] SHAP;
        reg [23:0] inputbitsr1;
```

```
reg [26:0] TAP;
reg [26:0] tpipe1;
reg [23:0] tpipe2;

reg and1p1, and2p1;

assign and1 = inputbits[23] | inputbits[22] | inputbits[21] | inputbits[20];
assign and2 = inputbits[19] | inputbits[18] | inputbits[17] | inputbits[16];
assign and3 = inputbits[15] | inputbits[14] | inputbits[13] | inputbits[12];
assign and4 = inputbits[11] | inputbits[10] | inputbits[9] | inputbits[8];
assign and5 = inputbits[7] | inputbits[6] | inputbits[5] | inputbits[4];


assign ta1 =  ((and1p1) == 1) ? {inputbitsr1[23:0], 3'b0} : ta2;
assign ta2 =  ((and1p1 | and2p1) == 1) ? {inputbitsr1[19:0], 7'b0} : TAP;
assign ta3 =  ((and1 | and2 | and3) == 1) ? {inputbits[15:0], 11'b0} : ta4;
assign ta4 =  ((and1 | and2 | and3 | and4) == 1) ? {inputbits[11:0], 15'b0} : ta5;
assign ta5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? {inputbits[7:0], 19'b0} : {inputbits[3:0], 23'b0};


assign sha1 =  ((and1p1) == 1) ? 0 : sha2;
assign sha2 =  ((and1p1 | and2p1) == 1) ? 4 : SHAP;
assign sha3 =  ((and1 | and2 | and3) == 1) ? 8 : sha4;
assign sha4 =  ((and1 | and2 | and3 | and4) == 1) ? 12 : sha5;
assign sha5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? 16 : 20;


assign t2 = (tpipe1[26:23] == 0) ? {tpipe1[22:0], 4'b0} : t2p1;
assign t2p1 = (tpipe1[26:24] == 0) ? {tpipe1[23:0], 3'b0} : t2p2;
assign t2p2 = (tpipe1[26:25] == 0) ? {tpipe1[24:0], 2'b0} : t2p3;
assign t2p3 = (tpipe1[26:26] == 0) ? {tpipe1[25:0], 1'b0} : tpipe1[26:0];
```

```
        assign sumshift = (tpipe1[26:23] == 0) ? 4 : ss1;
        assign ss1 = (tpipe1[26:24] == 0) ? 3 : ss2;
        assign ss2 = (tpipe1[26:25] == 0) ? 2 : ss3;
        assign ss3 = (tpipe1[26:26] == 0) ? 1 : 0;


        always @(posedge clk)
                begin

                TAP <= ta3;
                SHAP <= sha3;
                inputbitsr1 <= inputbits;
                shap1 <= sha1;
                shap2 <= shap1 + sumshift;
                tpipe1 <= ta1;
                tpipe2 <= t2[26:3];

                ////////////////////////
                and1p1 <= and1;
                and2p1 <= and2;
                end

        assign shiftbits = shap2;
        assign outputbits = tpipe2;

endmodule
```

```
Xilinx ISE Device utilization summary:
---------------------------

Selected Device : 2vp100ff1696-6

 Number of Slices:                      220  out of  44096     0%
 Number of Slice Flip Flops:            211  out of  88192     0%
 Number of 4 input LUTs:                386  out of  88192     0%
 Number of bonded IOBs:                  44  out of   1164     3%
 Number of BRAMs:                         2  out of    444     0%
 Number of MULT18X18s:                    2  out of    444     0%
 Number of GCLKs:                         1  out of     16     6%
```

CASHWELL AND EVERETT COORDINATE TRANSFORMATION

```
//////////////////////////////////////////////////
// Cashwell & Everett coordinate transformation
//  Preformed near to floating point precision
//  INPUT/OUTPUT U,V,W are twos compliment signed
//  Optimized in part for the Virtex-II Pro 100 FPGA
//   ---------------------------------------------

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//



module cashwell(U, V, W, mu, RAND, Up, Vp, Wp, clk);
    input [17:0] U, V, W;
    input [17:0] mu;
    input [21:0] RAND;
    input clk;

    output [17:0] Up, Vp, Wp;



    // Structure

    wire [35:0] Wsq, MUsq;
    wire [17:0] UW, VW, UMU, VMU, WMU;
    wire [33:0] mWsq, mMUsq;
```

```
wire [17:0] SinPhi, CosPhi;
wire [16:0] A, B, invB;
wire [4:0] Ashift, Bshift, invBshift;
wire [5:0] sumshiftU, sumshiftV, sumshiftW, signmagsumshiftU, signmagsumshiftV;

wire [17:0] AoverB, AB;

wire [17:0] bigsumU, bigsumV, bigsumW, preW;  // one bit higher to ensure proper rounding

wire [17:0] VSinPhi, USinPhi, wR;
wire [17:0] upl1, vpl1;
wire [35:0] bbrU, bbrV;
wire [34:0] negsU, negsV;

wire [17:0] rightU, rightV, rightUpp, rightVpp;
wire [17:0] ain, vmu, umu, wmu, rUin, rVin;
wire [4:0] rightUshift, rightVshift;
wire [5:0] shed;


wire badB;

reg [17:0] rightUp, rightVp;
reg [17:0] rightUppp, rightVppp;
reg [17:0] Up1, Vp1, Wp1, mup1;
reg [16:0] Ap;
reg [5:0] sumshiftUp, sumshiftVp, sumshiftWp;
reg [5:0] sumshiftUpp, sumshiftVpp, sumshiftWpp;

reg badBp1, badBp2, badBp3, badBp4, badBp5, badBp6;
reg [17:0] bigsumUp, bigsumVp, bigsumWp;
reg [17:0] bigsumUpp, bigsumVpp, bigsumWpp;
reg [17:0] umup1, vmup1, wmup1;
```

```
reg [17:0] umup2, vmup2, wmup2;
reg [17:0] umup3, vmup3, wmup3;
reg [17:0] umup4, vmup4, wmup4;
reg [17:0] umup5, vmup5, wmup5;
reg [17:0] umup6, vmup6, wmup6;

reg [17:0] cosphid1, sinphid1;
reg [17:0] cosphid2, sinphid2;
reg [17:0] cosphid3, sinphid3;
reg [17:0] cosphid4, sinphid4;
reg [17:0] cosphid5, sinphid5;

reg [17:0] Up2, Vp2, Wp2, mup2;
reg [17:0] Up3, Vp3, Wp3, mup3, mup4;



// first cycle computation

          mul18b18os   mul3(clk, W, W, Wsq);
          mul18b18os   mul4(clk, mu, mu, MUsq);

         // HDL GEN:  multiply_round('mul18to18.v', 'mul18to18', 2, 18)

          mul18to18  mul1(Up2, Wp2, UW, clk);
          mul18to18  mul2(Vp2, Wp2, VW, clk);


double_sincos2PI_2218 sincos1(RAND, RAND, SinPhi, CosPhi, 1'b1, 1'b0, clk);
// HDL GEN:  double_sincos2PI_rounding('double_sincos2PI_2218.v', 'double_sincos2PI_2218', 22, 18, 10, 17, 37)
//  This sin/cos(phi) operation actually takes 6 clock cycles to complete, however, it is assumed to
//  be done whenever I need it.  Why?  Because one uniformly distributed random number is as good
//  as the next!
```

```
 // second cycle computation

 assign mWsq = {34{1'b1}} - Wsq[33:0];
 assign mMUsq = {34{1'b1}} - MUsq[33:0];

 double_sqrt_rounding                dsq1(mWsq, mMUsq, clk, B, Bshift, A, Ashift);
 single_invsqrt_rounding_presout sinv(mWsq, clk, invB, invBshift, shed);

 mul18to18     mul5(Vp3, SinPhi, VSinPhi, clk);
 mul18to18          mul6(Up3, SinPhi, USinPhi, clk);

 mul18to18    mbig1(CosPhi, UW, upl1, clk);
 mul18to18    mbig2(CosPhi, VW, vpl1, clk);


// third cycle computation (still waiting on the square-roots!)

 assign rightU = upl1 - VSinPhi;
 assign rightV = vpl1 + USinPhi;


// fourth cycle computation

sreduce18to18 sred1(rightUp, rightUpp, rightUshift, clk);
sreduce18to18 sred2(rightVp, rightVpp, rightVshift, clk);
// HDL GEN:   sreduce2('sreduce18to18.v', 'sreduce18to18', 18, 18, 0)

// fifth cycle computation


assign sumshiftU = (badBp3 == 1) ? Ashift : Ashift + rightUshift - invBshift;
```

```
assign sumshiftV = (badBp3 == 1) ? Ashift : Ashift + rightVshift - invBshift;
assign sumshiftW = Ashift + Bshift;
assign badB = (shed >= 16) ? 1 : 0;

assign signmagsumshiftU = (sumshiftU[5] == 1) ? ~sumshiftU[4:0] + 1 : sumshiftU;
assign signmagsumshiftV = (sumshiftV[5] == 1) ? ~sumshiftV[4:0] + 1 : sumshiftV;

// sixth cycle computation

  mul18to18   mul10({1'b0, A}, {1'b0, invB}, AoverB, clk);
  mul18to18   mul11({1'b0, A}, {1'b0, B}, AB, clk);

assign ain  = (badBp4 == 1) ? {1'b0, Ap} : AoverB;
assign rUin = (badBp4 == 1) ? cosphid5 : rightUppp;
assign rVin = (badBp4 == 1) ? sinphid5 : rightVppp;

mul18b18os   mbig12(clk, ain, rUin, bbrU);
mul18b18os   mbig13(clk, ain, rVin, bbrV);

mul18to18   mw12(AB, cosphid5, wR, clk);

mul18to18  finmul5(Up3, mup3, umu, clk);
mul18to18        finmul6(Vp3, mup3, vmu, clk);
mul18to18  finmul7(Wp3, mup3, wmu, clk);

assign preW = (badBp5 == 1) ? 18'b0 : wR;

assign negsU = bbrU[34:0] << sumshiftUpp[4:0];
assign negsV = bbrV[34:0] << sumshiftVpp[4:0];

assign bigsumU = (sumshiftUpp[5] == 1) ? negsU[34:17] + negsU[16] : {{31{bbrU[34]}},bbrU[34:17]} >> sumshiftUpp[4:0];
assign bigsumV = (sumshiftVpp[5] == 1) ? negsV[34:17] + negsU[16] : {{31{bbrV[34]}},bbrV[34:17]} >> sumshiftVpp[4:0];
assign bigsumW = {{31{preW[17]}},preW} >> sumshiftWpp;
```

```
assign Up = bigsumUpp;
assign Vp = bigsumVpp;
assign Wp = bigsumWpp;

 always @(posedge clk)
  begin

    Up1 <= U;
            Vp1 <= V;
            Wp1 <= W;
            mup1 <= mu;

            rightUp <= rightU;
            rightVp <= rightV;
            rightUppp <= rightUpp;
            rightVppp <= rightVpp;

            bigsumUpp <= umup6 + bigsumUp;
            bigsumVpp <= vmup6 + bigsumVp;
            bigsumWpp <= wmup6 - bigsumWp;

            // hold sin and cosine values

            sinphid1 <= SinPhi;
            cosphid1 <= CosPhi;
            sinphid2 <= sinphid1;
            cosphid2 <= cosphid1;
            sinphid3 <= sinphid2;
            cosphid3 <= cosphid2;
            sinphid4 <= sinphid3;
            cosphid4 <= cosphid3;
            sinphid5 <= sinphid4;
```

```
cosphid5 <= cosphid4;


// Hold A

Ap <= A;

// Shift Values

sumshiftUp <= signmagsumshiftU;
sumshiftVp <= signmagsumshiftV;
sumshiftWp <= sumshiftW;
sumshiftUpp <= sumshiftUp;
sumshiftVpp <= sumshiftVp;
sumshiftWpp <= sumshiftWp;


// bad values

badBp1 <= badB;
badBp2 <= badBp1;
badBp3 <= badBp2;
badBp4 <= badBp3;
badBp5 <= badBp4;
badBp6 <= badBp5;


bigsumUp <= bigsumU;
bigsumVp <= bigsumV;
bigsumWp <= bigsumW;

// hold mu, U, V, W
```

```
        Up2  <=  Up1;
        Vp2  <=  Vp1;
        Wp2  <=  Wp1;
        mup2 <= mup1;
        Up3  <=  Up2;
        Vp3  <=  Vp2;
        Wp3  <=  Wp2;
        mup3 <= mup2;
        mup4 <= (Wp3[17] == 1) ? ~mup3 + 1 : mup3;

        // hold umu, vmu, wmu

        umup1 <= (badB == 1) ? 18'b0 : umu;
        vmup1 <= (badB == 1) ? 18'b0 : vmu;
        wmup1 <= (badB == 1) ? mup4  : wmu;
        umup2 <= umup1;
        vmup2 <= vmup1;
        wmup2 <= wmup1;
        umup3 <= umup2;
        vmup3 <= vmup2;
        wmup3 <= wmup2;
        umup4 <= umup3;
        vmup4 <= vmup3;
        wmup4 <= wmup3;
        umup5 <= umup4;
        vmup5 <= vmup4;
        wmup5 <= wmup4;
        umup6 <= umup5;
        vmup6 <= vmup5;
        wmup6 <= wmup5;

    end
endmodule
```

```
////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 26-Jul-2006
////////////////////////////////////////////////////
// compute respective sin/cos of two inputs between 0 and 1
// where 0 = 0 and 1 = 2pi
// based on two, 1 bit binary inputs. 1 = sin, 0 = cosine
////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
////////////////////////////////////////////////////



module double_sincos2PI_2218(inputn1, inputn2, outputn1, outputn2, n1type, n2type, clk);

        input [21:0] inputn1, inputn2;
        input clk, n1type, n2type;

        output [17:0] outputn1, outputn2;

        wire [19:0] revinpn1, revinpn2, sinn1, sinn2, cosn1, cosn2;
        wire negn1, negn2;
        // All output bits are signed twos compliment
        wire [53:0] mout1, mout2;
        wire [33:0] mulout1, mulout2;

        reg [16:0] preout1, preout2;
        reg [17:0] ppreout1, ppreout2;
```

```
reg negn1d1, negn1d2, negn2d1, negn2d2, negn1d3, negn2d3, negn1d4, negn2d4;
reg [9:0] num1rightd1, num1rightd2, num2rightd1, num2rightd2;
reg [36:0] n1cd, n2cd;

assign revinpn1 = (n1type == 1) ? sinn1 : cosn1;
assign negn1 = (n1type == 1) ? ((inputn1[21] == 1'b0) ? 1'b0 : 1'b1) : ((inputn1[21] == inputn1[20]) ? 1'b0 : 1'b1);
assign sinn1 = (inputn1[20] == 1'b1) ? {20{1'b1}} - inputn1[19:0] : inputn1[19:0];
assign cosn1 = (inputn1[20] == 1'b1) ? inputn1[19:0] : {20{1'b1}} - inputn1[19:0];

assign revinpn2 = (n2type == 1) ? sinn2 : cosn2;
assign negn2 = (n2type == 1) ? ((inputn2[21] == 1'b0) ? 1'b0 : 1'b1) : ((inputn2[21] == inputn2[20]) ? 1'b0 : 1'b1);
assign sinn2 = (inputn2[20] == 1'b1) ? {20{1'b1}} - inputn2[19:0] : inputn2[19:0];
assign cosn2 = (inputn2[20] == 1'b1) ? inputn2[19:0] : {20{1'b1}} - inputn2[19:0];

ram10by54sincos ram1(revinpn1[19:10], revinpn2[19:10], clk, clk, mout1, mout2);
// Latency of this blockram must be 2, meaning it should have input registers!
// It should be a read only, dual port blockram module with 10 address bits and 54 bits per address

mul17b17os m1 (clk, mout1[53:37], {num1rightd2,7'b0}, mulout1);
mul17b17os m2 (clk, mout2[53:37], {num2rightd2,7'b0}, mulout2);

assign outputn1 = ppreout1;
assign outputn2 = ppreout2;

always @(posedge clk)
        begin

        negn1d1 <= negn1;
        negn1d2 <= negn1d1;
        negn1d3 <= negn1d2;
        negn1d4 <= negn1d3;
        negn2d1 <= negn2;
        negn2d2 <= negn2d1;
```

```
        negn2d3 <= negn2d2;
        negn2d4 <= negn2d3;
        num1rightd1 <= revinpn1[9:0];
        num1rightd2 <= num1rightd1;
        num2rightd1 <= revinpn2[9:0];
        num2rightd2 <= num2rightd1;
        n1cd <= mout1[36:0];
        n2cd <= mout2[36:0];

        ////////////////////
        preout1 <= n1cd[36:20] + {9'b0, mulout1[33:26]} + mulout1[25] + n1cd[19];
        preout2 <= n2cd[36:20] + {9'b0, mulout2[33:26]} + mulout2[25] + n2cd[19];

        ppreout1 <= (negn1d4 == 1) ? ~{1'b0, preout1} + 1'b1 : {1'b0, preout1};
        ppreout2 <= (negn2d4 == 1) ? ~{1'b0, preout2} + 1'b1 : {1'b0, preout2};

        end


endmodule
```

```
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mul17b17os.v when simulating
```

```
// the core, mul17b17os. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mul17b17os (
        clk,
        a,
        b,
        q);

input clk;
input [16 : 0] a;
input [16 : 0] b;
output [33 : 0] q;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,          // bram_addr_width
                1,          // c_a_type
                17,         // c_a_width
                17,         // c_baat
                0,          // c_b_constant
                1,          // c_b_type
                "0000000000000001",       // c_b_value
                17,         // c_b_width
                1,          // c_enable_rlocs
                0,          // c_has_aclr
                0,          // c_has_a_signed
                1,          // c_has_b
                0,          // c_has_ce
                0,          // c_has_loadb
                0,          // c_has_load_done
```

```
		0,		// c_has_nd
		0,		// c_has_o
		1,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		34,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.CLK(clk),
		.A(a),
		.B(b),
		.Q(q),
		.O(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
```

```
                .RFD(),
                .ND(),
                .RDY());


// synopsys translate_on

endmodule
```

```
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*****************************************************************************/
// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file ram10by54sincos.v when simulating
```

```
// the core, ram10by54sincos. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module ram10by54sincos (
        addra,
        addrb,
        clka,
        clkb,
        douta,
        doutb);

input [9 : 0] addra;
input [9 : 0] addrb;
input clka;
input clkb;
output [53 : 0] douta;
output [53 : 0] doutb;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                10,     // c_addra_width
                10,     // c_addrb_width
                "0",    // c_default_data
                1024,   // c_depth_a
                1024,   // c_depth_b
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_dina
                0,      // c_has_dinb
                1,      // c_has_douta
                1,      // c_has_doutb
```

```
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
0,          // c_has_wea
0,          // c_has_web
18,         // c_limit_data_pitch
"ram10by54sincos.mif",     // c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
1,          // c_reg_inputsa
1,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
54,         // c_width_a
54,         // c_width_b
0,          // c_write_modea
0,          // c_write_modeb
"0",        // c_ybottom_addr
1,          // c_yclka_is_rising
1,          // c_yclkb_is_rising
1,          // c_yena_is_high
1,          // c_yenb_is_high
"hierarchy1",        // c_yhierarchy
0,          // c_ymake_bmm
"16kx1", // c_yprimitive_type
```

```
                1,          // c_ysinita_is_high
                1,          // c_ysinitb_is_high
                "1024",     // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywea_is_high
                1,          // c_yweb_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDRA(addra),
                .ADDRB(addrb),
                .CLKA(clka),
                .CLKB(clkb),
                .DOUTA(douta),
                .DOUTB(doutb),
                .DINA(),
                .DINB(),
                .ENA(),
                .ENB(),
                .NDA(),
                .NDB(),
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB(),
                .WEA(),
                .WEB());


// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////////////////
// compute the square root of a number between 0 and 1
// perform the computation in duplicate to preserve blockram
// computes equivilancy to ~floating point. shifts are all negative
//////////////////////////////////////////////////////////////

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//

// INPUT: 34 bits, with the decimal at the left (all less than 0)

// OUTPUT:  mantissa = 17 bits AND always between .5 and 1 (unless it is 0)
//          shift = negative multiplicative shift


module double_sqrt_rounding(inputnum1, inputnum2, clk, outputnum1,
                        outputshift1, outputnum2, outputshift2);

  input [33:0] inputnum1, inputnum2;
  input clk;

  output [16:0] outputnum1, outputnum2;
  output [4:0] outputshift1, outputshift2;


  wire [26:0] redo1, redo2;
  wire [26:0] redo1p, redo2p;
  wire [5:0] shed1, shed2;
  wire [4:0] shed1p, shed2p;
  wire [53:0] sqramout1, sqramout2;
```

```
wire [36:0] C1, C2;
wire [16:0] B1, B2;
wire [33:0] mout1, mout2;


reg [16:0] left1, left2;
reg [36:0] C1r, C2r;
reg [16:0] preout1, preout2;
reg [4:0] shift1r1, shift2r1, shift1r2, shift2r2, shift1r3, shift2r3;

// HDLgen Command:
// reduce2('reduce34to27.v', 'reduce34to27', 34, 27, 1)

reduce34to27   redsq1(inputnum1, redo1, shed1, clk),  // delay = 3
                redsq2(inputnum2, redo2, shed2, clk);

assign redo1p = (shed1[0] == 1) ? {1'b0, redo1[26:1]} : redo1;
assign redo2p = (shed2[0] == 1) ? {1'b0, redo2[26:1]} : redo2;
assign shed1p = shed1[5:1];
assign shed2p = shed2[5:1];

// HDLgen Command:
// makecoe('sqrtram.coe', @(x)sqrt(x), 10, 17, 0, 37, 0.25, 1, 0)
// ShiftB = 27,  ShiftC = 37
// requires a 10x54 bit read only blockram loaded with this COE (NO INPUT STAGE!)
// one slight modification to sqrtram.coe, the last entry must be changed
// manually from 100000000000100001111111111011111111111011111111110111 to
// 011111110000000001111111111011111111111011111111110111 to prevent overflow.

sqrtram sqram1 (redo1p[26:17], redo2p[26:17], clk, clk, sqramout1, sqramout2);

assign C1 = sqramout1[36:0];
assign C2 = sqramout2[36:0];
```

```
 assign B1 = sqramout1[53:37];
 assign B2 = sqramout2[53:37];

 mul17b17os mmm1 (clk, left1, B1, mout1),
          mmm2 (clk, left2, B2, mout2);



 always @(posedge clk)
  begin
  // delay stage 1
  left1 <= redo1p[16:0];
  left2 <= redo2p[16:0];
  shift1r1 <= shed1p;
  shift2r1 <= shed2p;
  // delay stage 2
  C1r <= C1;
  C2r <= C2;
  shift1r2 <= shift1r1;
  shift2r2 <= shift2r1;
  // delay stage 3
  preout1 <= C1r[36:20] + {10'b0, mout1[33:27]} + C1r[19] + mout1[26];
  preout2 <= C2r[36:20] + {10'b0, mout2[33:27]} + C2r[19] + mout2[26];
  shift1r3 <= shift1r2;
  shift2r3 <= shift2r2;

  end
  assign outputnum1 = preout1;
  assign outputnum2 = preout2;
  assign outputshift1 = shift1r3;
  assign outputshift2 = shift2r3;

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 26-Jun-2006
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module reduce34to27(inputbits, outputbits, shiftbits, clk);

        input [33:0] inputbits;
        input clk;

        output [26:0] outputbits;
        output [5:0] shiftbits;

        wire and1, and2, and3, and4, and5, and6, and7, and8;

        wire [29:0] ta1, ta2, ta3, ta4, ta5, ta6, ta7, ta8;

        wire [5:0] sha1, sha2, sha3, sha4, sha5, sha6, sha7, sha8;

        wire [29:0] t2, t2p1, t2p2, t2p3;
        wire [2:0] sumshift, ss1, ss2, ss3;

        reg [5:0] shap1, shap2;
        reg [5:0] SHAP;
        reg [33:0] inputbitsr1;
```

```
reg [29:0] TAP;
reg [29:0] tpipe1;
reg [26:0] tpipe2;

reg and1p1, and2p1, and3p1, and4p1;

assign and1 = inputbits[33] | inputbits[32] | inputbits[31] | inputbits[30];
assign and2 = inputbits[29] | inputbits[28] | inputbits[27] | inputbits[26];
assign and3 = inputbits[25] | inputbits[24] | inputbits[23] | inputbits[22];
assign and4 = inputbits[21] | inputbits[20] | inputbits[19] | inputbits[18];
assign and5 = inputbits[17] | inputbits[16] | inputbits[15] | inputbits[14];
assign and6 = inputbits[13] | inputbits[12] | inputbits[11] | inputbits[10];
assign and7 = inputbits[9] | inputbits[8] | inputbits[7] | inputbits[6];
assign and8 = inputbits[5] | inputbits[4] | inputbits[3] | inputbits[2];


assign ta1 =  ((and1p1) == 1) ? inputbitsr1[33:4] : ta2;
assign ta2 =  ((and1p1 | and2p1) == 1) ? inputbitsr1[29:0] : ta3;
assign ta3 =  ((and1p1 | and2p1 | and3p1) == 1) ? {inputbitsr1[25:0], 4'b0} : ta4;
assign ta4 =  ((and1p1 | and2p1 | and3p1 | and4p1) == 1) ? {inputbitsr1[21:0], 8'b0} : TAP;
assign ta5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? {inputbits[17:0], 12'b0} : ta6;
assign ta6 =  ((and1 | and2 | and3 | and4 | and5 | and6) == 1) ? {inputbits[13:0], 16'b0} : ta7;
assign ta7 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7) == 1) ? {inputbits[9:0], 20'b0} : ta8;
assign ta8 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7 | and8) == 1) ? {inputbits[5:0], 24'b0} : {inputbits[1:0], 28'b0};


assign sha1 =  ((and1p1) == 1) ? 0 : sha2;
assign sha2 =  ((and1p1 | and2p1) == 1) ? 4 : sha3;
assign sha3 =  ((and1p1 | and2p1 | and3p1) == 1) ? 8 : sha4;
assign sha4 =  ((and1p1 | and2p1 | and3p1 | and4p1) == 1) ? 12 : SHAP;
assign sha5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? 16 : sha6;
assign sha6 =  ((and1 | and2 | and3 | and4 | and5 | and6) == 1) ? 20 : sha7;
assign sha7 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7) == 1) ? 24 : sha8;
```

```
        assign sha8 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7 | and8) == 1) ? 28 : 32;


        assign t2 = (tpipe1[29:26] == 0) ? {tpipe1[25:0], 4'b0} : t2p1;
        assign t2p1 = (tpipe1[29:27] == 0) ? {tpipe1[26:0], 3'b0} : t2p2;
        assign t2p2 = (tpipe1[29:28] == 0) ? {tpipe1[27:0], 2'b0} : t2p3;
        assign t2p3 = (tpipe1[29:29] == 0) ? {tpipe1[28:0], 1'b0} : tpipe1[29:0];


        assign sumshift = (tpipe1[29:26] == 0) ? 4 : ss1;
        assign ss1 = (tpipe1[29:27] == 0) ? 3 : ss2;
        assign ss2 = (tpipe1[29:28] == 0) ? 2 : ss3;
        assign ss3 = (tpipe1[29:29] == 0) ? 1 : 0;


        always @(posedge clk)
                begin
                TAP <= ta5;
                SHAP <= sha5;
                inputbitsr1 <= inputbits;
                shap1 <= sha1;
                shap2 <= shap1 + sumshift;
                tpipe1 <= ta1;
                tpipe2 <= t2[29:3];
                and1p1 <= and1;
                and2p1 <= and2;
                and3p1 <= and3;
                and4p1 <= and4;
                end
        assign shiftbits = shap2;
        assign outputbits = tpipe2;

endmodule
```

```
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file sqrtram.v when simulating
```

```
// the core, sqrtram. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module sqrtram (
        addra,
        addrb,
        clka,
        clkb,
        douta,
        doutb);

input [9 : 0] addra;
input [9 : 0] addrb;
input clka;
input clkb;
output [53 : 0] douta;
output [53 : 0] doutb;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                10,     // c_addra_width
                10,     // c_addrb_width
                "0",    // c_default_data
                1024,   // c_depth_a
                1024,   // c_depth_b
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_dina
                0,      // c_has_dinb
                1,      // c_has_douta
                1,      // c_has_doutb
```

```
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
0,          // c_has_wea
0,          // c_has_web
18,         // c_limit_data_pitch
"sqrtram.mif",      // c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
54,         // c_width_a
54,         // c_width_b
0,          // c_write_modea
0,          // c_write_modeb
"0",        // c_ybottom_addr
1,          // c_yclka_is_rising
1,          // c_yclkb_is_rising
1,          // c_yena_is_high
1,          // c_yenb_is_high
"hierarchy1",       // c_yhierarchy
0,          // c_ymake_bmm
"16kx1", // c_yprimitive_type
```

```
                1,          // c_ysinita_is_high
                1,          // c_ysinitb_is_high
                "1024",     // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywea_is_high
                1,          // c_yweb_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDRA(addra),
                .ADDRB(addrb),
                .CLKA(clka),
                .CLKB(clkb),
                .DOUTA(douta),
                .DOUTB(doutb),
                .DINA(),
                .DINB(),
                .ENA(),
                .ENB(),
                .NDA(),
                .NDB(),
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB(),
                .WEA(),
                .WEB());


// synopsys translate_on

endmodule
```

```
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// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mul18b18os.v when simulating
```

```
// the core, mul18b18os. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mul18b18os (
        clk,
        a,
        b,
        q);

input clk;
input [17 : 0] a;
input [17 : 0] b;
output [35 : 0] q;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,          // bram_addr_width
                0,          // c_a_type
                18,         // c_a_width
                18,         // c_baat
                0,          // c_b_constant
                0,          // c_b_type
                "0000000000000001",       // c_b_value
                18,         // c_b_width
                1,          // c_enable_rlocs
                0,          // c_has_aclr
                0,          // c_has_a_signed
                1,          // c_has_b
                0,          // c_has_ce
                0,          // c_has_loadb
                0,          // c_has_load_done
```

```
		0,		// c_has_nd
		0,		// c_has_o
		1,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		36,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.CLK(clk),
		.A(a),
		.B(b),
		.Q(q),
		.O(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
```

```
                .RFD(),
                .ND(),
                .RDY());


// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 26-Jul-2006
//////////////////////////////////////////////////////
// multiply two numbers with rounding
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module mul18to18(Ain, Bin, outputn, clk);

        input [17:0] Ain, Bin;

        output [17:0] outputn;
        input clk;

        wire [35:0] mulout;

        reg [17:0] outputregister;

        // reqires a 18 by 18 un-clocked signed multiplier with the following designation
        mul18b18 mul1(Ain, Bin, mulout);

        always @(posedge clk)
                begin
                outputregister <= mulout[34:17] + mulout[16];
                end
```

```
        assign outputn = outputregister;

endmodule
```

```
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// You must compile the wrapper file mul18b18.v when simulating
```

```
// the core, mul18b18. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mul18b18 (
        a,
        b,
        o);

input [17 : 0] a;
input [17 : 0] b;
output [35 : 0] o;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,      // bram_addr_width
                0,      // c_a_type
                18,     // c_a_width
                18,     // c_baat
                0,      // c_b_constant
                0,      // c_b_type
                "0000000000000001",     // c_b_value
                18,     // c_b_width
                1,      // c_enable_rlocs
                0,      // c_has_aclr
                0,      // c_has_a_signed
                1,      // c_has_b
                0,      // c_has_ce
                0,      // c_has_loadb
                0,      // c_has_load_done
                0,      // c_has_nd
                1,      // c_has_o
```

```
		0,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		36,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.A(a),
		.B(b),
		.O(o),
		.CLK(),
		.Q(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
		.RFD(),
		.ND(),
```

```
                .RDY());

// synopsys translate_on

endmodule
```

```
////////////////////////////////////////////////////////////////
// compute the square root of a number between 0 and 1
//  perform the computation in duplicate to preserve blockram
// computes equivilancy to ~floating point. shifts are all positive
////////////////////////////////////////////////////////////////

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//


// INPUT: 34 bits, with the decimal at the left (all less than 0)

// OUTPUT:  mantissa = 17 bits AND always 0.XXXXXXX (unless it is 0)
//          shift = positive multiplicative shift

//          pres = positive shift value of input (before 1/sqrt)



module single_invsqrt_rounding_presout(inputnum1, clk, outputnum1, outputshift1, pres);

  input [33:0] inputnum1;
  input clk;

  output [16:0] outputnum1;
  output [4:0] outputshift1;

  output [5:0] pres;
```

```
wire [26:0] redo1;
wire [26:0] redo1p;
wire [5:0] shed1;
wire [4:0] shed1p;
wire [53:0] sqramout1, sqramout2;
wire [35:0] C1;
wire [17:0] B1;
wire [34:0] mout1;


reg [16:0] left1;
reg [35:0] C1r;
reg [16:0] preout1;
reg [4:0] shift1r1, shift1r2, shift1r3;

// HDLgen Command:
// reduce2('reduce34to27.v', 'reduce34to27', 34, 27, 1)

reduce34to27   redsq1(inputnum1, redo1, shed1, clk);  // delay = 3

assign redo1p = (shed1[0] == 1) ? {1'b0, redo1[26:1]} : redo1;
assign shed1p = shed1[5:1];
assign pres = shed1;

// HDLgen Command:
// makecoe('invsqrtram.coe', @(x)((1 ./ (sqrt(x))) ./ 2), 10, 17, 1, 36, 0.25, 1, 0)
// ShiftB = 26,  ShiftC = 35
// requires a 10x54 bit read only blockram loaded with this COE (NO INPUT STAGE!)

invsqrtram sqram1 (redo1p[26:17], redo1p[26:17], clk, clk, sqramout1, sqramout2);

assign C1 = sqramout1[35:0];
assign B1 = sqramout1[53:36];
```

```
 mult17b18os mmm1 (clk, {1'b0, left1}, B1, mout1);


 always @(posedge clk)
  begin
  // delay stage 1
  left1 <= redo1p[16:0];
  shift1r1 <= shed1p + 2;
  // delay stage 2
  C1r <= C1;
  shift1r2 <= shift1r1;
  // delay stage 3
  preout1 <= C1r[35:19] + {{9{1'b1}}, mout1[34:27]} + C1r[18] + mout1[26];
  shift1r3 <= shift1r2;
  end

  assign outputnum1 = preout1;
  assign outputshift1 = shift1r3;


endmodule
```

```
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// You must compile the wrapper file invsqrtram.v when simulating
```

```
// the core, invsqrtram. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module invsqrtram (
        addra,
        addrb,
        clka,
        clkb,
        douta,
        doutb);

input [9 : 0] addra;
input [9 : 0] addrb;
input clka;
input clkb;
output [53 : 0] douta;
output [53 : 0] doutb;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                10,     // c_addra_width
                10,     // c_addrb_width
                "0",    // c_default_data
                1024,   // c_depth_a
                1024,   // c_depth_b
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_dina
                0,      // c_has_dinb
                1,      // c_has_douta
                1,      // c_has_doutb
```

```
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
0,          // c_has_wea
0,          // c_has_web
18,         // c_limit_data_pitch
"invsqrtram.mif",  // c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
54,         // c_width_a
54,         // c_width_b
0,          // c_write_modea
0,          // c_write_modeb
"0",        // c_ybottom_addr
1,          // c_yclka_is_rising
1,          // c_yclkb_is_rising
1,          // c_yena_is_high
1,          // c_yenb_is_high
"hierarchy1",       // c_yhierarchy
0,          // c_ymake_bmm
"16kx1", // c_yprimitive_type
```

```
                1,          // c_ysinita_is_high
                1,          // c_ysinitb_is_high
                "1024",     // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywea_is_high
                1,          // c_yweb_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDRA(addra),
                .ADDRB(addrb),
                .CLKA(clka),
                .CLKB(clkb),
                .DOUTA(douta),
                .DOUTB(doutb),
                .DINA(),
                .DINB(),
                .ENA(),
                .ENB(),
                .NDA(),
                .NDB(),
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB(),
                .WEA(),
                .WEB());


// synopsys translate_on

endmodule
```

```
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mult17b18os.v when simulating
```

```
// the core, mult17b18os. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mult17b18os (
        clk,
        a,
        b,
        q);

input clk;
input [16 : 0] a;
input [17 : 0] b;
output [34 : 0] q;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,          // bram_addr_width
                1,          // c_a_type
                17,         // c_a_width
                17,         // c_baat
                0,          // c_b_constant
                0,          // c_b_type
                "0000000000000001",       // c_b_value
                18,         // c_b_width
                1,          // c_enable_rlocs
                0,          // c_has_aclr
                0,          // c_has_a_signed
                1,          // c_has_b
                0,          // c_has_ce
                0,          // c_has_loadb
                0,          // c_has_load_done
```

```
		0,		// c_has_nd
		0,		// c_has_o
		1,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		35,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.CLK(clk),
		.A(a),
		.B(b),
		.Q(q),
		.O(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
```

```
                .RFD(),
                .ND(),
                .RDY());


// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 03-Aug-2006
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module sreduce18to18(inputbits, outputbits, shiftbits, clk);

        input [17:0] inputbits;
        input clk;

        output [17:0] outputbits;
        output [4:0] shiftbits;

        wire and1, and2, and3, and4;

        wire Nand2, Nand3, Nand4;

        wire [20:0] ta1, ta2, ta3, ta4;

        wire [4:0] sha1, sha2, sha3, sha4;

        wire [20:0] t2, t2p1, t2p2;
        wire [2:0] sumshift, ss1, ss2;

        reg [4:0] shap1, shap2;
```

```
        reg [20:0] tpipe1;
        reg [17:0] tpipe2;

        assign and1 = (inputbits[17] & inputbits[16] & inputbits[15] & inputbits[14]) || ((~inputbits[17]) & (~inputbits[16]) & (~inputbits[15]) &
(~inputbits[14]));
        assign and2 = (inputbits[13] & inputbits[12] & inputbits[11] & inputbits[10]) || ((~inputbits[13]) & (~inputbits[12]) & (~inputbits[11]) &
(~inputbits[10]));
        assign and3 = (inputbits[9] & inputbits[8] & inputbits[7] & inputbits[6]) || ((~inputbits[9]) & (~inputbits[8]) & (~inputbits[7]) & (~inputbits[6]));
        assign and4 = (inputbits[5] & inputbits[4] & inputbits[3] & inputbits[2]) || ((~inputbits[5]) & (~inputbits[4]) & (~inputbits[3]) & (~inputbits[2]));


        assign Nand2 = ~(inputbits[17] ^ inputbits[13]);
        assign Nand3 = ~(inputbits[17] ^ inputbits[13] ^ inputbits[9]);
        assign Nand4 = ~(inputbits[17] ^ inputbits[13] ^ inputbits[9] ^ inputbits[5]);


        assign ta1 =  ((and1) == 0) ? {inputbits[17],{inputbits[16:0], 3'b0}} : ta2;
        assign ta2 =  ((and1 & and2 & Nand2) == 0) ? {inputbits[17],{inputbits[13:0], 6'b0}} : ta3;
        assign ta3 =  ((and1 & and2 & and3 & Nand3) == 0) ? {inputbits[17],{inputbits[9:0], 10'b0}} : ta4;
        assign ta4 =  ((and1 & and2 & and3 & and4 & Nand4) == 0) ? {inputbits[17],{inputbits[5:0], 14'b0}} : {inputbits[17],{inputbits[1:0], 18'b0}};


        assign sha1 =  ((and1) == 0) ? 0 : sha2;
        assign sha2 =  ((and1 & and2 & Nand2) == 0) ? 3 : sha3;
        assign sha3 =  ((and1 & and2 & and3 & Nand3) == 0) ? 7 : sha4;
        assign sha4 =  ((and1 & and2 & and3 & and4 & Nand4) == 0) ? 11 : 15;


        assign t2 = (((tpipe1[20] & tpipe1[19] & tpipe1[18] & tpipe1[17]) || ((~tpipe1[20]) & (~tpipe1[19]) & (~tpipe1[18]) & (~tpipe1[17])))  == 1) ?
{tpipe1[17:0], 3'b0} : t2p1;
        assign t2p1 = (((tpipe1[20] & tpipe1[19] & tpipe1[18]) || ((~tpipe1[20]) & (~tpipe1[19]) & (~tpipe1[18]))) == 1) ? {tpipe1[18:0], 2'b0} : t2p2;
        assign t2p2 = (((tpipe1[20] & tpipe1[19]) || ((~tpipe1[20]) & (~tpipe1[19]))) == 1) ? {tpipe1[19:0], 1'b0} : tpipe1[20:0];
```

```
        assign sumshift = (((tpipe1[20] & tpipe1[19] & tpipe1[18] & tpipe1[17]) || ((~tpipe1[20]) & (~tpipe1[19]) & (~tpipe1[18]) & (~tpipe1[17])))  == 1) ? 3
: ss1;
        assign ss1 = (((tpipe1[20] & tpipe1[19] & tpipe1[18]) || ((~tpipe1[20]) & (~tpipe1[19]) & (~tpipe1[18]))) == 1) ? 2 : ss2;
        assign ss2 = (((tpipe1[20] & tpipe1[19]) || ((~tpipe1[20]) & (~tpipe1[19]))) == 1) ? 1 : 0;


        always @(posedge clk)
                begin
                shap1 <= sha1;
                shap2 <= shap1 + sumshift;
                tpipe1 <= ta1;
                tpipe2 <= t2[20:3];
                end

        assign shiftbits = shap2;
        assign outputbits = tpipe2;

endmodule
```

```
Xilinx ISE Device utilization summary:
---------------------------

Selected Device : 2vp100ff1696-6

 Number of Slices:                     1643  out of  44096     3%
 Number of Slice Flip Flops:           1860  out of  88192     2%
 Number of 4 input LUTs:               2482  out of  88192     2%
 Number of bonded IOBs:                 148  out of   1164    12%
 Number of BRAMs:                         9  out of    444     2%
 Number of MULT18X18s:                   21  out of    444     4%
 Number of GCLKs:                         1  out of     16     6%
```

CROSS SECTION LOOKUP

```
//////////////////////////////////////////////////
//
//  Function to lookup cross sections and determine
//   the interaction type, atom of interaction and
//   total macroscopic cross section for two materials
//   (red bone marrow and cortical bone)
//
//  MATLAB OPTIONS:
//     The Matlab Total Cross Section generation script
//      has been used to create the COE files for the
//      blockram units used in these modules.  Atomic
//      number densities are from ICRU 37. The units
//      have been defined in the matlab script to be
//      1e-8 (or 0.1 nm)

//  Optimized in part for the Virtex-II Pro 100 FPGA
//   ----------------------------------------------

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//


module getcross(energy, previouslyrejected, clk, matID, RAND1in, RAND2in,
        interaction_type, interaction_atom, total_cross, elindex);
  input [18:0] energy;
  input matID, previouslyrejected;  //an ionization event MUST occurr
  input clk;
  input [16:0] RAND1in, RAND2in;
```

```
output [1:0] interaction_type;
output [2:0] interaction_atom;
output [23:0] total_cross;
output [9:0] elindex;  // for use with the elost function after
                                        // an electron impact excitation

wire [16:0] usoutnum;
wire [2:0] posshift;


reg [21:0] subtrout;
reg matIDr1, matIDr2, matIDr3, matIDr4, matIDr5, matIDr6, matIDr7, matIDr8, matIDr9;
reg [21:0] shifted;

nlog2lt1 nlt({energy, 5'b0}, usoutnum, posshift, clk);

readone ro(matIDr9, previouslyrejected, subtrout[20:11], subtrout[20:11] + 1, subtrout[10:2], RAND1in, RAND2in, clk,
        interaction_type, interaction_atom, total_cross);

assign elindex = subtrout[20:11];

   // Atomic index used for biological simulations:
   //  atom = 3'b000 = Hydrogen (Z = 1)
   //  atom = 3'b001 = Carbon   (Z = 6)
   //  atom = 3'b010 = Nitrogen (Z = 7)
   //  atom = 3'b011 = Oxygen   (Z = 8)
   //  atom = 3'b100 = Phosphorus (Z = 15)
   //  atom = 3'b101 = Calcium    (Z = 20)
   //  atom = 3'b110 = Potassium  (Z = 19)
   //  atom = 3'b111 = Iron       (Z = 26)


always @(posedge clk)
```

```
  begin

      shifted <= usoutnum << posshift;
      subtrout <= {5'd16, 17'b0} - shifted;   // should technically be 19 - shifted
                                              // however, all of our stored values
                                              // are shifted by 3 such that we can
                                              // look up log2 values from 50->300,000 and
                                              // be in the range 0->16


      ////////////////////////////////////////////
      //
      //   2'b00 = Elastic Scattering Event
      //   2'b01 = Electron Impact Ionization
      //   2'b10 = Electron Impact Excitation
      //
      ////////////////////////////////////////////

      matIDr1 <= matID;
      matIDr2 <= matIDr1;
      matIDr3 <= matIDr2;
      matIDr4 <= matIDr3;
      matIDr5 <= matIDr4;
      matIDr6 <= matIDr5;
      matIDr7 <= matIDr6;
      matIDr8 <= matIDr7;
      matIDr9 <= matIDr8;


  end


endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 26-Jul-2006
//////////////////////////////////////////////////////



module readone(materialID, previouslyrejected, subtrout, subtroutp, remainder, RAND1in, RAND2in, clk,
               interaction_type, interaction_atom, total_cross);
  input materialID, clk;  // 1 bit, 0 = material 1, 2 otherwise
  input previouslyrejected;
  input [8:0] remainder;
  input [9:0] subtrout, subtroutp;
  input [16:0] RAND1in, RAND2in;

  output [1:0] interaction_type;
  output [2:0] interaction_atom;
  output [23:0] total_cross;


  wire [35:0] TE1_6dn, TE1_6up, TI1_6dn, TI1_6up, TEx1_6dn, TEx1_6up;
  wire [35:0] TE1_5dn, TE1_5up, TI1_5dn, TI1_5up, TEx1_5dn, TEx1_5up;
  wire [35:0] TE1_4dn, TE1_4up, TI1_4dn, TI1_4up, TEx1_4dn, TEx1_4up;
  wire [35:0] TE1_3dn, TE1_3up, TI1_3dn, TI1_3up, TEx1_3dn, TEx1_3up;
  wire [35:0] TE1_2dn, TE1_2up, TI1_2dn, TI1_2up, TEx1_2dn, TEx1_2up;
  wire [35:0] TE1_1dn, TE1_1up, TI1_1dn, TI1_1up, TEx1_1dn, TEx1_1up;

  wire [35:0] TE2_6dn, TE2_6up, TI2_6dn, TI2_6up, TEx2_6dn, TEx2_6up;
  wire [35:0] TE2_5dn, TE2_5up, TI2_5dn, TI2_5up, TEx2_5dn, TEx2_5up;
```

```
wire [35:0] TE2_4dn, TE2_4up, TI2_4dn, TI2_4up, TEx2_4dn, TEx2_4up;
wire [35:0] TE2_3dn, TE2_3up, TI2_3dn, TI2_3up, TEx2_3dn, TEx2_3up;
wire [35:0] TE2_2dn, TE2_2up, TI2_2dn, TI2_2up, TEx2_2dn, TEx2_2up;
wire [35:0] TE2_1dn, TE2_1up, TI2_1dn, TI2_1up, TEx2_1dn, TEx2_1up;

wire [35:0] TE_6dn, TE_6up, TI_6dn, TI_6up, TEx_6dn, TEx_6up;
wire [35:0] TE_5dn, TE_5up, TI_5dn, TI_5up, TEx_5dn, TEx_5up;
wire [35:0] TE_4dn, TE_4up, TI_4dn, TI_4up, TEx_4dn, TEx_4up;
wire [35:0] TE_3dn, TE_3up, TI_3dn, TI_3up, TEx_3dn, TEx_3up;
wire [35:0] TE_2dn, TE_2up, TI_2dn, TI_2up, TEx_2dn, TEx_2up;
wire [35:0] TE_1dn, TE_1up, TI_1dn, TI_1up, TEx_1dn, TEx_1up;

wire [35:0] atom1dn, atom1up, atom2dn, atom2up, atom3dn, atom3up,
        atom4dn, atom4up, atom5dn, atom5up;


wire [46:0] finaltotELA, finaltotION, finaltotEXC, finaltotS1, finaltotS2,
        finaltotS3, finaltotS4, finaltotS5;

wire [16:0] convfactor1;
wire [4:0] shiftbit1;
wire [16:0] scaledrand, scrand;
wire null1, null2;
wire [23:0] pmid_r5, plower_r5, ptop_r5;
wire [23:0] S1, S2, S3, S4, S5;
wire [9:0] soutr1p1, soutr2p1, soutr3p1, soutr4p1, soutr5p1;

reg [2:0] atm1, atm2, atm3, atm4, atm5;

reg [3:0] sbr1, sbr2, sbr3, sbr4, sbr5, sbr6, sbr7, sbr8, sbr9,
        sbr10, sbr11, sbr12, sbr13, sbr14, sbr15, sbr16, sbr17,
        sbr18;
```

```
reg [16:0] mid_r5, lower_r5, mid_r6, scaledrandr1, top_r5, Mmid_r6, lower_r6,
          lmr7, lmr8, top_r6, top_r7, S1s, S2s, S3s, S4s, S5s;
reg [16:0] scrand1, scrand2, scrand3, scrand4, scrand5, scrand6, scrand7, scrand8,
          scrand9, scranda, scrandb, scrandc, scrandd, scrande, scrandf, scrandg;

reg [23:0] totaltotal, lower_r1, mid_r1, lower_r2, lower_r3, lower_r4,
          mid_r2, mid_r3, mid_r4, top_r1, top_r2, top_r3, top_r4;

reg [1:0] inttype1, inttype2, inttype2r1, inttype2r2, inttype2r3, inttype2r4;

reg [9:0] so1, so2, so3, so4, so5, so6, so7, so8, so9, so10, so11, so12,
         so13, so14, so15, so16, so17, so18, soutr1, soutr2, soutr3, soutr4,
         soutr5;

reg matID1, matID2, matID3, matID4, matID5, matID6, matID7, matID8, matID9,
   matIDa, matIDb, matIDc, matIDd, matIDe, matIDf, matIDg, matIDh, matIDi,
   matIDj, matIDjr1, matIDjr2, matIDjr3, matIDjr4;

reg pr1, pr2, pr3, pr4, pr5, pr6, pr7, pr8, pr9, pra, prb, prc, prd, pre, prf,
     prg, prh, pri, prj, prk, prl, prm, prn, pro, prp, prq, prr, prs;

reg [8:0] remr1, remr2, remr3, remr4, remr5, remr6, remr7, remr8, remr9,
          remra, remrb, remrc, remrd, remre, remrf, remrg, remrh, remri, remrj,
          remrjr1, remrjr2, remrjr3, remrjr4;

totelastm1_6_sum     M1te1(subtrout, subtroutp, clk, clk, TE1_6dn,  TE1_6up);
totelastm1_5_sum     M1te2(soutr1, soutr1p1, clk, clk, TE1_5dn,  TE1_5up);
totelastm1_4_sum     M1te3(soutr2, soutr2p1, clk, clk, TE1_4dn,  TE1_4up);
totelastm1_3_sum     M1te4(soutr3, soutr3p1, clk, clk, TE1_3dn,  TE1_3up);
totelastm1_2_sum     M1te5(soutr4, soutr4p1, clk, clk, TE1_2dn,  TE1_2up);
totelastm1_1_sum     M1te6(soutr5, soutr5p1, clk, clk, TE1_1dn,  TE1_1up);

totionm1_6_sum       M1ti1(subtrout, subtroutp, clk, clk, TI1_6dn,  TI1_6up);
```

```
totionm1_5_sum      M1ti2(soutr1, soutr1p1, clk, clk, TI1_5dn,  TI1_5up);
totionm1_4_sum      M1ti3(soutr2, soutr2p1, clk, clk, TI1_4dn,  TI1_4up);
totionm1_3_sum      M1ti4(soutr3, soutr3p1, clk, clk, TI1_3dn,  TI1_3up);
totionm1_2_sum      M1ti5(soutr4, soutr4p1, clk, clk, TI1_2dn,  TI1_2up);
totionm1_1_sum      M1ti6(soutr5, soutr5p1, clk, clk, TI1_1dn,  TI1_1up);

totexcitm1_6_sum    M1teX1(subtrout, subtroutp, clk, clk, TEx1_6dn,  TEx1_6up);
totexcitm1_5_sum    M1teX2(soutr1, soutr1p1, clk, clk, TEx1_5dn,  TEx1_5up);
totexcitm1_4_sum    M1teX3(soutr2, soutr2p1, clk, clk, TEx1_4dn,  TEx1_4up);
totexcitm1_3_sum    M1teX4(soutr3, soutr3p1, clk, clk, TEx1_3dn,  TEx1_3up);
totexcitm1_2_sum    M1teX5(soutr4, soutr4p1, clk, clk, TEx1_2dn,  TEx1_2up);
totexcitm1_1_sum    M1teX6(soutr5, soutr5p1, clk, clk, TEx1_1dn,  TEx1_1up);

totelastm2_6_sum    M2te1(subtrout, subtroutp, clk, clk, TE2_6dn,  TE2_6up);
totelastm2_5_sum    M2te2(soutr1, soutr1p1, clk, clk, TE2_5dn,  TE2_5up);
totelastm2_4_sum    M2te3(soutr2, soutr2p1, clk, clk, TE2_4dn,  TE2_4up);
totelastm2_3_sum    M2te4(soutr3, soutr3p1, clk, clk, TE2_3dn,  TE2_3up);
totelastm2_2_sum    M2te5(soutr4, soutr4p1, clk, clk, TE2_2dn,  TE2_2up);
totelastm2_1_sum    M2te6(soutr5, soutr5p1, clk, clk, TE2_1dn,  TE2_1up);

totionm2_6_sum      M2ti1(subtrout, subtroutp, clk, clk, TI2_6dn,  TI2_6up);
totionm2_5_sum      M2ti2(soutr1, soutr1p1, clk, clk, TI2_5dn,  TI2_5up);
totionm2_4_sum      M2ti3(soutr2, soutr2p1, clk, clk, TI2_4dn,  TI2_4up);
totionm2_3_sum      M2ti4(soutr3, soutr3p1, clk, clk, TI2_3dn,  TI2_3up);
totionm2_2_sum      M2ti5(soutr4, soutr4p1, clk, clk, TI2_2dn,  TI2_2up);
totionm2_1_sum      M2ti6(soutr5, soutr5p1, clk, clk, TI2_1dn,  TI2_1up);

totexcitm2_6_sum    M2teX1(subtrout, subtroutp, clk, clk, TEx2_6dn,  TEx2_6up);
totexcitm2_5_sum    M2teX2(soutr1, soutr1p1, clk, clk, TEx2_5dn,  TEx2_5up);
totexcitm2_4_sum    M2teX3(soutr2, soutr2p1, clk, clk, TEx2_4dn,  TEx2_4up);
totexcitm2_3_sum    M2teX4(soutr3, soutr3p1, clk, clk, TEx2_3dn,  TEx2_3up);
totexcitm2_2_sum    M2teX5(soutr4, soutr4p1, clk, clk, TEx2_2dn,  TEx2_2up);
totexcitm2_1_sum    M2teX6(soutr5, soutr5p1, clk, clk, TEx2_1dn,  TEx2_1up);
```

```
assign soutr1p1 = soutr1 + 1;
assign soutr2p1 = soutr2 + 1;
assign soutr3p1 = soutr3 + 1;
assign soutr4p1 = soutr4 + 1;
assign soutr5p1 = soutr5 + 1;

assign TE_6dn = (matID1 == 0) ? TE1_6dn : TE2_6dn;
assign TE_6up = (matID1 == 0) ? TE1_6up : TE2_6up;
assign TI_6dn = (matID1 == 0) ? TI1_6dn : TI2_6dn;
assign TI_6up = (matID1 == 0) ? TI1_6up : TI2_6up;
assign TEx_6dn = (matID1 == 0) ? TEx1_6dn : TEx2_6dn;
assign TEx_6up = (matID1 == 0) ? TEx1_6up : TEx2_6up;

assign TE_5dn = (matIDj   == 0) ? TE1_5dn : TE2_5dn;
assign TE_5up = (matIDj   == 0) ? TE1_5up : TE2_5up;
assign TE_4dn = (matIDjr1 == 0) ? TE1_4dn : TE2_4dn;
assign TE_4up = (matIDjr1 == 0) ? TE1_4up : TE2_4up;
assign TE_3dn = (matIDjr2 == 0) ? TE1_3dn : TE2_3dn;
assign TE_3up = (matIDjr2 == 0) ? TE1_3up : TE2_3up;
assign TE_2dn = (matIDjr3 == 0) ? TE1_2dn : TE2_2dn;
assign TE_2up = (matIDjr3 == 0) ? TE1_2up : TE2_2up;
assign TE_1dn = (matIDjr4 == 0) ? TE1_1dn : TE2_1dn;
assign TE_1up = (matIDjr4 == 0) ? TE1_1up : TE2_1up;

assign TEx_5dn = (matIDj   == 0) ? TEx1_5dn : TEx2_5dn;
assign TEx_5up = (matIDj   == 0) ? TEx1_5up : TEx2_5up;
assign TEx_4dn = (matIDjr1 == 0) ? TEx1_4dn : TEx2_4dn;
assign TEx_4up = (matIDjr1 == 0) ? TEx1_4up : TEx2_4up;
assign TEx_3dn = (matIDjr2 == 0) ? TEx1_3dn : TEx2_3dn;
assign TEx_3up = (matIDjr2 == 0) ? TEx1_3up : TEx2_3up;
```

```
assign TEx_2dn = (matIDjr3 == 0) ? TEx1_2dn : TEx2_2dn;
assign TEx_2up = (matIDjr3 == 0) ? TEx1_2up : TEx2_2up;
assign TEx_1dn = (matIDjr4 == 0) ? TEx1_1dn : TEx2_1dn;
assign TEx_1up = (matIDjr4 == 0) ? TEx1_1up : TEx2_1up;

assign TI_5dn = (matIDj   == 0) ? TI1_5dn : TI2_5dn;
assign TI_5up = (matIDj   == 0) ? TI1_5up : TI2_5up;
assign TI_4dn = (matIDjr1 == 0) ? TI1_4dn : TI2_4dn;
assign TI_4up = (matIDjr1 == 0) ? TI1_4up : TI2_4up;
assign TI_3dn = (matIDjr2 == 0) ? TI1_3dn : TI2_3dn;
assign TI_3up = (matIDjr2 == 0) ? TI1_3up : TI2_3up;
assign TI_2dn = (matIDjr3 == 0) ? TI1_2dn : TI2_2dn;
assign TI_2up = (matIDjr3 == 0) ? TI1_2up : TI2_2up;
assign TI_1dn = (matIDjr4 == 0) ? TI1_1dn : TI2_1dn;
assign TI_1up = (matIDjr4 == 0) ? TI1_1up : TI2_1up;



assign atom1dn  = (inttype2r4 == 2'b0) ? TE_1dn : ((inttype2r4 == 2'b01) ? TI_1dn : TEx_1dn);
assign atom1up  = (inttype2r4 == 2'b0) ? TE_1up : ((inttype2r4 == 2'b01) ? TI_1up : TEx_1up);

assign atom2dn  = (inttype2r3 == 2'b0) ? TE_2dn : ((inttype2r3 == 2'b01) ? TI_2dn : TEx_2dn);
assign atom2up  = (inttype2r3 == 2'b0) ? TE_2up : ((inttype2r3 == 2'b01) ? TI_2up : TEx_2up);

assign atom3dn  = (inttype2r2 == 2'b0) ? TE_3dn : ((inttype2r2 == 2'b01) ? TI_3dn : TEx_3dn);
assign atom3up  = (inttype2r2 == 2'b0) ? TE_3up : ((inttype2r2 == 2'b01) ? TI_3up : TEx_3up);

assign atom4dn  = (inttype2r1 == 2'b0) ? TE_4dn : ((inttype2r1 == 2'b01) ? TI_4dn : TEx_4dn);
assign atom4up  = (inttype2r1 == 2'b0) ? TE_4up : ((inttype2r1 == 2'b01) ? TI_4up : TEx_4up);

assign atom5dn  = (inttype2 == 2'b0) ? TE_5dn : ((inttype2 == 2'b01) ? TI_5dn : TEx_5dn);
assign atom5up  = (inttype2 == 2'b0) ? TE_5up : ((inttype2 == 2'b01) ? TI_5up : TEx_5up);
```

```
    interpolatexscn ix1   (TE_6dn,  TE_6up,  remr1, clk, finaltotELA);
    interpolatexscn ix2   (TI_6dn,  TI_6up,  remr1, clk, finaltotION);
    interpolatexscn ix3   (TEx_6dn, TEx_6up, remr1, clk, finaltotEXC);

    interpolatexscn ix11(atom1dn, atom1up, remrjr4, clk, finaltotS1);
    interpolatexscn ix12(atom2dn, atom2up, remrjr3, clk, finaltotS2);
    interpolatexscn ix13(atom3dn, atom3up, remrjr2, clk, finaltotS3);
    interpolatexscn ix14(atom4dn, atom4up, remrjr1, clk, finaltotS4);
    interpolatexscn ix15(atom5dn, atom5up, remrj, clk, finaltotS5);

  //HDL GEN: reduce2('reduce24to17.v', 'reduce24to17', 24, 17, 1);

    reduce24to17 redd(totaltotal, convfactor1, shiftbit1, clk);

    mul18to18 mul1({1'b0, RAND1in}, {1'b0, convfactor1}, {null1, scaledrand}, clk);

    mul18to18 mul2({1'b0, RAND2in}, {1'b0, lmr8}, {null2, scrand}, clk);

    assign plower_r5 = lower_r4 << shiftbit1[3:0];
    assign pmid_r5 = mid_r4 << shiftbit1[3:0];
    assign ptop_r5 = top_r4 << shiftbit1[3:0];

    assign S1 = finaltotS1[46:23] << sbr18;
    assign S2 = finaltotS2[46:23] << sbr17;
    assign S3 = finaltotS3[46:23] << sbr16;
    assign S4 = finaltotS4[46:23] << sbr15;
    assign S5 = finaltotS5[46:23] << sbr14;


    assign interaction_type = inttype2;
    assign interaction_atom = atm5;
    assign total_cross = totaltotal;
```

```
always @(posedge clk)
begin


    S1s <= S1[23:7];
    S2s <= S2[23:7];
    S3s <= S3[23:7];
    S4s <= S4[23:7];
    S5s <= S5[23:7];

    pr1 <= previouslyrejected;
    pr2 <= pr1;    pr3 <= pr2;    pr4 <= pr3;    pr5 <= pr4;
    pr6 <= pr5;    pr7 <= pr6;    pr8 <= pr7;    pr9 <= pr8;
    pra <= pr9;    prb <= pra;    prc <= prb;    prd <= prc;
    pre <= prd;    prf <= pre;    prg <= prf;    prh <= prg;
    pri <= prh;    prj <= pri;    prk <= prj;    prl <= prk;
    prm <= prl;    prn <= prm;    pro <= prn;    prp <= pro;
    prq <= prp;    prr <= prq;    prs <= prr;



    scrand1 <= scrand;
    scrand2 <= scrand1;
    scrand3 <= scrand2;
    scrand4 <= scrand3;
    scrand5 <= scrand4;
    scrand6 <= scrand5;
    scrand7 <= scrand6;
    scrand8 <= scrand7;
    scrand9 <= scrand8;
```

```
scranda <= scrand9;
scrandb <= scranda;
scrandc <= scrandb;
scrandd <= scrandc;
scrande <= scrandd;


scaledrandr1 <= scaledrand;
totaltotal <= finaltotELA[46:23] + finaltotION[46:23] + finaltotEXC[46:23];
lower_r1 <= finaltotELA[46:23];
lower_r2 <= lower_r1;
lower_r3 <= lower_r2;
lower_r4 <= lower_r3;
lower_r5 <= plower_r5[23:7];
lower_r6 <= lower_r5;
mid_r1 <= finaltotELA[46:23] + finaltotION[46:23];
mid_r2 <= mid_r1;
mid_r3 <= mid_r2;
mid_r4 <= mid_r3;
mid_r5 <= pmid_r5[23:7];
mid_r6 <= mid_r5;
top_r1 <= finaltotEXC[46:23];
top_r2 <= top_r1;
top_r3 <= top_r2;
top_r4 <= top_r3;
top_r5 <= ptop_r5[23:7];
top_r6 <= top_r5;
top_r7 <= top_r6;
Mmid_r6 <= mid_r5 - lower_r5;

lmr7 <= (inttype1[0] == 0) ? lower_r6 : Mmid_r6;
lmr8 <= (inttype2[1] == 1) ? top_r7 : lmr7;
```

```
sbr1 <= shiftbit1[3:0];
sbr2 <= sbr1;
sbr3 <= sbr2;
sbr4 <= sbr3;
sbr5 <= sbr4;
sbr6 <= sbr5;
sbr7 <= sbr6;
sbr8 <= sbr7;
sbr9 <= sbr8;
sbr10 <= sbr9;
sbr11 <= sbr10;
sbr12 <= sbr11;
sbr13 <= sbr12;
sbr14 <= sbr13;
sbr15 <= sbr14;
sbr16 <= sbr15;
sbr17 <= sbr16;
sbr18 <= sbr17;



atm1 <= (scranda < S5s) ? 3'b100 : 3'b101;
atm2 <= (scrandb < S4s) ? 3'b011 : atm1;
atm3 <= (scrandc < S3s) ? 3'b010 : atm2;
atm4 <= (scrandd < S2s) ? 3'b001 : atm3;
atm5 <= (scrande < S1s) ? 3'b000 : atm2;


matID1 <= materialID;
matID2 <= matID1;
matID3 <= matID2;
matID4 <= matID3;
matID5 <= matID4;
```

```
matID6 <= matID5;
matID7 <= matID6;
matID8 <= matID7;
matID9 <= matID8;
matIDa <= matID9;
matIDb <= matIDa;
matIDc <= matIDb;
matIDd <= matIDc;
matIDe <= matIDd;
matIDf <= matIDe;
matIDg <= matIDf;
matIDh <= matIDg;
matIDi <= matIDh;
matIDj <= matIDi;
matIDjr1 <= matIDj;
matIDjr2 <= matIDjr1;
matIDjr3 <= matIDjr2;
matIDjr4 <= matIDjr3;

remr1 <= remainder;
remr2 <= remr1;
remr3 <= remr2;
remr4 <= remr3;
remr5 <= remr4;
remr6 <= remr5;
remr7 <= remr6;
remr8 <= remr7;
remr9 <= remr8;
remra <= remr9;
remrb <= remra;
remrc <= remrb;
remrd <= remrc;
remre <= remrd;
```

```
remrf <= remre;
remrg <= remrf;
remrh <= remrg;
remri <= remrh;
remrj <= remri;
remrjr1 <= remrj;
remrjr2 <= remrjr1;
remrjr3 <= remrjr2;
remrjr4 <= remrjr3;

so1 <= subtrout;
so2 <= so1;    so3 <= so2;    so4 <= so3;    so5 <= so4;
so6 <= so5;    so7 <= so6;    so8 <= so7;    so9 <= so8;
so10 <= so9;    so11 <= so10;    so12 <= so11;    so13 <= so12;
so14 <= so13;    so15 <= so14;    so16 <= so15;    so17 <= so16;
soutr1 <= so17;
soutr2 <= soutr1;
soutr3 <= soutr2;
soutr4 <= soutr3;
soutr5 <= soutr4;

////////////////////////////////////////////
//
//   2'b00 = Elastic Scattering Event
//   2'b01 = Electron Impact Ionization
//   2'b10 = Electron Impact Excitation
//
////////////////////////////////////////////

inttype1 <= (lower_r5 >  scaledrand)   ? ((prq == 1) ? 2'b01 : 2'b00) : 2'b01;
inttype2 <= (mid_r6   <  scaledrandr1) ? ((prr == 1) ? 2'b01 : 2'b10) : inttype1;
inttype2r1 <= inttype2;
inttype2r2 <= inttype2r1;
```

```
    inttype2r3 <= inttype2r2;
    inttype2r4 <= inttype2r3;



end

endmodule
```

```
//////////////////////////////////////////////////////
// Function to perform -log base 2 of an unsigned
//  input numer which is in the range 0->1
//  Optimized in part for the Virtex-II Pro 100 FPGA
//   ----------------------------------------------

// Input, 24 bits unsigned
// output 17 bits unsigned (mantissa) in range 0->1
// output 3 bits exponent = mantissa * 2^posshift

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//


module nlog2lt1(usinnum, usoutnum, posshift, clk);

   input [23:0] usinnum;
   input clk;

   output [16:0] usoutnum;
   output [2:0] posshift;


   wire [23:0] redout;
   wire [4:0] shiout;
   wire [34:0] lmemout;

   wire [17:0] mout;

   wire [16:0] t2, t2p1, t2p2, t2p3, t2p4;
```

```
wire [2:0] ss1, ss2, ss3, ss4, ss5;
wire [17:0] C;
wire [16:0] B;

reg [12:0] indelay1;
reg [21:0] Cd1;
reg [4:0] shid1;
reg [21:0] preout;
reg [16:0] usout;
reg [2:0] usouts;

assign usoutnum = usout;
assign posshift = usouts;


// pseudo-float usinnum!
// HDL GEN: reduce2('reduce24to24.v', 'reduce24to24', 24, 24, 1);

reduce24to24 red1(usinnum, redout, shiout, clk);

// For log2 lookup table:
// HDL GEN: makecoe('nlog2ram.coe', @(x)(log2(x+1)), 10, 17, 0, 18, 0, 1, 0)
// ShiftB = 26,  ShiftC = 18
//
// requires a 10x54 bit read only single port blockram loaded with this COE
// (No input stage to the blockram)


nlog2ram nlogram1(redout[22:13],clk,        lmemout);

assign C = lmemout[17:0];
assign B = lmemout[34:18];
```

```
  // HDL GEN:  multiply_round('mul18to18.v', 'mul18to18', 2, 18)

  mul18to18 m1818({1'b0,B}, {{1'b0, indelay1},4'b0}, mout, clk);

  assign t2 = (preout[21:17] == 0)   ? preout[16:0] : t2p1;
            assign t2p1 = (preout[21:18] == 0) ? preout[17:1] : t2p2;
            assign t2p2 = (preout[21:19] == 0) ? preout[18:2] : t2p3;
            assign t2p3 = (preout[21:20] == 0) ? preout[19:3] : t2p4;
            assign t2p4 = (preout[21] == 0)    ? preout[20:4] : preout[21:5];


  assign ss1 = (preout[21:17] == 0) ? 0 : ss2;
            assign ss2 = (preout[21:18] == 0) ? 1 : ss3;
            assign ss3 = (preout[21:19] == 0) ? 2 : ss4;
            assign ss4 = (preout[21:20] == 0) ? 3 : ss5;
            assign ss5 = (preout[21] == 0)    ? 4 : 5;


  always @(posedge clk)
    begin

    indelay1 <= redout[12:0];
    Cd1 <= {shid1, 17'b0} - {5'b0,C[17:1]} - {21'b0, C[0]};
    shid1 <= shiout + 1;
    preout <= Cd1 - {14'b0, mout[16:9]} - {21'b0, mout[8]};

    usout <= t2;
    usouts <= ss1;

    end

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 26-Jul-2006
//////////////////////////////////////////////////////
// multiply two numbers with rounding
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module mul18to18(Ain, Bin, outputn, clk);

        input [17:0] Ain, Bin;

        output [17:0] outputn;
        input clk;

        wire [35:0] mulout;

        reg [17:0] outputregister;

        // reqires a 18 by 18 un-clocked signed multiplier with the following designation
        mul18b18 mul1(Ain, Bin, mulout);

        always @(posedge clk)
                begin
                outputregister <= mulout[34:17] + mulout[16];
                end
```

```
        assign outputn = outputregister;

endmodule
```

```
module mul18b18 (
        a,
        b,
        o);

input [17 : 0] a;
input [17 : 0] b;
output [35 : 0] o;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,      // bram_addr_width
                0,      // c_a_type
                18,     // c_a_width
                18,     // c_baat
                0,      // c_b_constant
                0,      // c_b_type
                "0000000000000001",     // c_b_value
                18,     // c_b_width
                1,      // c_enable_rlocs
                0,      // c_has_aclr
                0,      // c_has_a_signed
                1,      // c_has_b
                0,      // c_has_ce
                0,      // c_has_loadb
                0,      // c_has_load_done
                0,      // c_has_nd
                1,      // c_has_o
                0,      // c_has_q
                0,      // c_has_rdy
                0,      // c_has_rfd
                0,      // c_has_sclr
```

```
                0,          // c_has_swapb
                "mem",      // c_mem_init_prefix
                0,          // c_mem_type
                1,          // c_mult_type
                0,          // c_output_hold
                36,         // c_out_width
                0,          // c_pipeline
                0,          // c_reg_a_b_inputs
                0,          // c_sqm_type
                1,          // c_stack_adders
                1,          // c_standalone
                1,          // c_sync_enable
                0,          // c_use_luts
                0)          // c_v2_speed
        inst (
                .A(a),
                .B(b),
                .O(o),
                .CLK(),
                .Q(),
                .A_SIGNED(),
                .LOADB(),
                .LOAD_DONE(),
                .SWAPB(),
                .CE(),
                .ACLR(),
                .SCLR(),
                .RFD(),
                .ND(),
                .RDY());

// synopsys translate_on
endmodule
```

```
module nlog2ram (
	addr,
	clk,
	dout);

input [9 : 0] addr;
input clk;
output [34 : 0] dout;

// synopsys translate_off

	BLKMEMSP_V6_1 #(
		10,	// c_addr_width
		"0",	// c_default_data
		1024,	// c_depth
		0,	// c_enable_rlocs
		0,	// c_has_default_data
		0,	// c_has_din
		0,	// c_has_en
		0,	// c_has_limit_data_pitch
		0,	// c_has_nd
		0,	// c_has_rdy
		0,	// c_has_rfd
		0,	// c_has_sinit
		0,	// c_has_we
		18,	// c_limit_data_pitch
		"nlog2ram.mif",	// c_mem_init_file
		0,	// c_pipe_stages
		0,	// c_reg_inputs
		"0",	// c_sinit_value
		35,	// c_width
		0,	// c_write_mode
		"0",	// c_ybottom_addr
```

```
                1,          // c_yclk_is_rising
                1,          // c_yen_is_high
                "hierarchy1",       // c_yhierarchy
                0,          // c_ymake_bmm
                "16kx1", // c_yprimitive_type
                1,          // c_ysinit_is_high
                "1024",   // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywe_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDR(addr),
                .CLK(clk),
                .DOUT(dout),
                .DIN(),
                .EN(),
                .ND(),
                .RFD(),
                .RDY(),
                .SINIT(),
                .WE());


// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 07-Aug-2006
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module reduce24to24(inputbits, outputbits, shiftbits, clk);

        input [23:0] inputbits;
        input clk;

        output [23:0] outputbits;
        output [4:0] shiftbits;

        wire and1, and2, and3, and4, and5;

        wire [26:0] ta1, ta2, ta3, ta4, ta5;

        wire [4:0] sha1, sha2, sha3, sha4, sha5;

        wire [26:0] t2, t2p1, t2p2, t2p3;
        wire [2:0] sumshift, ss1, ss2, ss3;

        reg [4:0] shap1, shap2;
        reg [4:0] SHAP;
        reg [23:0] inputbitsr1;
```

```
reg [26:0] TAP;
reg [26:0] tpipe1;
reg [23:0] tpipe2;

reg and1p1, and2p1;

assign and1 = inputbits[23] | inputbits[22] | inputbits[21] | inputbits[20];
assign and2 = inputbits[19] | inputbits[18] | inputbits[17] | inputbits[16];
assign and3 = inputbits[15] | inputbits[14] | inputbits[13] | inputbits[12];
assign and4 = inputbits[11] | inputbits[10] | inputbits[9] | inputbits[8];
assign and5 = inputbits[7] | inputbits[6] | inputbits[5] | inputbits[4];


assign ta1 =  ((and1p1) == 1) ? {inputbitsr1[23:0], 3'b0} : ta2;
assign ta2 =  ((and1p1 | and2p1) == 1) ? {inputbitsr1[19:0], 7'b0} : TAP;
assign ta3 =  ((and1 | and2 | and3) == 1) ? {inputbits[15:0], 11'b0} : ta4;
assign ta4 =  ((and1 | and2 | and3 | and4) == 1) ? {inputbits[11:0], 15'b0} : ta5;
assign ta5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? {inputbits[7:0], 19'b0} : {inputbits[3:0], 23'b0};


assign sha1 =  ((and1p1) == 1) ? 0 : sha2;
assign sha2 =  ((and1p1 | and2p1) == 1) ? 4 : SHAP;
assign sha3 =  ((and1 | and2 | and3) == 1) ? 8 : sha4;
assign sha4 =  ((and1 | and2 | and3 | and4) == 1) ? 12 : sha5;
assign sha5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? 16 : 20;


assign t2 = (tpipe1[26:23] == 0) ? {tpipe1[22:0], 4'b0} : t2p1;
assign t2p1 = (tpipe1[26:24] == 0) ? {tpipe1[23:0], 3'b0} : t2p2;
assign t2p2 = (tpipe1[26:25] == 0) ? {tpipe1[24:0], 2'b0} : t2p3;
assign t2p3 = (tpipe1[26:26] == 0) ? {tpipe1[25:0], 1'b0} : tpipe1[26:0];
```

```
        assign sumshift = (tpipe1[26:23] == 0) ? 4 : ss1;
        assign ss1 = (tpipe1[26:24] == 0) ? 3 : ss2;
        assign ss2 = (tpipe1[26:25] == 0) ? 2 : ss3;
        assign ss3 = (tpipe1[26:26] == 0) ? 1 : 0;


        always @(posedge clk)
                begin

                TAP <= ta3;
                SHAP <= sha3;
                inputbitsr1 <= inputbits;
                shap1 <= sha1;
                shap2 <= shap1 + sumshift;
                tpipe1 <= ta1;
                tpipe2 <= t2[26:3];

                ////////////////////////
                and1p1 <= and1;
                and2p1 <= and2;
                end

        assign shiftbits = shap2;
        assign outputbits = tpipe2;

endmodule
```

```
//////////////////////////////////////////////////
//
//  Function to lookup cross sections
//
//  Optimized in part for the Virtex-II Pro 100 FPGA
//   ---------------------------------------------
//
//  For this function to work, the lower/upper log values
//   MUST be greater than 1.

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//




module interpolatexscn(lowerlogval, upperlogval, energyremainder, clk, finalvalue);

    input [35:0] lowerlogval, upperlogval;
    input [8:0] energyremainder;
    input clk;

    output [46:0] finalvalue;



    wire [28:0] difference;
```

```
wire [17:0] sl;
wire [4:0] shiftsl;
wire [34:0] mout2;

wire [16:0] usout;
wire [5:0] smusoutshift;  // Sign Magnitude Shift Value


wire [64:0] moutshift;

reg [47:0] shiftedpreout;

reg [4:0] shiftslr1;
reg [28:0] differencep;
reg [35:0] llogr1, llogr2, llogr3, llogr4, llogr5, llogr6, moutshiftr1;
reg [8:0] energyremainderR1, energyremainderR2, energyremainderR3,
        energyremainderR4, energyremainderR5;
reg [35:0] interpolated;

assign difference = upperlogval[35:8] - lowerlogval[35:8];

//HDL GEN: sreduce2('sreduce29to18.v', 'sreduce29to18', 29, 18, 1);


sreduce29to18 rd1(differencep, sl, shiftsl, clk);

mult17b18os m17b17(clk, {energyremainderR4, 8'b0}, sl, mout2);

twox tx1(interpolated[35:1], clk, usout, smusoutshift);

assign moutshift = {{30{mout2[34]}}, {mout2[33:0], 1'b0}} >> shiftslr1;

assign finalvalue = shiftedpreout[46:0];
```

```
    always @(posedge clk)
    begin

        differencep <= difference;
        energyremainderR1 <= energyremainder;
        energyremainderR2 <= energyremainderR1;
        energyremainderR3 <= energyremainderR2;
        energyremainderR4 <= energyremainderR3;

        shiftslr1 <= shiftsl;

        llogr1 <= lowerlogval;
        llogr2 <= {1'b0, llogr1[35:1]};
        llogr3 <= ~llogr2;
        llogr4 <= llogr3 + 1;
        llogr5 <= llogr4;
        llogr6 <= llogr5;

        moutshiftr1 <= moutshift[35:0];

        interpolated <= llogr6 - moutshiftr1;

        shiftedpreout <= {usout, 31'b0} >> smusoutshift[4:0];

    end

endmodule
```

```
module mult17b18os (
        clk,
        a,
        b,
        q);

input clk;
input [16 : 0] a;
input [17 : 0] b;
output [34 : 0] q;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,      // bram_addr_width
                1,      // c_a_type
                17,     // c_a_width
                17,     // c_baat
                0,      // c_b_constant
                0,      // c_b_type
                "0000000000000001",     // c_b_value
                18,     // c_b_width
                1,      // c_enable_rlocs
                0,      // c_has_aclr
                0,      // c_has_a_signed
                1,      // c_has_b
                0,      // c_has_ce
                0,      // c_has_loadb
                0,      // c_has_load_done
                0,      // c_has_nd
                0,      // c_has_o
                1,      // c_has_q
                0,      // c_has_rdy
```

```
            0,          // c_has_rfd
            0,          // c_has_sclr
            0,          // c_has_swapb
            "mem",      // c_mem_init_prefix
            0,          // c_mem_type
            1,          // c_mult_type
            0,          // c_output_hold
            35,         // c_out_width
            0,          // c_pipeline
            0,          // c_reg_a_b_inputs
            0,          // c_sqm_type
            1,          // c_stack_adders
            1,          // c_standalone
            1,          // c_sync_enable
            0,          // c_use_luts
            0)          // c_v2_speed
inst (
            .CLK(clk),
            .A(a),
            .B(b),
            .Q(q),
            .O(),
            .A_SIGNED(),
            .LOADB(),
            .LOAD_DONE(),
            .SWAPB(),
            .CE(),
            .ACLR(),
            .SCLR(),
            .RFD(),
            .ND(),
            .RDY());
```

```
// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 16-Feb-2007
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module sreduce29to18(inputbits, outputbits, shiftbits, clk);

        input [28:0] inputbits;
        input clk;

        output [17:0] outputbits;
        output [4:0] shiftbits;

        wire and1, and2, and3, and4, and5, and6, and7;

        wire Nand2, Nand3, Nand4, Nand5, Nand6, Nand7;

        wire [20:0] ta1, ta2, ta3, ta4, ta5, ta6, ta7;

        wire [4:0] sha1, sha2, sha3, sha4, sha5, sha6, sha7;

        wire [20:0] t2, t2p1, t2p2, t2p3;
        wire [2:0] sumshift, ss1, ss2, ss3;
```

```
        reg [4:0] shap1, shap2;
        reg [4:0] SHAP;
        reg [28:0] inputbitsr1;
        reg [20:0] TAP;
        reg [20:0] tpipe1;
        reg [17:0] tpipe2;

        reg and1p1, and2p1, and3p1;

        reg Nand2p1, Nand3p1;

        assign and1 = (inputbits[28] & inputbits[27] & inputbits[26] & inputbits[25]) || ((~inputbits[28]) & (~inputbits[27]) & (~inputbits[26]) &
(~inputbits[25]));
        assign and2 = (inputbits[24] & inputbits[23] & inputbits[22] & inputbits[21]) || ((~inputbits[24]) & (~inputbits[23]) & (~inputbits[22]) &
(~inputbits[21]));
        assign and3 = (inputbits[20] & inputbits[19] & inputbits[18] & inputbits[17]) || ((~inputbits[20]) & (~inputbits[19]) & (~inputbits[18]) &
(~inputbits[17]));
        assign and4 = (inputbits[16] & inputbits[15] & inputbits[14] & inputbits[13]) || ((~inputbits[16]) & (~inputbits[15]) & (~inputbits[14]) &
(~inputbits[13]));
        assign and5 = (inputbits[12] & inputbits[11] & inputbits[10] & inputbits[9]) || ((~inputbits[12]) & (~inputbits[11]) & (~inputbits[10]) & (~inputbits[9]));
        assign and6 = (inputbits[8] & inputbits[7] & inputbits[6] & inputbits[5]) || ((~inputbits[8]) & (~inputbits[7]) & (~inputbits[6]) & (~inputbits[5]));
        assign and7 = (inputbits[4] & inputbits[3] & inputbits[2] & inputbits[1]) || ((~inputbits[4]) & (~inputbits[3]) & (~inputbits[2]) & (~inputbits[1]));


        assign Nand2 = ~(inputbits[28] ^ inputbits[24]);
        assign Nand3 = ~(inputbits[28] ^ inputbits[24] ^ inputbits[20]);
        assign Nand4 = ~(inputbits[28] ^ inputbits[24] ^ inputbits[20] ^ inputbits[16]);
        assign Nand5 = ~(inputbits[28] ^ inputbits[24] ^ inputbits[20] ^ inputbits[16] ^ inputbits[12]);
        assign Nand6 = ~(inputbits[28] ^ inputbits[24] ^ inputbits[20] ^ inputbits[16] ^ inputbits[12] ^ inputbits[8]);
        assign Nand7 = ~(inputbits[28] ^ inputbits[24] ^ inputbits[20] ^ inputbits[16] ^ inputbits[12] ^ inputbits[8] ^ inputbits[4]);
```

```
        assign ta1 =  ((and1p1) == 0) ? {inputbitsr1[28], inputbitsr1[27:8]} : ta2;
        assign ta2 =  ((and1p1 & and2p1 & Nand2p1) == 0) ? {inputbitsr1[28], inputbitsr1[24:5]} : ta3;
        assign ta3 =  ((and1p1 & and2p1 & and3p1 & Nand3p1) == 0) ? {inputbitsr1[28], inputbitsr1[20:1]} : TAP;
        assign ta4 =  ((and1 & and2 & and3 & and4 & Nand4) == 0) ? {inputbits[28],{inputbits[16:0], 3'b0}} : ta5;
        assign ta5 =  ((and1 & and2 & and3 & and4 & and5 & Nand5) == 0) ? {inputbits[28],{inputbits[12:0], 7'b0}} : ta6;
        assign ta6 =  ((and1 & and2 & and3 & and4 & and5 & and6 & Nand6) == 0) ? {inputbits[28],{inputbits[8:0], 11'b0}} : ta7;
        assign ta7 =  ((and1 & and2 & and3 & and4 & and5 & and6 & and7 & Nand7) == 0) ? {inputbits[28],{inputbits[4:0], 15'b0}} :
{inputbits[28],{inputbits[0:0], 19'b0}};


        assign sha1 =  ((and1p1) == 0) ? 0 : sha2;
        assign sha2 =  ((and1p1 & and2p1 & Nand2p1) == 0) ? 3 : sha3;
        assign sha3 =  ((and1p1 & and2p1 & and3p1 & Nand3p1) == 0) ? 7 : SHAP;
        assign sha4 =  ((and1 & and2 & and3 & and4 & Nand4) == 0) ? 11 : sha5;
        assign sha5 =  ((and1 & and2 & and3 & and4 & and5 & Nand5) == 0) ? 15 : sha6;
        assign sha6 =  ((and1 & and2 & and3 & and4 & and5 & and6 & Nand6) == 0) ? 19 : sha7;
        assign sha7 =  ((and1 & and2 & and3 & and4 & and5 & and6 & and7 & Nand7) == 0) ? 23 : 27;


        assign t2 = (((tpipe1[20] & tpipe1[19] & tpipe1[18] & tpipe1[17]) || ((~tpipe1[20]) & (~tpipe1[19]) & (~tpipe1[18]) & (~tpipe1[17])))  == 1) ?
{tpipe1[17:0], 3'b0} : t2p1;
        assign t2p1 = (((tpipe1[20] & tpipe1[19] & tpipe1[18]) || ((~tpipe1[20]) & (~tpipe1[19]) & (~tpipe1[18]))) == 1) ? {tpipe1[18:0], 2'b0} : t2p2;
        assign t2p2 = (((tpipe1[20] & tpipe1[19]) || ((~tpipe1[20]) & (~tpipe1[19]))) == 1) ? {tpipe1[19:0], 1'b0} : tpipe1[20:0];


        assign sumshift = (((tpipe1[20] & tpipe1[19] & tpipe1[18] & tpipe1[17]) || ((~tpipe1[20]) & (~tpipe1[19]) & (~tpipe1[18]) & (~tpipe1[17])))  == 1) ? 3
: ss1;
        assign ss1 = (((tpipe1[20] & tpipe1[19] & tpipe1[18]) || ((~tpipe1[20]) & (~tpipe1[19]) & (~tpipe1[18]))) == 1) ? 2 : ss2;
        assign ss2 = (((tpipe1[20] & tpipe1[19]) || ((~tpipe1[20]) & (~tpipe1[19]))) == 1) ? 1 : 0;


        always @(posedge clk)
                begin
```

```
                TAP <= ta4;
                SHAP <= sha4;
                inputbitsr1 <= inputbits;
                shap1 <= sha1;
                shap2 <= shap1 + sumshift;
                tpipe1 <= ta1;
                tpipe2 <= t2[20:3];

                ////////////////////////
                and1p1 <= and1;
                and2p1 <= and2;
                and3p1 <= and3;
                Nand2p1 <= Nand2;
                Nand3p1 <= Nand3;

                end

        assign shiftbits = shap2;
        assign outputbits = tpipe2;

endmodule
```

```
//////////////////////////////////////////////////
// Function to determine 2 ^ x
//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//
// format: usout = X.XXXXXX... (17 bits)
//    smusoutshift = sign magnitude integer (range +/- 31)
//

module twox(signedin, clk, usout, smusoutshift);
    input [34:0] signedin;
    input clk;

    output [16:0] usout;
    output [5:0] smusoutshift;  // Sign Magnitude Shift Value


    wire [16:0] B;
    wire [17:0] C;
    wire [35:0] moutputn;

    reg [5:0] savesr1, savesr2, savesr3;
    reg [17:0] Cr1;
    reg [16:0] saveBr1;
    reg [15:0] presum1;
    reg sine;

    assign usout = {1'b1, presum1};
    assign smusoutshift = savesr3;
```

```
//
// For 2 ^ x Lookup Table
// HDL GEN: makecoe('twoxram.coe', @(x)((2 .^ x) - 1), 10, 17, 0, 18, 0, 1, 0)
//
// ShiftB = 26,  ShiftC = 18
//
// requires a 10x35 bit read only single port blockram loaded with this COE
// (No input stage to the blockram)
//

twoxram tx1(signedin[28:19],       clk,        {B,C});

mul18b18os m1(clk, {1'b0, saveBr1}, {1'b0, B}, moutputn);


always @(posedge clk)
  begin

     savesr1 <= (signedin[34] == 1) ? ~signedin[34:29] + 1 : signedin[34:29];
     sine <= signedin[34];
     savesr2 <= {sine, savesr1[4:0]};
     savesr3 <= savesr2;

     Cr1 <= C;

     presum1 <= Cr1[17:2] + {9'b0, moutputn[33:27]} + moutputn[26] + Cr1[1];

     saveBr1 <= signedin[18:2];
  end

endmodule
```

```
module mul18b18os (
        clk,
        a,
        b,
        q);

input clk;
input [17 : 0] a;
input [17 : 0] b;
output [35 : 0] q;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,      // bram_addr_width
                0,      // c_a_type
                18,     // c_a_width
                18,     // c_baat
                0,      // c_b_constant
                0,      // c_b_type
                "0000000000000001",     // c_b_value
                18,     // c_b_width
                1,      // c_enable_rlocs
                0,      // c_has_aclr
                0,      // c_has_a_signed
                1,      // c_has_b
                0,      // c_has_ce
                0,      // c_has_loadb
                0,      // c_has_load_done
                0,      // c_has_nd
                0,      // c_has_o
                1,      // c_has_q
                0,      // c_has_rdy
```

```
            0,          // c_has_rfd
            0,          // c_has_sclr
            0,          // c_has_swapb
            "mem",      // c_mem_init_prefix
            0,          // c_mem_type
            1,          // c_mult_type
            0,          // c_output_hold
            36,         // c_out_width
            0,          // c_pipeline
            0,          // c_reg_a_b_inputs
            0,          // c_sqm_type
            1,          // c_stack_adders
            1,          // c_standalone
            1,          // c_sync_enable
            0,          // c_use_luts
            0)          // c_v2_speed
inst (
            .CLK(clk),
            .A(a),
            .B(b),
            .Q(q),
            .O(),
            .A_SIGNED(),
            .LOADB(),
            .LOAD_DONE(),
            .SWAPB(),
            .CE(),
            .ACLR(),
            .SCLR(),
            .RFD(),
            .ND(),
            .RDY());
```

```
// synopsys translate_on

endmodule
```

```
module twoxram (
        addr,
        clk,
        dout);

input [9 : 0] addr;
input clk;
output [34 : 0] dout;

// synopsys translate_off

        BLKMEMSP_V6_1 #(
                10,     // c_addr_width
                "0",    // c_default_data
                1024,   // c_depth
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_din
                0,      // c_has_en
                0,      // c_has_limit_data_pitch
                0,      // c_has_nd
                0,      // c_has_rdy
                0,      // c_has_rfd
                0,      // c_has_sinit
                0,      // c_has_we
                18,     // c_limit_data_pitch
                "twoxram.mif",  // c_mem_init_file
                0,      // c_pipe_stages
                0,      // c_reg_inputs
                "0",    // c_sinit_value
                35,     // c_width
                0,      // c_write_mode
                "0",    // c_ybottom_addr
```

```
                1,          // c_yclk_is_rising
                1,          // c_yen_is_high
                "hierarchy1",       // c_yhierarchy
                0,          // c_ymake_bmm
                "16kx1", // c_yprimitive_type
                1,          // c_ysinit_is_high
                "1024",   // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywe_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDR(addr),
                .CLK(clk),
                .DOUT(dout),
                .DIN(),
                .EN(),
                .ND(),
                .RFD(),
                .RDY(),
                .SINIT(),
                .WE());


// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 28-Mar-2007
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module reduce24to17(inputbits, outputbits, shiftbits, clk);

        input [23:0] inputbits;
        input clk;

        output [16:0] outputbits;
        output [4:0] shiftbits;

        wire and1, and2, and3, and4, and5;

        wire [19:0] ta1, ta2, ta3, ta4, ta5;

        wire [4:0] sha1, sha2, sha3, sha4, sha5;

        wire [19:0] t2, t2p1, t2p2, t2p3;
        wire [2:0] sumshift, ss1, ss2, ss3;

        reg [4:0] shap1, shap2;
        reg [4:0] SHAP;
```

```
reg [23:0] inputbitsr1;
reg [19:0] TAP;
reg [19:0] tpipe1;
reg [16:0] tpipe2;

reg and1p1, and2p1;

assign and1 = inputbits[23] | inputbits[22] | inputbits[21] | inputbits[20];
assign and2 = inputbits[19] | inputbits[18] | inputbits[17] | inputbits[16];
assign and3 = inputbits[15] | inputbits[14] | inputbits[13] | inputbits[12];
assign and4 = inputbits[11] | inputbits[10] | inputbits[9] | inputbits[8];
assign and5 = inputbits[7] | inputbits[6] | inputbits[5] | inputbits[4];


assign ta1 =  ((and1p1) == 1) ? inputbitsr1[23:4] : ta2;
assign ta2 =  ((and1p1 | and2p1) == 1) ? inputbitsr1[19:0] : TAP;
assign ta3 =  ((and1 | and2 | and3) == 1) ? {inputbits[15:0], 4'b0} : ta4;
assign ta4 =  ((and1 | and2 | and3 | and4) == 1) ? {inputbits[11:0], 8'b0} : ta5;
assign ta5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? {inputbits[7:0], 12'b0} : {inputbits[3:0], 16'b0};


assign sha1 =  ((and1p1) == 1) ? 0 : sha2;
assign sha2 =  ((and1p1 | and2p1) == 1) ? 4 : SHAP;
assign sha3 =  ((and1 | and2 | and3) == 1) ? 8 : sha4;
assign sha4 =  ((and1 | and2 | and3 | and4) == 1) ? 12 : sha5;
assign sha5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? 16 : 20;


assign t2 = (tpipe1[19:16] == 0) ? {tpipe1[15:0], 4'b0} : t2p1;
assign t2p1 = (tpipe1[19:17] == 0) ? {tpipe1[16:0], 3'b0} : t2p2;
assign t2p2 = (tpipe1[19:18] == 0) ? {tpipe1[17:0], 2'b0} : t2p3;
assign t2p3 = (tpipe1[19:19] == 0) ? {tpipe1[18:0], 1'b0} : tpipe1[19:0];
```

```
        assign sumshift = (tpipe1[19:16] == 0) ? 4 : ss1;
        assign ss1 = (tpipe1[19:17] == 0) ? 3 : ss2;
        assign ss2 = (tpipe1[19:18] == 0) ? 2 : ss3;
        assign ss3 = (tpipe1[19:19] == 0) ? 1 : 0;


        always @(posedge clk)
                begin
                TAP <= ta3;
                SHAP <= sha3;
                inputbitsr1 <= inputbits;
                shap1 <= sha1;
                shap2 <= shap1 + sumshift;
                tpipe1 <= ta1;
                tpipe2 <= t2[19:3];

                ////////////////////////
                and1p1 <= and1;
                and2p1 <= and2;
                end

        assign shiftbits = shap2;
        assign outputbits = tpipe2;

endmodule
```

// ALL cross section storage rams are IDENTICAL to this one, except that they are loaded with different COE files. To save space ONLY this one has been included.

```
module totelastm1_1_sum (
        addra,
        addrb,
        clka,
        clkb,
        douta,
        doutb);

input [9 : 0] addra;
input [9 : 0] addrb;
input clka;
input clkb;
output [35 : 0] douta;
output [35 : 0] doutb;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                10,     // c_addra_width
                10,     // c_addrb_width
                "0",    // c_default_data
                1024,   // c_depth_a
                1024,   // c_depth_b
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_dina
                0,      // c_has_dinb
                1,      // c_has_douta
                1,      // c_has_doutb
```

```
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
0,          // c_has_wea
0,          // c_has_web
18,         // c_limit_data_pitch
"totelastm1_1_sum.mif",    // c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
36,         // c_width_a
36,         // c_width_b
0,          // c_write_modea
0,          // c_write_modeb
"0",        // c_ybottom_addr
1,          // c_yclka_is_rising
1,          // c_yclkb_is_rising
1,          // c_yena_is_high
1,          // c_yenb_is_high
"hierarchy1",        // c_yhierarchy
0,          // c_ymake_bmm
"16kx1", // c_yprimitive_type
```

```
                1,          // c_ysinita_is_high
                1,          // c_ysinitb_is_high
                "1024",     // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywea_is_high
                1,          // c_yweb_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDRA(addra),
                .ADDRB(addrb),
                .CLKA(clka),
                .CLKB(clkb),
                .DOUTA(douta),
                .DOUTB(doutb),
                .DINA(),
                .DINB(),
                .ENA(),
                .ENB(),
                .NDA(),
                .NDB(),
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB(),
                .WEA(),
                .WEB());


// synopsys translate_on

endmodule
```

```
Xilinx ISE Device utilization summary:
---------------------------

Selected Device : 2vp100ff1696-6

Number of Slices:                     3804  out of  44096     8%
 Number of Slice Flip Flops:          3911  out of  88192     4%
 Number of 4 input LUTs:              6068  out of  88192     6%
 Number of bonded IOBs:                 80  out of   1164     6%
 Number of BRAMs:                       86  out of    444    19%
 Number of MULT18X18s:                  15  out of    444     3%
 Number of GCLKs:                        1  out of     16     6%
```

POLAR ANGLE ELASTIC SCATTERING COEFFICIENT LOOKUP

```
//////////////////////////////////////////////////////
// Function to determine and report Gamma/Delta/Astar
// coefficients for elastic scattering computations
//
//  This computation is performed according to the methods
//  described by A.S. Pasciak and J.R. Ford in the paper titled
//
//  "An Accurate Approximation for the Highly Efficient Sampling
//   of Polar Scattering Angle of Electron Elastic
//   Single-Scattering Events"  Published in SCANNING
//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//

module Elookup(Energy, Atom, clk, gamma, gshift, delta, dshift, astar, ashift, pm1);

   input [2:0] Atom;  // 3 bit value, determines which one of
                      // 8 interaction atoms to look up values
                      // for.  Obviously, this bitwidth could
                      // be adjusted to accomidate many more
                      // target atoms.

   // Atomic index used for initial slab simulations:
   //  atom = 3'b0 = Aluminum (Z = 13)
   //  atom = 3'b1 = Gold     (Z = 79)
   //
   // Atomic index used for biological simulations:
   //  atom = 3'b000 = Hydrogen (Z = 1)
   //  atom = 3'b001 = Carbon   (Z = 6)
   //  atom = 3'b010 = Nitrogen (Z = 7)
   //  atom = 3'b011 = Oxygen   (Z = 8)
```

```
//  atom = 3'b100 = Phosphorus (Z = 15)
//  atom = 3'b101 = Calcium    (Z = 20)


input [18:0] Energy;  // Incident electron energy in eV
                      // single eV incriments.

input clk;

output [16:0] astar, gamma, delta;
output [5:0] gshift, dshift, ashift;
output pm1;

wire [16:0] lout;
wire [2:0] lsout;
reg [21:0] subtrout;
reg [21:0] shifted;
reg [2:0] atmD, atmD1, atmD2, atmD3, atmD4, atmD5,
          atmD6, atmD7, atmD8, atmD9, atmDa;

wire [35:0] astar_000, astar_001, astar_010,
            astar_011, astar_100, astar_101;

wire [35:0] gamma_000, gamma_001, gamma_010,
            gamma_011, gamma_100, gamma_101;

wire [35:0] delta_000, delta_001, delta_010,
            delta_011, delta_100, delta_101;

wire [35:0] astar_000p1, astar_001p1, astar_010p1,
            astar_011p1, astar_100p1, astar_101p1;

wire [35:0] gamma_000p1, gamma_001p1, gamma_010p1,
```

```
        gamma_011p1, gamma_100p1, gamma_101p1;

wire [35:0] delta_000p1, delta_001p1, delta_010p1,
        delta_011p1, delta_100p1, delta_101p1;

wire [30:0] diffA, diffD, diffG;
reg  [30:0] diffAr, diffDr, diffGr;

wire [35:0] addA, addD, addG;
wire [66:0] addAs, addDs, addGs;
wire [66:0] addAs1, addDs1, addGs1;

reg [35:0] addAr1, addDr1, addGr1;

wire [17:0] diffAout, diffDout, diffGout;
wire [4:0] shiftdiffA, shiftdiffD, shiftdiffG;

reg [4:0] shiftdiffAr1, shiftdiffDr1, shiftdiffGr1;

wire [9:0] subtrp1;

wire [35:0] astarval, deltaval, gammaval;
reg [35:0] astarvalr, deltavalr, gammavalr;
reg [30:0] astarvalr2, deltavalr2, gammavalr2;
reg [30:0] astarvalr3, deltavalr3, gammavalr3;
reg [30:0] astarvalr4, deltavalr4, gammavalr4;
reg [30:0] astarvalr5, deltavalr5, gammavalr5;
reg [30:0] astarvalr6, deltavalr6, gammavalr6;
reg [30:0] astarvalr7, deltavalr7, gammavalr7;

reg [30:0] sumA, sumD, sumG;

reg pm1r1, pm1r2, pm1r3, pm1r4, pm1r5, pm1r6, pm1r7, pm1r8, pm1r9, pm1ra, pm1rb;
```

```
wire [35:0] astarvalp, deltavalp, gammavalp;
reg [35:0] astarvalrp, deltavalrp, gammavalrp;

reg [10:0] suboutr1, suboutr2, suboutr3, suboutr4, suboutr5,
        suboutr6;

assign subtrp1 = subtrout[20:11] + 1;

nlog2lt1 log21({Energy, 5'b0}, lout, lsout, clk);

atom_000_astar ast_000(subtrout[20:11], subtrp1,  clk, clk,  astar_000, astar_000p1);
atom_001_astar ast_001(subtrout[20:11],  subtrp1, clk, clk,  astar_001, astar_001p1);
atom_010_astar ast_010(subtrout[20:11],  subtrp1, clk, clk,  astar_010, astar_010p1);
atom_011_astar ast_011(subtrout[20:11],  subtrp1, clk, clk,  astar_011, astar_011p1);
atom_100_astar ast_100(subtrout[20:11],  subtrp1, clk, clk,  astar_100, astar_100p1);
atom_101_astar ast_101(subtrout[20:11],  subtrp1, clk, clk,  astar_101, astar_101p1);

atom_000_gamma gma_000(subtrout[20:11], subtrp1,        clk,       clk,       gamma_000, gamma_000p1);
atom_001_gamma gma_001(subtrout[20:11],        subtrp1, clk, clk,  gamma_001, gamma_001p1);
atom_010_gamma gma_010(subtrout[20:11],        subtrp1, clk, clk,  gamma_010, gamma_010p1);
atom_011_gamma gma_011(subtrout[20:11],        subtrp1, clk, clk,  gamma_011, gamma_011p1);
atom_100_gamma gma_100(subtrout[20:11],        subtrp1, clk, clk,  gamma_100, gamma_100p1);
atom_101_gamma gma_101(subtrout[20:11],        subtrp1, clk, clk,  gamma_101, gamma_101p1);

atom_000_delta dlt_000(subtrout[20:11],   subtrp1, clk, clk,  delta_000,         delta_000p1);
atom_001_delta dlt_001(subtrout[20:11],   subtrp1, clk, clk,  delta_001,         delta_001p1);
atom_010_delta dlt_010(subtrout[20:11],   subtrp1, clk, clk,  delta_010,         delta_010p1);
atom_011_delta dlt_011(subtrout[20:11],   subtrp1, clk, clk,  delta_011,         delta_011p1);
atom_100_delta dlt_100(subtrout[20:11],   subtrp1, clk, clk,  delta_100,         delta_100p1);
atom_101_delta dlt_101(subtrout[20:11],   subtrp1, clk, clk,  delta_101,         delta_101p1);

assign astarval = (atmD == 3'b000) ? astar_000 :
```

```
                (atmD == 3'b001) ? astar_001 :
                (atmD == 3'b010) ? astar_010 :
                (atmD == 3'b011) ? astar_011 :
                (atmD == 3'b100) ? astar_100 : astar_101;

assign gammaval = (atmD == 3'b000) ? gamma_000 :
                (atmD == 3'b001) ? gamma_001 :
                (atmD == 3'b010) ? gamma_010 :
                (atmD == 3'b011) ? gamma_011 :
                (atmD == 3'b100) ? gamma_100 : gamma_101;

assign deltaval = (atmD == 3'b000) ? delta_000 :
                (atmD == 3'b001) ? delta_001 :
                (atmD == 3'b010) ? delta_010 :
                (atmD == 3'b011) ? delta_011 :
                (atmD == 3'b100) ? delta_100 : delta_101;


assign astarvalp = (atmD == 3'b000) ? astar_000p1 :
                (atmD == 3'b001) ? astar_001p1 :
                (atmD == 3'b010) ? astar_010p1 :
                (atmD == 3'b011) ? astar_011p1 :
                (atmD == 3'b100) ? astar_100p1 : astar_101p1;

assign gammavalp = (atmD == 3'b000) ? gamma_000p1 :
                (atmD == 3'b001) ? gamma_001p1 :
                (atmD == 3'b010) ? gamma_010p1 :
                (atmD == 3'b011) ? gamma_011p1 :
                (atmD == 3'b100) ? gamma_100p1 : gamma_101p1;

assign deltavalp = (atmD == 3'b000) ? delta_000p1 :
                (atmD == 3'b001) ? delta_001p1 :
                (atmD == 3'b010) ? delta_010p1 :
```

```
                (atmD == 3'b011) ? delta_011p1 :
                (atmD == 3'b100) ? delta_100p1 : delta_101p1;


assign diffA = astarvalrp[35:5] - astarvalr[35:5];
assign diffD = deltavalrp[34:4] - deltavalr[34:4];
assign diffG = gammavalrp[35:5] - gammavalr[35:5];

//HDL GEN: sreduce2('sreduce31to18.v', 'sreduce31to18', 31, 18, 1)

sreduce31to18 sr1(diffAr, diffAout, shiftdiffA, clk);
sreduce31to18 sr2(diffDr, diffDout, shiftdiffD, clk);
sreduce31to18 sr3(diffGr, diffGout, shiftdiffG, clk);

mul18b18os m1(clk, {1'b0, suboutr6, 6'b0}, diffAout, addA);
mul18b18os m2(clk, {1'b0, suboutr6, 6'b0}, diffDout, addD);
mul18b18os m3(clk, {1'b0, suboutr6, 6'b0}, diffGout, addG);

assign addAs = {{31{addA[35]}},addA};
assign addDs = {{31{addD[35]}},addD};
assign addGs = {{31{addG[35]}},addG};

assign addAs1 = addAs >> shiftdiffAr1;
assign addDs1 = addDs >> shiftdiffDr1;
assign addGs1 = addGs >> shiftdiffGr1;

twox tx1({sumA, 4'b0}, clk, astar, ashift);
twox tx2({sumD, 4'b0}, clk, delta, dshift);
twox tx3({sumG, 4'b0}, clk, gamma, gshift);

assign pm1 = pm1ra;

 always @(posedge clk)
```

```
begin
    shifted <= lout << lsout;
    subtrout <= {5'd16, 17'b0} - shifted;   // should technically be 19 - shifted
                                            // however, all of our stored values
                                            // are shifted by 3 such that we can
                                            // look up log2 values from 50->300,000 and
                                            // be in the range 0->16

    sumA <= astarvalr7 + addAr1[35:5];
    sumD <= deltavalr7 + addDr1[35:5];
    sumG <= gammavalr7 + addGr1[35:5];

    shiftdiffAr1 <= shiftdiffA;
    shiftdiffDr1 <= shiftdiffD;
    shiftdiffGr1 <= shiftdiffG;

    addAr1 <= addAs1[35:0];
    addDr1 <= addDs1[35:0];
    addGr1 <= addGs1[35:0];


    pm1r1 <= deltavalrp[35];
    pm1r2 <= pm1r1;
    pm1r3 <= pm1r2;
    pm1r4 <= pm1r3;
    pm1r5 <= pm1r4;
    pm1r6 <= pm1r5;
    pm1r7 <= pm1r6;
    pm1r8 <= pm1r7;
    pm1r9 <= pm1r8;
    pm1ra <= pm1r9;
    pm1rb <= pm1ra;
```

```
astarvalr2 <= astarvalr[35:5];
gammavalr2 <= gammavalr[35:5];
deltavalr2 <= deltavalr[34:4];

astarvalr3 <= astarvalr2;
gammavalr3 <= gammavalr2;
deltavalr3 <= deltavalr2;

astarvalr4 <= astarvalr3;
gammavalr4 <= gammavalr3;
deltavalr4 <= deltavalr3;

astarvalr5 <= astarvalr4;
gammavalr5 <= gammavalr4;
deltavalr5 <= deltavalr4;

astarvalr6 <= astarvalr5;
gammavalr6 <= gammavalr5;
deltavalr6 <= deltavalr5;

astarvalr7 <= astarvalr6;
gammavalr7 <= gammavalr6;
deltavalr7 <= deltavalr6;

//pipe astar, gamma and delta
astarvalr <= astarval;
gammavalr <= gammaval;
deltavalr <= deltaval;

diffAr <= diffA;
diffDr <= diffD;
diffGr <= diffG;
```

```
        //pipe astarp, gamma and delta
        astarvalrp <= astarvalp;
        gammavalrp <= gammavalp;
        deltavalrp <= deltavalp;

        suboutr1 <= subtrout[10:0];
        suboutr2 <= suboutr1;
        suboutr3 <= suboutr2;
        suboutr4 <= suboutr3;
        suboutr5 <= suboutr4;
        suboutr6 <= suboutr5;


        // save the atomic value
        atmD1 <= Atom;
        atmD2 <= atmD1;
        atmD3 <= atmD2;
        atmD4 <= atmD3;
        atmD5 <= atmD4;
        atmD6 <= atmD5;
        atmD7 <= atmD6;
        atmD8 <= atmD7;
        atmD9 <= atmD8;
        atmD <= atmD9;


    end

endmodule
```

```
//////////////////////////////////////////////////////
// Function to perform -log base 2 of an unsigned
//  input numer which is in the range 0->1
//  Optimized in part for the Virtex-II Pro 100 FPGA
//   ----------------------------------------------

// Input, 24 bits unsigned
// output 17 bits unsigned (mantissa) in range 0->1
// output 3 bits exponent = mantissa * 2^posshift

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//


module nlog2lt1(usinnum, usoutnum, posshift, clk);

   input [23:0] usinnum;
   input clk;

   output [16:0] usoutnum;
   output [2:0] posshift;


   wire [23:0] redout;
   wire [4:0] shiout;
   wire [34:0] lmemout;

   wire [17:0] mout;

   wire [16:0] t2, t2p1, t2p2, t2p3, t2p4;
```

```
wire [2:0] ss1, ss2, ss3, ss4, ss5;
wire [17:0] C;
wire [16:0] B;

reg [12:0] indelay1;
reg [21:0] Cd1;
reg [4:0] shid1;
reg [21:0] preout;
reg [16:0] usout;
reg [2:0] usouts;

assign usoutnum = usout;
assign posshift = usouts;


// pseudo-float usinnum!
// HDL GEN: reduce2('reduce24to24.v', 'reduce24to24', 24, 24, 1);

reduce24to24 red1(usinnum, redout, shiout, clk);

// For log2 lookup table:
// HDL GEN: makecoe('nlog2ram.coe', @(x)(log2(x+1)), 10, 17, 0, 18, 0, 1, 0)
// ShiftB = 26,  ShiftC = 18
//
// requires a 10x54 bit read only single port blockram loaded with this COE
// (No input stage to the blockram)


nlog2ram nlogram1(redout[22:13],clk,        lmemout);

assign C = lmemout[17:0];
assign B = lmemout[34:18];
```

```
  // HDL GEN:  multiply_round('mul18to18.v', 'mul18to18', 2, 18)

  mul18to18 m1818({1'b0,B}, {{1'b0, indelay1},4'b0}, mout, clk);

  assign t2 = (preout[21:17] == 0)   ? preout[16:0] : t2p1;
            assign t2p1 = (preout[21:18] == 0) ? preout[17:1] : t2p2;
            assign t2p2 = (preout[21:19] == 0) ? preout[18:2] : t2p3;
            assign t2p3 = (preout[21:20] == 0) ? preout[19:3] : t2p4;
            assign t2p4 = (preout[21] == 0)    ? preout[20:4] : preout[21:5];


  assign ss1 = (preout[21:17] == 0) ? 0 : ss2;
            assign ss2 = (preout[21:18] == 0) ? 1 : ss3;
            assign ss3 = (preout[21:19] == 0) ? 2 : ss4;
            assign ss4 = (preout[21:20] == 0) ? 3 : ss5;
            assign ss5 = (preout[21] == 0)    ? 4 : 5;


  always @(posedge clk)
    begin

    indelay1 <= redout[12:0];
    Cd1 <= {shid1, 17'b0} - {5'b0,C[17:1]} - {21'b0, C[0]};
    shid1 <= shiout + 1;
    preout <= Cd1 - {14'b0, mout[16:9]} - {21'b0, mout[8]};

    usout <= t2;
    usouts <= ss1;

    end

endmodule
```

```
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file nlog2ram.v when simulating
```

```
// the core, nlog2ram. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module nlog2ram (
        addr,
        clk,
        dout);

input [9 : 0] addr;
input clk;
output [34 : 0] dout;

// synopsys translate_off

        BLKMEMSP_V6_1 #(
                10,     // c_addr_width
                "0",    // c_default_data
                1024,   // c_depth
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_din
                0,      // c_has_en
                0,      // c_has_limit_data_pitch
                0,      // c_has_nd
                0,      // c_has_rdy
                0,      // c_has_rfd
                0,      // c_has_sinit
                0,      // c_has_we
                18,     // c_limit_data_pitch
                "nlog2ram.mif",    // c_mem_init_file
                0,      // c_pipe_stages
                0,      // c_reg_inputs
```

```
                "0",        // c_sinit_value
                35,         // c_width
                0,          // c_write_mode
                "0",        // c_ybottom_addr
                1,          // c_yclk_is_rising
                1,          // c_yen_is_high
                "hierarchy1",       // c_yhierarchy
                0,          // c_ymake_bmm
                "16kx1", // c_yprimitive_type
                1,          // c_ysinit_is_high
                "1024",   // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywe_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDR(addr),
                .CLK(clk),
                .DOUT(dout),
                .DIN(),
                .EN(),
                .ND(),
                .RFD(),
                .RDY(),
                .SINIT(),
                .WE());


// synopsys translate_on
endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 26-Jul-2006
//////////////////////////////////////////////////////
// multiply two numbers with rounding
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module mul18to18(Ain, Bin, outputn, clk);

        input [17:0] Ain, Bin;

        output [17:0] outputn;
        input clk;

        wire [35:0] mulout;

        reg [17:0] outputregister;

        // reqires a 18 by 18 un-clocked signed multiplier with the following designation
        mul18b18 mul1(Ain, Bin, mulout);

        always @(posedge clk)
                begin
                outputregister <= mulout[34:17] + mulout[16];
```

```
                end

        assign outputn = outputregister;

endmodule
```

```
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// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mul18b18os.v when simulating
```

```
// the core, mul18b18os. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mul18b18os (
        clk,
        a,
        b,
        q);

input clk;
input [17 : 0] a;
input [17 : 0] b;
output [35 : 0] q;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,          // bram_addr_width
                0,          // c_a_type
                18,         // c_a_width
                18,         // c_baat
                0,          // c_b_constant
                0,          // c_b_type
                "0000000000000001",       // c_b_value
                18,         // c_b_width
                1,          // c_enable_rlocs
                0,          // c_has_aclr
                0,          // c_has_a_signed
                1,          // c_has_b
                0,          // c_has_ce
                0,          // c_has_loadb
                0,          // c_has_load_done
```

```
		0,		// c_has_nd
		0,		// c_has_o
		1,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		36,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.CLK(clk),
		.A(a),
		.B(b),
		.Q(q),
		.O(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
```

```
                .RFD(),
                .ND(),
                .RDY());


// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 07-Aug-2006
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module reduce24to24(inputbits, outputbits, shiftbits, clk);

        input [23:0] inputbits;
        input clk;

        output [23:0] outputbits;
        output [4:0] shiftbits;

        wire and1, and2, and3, and4, and5;

        wire [26:0] ta1, ta2, ta3, ta4, ta5;

        wire [4:0] sha1, sha2, sha3, sha4, sha5;

        wire [26:0] t2, t2p1, t2p2, t2p3;
        wire [2:0] sumshift, ss1, ss2, ss3;

        reg [4:0] shap1, shap2;
        reg [4:0] SHAP;
        reg [23:0] inputbitsr1;
```

```
reg [26:0] TAP;
reg [26:0] tpipe1;
reg [23:0] tpipe2;

reg and1p1, and2p1;

assign and1 = inputbits[23] | inputbits[22] | inputbits[21] | inputbits[20];
assign and2 = inputbits[19] | inputbits[18] | inputbits[17] | inputbits[16];
assign and3 = inputbits[15] | inputbits[14] | inputbits[13] | inputbits[12];
assign and4 = inputbits[11] | inputbits[10] | inputbits[9] | inputbits[8];
assign and5 = inputbits[7] | inputbits[6] | inputbits[5] | inputbits[4];


assign ta1 =  ((and1p1) == 1) ? {inputbitsr1[23:0], 3'b0} : ta2;
assign ta2 =  ((and1p1 | and2p1) == 1) ? {inputbitsr1[19:0], 7'b0} : TAP;
assign ta3 =  ((and1 | and2 | and3) == 1) ? {inputbits[15:0], 11'b0} : ta4;
assign ta4 =  ((and1 | and2 | and3 | and4) == 1) ? {inputbits[11:0], 15'b0} : ta5;
assign ta5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? {inputbits[7:0], 19'b0} : {inputbits[3:0], 23'b0};


assign sha1 =  ((and1p1) == 1) ? 0 : sha2;
assign sha2 =  ((and1p1 | and2p1) == 1) ? 4 : SHAP;
assign sha3 =  ((and1 | and2 | and3) == 1) ? 8 : sha4;
assign sha4 =  ((and1 | and2 | and3 | and4) == 1) ? 12 : sha5;
assign sha5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? 16 : 20;


assign t2 = (tpipe1[26:23] == 0) ? {tpipe1[22:0], 4'b0} : t2p1;
assign t2p1 = (tpipe1[26:24] == 0) ? {tpipe1[23:0], 3'b0} : t2p2;
assign t2p2 = (tpipe1[26:25] == 0) ? {tpipe1[24:0], 2'b0} : t2p3;
assign t2p3 = (tpipe1[26:26] == 0) ? {tpipe1[25:0], 1'b0} : tpipe1[26:0];
```

```
        assign sumshift = (tpipe1[26:23] == 0) ? 4 : ss1;
        assign ss1 = (tpipe1[26:24] == 0) ? 3 : ss2;
        assign ss2 = (tpipe1[26:25] == 0) ? 2 : ss3;
        assign ss3 = (tpipe1[26:26] == 0) ? 1 : 0;


        always @(posedge clk)
                begin

                TAP <= ta3;
                SHAP <= sha3;
                inputbitsr1 <= inputbits;
                shap1 <= sha1;
                shap2 <= shap1 + sumshift;
                tpipe1 <= ta1;
                tpipe2 <= t2[26:3];

                ////////////////////////
                and1p1 <= and1;
                and2p1 <= and2;
                end

        assign shiftbits = shap2;
        assign outputbits = tpipe2;

endmodule
```

```
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*****************************************************************************/
// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file atom_000_astar.v when simulating
```

```
// the core, atom_000_astar. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module atom_000_astar (
        addra,
        addrb,
        clka,
        clkb,
        douta,
        doutb);

input [9 : 0] addra;
input [9 : 0] addrb;
input clka;
input clkb;
output [35 : 0] douta;
output [35 : 0] doutb;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                10,     // c_addra_width
                10,     // c_addrb_width
                "0",    // c_default_data
                1024,   // c_depth_a
                1024,   // c_depth_b
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_dina
                0,      // c_has_dinb
                1,      // c_has_douta
                1,      // c_has_doutb
```

```
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
0,          // c_has_wea
0,          // c_has_web
18,         // c_limit_data_pitch
"atom_000_astar.mif",       // c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
36,         // c_width_a
36,         // c_width_b
0,          // c_write_modea
0,          // c_write_modeb
"0",        // c_ybottom_addr
1,          // c_yclka_is_rising
1,          // c_yclkb_is_rising
1,          // c_yena_is_high
1,          // c_yenb_is_high
"hierarchy1",       // c_yhierarchy
0,          // c_ymake_bmm
"16kx1", // c_yprimitive_type
```

```
                1,          // c_ysinita_is_high
                1,          // c_ysinitb_is_high
                "1024",     // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywea_is_high
                1,          // c_yweb_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDRA(addra),
                .ADDRB(addrb),
                .CLKA(clka),
                .CLKB(clkb),
                .DOUTA(douta),
                .DOUTB(doutb),
                .DINA(),
                .DINB(),
                .ENA(),
                .ENB(),
                .NDA(),
                .NDB(),
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB(),
                .WEA(),
                .WEB());


// synopsys translate_on

endmodule
```

```
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file atom_000_delta.v when simulating
```

```
// the core, atom_000_delta. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module atom_000_delta (
        addra,
        addrb,
        clka,
        clkb,
        douta,
        doutb);

input [9 : 0] addra;
input [9 : 0] addrb;
input clka;
input clkb;
output [35 : 0] douta;
output [35 : 0] doutb;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                10,     // c_addra_width
                10,     // c_addrb_width
                "0",    // c_default_data
                1024,   // c_depth_a
                1024,   // c_depth_b
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_dina
                0,      // c_has_dinb
                1,      // c_has_douta
                1,      // c_has_doutb
```

```
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
0,          // c_has_wea
0,          // c_has_web
18,         // c_limit_data_pitch
"atom_000_delta.mif",       // c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
36,         // c_width_a
36,         // c_width_b
0,          // c_write_modea
0,          // c_write_modeb
"0",        // c_ybottom_addr
1,          // c_yclka_is_rising
1,          // c_yclkb_is_rising
1,          // c_yena_is_high
1,          // c_yenb_is_high
"hierarchy1",       // c_yhierarchy
0,          // c_ymake_bmm
"16kx1", // c_yprimitive_type
```

```
                1,          // c_ysinita_is_high
                1,          // c_ysinitb_is_high
                "1024",     // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywea_is_high
                1,          // c_yweb_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDRA(addra),
                .ADDRB(addrb),
                .CLKA(clka),
                .CLKB(clkb),
                .DOUTA(douta),
                .DOUTB(doutb),
                .DINA(),
                .DINB(),
                .ENA(),
                .ENB(),
                .NDA(),
                .NDB(),
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB(),
                .WEA(),
                .WEB());


// synopsys translate_on

endmodule
```

```
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*****************************************************************************/
// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file atom_000_gamma.v when simulating
```

```
// the core, atom_000_gamma. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module atom_000_gamma (
        addra,
        addrb,
        clka,
        clkb,
        douta,
        doutb);

input [9 : 0] addra;
input [9 : 0] addrb;
input clka;
input clkb;
output [35 : 0] douta;
output [35 : 0] doutb;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                10,     // c_addra_width
                10,     // c_addrb_width
                "0",    // c_default_data
                1024,   // c_depth_a
                1024,   // c_depth_b
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_dina
                0,      // c_has_dinb
                1,      // c_has_douta
                1,      // c_has_doutb
```

```
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
0,          // c_has_wea
0,          // c_has_web
18,         // c_limit_data_pitch
"atom_000_gamma.mif",    // c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
36,         // c_width_a
36,         // c_width_b
0,          // c_write_modea
0,          // c_write_modeb
"0",        // c_ybottom_addr
1,          // c_yclka_is_rising
1,          // c_yclkb_is_rising
1,          // c_yena_is_high
1,          // c_yenb_is_high
"hierarchy1",        // c_yhierarchy
0,          // c_ymake_bmm
"16kx1", // c_yprimitive_type
```

```
                1,          // c_ysinita_is_high
                1,          // c_ysinitb_is_high
                "1024",     // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywea_is_high
                1,          // c_yweb_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDRA(addra),
                .ADDRB(addrb),
                .CLKA(clka),
                .CLKB(clkb),
                .DOUTA(douta),
                .DOUTB(doutb),
                .DINA(),
                .DINB(),
                .ENA(),
                .ENB(),
                .NDA(),
                .NDB(),
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB(),
                .WEA(),
                .WEB());


// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////
// Function to determine 2 ^ x
//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//
// format: usout = X.XXXXXX... (17 bits)
//    smusoutshift = sign magnitude integer (range +/- 31)
//

module twox(signedin, clk, usout, smusoutshift);
    input [34:0] signedin;
    input clk;

    output [16:0] usout;
    output [5:0] smusoutshift;  // Sign Magnitude Shift Value


    wire [16:0] B;
    wire [17:0] C;
    wire [35:0] moutputn;

    reg [5:0] savesr1, savesr2, savesr3;
    reg [17:0] Cr1;
    reg [16:0] saveBr1;
    reg [15:0] presum1;
    reg sine;

    assign usout = {1'b1, presum1};
    assign smusoutshift = savesr3;
```

```
  //
  // For 2 ^ x Lookup Table
  // HDL GEN: makecoe('twoxram.coe', @(x)((2 .^ x) - 1), 10, 17, 0, 18, 0, 1, 0)
  //
  // ShiftB = 26,  ShiftC = 18
  //
  // requires a 10x35 bit read only single port blockram loaded with this COE
  // (No input stage to the blockram)
  //

  twoxram tx1(signedin[28:19],       clk,        {B,C});

  mul18b18os m1(clk, {1'b0, saveBr1}, {1'b0, B}, moutputn);


  always @(posedge clk)
    begin

        savesr1 <= (signedin[34] == 1) ? ~signedin[34:29] + 1 : signedin[34:29];
        sine <= signedin[34];
        savesr2 <= {sine, savesr1[4:0]};
        savesr3 <= savesr2;

        Cr1 <= C;

        presum1 <= Cr1[17:2] + {9'b0, moutputn[33:27]} + moutputn[26] + Cr1[1];

        saveBr1 <= signedin[18:2];
    end

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 14-Sep-2006
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module sreduce31to18(inputbits, outputbits, shiftbits, clk);

        input [30:0] inputbits;
        input clk;

        output [17:0] outputbits;
        output [4:0] shiftbits;

        wire and1, and2, and3, and4, and5, and6, and7;

        wire Nand2, Nand3, Nand4, Nand5, Nand6, Nand7;

        wire [20:0] ta1, ta2, ta3, ta4, ta5, ta6, ta7;

        wire [4:0] sha1, sha2, sha3, sha4, sha5, sha6, sha7;

        wire [20:0] t2, t2p1, t2p2, t2p3;
        wire [2:0] sumshift, ss1, ss2, ss3;
```

```
        reg [4:0] shap1, shap2;
        reg [4:0] SHAP;
        reg [30:0] inputbitsr1;
        reg [20:0] TAP;
        reg [20:0] tpipe1;
        reg [17:0] tpipe2;

        reg and1p1, and2p1, and3p1;

        reg Nand2p1, Nand3p1;

        assign and1 = (inputbits[30] & inputbits[29] & inputbits[28] & inputbits[27]) || ((~inputbits[30]) & (~inputbits[29]) & (~inputbits[28]) &
(~inputbits[27]));
        assign and2 = (inputbits[26] & inputbits[25] & inputbits[24] & inputbits[23]) || ((~inputbits[26]) & (~inputbits[25]) & (~inputbits[24]) &
(~inputbits[23]));
        assign and3 = (inputbits[22] & inputbits[21] & inputbits[20] & inputbits[19]) || ((~inputbits[22]) & (~inputbits[21]) & (~inputbits[20]) &
(~inputbits[19]));
        assign and4 = (inputbits[18] & inputbits[17] & inputbits[16] & inputbits[15]) || ((~inputbits[18]) & (~inputbits[17]) & (~inputbits[16]) &
(~inputbits[15]));
        assign and5 = (inputbits[14] & inputbits[13] & inputbits[12] & inputbits[11]) || ((~inputbits[14]) & (~inputbits[13]) & (~inputbits[12]) &
(~inputbits[11]));
        assign and6 = (inputbits[10] & inputbits[9] & inputbits[8] & inputbits[7]) || ((~inputbits[10]) & (~inputbits[9]) & (~inputbits[8]) & (~inputbits[7]));
        assign and7 = (inputbits[6] & inputbits[5] & inputbits[4] & inputbits[3]) || ((~inputbits[6]) & (~inputbits[5]) & (~inputbits[4]) & (~inputbits[3]));


        assign Nand2 = ~(inputbits[30] ^ inputbits[26]);
        assign Nand3 = ~(inputbits[30] ^ inputbits[26] ^ inputbits[22]);
        assign Nand4 = ~(inputbits[30] ^ inputbits[26] ^ inputbits[22] ^ inputbits[18]);
        assign Nand5 = ~(inputbits[30] ^ inputbits[26] ^ inputbits[22] ^ inputbits[18] ^ inputbits[14]);
        assign Nand6 = ~(inputbits[30] ^ inputbits[26] ^ inputbits[22] ^ inputbits[18] ^ inputbits[14] ^ inputbits[10]);
        assign Nand7 = ~(inputbits[30] ^ inputbits[26] ^ inputbits[22] ^ inputbits[18] ^ inputbits[14] ^ inputbits[10] ^ inputbits[6]);
```

```
        assign ta1 =  ((and1p1) == 0) ? {inputbitsr1[30], inputbitsr1[29:10]} : ta2;
        assign ta2 =  ((and1p1 & and2p1 & Nand2p1) == 0) ? {inputbitsr1[30], inputbitsr1[25:6]} : ta3;
        assign ta3 =  ((and1p1 & and2p1 & and3p1 & Nand3p1) == 0) ? {inputbitsr1[30], inputbitsr1[21:2]} : TAP;
        assign ta4 =  ((and1 & and2 & and3 & and4 & Nand4) == 0) ? {inputbits[30],{inputbits[17:0], 2'b0}} : ta5;
        assign ta5 =  ((and1 & and2 & and3 & and4 & and5 & Nand5) == 0) ? {inputbits[30],{inputbits[13:0], 6'b0}} : ta6;
        assign ta6 =  ((and1 & and2 & and3 & and4 & and5 & and6 & Nand6) == 0) ? {inputbits[30],{inputbits[9:0], 10'b0}} : ta7;
        assign ta7 =  ((and1 & and2 & and3 & and4 & and5 & and6 & and7 & Nand7) == 0) ? {inputbits[30],{inputbits[5:0], 14'b0}} :
{inputbits[30],{inputbits[1:0], 18'b0}};


        assign sha1 =  ((and1p1) == 0) ? 0 : sha2;
        assign sha2 =  ((and1p1 & and2p1 & Nand2p1) == 0) ? 3 : sha3;
        assign sha3 =  ((and1p1 & and2p1 & and3p1 & Nand3p1) == 0) ? 7 : SHAP;
        assign sha4 =  ((and1 & and2 & and3 & and4 & Nand4) == 0) ? 11 : sha5;
        assign sha5 =  ((and1 & and2 & and3 & and4 & and5 & Nand5) == 0) ? 15 : sha6;
        assign sha6 =  ((and1 & and2 & and3 & and4 & and5 & and6 & Nand6) == 0) ? 19 : sha7;
        assign sha7 =  ((and1 & and2 & and3 & and4 & and5 & and6 & and7 & Nand7) == 0) ? 23 : 27;


        assign t2 = (((tpipe1[20] & tpipe1[19] & tpipe1[18] & tpipe1[17]) || ((~tpipe1[20]) & (~tpipe1[19]) & (~tpipe1[18]) & (~tpipe1[17])))  == 1) ?
{tpipe1[17:0], 3'b0} : t2p1;
        assign t2p1 = (((tpipe1[20] & tpipe1[19] & tpipe1[18]) || ((~tpipe1[20]) & (~tpipe1[19]) & (~tpipe1[18]))) == 1) ? {tpipe1[18:0], 2'b0} : t2p2;
        assign t2p2 = (((tpipe1[20] & tpipe1[19]) || ((~tpipe1[20]) & (~tpipe1[19]))) == 1) ? {tpipe1[19:0], 1'b0} : tpipe1[20:0];


        assign sumshift = (((tpipe1[20] & tpipe1[19] & tpipe1[18] & tpipe1[17]) || ((~tpipe1[20]) & (~tpipe1[19]) & (~tpipe1[18]) & (~tpipe1[17])))  == 1) ? 3
: ss1;
        assign ss1 = (((tpipe1[20] & tpipe1[19] & tpipe1[18]) || ((~tpipe1[20]) & (~tpipe1[19]) & (~tpipe1[18]))) == 1) ? 2 : ss2;
        assign ss2 = (((tpipe1[20] & tpipe1[19]) || ((~tpipe1[20]) & (~tpipe1[19]))) == 1) ? 1 : 0;


        always @(posedge clk)
```

```
                begin
                TAP <= ta4;
                SHAP <= sha4;
                inputbitsr1 <= inputbits;
                shap1 <= sha1;
                shap2 <= shap1 + sumshift;
                tpipe1 <= ta1;
                tpipe2 <= t2[20:3];

                ////////////////////////
                and1p1 <= and1;
                and2p1 <= and2;
                and3p1 <= and3;
                Nand2p1 <= Nand2;
                Nand3p1 <= Nand3;
                end

        assign shiftbits = shap2;
        assign outputbits = tpipe2;

endmodule
```

```
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*****************************************************************************/
// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file twoxram.v when simulating
```

```
// the core, twoxram. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module twoxram (
        addr,
        clk,
        dout);

input [9 : 0] addr;
input clk;
output [34 : 0] dout;

// synopsys translate_off

        BLKMEMSP_V6_1 #(
                10,     // c_addr_width
                "0",    // c_default_data
                1024,   // c_depth
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_din
                0,      // c_has_en
                0,      // c_has_limit_data_pitch
                0,      // c_has_nd
                0,      // c_has_rdy
                0,      // c_has_rfd
                0,      // c_has_sinit
                0,      // c_has_we
                18,     // c_limit_data_pitch
                "twoxram.mif",  // c_mem_init_file
                0,      // c_pipe_stages
                0,      // c_reg_inputs
```

```
                "0",        // c_sinit_value
                35,         // c_width
                0,          // c_write_mode
                "0",        // c_ybottom_addr
                1,          // c_yclk_is_rising
                1,          // c_yen_is_high
                "hierarchy1",       // c_yhierarchy
                0,          // c_ymake_bmm
                "16kx1", // c_yprimitive_type
                1,          // c_ysinit_is_high
                "1024",   // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywe_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDR(addr),
                .CLK(clk),
                .DOUT(dout),
                .DIN(),
                .EN(),
                .ND(),
                .RFD(),
                .RDY(),
                .SINIT(),
                .WE());


// synopsys translate_on

endmodule
```

```
Xilinx ISE Device utilization summary:
---------------------------

Selected Device : 2vp100ff1696-6

 Number of Slices:                     1468  out of  44096     3%
 Number of Slice Flip Flops:           1522  out of  88192     1%
 Number of 4 input LUTs:               2351  out of  88192     2%
 Number of bonded IOBs:                  92  out of   1164     7%
 Number of BRAMs:                        44  out of    444     9%
 Number of MULT18X18s:                    7  out of    444     1%
 Number of GCLKs:                         1  out of     16     6%
```

SAMPLING OF POLAR ANGLE OF COLLISION FROM ELASTIC SCATTERING EVENTS

```
//////////////////////////////////////////////////////
// Function to determine the cosine of the polar angle
//  of scattering given an elastic scattering event.
//
//  This computation is performed according to the methods
//  described by A.S. Pasciak and J.R. Ford in the paper titled
//  "An Accurate Approximation for the Highly Efficient Sampling
//   of Polar Scattering Angle of Electron Elastic
//   Single-Scattering Events"  Published in SCANNING
//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//


module elast(gamma, gshift, delta, dshift, Astar, Ashift, pm1, rand1, rand2, clk, mu);

   // IMPORTANT RESTRICTIONS:
   //   if Gshift/Dshift are positive, the magnitude
   //   of these values must not exceed 4
   //   Data fed into this module must match this restrcition
   //   accordingly, or overflow will occurr.


   input [21:0] rand1, rand2;
   input [16:0] gamma, delta, Astar;
   input [5:0] gshift, dshift, Ashift;
   input pm1, clk;
```

```
output [17:0] mu;

wire up;
wire [16:0] vari;
wire [5:0] varishift;
wire [17:0] topmout;
wire [5:0] smshift;
wire [46:0] psmrand2, shiftedmrand2;
wire [27:0] redb;
wire [4:0] shiftb;
wire [16:0] invrted;
wire [35:0] dn;
wire [35:0] pdn;
wire [17:0] dn3;

reg [16:0] gammar1, deltar1;
reg [5:0] gshiftr1, dshiftr1;

reg [16:0] varip1;
reg [5:0] varishiftp1, vsp2, vsp3, vsp4, vsp5, vsp6, vsp7;
reg pm1r1, pm1r2, pm1r3, pm1r4, pm1r5, pm1r6, pm1r7, pm1r8,
     pm1r9, pm1ra, pm1rb, pm1r;
reg [16:0] topmoutr1, rand2r2;
reg [21:0] rand2r1;
reg [21:0] mrand2, mrand2r1;
reg [22:0] astshift;
reg [31:0] varip2, varip3;
reg [16:0] topmoutr2, topmoutr3, topmoutr4, topmoutr5,
          topmoutr6, topmoutr7;
reg [5:0] shiftbr1, shiftbr2, shiftbr3, shiftbr4;
reg [17:0] dn2;
reg [17:0] preout;
```

```
assign mu = preout;

assign up = (rand1 < astshift[21:0]) ? 1 : 0;

assign vari = (up == 1) ? deltar1 : gammar1;
assign varishift = (up == 1) ? dshiftr1 : gshiftr1;

mul18to18 m1a({1'b0, rand2r2}, {1'b0, varip1}, topmout, clk);

assign smshift = varishiftp1;

assign psmrand2 = {{15'b0, varip1}, 15'b0};
assign shiftedmrand2 = (smshift[5] == 1) ? psmrand2 >> smshift[4:0] : psmrand2 << smshift[4:0];

// HDL GEN:  reduce2('reduce32to28.v', 'reduce32to28', 32, 28, 1);
reduce32to28 red1(varip3, redb, shiftb, clk);

single_invert sh(redb[26:0], clk, invrted);

mul18b18os m1b(clk, {1'b0, topmoutr7}, {1'b0, invrted}, dn);

assign pdn = (shiftbr4[5] == 1) ? dn >> shiftbr4[4:0] : dn << shiftbr4[4:0];

assign dn3 = (pm1rb == 1) ? dn2 - 18'b011111111111111111 : 18'b011111111111111111 - dn2;

always @(posedge clk)
  begin
  gshiftr1 <= gshift;
  dshiftr1 <= dshift;
  gammar1 <= gamma;
  deltar1 <= delta;
```

```
pm1r <= pm1;
astshift <= {Astar, 6'b0} >> Ashift[4:0];
varip1 <= vari;
varishiftp1 <= varishift;
pm1r1 <= (up == 1) ? pm1r : 1;
mrand2 <= 23'b10000000000000000000000 - rand2r1;
rand2r1 <= rand2;
rand2r2 <= rand2r1[21:5];

// second cycle computation
varip2 <= shiftedmrand2[34:3];
mrand2r1 <= mrand2;

// third cycle computation
varip3 <= varip2 + {4'b0, mrand2r1, 6'b0};
topmoutr1 <= topmout[16:0];
topmoutr2 <= topmoutr1;
topmoutr3 <= topmoutr2;
topmoutr4 <= topmoutr3;
topmoutr5 <= topmoutr4;
topmoutr6 <= topmoutr5;
topmoutr7 <= topmoutr6;

vsp2 <= varishiftp1;
vsp3 <= (vsp2[5] == 1'b1) ? (~{1'b0, vsp2[4:0]} + 1) : vsp2;
vsp4 <= vsp3 + 1;
vsp5 <= vsp4;
vsp6 <= vsp5;
vsp7 <= vsp6;

pm1r2 <= pm1r1;
pm1r3 <= pm1r2;
pm1r4 <= pm1r3;
```

```
    pm1r5 <= pm1r4;
    pm1r6 <= ~pm1r5;
    pm1r7 <= pm1r6;
    pm1r8 <= pm1r7;
    pm1r9 <= pm1r8;
    pm1ra <= pm1r9;
    pm1rb <= pm1ra;


    // fourth cycle computation
    shiftbr1 <= {1'b0, shiftb} - 1;
    shiftbr2 <= shiftbr1 + vsp7;
    shiftbr3[4:0] <= (shiftbr2[5]==1) ? (~shiftbr2[4:0]) + 1 : shiftbr2[4:0];
    shiftbr3[5] <= shiftbr2[5];
    shiftbr4 <= shiftbr3;

    // fifth cycle computation
    dn2 <= pdn[35:18];
    preout <= dn3;


    end


endmodule
```

```
//////////////////////////////////////////////////////////////
// compute the inversion of a number between 1 and 2, although
// the input represents all but the MSB of this number, so
// it is a number between 0 and 1
// computes equivilancy to ~floating point.
//////////////////////////////////////////////////////////////

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//


// INPUT: 27 bits

// OUTPUT:  mantissa = 17 bits AND always X.XXXXXXX (unless it is 0)
//


module single_invert(inputnum1, clk, outputnum);

  input [26:0] inputnum1;
  input clk;

  output [16:0] outputnum;



  wire [53:0] invramout;
  wire [34:0] C;
  wire [17:0] B;
  wire [35:0] mout1;
```

```
reg [16:0] left1;
reg [34:0] C1r;
reg [17:0] preout1;

// HDLgen Command:
// makecoe('invram.coe', @(x)((1 ./ (x+1))), 10, 17, 1, 36, 0, 1, 0)
// first element in coe must be manually changed from:
// 10000000001000000010000000000000000000000000000000000000,
// to
// 10000000001000000001111111111111111101111111111111111111,
// for bit conservation.
// ShiftB = 27,  ShiftC = 35
// requires a 10x54 bit read only blockram loaded with this COE (NO INPUT STAGE!)

invram sqram1 (inputnum1[26:17], clk, invramout);

assign C = invramout[34:0];
assign B = invramout[53:36];

mul18b18os mmm1 (clk, {1'b0, left1}, B, mout1);


always @(posedge clk)
  begin
  // delay stage 1
  left1 <= inputnum1[16:0];

  // delay stage 2
  C1r <= C;

  // delay stage 3
  preout1 <= {1'b0, C1r[34:18]} + {{10{mout1[34]}}, mout1[34:27]} + C1r[17] + mout1[26];
```

```
    end

    assign outputnum = preout1[16:0];

endmodule
```

```
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*****************************************************************************/
// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file invram.v when simulating
```

```
// the core, invram. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module invram (
        addr,
        clk,
        dout);

input [9 : 0] addr;
input clk;
output [53 : 0] dout;

// synopsys translate_off

        BLKMEMSP_V6_1 #(
                10,     // c_addr_width
                "0",    // c_default_data
                1024,   // c_depth
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_din
                0,      // c_has_en
                0,      // c_has_limit_data_pitch
                0,      // c_has_nd
                0,      // c_has_rdy
                0,      // c_has_rfd
                0,      // c_has_sinit
                0,      // c_has_we
                18,     // c_limit_data_pitch
                "invram.mif",       // c_mem_init_file
                0,      // c_pipe_stages
                0,      // c_reg_inputs
```

```
                "0",        // c_sinit_value
                54,         // c_width
                0,          // c_write_mode
                "0",        // c_ybottom_addr
                1,          // c_yclk_is_rising
                1,          // c_yen_is_high
                "hierarchy1",       // c_yhierarchy
                0,          // c_ymake_bmm
                "16kx1", // c_yprimitive_type
                1,          // c_ysinit_is_high
                "1024",   // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywe_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDR(addr),
                .CLK(clk),
                .DOUT(dout),
                .DIN(),
                .EN(),
                .ND(),
                .RFD(),
                .RDY(),
                .SINIT(),
                .WE());


// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 09-Aug-2006
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module reduce32to28(inputbits, outputbits, shiftbits, clk);

        input [31:0] inputbits;
        input clk;

        output [27:0] outputbits;
        output [4:0] shiftbits;

        wire and1, and2, and3, and4, and5, and6, and7;

        wire [30:0] ta1, ta2, ta3, ta4, ta5, ta6, ta7;

        wire [4:0] sha1, sha2, sha3, sha4, sha5, sha6, sha7;

        wire [30:0] t2, t2p1, t2p2, t2p3;
        wire [2:0] sumshift, ss1, ss2, ss3;

        reg [4:0] shap1, shap2;
```

```
reg [4:0] SHAP;
reg [31:0] inputbitsr1;
reg [30:0] TAP;
reg [30:0] tpipe1;
reg [27:0] tpipe2;

reg and1p1, and2p1, and3p1;

assign and1 = inputbits[31] | inputbits[30] | inputbits[29] | inputbits[28];
assign and2 = inputbits[27] | inputbits[26] | inputbits[25] | inputbits[24];
assign and3 = inputbits[23] | inputbits[22] | inputbits[21] | inputbits[20];
assign and4 = inputbits[19] | inputbits[18] | inputbits[17] | inputbits[16];
assign and5 = inputbits[15] | inputbits[14] | inputbits[13] | inputbits[12];
assign and6 = inputbits[11] | inputbits[10] | inputbits[9] | inputbits[8];
assign and7 = inputbits[7] | inputbits[6] | inputbits[5] | inputbits[4];


assign ta1 =  ((and1p1) == 1) ? inputbitsr1[31:1] : ta2;
assign ta2 =  ((and1p1 | and2p1) == 1) ? {inputbitsr1[27:0], 3'b0} : ta3;
assign ta3 =  ((and1p1 | and2p1 | and3p1) == 1) ? {inputbitsr1[23:0], 7'b0} : TAP;
assign ta4 =  ((and1 | and2 | and3 | and4) == 1) ? {inputbits[19:0], 11'b0} : ta5;
assign ta5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? {inputbits[15:0], 15'b0} : ta6;
assign ta6 =  ((and1 | and2 | and3 | and4 | and5 | and6) == 1) ? {inputbits[11:0], 19'b0} : ta7;
assign ta7 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7) == 1) ? {inputbits[7:0], 23'b0} : {inputbits[3:0], 27'b0};


assign sha1 =  ((and1p1) == 1) ? 0 : sha2;
assign sha2 =  ((and1p1 | and2p1) == 1) ? 4 : sha3;
assign sha3 =  ((and1p1 | and2p1 | and3p1) == 1) ? 8 : SHAP;
assign sha4 =  ((and1 | and2 | and3 | and4) == 1) ? 12 : sha5;
assign sha5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? 16 : sha6;
assign sha6 =  ((and1 | and2 | and3 | and4 | and5 | and6) == 1) ? 20 : sha7;
assign sha7 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7) == 1) ? 24 : 28;
```

```
        assign t2 = (tpipe1[30:27] == 0) ? {tpipe1[26:0], 4'b0} : t2p1;
        assign t2p1 = (tpipe1[30:28] == 0) ? {tpipe1[27:0], 3'b0} : t2p2;
        assign t2p2 = (tpipe1[30:29] == 0) ? {tpipe1[28:0], 2'b0} : t2p3;
        assign t2p3 = (tpipe1[30:30] == 0) ? {tpipe1[29:0], 1'b0} : tpipe1[30:0];


        assign sumshift = (tpipe1[30:27] == 0) ? 4 : ss1;
        assign ss1 = (tpipe1[30:28] == 0) ? 3 : ss2;
        assign ss2 = (tpipe1[30:29] == 0) ? 2 : ss3;
        assign ss3 = (tpipe1[30:30] == 0) ? 1 : 0;


        always @(posedge clk)
                begin
                TAP <= ta4;
                SHAP <= sha4;
                inputbitsr1 <= inputbits;
                shap1 <= sha1;
                shap2 <= shap1 + sumshift;
                tpipe1 <= ta1;
                tpipe2 <= t2[30:3];

                //////////////////////
                and1p1 <= and1;
                and2p1 <= and2;
                and3p1 <= and3;
                end
        assign shiftbits = shap2;
        assign outputbits = tpipe2;

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 26-Jul-2006
//////////////////////////////////////////////////////
// multiply two numbers with rounding
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module mul18to18(Ain, Bin, outputn, clk);

        input [17:0] Ain, Bin;

        output [17:0] outputn;
        input clk;

        wire [35:0] mulout;

        reg [17:0] outputregister;

        // reqires a 18 by 18 un-clocked signed multiplier with the following designation
        mul18b18 mul1(Ain, Bin, mulout);

        always @(posedge clk)
                begin
```

```
                outputregister <= mulout[34:17] + mulout[16];
                end

        assign outputn = outputregister;

endmodule
```

```
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// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mul18b18.v when simulating
```

```
// the core, mul18b18. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mul18b18 (
        a,
        b,
        o);

input [17 : 0] a;
input [17 : 0] b;
output [35 : 0] o;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,      // bram_addr_width
                0,      // c_a_type
                18,     // c_a_width
                18,     // c_baat
                0,      // c_b_constant
                0,      // c_b_type
                "0000000000000001",     // c_b_value
                18,     // c_b_width
                1,      // c_enable_rlocs
                0,      // c_has_aclr
                0,      // c_has_a_signed
                1,      // c_has_b
                0,      // c_has_ce
                0,      // c_has_loadb
                0,      // c_has_load_done
                0,      // c_has_nd
                1,      // c_has_o
```

```
		0,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		36,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.A(a),
		.B(b),
		.O(o),
		.CLK(),
		.Q(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
		.RFD(),
		.ND(),
```

```
                .RDY());

// synopsys translate_on

endmodule
```

```
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// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mul18b18os.v when simulating
```

```
// the core, mul18b18os. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mul18b18os (
        clk,
        a,
        b,
        q);

input clk;
input [17 : 0] a;
input [17 : 0] b;
output [35 : 0] q;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,          // bram_addr_width
                0,          // c_a_type
                18,         // c_a_width
                18,         // c_baat
                0,          // c_b_constant
                0,          // c_b_type
                "0000000000000001",       // c_b_value
                18,         // c_b_width
                1,          // c_enable_rlocs
                0,          // c_has_aclr
                0,          // c_has_a_signed
                1,          // c_has_b
                0,          // c_has_ce
                0,          // c_has_loadb
                0,          // c_has_load_done
```

```
		0,		// c_has_nd
		0,		// c_has_o
		1,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		36,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.CLK(clk),
		.A(a),
		.B(b),
		.Q(q),
		.O(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
```

```
                .RFD(),
                .ND(),
                .RDY());


// synopsys translate_on

endmodule
```

```
Xilinx ISE Device utilization summary:
---------------------------

Selected Device : 2vp100ff1696-6

 Number of Slices:                      505  out of  44096     1%
 Number of Slice Flip Flops:            494  out of  88192     0%
 Number of 4 input LUTs:                821  out of  88192     0%
 Number of bonded IOBs:                 129  out of   1164    11%
 Number of BRAMs:                         3  out of    444     0%
 Number of MULT18X18s:                    3  out of    444     0%
 Number of GCLKs:                         1  out of     16     6%
```

KNOCK-ON ELECTRON ENERGY SAMPLING

```
////////////////////////////////////////////////////
//
//  Function to sample the MOTT differential electron
//  impact ionization cross section
//
//  Algorithm uses three uniformly distributed pseudo random numbers
//  sig1, sig2, sig3, where sig1 is a 1 bit random number
//
//  START
//  if(sig1 == 1)
//    W = (-1 / ((inv(B) - inv(T)) * sig2 - inv(B))) - B
//  else
//    W = T - (1 / ((inv(B) - inv(T) * sig2 + inv(T))))
//  end
//
//  xp = (1 / ((W + B) ^ 2)) + (1 / ((T - W) ^ 2))
//  xm = 1 / ((W+B)*(T-W))
//
//  if((sig3 * xp) <= (xp - xm))
//    return W
//  else
//    goto START
//  end

//  This algorithm uses a partial rejection method, but its rejection
//  efficiency is high.  For most situations where the incident electron
//  energy is significantly greater than the electron binding energy, the efficiency
//  is near to 100%.  The worst-case efficiency as T approaches B is 50%.

//  Optimized in part for the Virtex-II Pro 100 FPGA
//   ------------------------------------------------
```

```
//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//

module mott(sig1, sig2, sig3, T, B, clk, Wout, Tout, reject);

   // sig values will not be pipelined

    input sig1;
    input [16:0] sig2, sig3;
    input [18:0] B;
    input [22:0] T;
    input clk;

    output [22:0] Wout, Tout;   // respective energies of primary & secondary electrons
    output reject;

    wire [16:0] invT, invB, invL, invWpBTmW, invWpB2, invTmW2;
    wire [16:0] sinvWpBTmW, sinvWpB2, sinvTmW2;
    wire [5:0] Ts1, Bs1, SL, WpBTmWS, WpB2S, TmW2S;
    wire [50:0] bmo;

    wire [22:0] Wp;

    wire [33:0] WpB2, TmW2, WpBTmW;
    wire [4:0] SWpB, STmW;
    wire [4:0] SDIFF;
    wire [3:0] Smag;
    wire forward;
    wire [16:0] WpBo, TmWo;
    wire [17:0] leftside;
```

```
reg [4:0] Ts2, Bs2;
reg [18:0] isaverA;
reg [18:0] Tsaver1, Tsaver2, Tsaver3, Tsaver4, Tsaver5, Tsaver6, Tsaver7, Tsaver8, Tsaver9;
reg [18:0] Bsaver1, Bsaver2, Bsaver3, Bsaver4, Bsaver5, Bsaver6, Bsaver7, Bsaver8, Bsaver9;
reg [18:0] Tsavera, Tsaverb, Tsaverc, Tsaverd, Tsavere, Tsaverf, Tsaverg, Tsaverh, Tsaveri, Tsaverj, Tsaverk;
reg [18:0] Bsavera, Bsaverb, Bsaverc, Bsaverd, Bsavere, Bsaverf, Bsaverg, Bsaverh, Bsaveri, Bsaverj, Bsaverk, Bsaverl;
reg [3:0]  Trs1, Trs2, Trs3, Trs4, Trs5, Trs6, Trs7, Trs8, Trs9, Trsa, Trsb, Trsc, Trsd, Trse, Trsf, Trsg, Trsh, Trsi,
          Trsj, Trsk;
reg rejected;

reg [16:0] invTr1, invBr1;
reg [35:0] invXr1, invXr2;
reg [35:0] shiftedT, shiftedB;
reg [16:0] big1, big2, big3;
reg [35:0] BmT, bottom, shiftedLEFT, shiftedLEFTr1;
reg sig1r1, sig1r2;
reg sig1r3, sig1r4, sig1r5, sig1r6, sig1r7, sig1r8, sig1r9, sig1ra;
reg [18:0] WpB;
reg [22:0] TmW;
reg [16:0] xp, xm, rightside;
reg [35:0] Wpp;

reg [22:0] Wpr1, Wpr2, Wpr3, Wpr4, Wpr5, Wpr6, Wpr7, Wpr8, Wpr9, WprA, WprB,
          WprC, WprD, WprE;

reg [22:0] Tp1, Tp2, Tp3, Tp4, Tp5, Tp6, Tp7, Tp8, Tp9, TpA, TpB, TpC, TpD;

reg [3:0] Smagr1, Smagr2, Smagr3, Smagr4, Smagr5, Smagr6, Smagr7;
reg forwardr1, forwardr2, forwardr3, forwardr4, forwardr5, forwardr6, forwardr7;
```

```
double_inv_rounding d1({T[22:4],15'b0}, {B,15'b0}, clk, invT,
                       Ts1, invB, Bs1);



        double_inv_rounding d2(bottom[33:0], WpBTmW, clk, invL, SL, invWpBTmW, WpBTmWS);
        double_inv_rounding d3(WpB2, TmW2, clk, invWpB2, WpB2S, invTmW2, TmW2S);

assign sinvWpBTmW = (WpBTmWS[0] == 1) ? {invWpBTmW[15:0], 1'b0} : invWpBTmW;
assign sinvWpB2 = (WpB2S[0] == 1) ? {invWpB2[15:0], 1'b0} : invWpB2;
assign sinvTmW2 = (TmW2S[0] == 1) ? {invTmW2[15:0], 1'b0} : invTmW2;

mult17by34os mb1(clk, sig2, BmT[35:2], bmo);

mul17b17os ma1(clk, WpBo, WpBo, WpB2);
mul17b17os ma2(clk, TmWo, TmWo, TmW2);
mul17b17os ma3(clk, WpBo, TmWo, WpBTmW);

// HDLgen Command:
// reduce2('reduce19to17.v', 'reduce19to17', 19, 17, 0)

reduce19to17 dr1(WpB, WpBo, SWpB, clk);
reduce19to17 dr2(TmW[22:4], TmWo, STmW, clk);

assign SDIFF = {1'b0, SWpB[3:0]} - {1'b0, STmW};
assign forward = SDIFF[4];
assign Smag = (SDIFF[4] == 0) ? SDIFF[3:0] : ~SDIFF + 1;

mul18to18 mmm({1'b0, xp}, {1'b0, sig3}, leftside, clk);

assign Wp = Wpp[35:13];

assign reject = rejected;
```

```
assign Wout = WprE;
assign Tout = TpD;

always @(posedge clk)
begin
    //// stage 1 ////
    Ts2 <= 19 - Ts1[4:0];
    Bs2 <= 19 - Bs1[4:0];
    invTr1 <= invT;
    invBr1 <= invB;
    //// stage 2 ////
    invXr1 <= (sig1 == 1) ? shiftedB : shiftedT;
    shiftedT <= {invTr1, 19'b0} >> Ts2;
    shiftedB <= {invBr1, 19'b0} >> Bs2;
    //// stage 3 ////
    BmT <= shiftedB - shiftedT;
    invXr2 <= invXr1;
    sig1r1 <= sig1;
    sig1r2 <= sig1r1;
    //// stage 4 ////
    bottom <= (sig1r2 == 1) ? invXr2[35:2] - bmo[50:17] : bmo[50:17] + invXr2[35:2];
    //// stage 5 ////


    shiftedLEFT <= {19'b0, invL} << SL;
    shiftedLEFTr1 <= shiftedLEFT;

    Tsaver1 <= T[22:4];
    Tsaver2 <= Tsaver1;
    Tsaver3 <= Tsaver2;
    Tsaver4 <= Tsaver3;
    Tsaver5 <= Tsaver4;
    Tsaver6 <= Tsaver5;
```

```
Tsaver7 <= Tsaver6;
Tsaver8 <= Tsaver7;
Tsaver9 <= Tsaver8;

Tsavera <= Tsaver9;
Tsaverb <= Tsavera;
Tsaverc <= Tsaverb;
Tsaverd <= Tsaverc;
Tsavere <= Tsaverd;
Tsaverf <= Tsavere;
Tsaverg <= Tsaverf;
Tsaverh <= Tsaverg;
Tsaveri <= Tsaverh;
Tsaverj <= Tsaveri;
Tsaverk <= Tsaverj;

Trs1 <= T[3:0];
Trs2 <= Trs1;
Trs3 <= Trs2;
Trs4 <= Trs3;
Trs5 <= Trs4;
Trs6 <= Trs5;
Trs7 <= Trs6;
Trs8 <= Trs7;
Trs9 <= Trs8;
Trsa <= Trs9;
Trsb <= Trsa;
Trsc <= Trsb;
Trsd <= Trsc;
Trse <= Trsd;
Trsf <= Trse;
Trsg <= Trsf;
Trsh <= Trsg;
```

```
Trsi <= Trsh;
Trsj <= Trsi;
Trsk <= Trsj;


Bsaver1 <= B;
Bsaver2 <= Bsaver1;
Bsaver3 <= Bsaver2;
Bsaver4 <= Bsaver3;
Bsaver5 <= Bsaver4;
Bsaver6 <= Bsaver5;
Bsaver7 <= Bsaver6;
Bsaver8 <= Bsaver7;
Bsaver9 <= Bsaver8;

Bsavera <= Bsaver9;
Bsaverb <= Bsavera;
Bsaverc <= Bsaverb;
Bsaverd <= Bsaverc;
Bsavere <= Bsaverd;
Bsaverf <= Bsavere;
Bsaverg <= Bsaverf;
Bsaverh <= Bsaverg;
Bsaveri <= Bsaverh;
Bsaverj <= Bsaveri;
Bsaverk <= Bsaverj;
Bsaverl <= Bsaverk;

isaverA <= (sig1r9 == 1) ? Bsaveri : Tsaveri;

//sig1r2 <= sig1r1;
sig1r3 <= sig1r2;
sig1r4 <= sig1r3;
```

```
 sig1r5 <= sig1r4;
 sig1r6 <= sig1r5;
 sig1r7 <= sig1r6;
 sig1r8 <= sig1r7;
 sig1r9 <= sig1r8;
 sig1ra <= sig1r9;

// $display("shiftedLEFTr1 = %b, isaverA = %b, sig1ra = %b", shiftedLEFTr1, isaverA, sig1ra);
 Wpp <= (sig1ra == 1) ? shiftedLEFTr1 - {isaverA, 17'b0} : {isaverA,17'b0} - shiftedLEFTr1;

 WpB <= Wp[22:4] + Bsaverk;
 TmW <= {Tsaverk, Trsk} - Wp;

 Tp1 <= TmW - {Bsaverl,4'b0};
 Tp2 <= Tp1;
 Tp3 <= Tp2;
 Tp4 <= Tp3;
 Tp5 <= Tp4;
 Tp6 <= Tp5;
 Tp7 <= Tp6;
 Tp8 <= Tp7;
 Tp9 <= Tp8;
 TpA <= Tp9;
 TpB <= TpA;
 TpC <= TpB;
 TpD <= TpC;

 forwardr1 <= forward;
 forwardr2 <= forwardr1;
 forwardr3 <= forwardr2;
 forwardr4 <= forwardr3;
 forwardr5 <= forwardr4;
 forwardr6 <= forwardr5;
```

```
forwardr7 <= forwardr6;

Smagr1 <= Smag;
Smagr2 <= Smagr1;
Smagr3 <= Smagr2;
Smagr4 <= Smagr3;
Smagr5 <= Smagr4;
Smagr6 <= Smagr5;
Smagr7 <= Smagr6;


big1 <= (forwardr7 == 1) ? sinvWpB2 >> {Smagr7, 1'b0} : sinvTmW2 >> {Smagr7, 1'b0};
big2 <= (forwardr7 == 1) ? sinvTmW2 : sinvWpB2;
big3 <= sinvWpBTmW >> Smagr7;

xp <= big1[16:0] + big2[16:0];
xm <= big3[16:0];

rightside <= xp - xm;

rejected <= (leftside[16:0] > rightside) ? 1'b1 : 1'b0;

Wpr1 <= Wp;
Wpr2 <= Wpr1;
Wpr3 <= Wpr2;
Wpr4 <= Wpr3;
Wpr5 <= Wpr4;
Wpr6 <= Wpr5;
Wpr7 <= Wpr6;
Wpr8 <= Wpr7;
Wpr9 <= Wpr8;
WprA <= Wpr9;
WprB <= WprA;
```

```
        WprC <= WprB;
        WprD <= WprC;
        WprE <= WprD;


    end


endmodule
```

```
//////////////////////////////////////////////////////////////
// compute the inversion of a number between 0 and 1
//  perform the computation in duplicate to preserve blockram
// computes equivilancy to ~floating point.
//////////////////////////////////////////////////////////////

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//

// INPUT: 34 bits, with the decimal at the left (all less than 0)

// OUTPUT:  mantissa = 17 bits AND always 0.XXXXXXX (unless it is 0)
//          shift = positive multiplicative shift


module double_inv_rounding(inputnum1, inputnum2, clk, outputnum1,
                           outputshift1, outputnum2, outputshift2);

  input [33:0] inputnum1, inputnum2;
  input clk;

  output [16:0] outputnum1, outputnum2;
  output [5:0] outputshift1, outputshift2;
```

```
wire [27:0] redo1, redo2;
wire [5:0] shed1, shed2;
wire [53:0] sqramout1, sqramout2;
wire [35:0] C1, C2;

wire [17:0] B1, B2;
wire [34:0] mout1, mout2;


reg [16:0] left1, left2;
reg [35:0] C1r, C2r;
reg [16:0] preout1, preout2;
reg [5:0] shift1r1, shift2r1, shift1r2, shift2r2, shift1r3, shift2r3;

// HDLgen Command:
// reduce2('reduce34to28.v', 'reduce34to28', 34, 28, 1)

reduce34to28   red1(inputnum1, redo1, shed1, clk),  // delay = 3
                red2(inputnum2, redo2, shed2, clk);


// HDLgen Command:
// makecoe('invram.coe', @(x)((1 ./ ((x./2) + 0.5))), 10, 17, 1, 36, 0, 1, 0)
// ShiftB = 26,  ShiftC = 34
// requires a 10x54 bit read only blockram loaded with this COE (NO INPUT STAGE!)

invsram iram1 (redo1[26:17], redo2[26:17], clk, clk, sqramout1, sqramout2);

assign C1 = sqramout1[35:0];
assign C2 = sqramout2[35:0];
assign B1 = sqramout1[53:36];
assign B2 = sqramout2[53:36];
```

```
 mult17b18os mmm1 (clk, {1'b0, left1}, B1, mout1),
          mmm2 (clk, {1'b0, left2}, B2, mout2);


 always @(posedge clk)
   begin
   // delay stage 1
   left1 <= redo1[16:0];
   left2 <= redo2[16:0];
   shift1r1 <= shed1;  // this is a left shift
   shift2r1 <= shed2;
   // delay stage 2
   C1r <= C1;
   C2r <= C2;
   shift1r2 <= shift1r1 + 2;
   shift2r2 <= shift2r1 + 2;
   // delay stage 3
   preout1 <= C1r[35:19] + {{10{mout1[34]}}, mout1[34:28]} + C1r[18] + mout1[27];
   preout2 <= C2r[35:19] + {{10{mout2[34]}}, mout2[34:28]} + C2r[18] + mout2[27];
   shift1r3 <= shift1r2;
   shift2r3 <= shift2r2;

   end

   assign outputnum1 = preout1;
   assign outputnum2 = preout2;
   assign outputshift1 = shift1r3;
   assign outputshift2 = shift2r3;


endmodule
```

```
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file invsram.v when simulating
```

```
// the core, invsram. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module invsram (
        addra,
        addrb,
        clka,
        clkb,
        douta,
        doutb);

input [9 : 0] addra;
input [9 : 0] addrb;
input clka;
input clkb;
output [53 : 0] douta;
output [53 : 0] doutb;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                10,     // c_addra_width
                10,     // c_addrb_width
                "0",    // c_default_data
                1024,   // c_depth_a
                1024,   // c_depth_b
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_dina
                0,      // c_has_dinb
                1,      // c_has_douta
                1,      // c_has_doutb
```

```
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
0,          // c_has_wea
0,          // c_has_web
18,         // c_limit_data_pitch
"invsram.mif",      // c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
54,         // c_width_a
54,         // c_width_b
0,          // c_write_modea
0,          // c_write_modeb
"0",        // c_ybottom_addr
1,          // c_yclka_is_rising
1,          // c_yclkb_is_rising
1,          // c_yena_is_high
1,          // c_yenb_is_high
"hierarchy1",       // c_yhierarchy
0,          // c_ymake_bmm
"16kx1", // c_yprimitive_type
```

```
                1,          // c_ysinita_is_high
                1,          // c_ysinitb_is_high
                "1024",     // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywea_is_high
                1,          // c_yweb_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDRA(addra),
                .ADDRB(addrb),
                .CLKA(clka),
                .CLKB(clkb),
                .DOUTA(douta),
                .DOUTB(doutb),
                .DINA(),
                .DINB(),
                .ENA(),
                .ENB(),
                .NDA(),
                .NDB(),
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB(),
                .WEA(),
                .WEB());


// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 07-Nov-2006
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module reduce19to17(inputbits, outputbits, shiftbits, clk);

        input [18:0] inputbits;
        input clk;

        output [16:0] outputbits;
        output [4:0] shiftbits;

        wire and1, and2, and3, and4;

        wire [19:0] ta1, ta2, ta3, ta4;

        wire [4:0] sha1, sha2, sha3, sha4;

        wire [19:0] t2, t2p1, t2p2, t2p3;
        wire [2:0] sumshift, ss1, ss2, ss3;

        reg [4:0] shap1, shap2;
        reg [19:0] tpipe1;
```

```
reg [16:0] tpipe2;

assign and1 = inputbits[18] | inputbits[17] | inputbits[16] | inputbits[15];
assign and2 = inputbits[14] | inputbits[13] | inputbits[12] | inputbits[11];
assign and3 = inputbits[10] | inputbits[9] | inputbits[8] | inputbits[7];
assign and4 = inputbits[6] | inputbits[5] | inputbits[4] | inputbits[3];


assign ta1 =  ((and1) == 1) ? {inputbits[18:0], 1'b0} : ta2;
assign ta2 =  ((and1 | and2) == 1) ? {inputbits[14:0], 5'b0} : ta3;
assign ta3 =  ((and1 | and2 | and3) == 1) ? {inputbits[10:0], 9'b0} : ta4;
assign ta4 =  ((and1 | and2 | and3 | and4) == 1) ? {inputbits[6:0], 13'b0} : {inputbits[2:0], 17'b0};


assign sha1 =  ((and1) == 1) ? 0 : sha2;
assign sha2 =  ((and1 | and2) == 1) ? 4 : sha3;
assign sha3 =  ((and1 | and2 | and3) == 1) ? 8 : sha4;
assign sha4 =  ((and1 | and2 | and3 | and4) == 1) ? 12 : 16;


assign t2 = (tpipe1[19:16] == 0) ? {tpipe1[15:0], 4'b0} : t2p1;
assign t2p1 = (tpipe1[19:17] == 0) ? {tpipe1[16:0], 3'b0} : t2p2;
assign t2p2 = (tpipe1[19:18] == 0) ? {tpipe1[17:0], 2'b0} : t2p3;
assign t2p3 = (tpipe1[19:19] == 0) ? {tpipe1[18:0], 1'b0} : tpipe1[19:0];


assign sumshift = (tpipe1[19:16] == 0) ? 4 : ss1;
assign ss1 = (tpipe1[19:17] == 0) ? 3 : ss2;
assign ss2 = (tpipe1[19:18] == 0) ? 2 : ss3;
assign ss3 = (tpipe1[19:19] == 0) ? 1 : 0;


always @(posedge clk)
```

```
                begin
                shap1 <= sha1;
                shap2 <= shap1 + sumshift;
                tpipe1 <= ta1;
                tpipe2 <= t2[19:3];
                end

        assign shiftbits = shap2;
        assign outputbits = tpipe2;

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 06-Oct-2006
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module reduce34to28(inputbits, outputbits, shiftbits, clk);

        input [33:0] inputbits;
        input clk;

        output [27:0] outputbits;
        output [5:0] shiftbits;

        wire and1, and2, and3, and4, and5, and6, and7, and8;

        wire [30:0] ta1, ta2, ta3, ta4, ta5, ta6, ta7, ta8;

        wire [5:0] sha1, sha2, sha3, sha4, sha5, sha6, sha7, sha8;

        wire [30:0] t2, t2p1, t2p2, t2p3;
        wire [2:0] sumshift, ss1, ss2, ss3;

        reg [5:0] shap1, shap2;
        reg [5:0] SHAP;
```

```
reg [33:0] inputbitsr1;
reg [30:0] TAP;
reg [30:0] tpipe1;
reg [27:0] tpipe2;

reg and1p1, and2p1, and3p1, and4p1;

assign and1 = inputbits[33] | inputbits[32] | inputbits[31] | inputbits[30];
assign and2 = inputbits[29] | inputbits[28] | inputbits[27] | inputbits[26];
assign and3 = inputbits[25] | inputbits[24] | inputbits[23] | inputbits[22];
assign and4 = inputbits[21] | inputbits[20] | inputbits[19] | inputbits[18];
assign and5 = inputbits[17] | inputbits[16] | inputbits[15] | inputbits[14];
assign and6 = inputbits[13] | inputbits[12] | inputbits[11] | inputbits[10];
assign and7 = inputbits[9] | inputbits[8] | inputbits[7] | inputbits[6];
assign and8 = inputbits[5] | inputbits[4] | inputbits[3] | inputbits[2];


assign ta1 =  ((and1p1) == 1) ? inputbitsr1[33:3] : ta2;
assign ta2 =  ((and1p1 | and2p1) == 1) ? {inputbitsr1[29:0], 1'b0} : ta3;
assign ta3 =  ((and1p1 | and2p1 | and3p1) == 1) ? {inputbitsr1[25:0], 5'b0} : ta4;
assign ta4 =  ((and1p1 | and2p1 | and3p1 | and4p1) == 1) ? {inputbitsr1[21:0], 9'b0} : TAP;
assign ta5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? {inputbits[17:0], 13'b0} : ta6;
assign ta6 =  ((and1 | and2 | and3 | and4 | and5 | and6) == 1) ? {inputbits[13:0], 17'b0} : ta7;
assign ta7 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7) == 1) ? {inputbits[9:0], 21'b0} : ta8;
assign ta8 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7 | and8) == 1) ? {inputbits[5:0], 25'b0} : {inputbits[1:0], 29'b0};


assign sha1 =  ((and1p1) == 1) ? 0 : sha2;
assign sha2 =  ((and1p1 | and2p1) == 1) ? 4 : sha3;
assign sha3 =  ((and1p1 | and2p1 | and3p1) == 1) ? 8 : sha4;
assign sha4 =  ((and1p1 | and2p1 | and3p1 | and4p1) == 1) ? 12 : SHAP;
assign sha5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? 16 : sha6;
assign sha6 =  ((and1 | and2 | and3 | and4 | and5 | and6) == 1) ? 20 : sha7;
```

```
assign sha7 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7) == 1) ? 24 : sha8;
assign sha8 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7 | and8) == 1) ? 28 : 32;


assign t2 = (tpipe1[30:27] == 0) ? {tpipe1[26:0], 4'b0} : t2p1;
assign t2p1 = (tpipe1[30:28] == 0) ? {tpipe1[27:0], 3'b0} : t2p2;
assign t2p2 = (tpipe1[30:29] == 0) ? {tpipe1[28:0], 2'b0} : t2p3;
assign t2p3 = (tpipe1[30:30] == 0) ? {tpipe1[29:0], 1'b0} : tpipe1[30:0];


assign sumshift = (tpipe1[30:27] == 0) ? 4 : ss1;
assign ss1 = (tpipe1[30:28] == 0) ? 3 : ss2;
assign ss2 = (tpipe1[30:29] == 0) ? 2 : ss3;
assign ss3 = (tpipe1[30:30] == 0) ? 1 : 0;


always @(posedge clk)
        begin
        TAP <= ta5;
        SHAP <= sha5;
        inputbitsr1 <= inputbits;
        shap1 <= sha1;
        shap2 <= shap1 + sumshift;
        tpipe1 <= ta1;
        tpipe2 <= t2[30:3];

        //////////////////////
        and1p1 <= and1;
        and2p1 <= and2;
        and3p1 <= and3;
        and4p1 <= and4;
        end
```

```
        assign shiftbits = shap2;
        assign outputbits = tpipe2;

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 26-Jul-2006
//////////////////////////////////////////////////////
// multiply two numbers with rounding
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module mul18to18(Ain, Bin, outputn, clk);

        input [17:0] Ain, Bin;

        output [17:0] outputn;
        input clk;

        wire [35:0] mulout;

        reg [17:0] outputregister;

        // reqires a 18 by 18 un-clocked signed multiplier with the following designation
        mul18b18 mul1(Ain, Bin, mulout);

        always @(posedge clk)
                begin
                outputregister <= mulout[34:17] + mulout[16];
```

```
                end

        assign outputn = outputregister;

endmodule
```

```
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mul18b18.v when simulating
```

```
// the core, mul18b18. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mul18b18 (
        a,
        b,
        o);

input [17 : 0] a;
input [17 : 0] b;
output [35 : 0] o;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,      // bram_addr_width
                0,      // c_a_type
                18,     // c_a_width
                18,     // c_baat
                0,      // c_b_constant
                0,      // c_b_type
                "0000000000000001",     // c_b_value
                18,     // c_b_width
                1,      // c_enable_rlocs
                0,      // c_has_aclr
                0,      // c_has_a_signed
                1,      // c_has_b
                0,      // c_has_ce
                0,      // c_has_loadb
                0,      // c_has_load_done
                0,      // c_has_nd
                1,      // c_has_o
```

```
		0,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		36,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.A(a),
		.B(b),
		.O(o),
		.CLK(),
		.Q(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
		.RFD(),
		.ND(),
```

```
                .RDY());

// synopsys translate_on

endmodule
```

```
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*****************************************************************************/
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mul17b17os.v when simulating
```

```
// the core, mul17b17os. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mul17b17os (
        clk,
        a,
        b,
        q);

input clk;
input [16 : 0] a;
input [16 : 0] b;
output [33 : 0] q;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,          // bram_addr_width
                1,          // c_a_type
                17,         // c_a_width
                17,         // c_baat
                0,          // c_b_constant
                1,          // c_b_type
                "0000000000000001",       // c_b_value
                17,         // c_b_width
                1,          // c_enable_rlocs
                0,          // c_has_aclr
                0,          // c_has_a_signed
                1,          // c_has_b
                0,          // c_has_ce
                0,          // c_has_loadb
                0,          // c_has_load_done
```

```
		0,		// c_has_nd
		0,		// c_has_o
		1,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		34,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.CLK(clk),
		.A(a),
		.B(b),
		.Q(q),
		.O(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
```

```
                .RFD(),
                .ND(),
                .RDY());


// synopsys translate_on

endmodule
```

```
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mult17by34os.v when simulating
```

```
// the core, mult17by34os. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mult17by34os (
        clk,
        a,
        b,
        q);

input clk;
input [16 : 0] a;
input [33 : 0] b;
output [50 : 0] q;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,          // bram_addr_width
                1,          // c_a_type
                17,         // c_a_width
                17,         // c_baat
                0,          // c_b_constant
                1,          // c_b_type
                "0000000000000001",       // c_b_value
                34,         // c_b_width
                1,          // c_enable_rlocs
                0,          // c_has_aclr
                0,          // c_has_a_signed
                1,          // c_has_b
                0,          // c_has_ce
                0,          // c_has_loadb
                0,          // c_has_load_done
```

```
		0,		// c_has_nd
		0,		// c_has_o
		1,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		51,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.CLK(clk),
		.A(a),
		.B(b),
		.Q(q),
		.O(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
```

```
                .RFD(),
                .ND(),
                .RDY());

// synopsys translate_on

endmodule
```

```
Xilinx ISE Device utilization summary:
---------------------------

Selected Device : 2vp100ff1696-6

 Number of Slices:                     1889  out of  44096     4%
 Number of Slice Flip Flops:           1988  out of  88192     2%
 Number of 4 input LUTs:               3007  out of  88192     3%
 Number of bonded IOBs:                 112  out of   1164     9%
 Number of BRAMs:                         9  out of    444     2%
 Number of MULT18X18s:                    9  out of    444     2%
 Number of GCLKs:                         1  out of     16     6%
```

DETERMINATION OF INTERACTION SUBSHELL FOR ELECTRON IMPACT IONIZATION

```
//////////////////////////////////////////////////////
// Function to determine the subshell of interaction
//  Returns the binding energy (eV) of the subshell.
//
// This is valid for elements Z = 1:96
//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//


module choose(energy, atomcode, Rnum, clk, BE);

    input [18:0] energy;
    input [6:0] atomcode;
    input [15:0] Rnum;
    input clk;

    output [15:0] BE;

    wire [15:0] prob1, prob2, prob3, prob4, prob5, prob6,
                prob7, prob8;

    wire [15:0] be1, be2, be3, be4, be5, be6, be7, be8;
    wire [15:0] bbe1, bbe2, bbe3, bbe4, bbe5, bbe6, bbe7, bbe8;
    wire [33:0] rnoT;
    wire [15:0] rno;

    wire t1, t2, t3, t4, t5, t6, t7, t8;
```

```
wire ct1, ct2, ct3;
wire [15:0] bb1, bb2, bb3, bb4, bb5, bb6, bb7, m1, m2, m3, m4;
wire [15:0] rnor1p, rnor2p;
wire [15:0] ssdown, sssdown;
wire [15:0] saveup, savedown;

reg t1p, t2p, t3p, t4p, t5p, t6p, t7p, t8p;
reg [15:0] prob1r, prob2r, prob3r, prob4r, prob5r, prob6r,
           prob7r, prob8r;

reg [15:0] bb1r, bb2r, bb3r, bb4r, rnor1, ssdownr, savedownr,
        saveupr, sssdownr, bb5r, bb6r, bb7r, rnor2;

reg [15:0] ss5r1, ss5r2, ss3r1, ss3r2, ss1r1, ss1r2;

reg [127:0] besave1, besave2, besave3, besave4, besave5;

reg [15:0] m1r1, m1r2, m1r3, m1r4;
reg [15:0] m2r1, m2r2, m2r3, m2r4;
reg [15:0] m3r1, m3r2, m3r3, m3r4;
reg [15:0] m4r1, m4r2, m4r3, m4r4;



reg [18:0] energyr1, energyr2;

reg [15:0] ss1, ss2, ss3, ss4;
reg [15:0] ss5, ss6;
reg [15:0] ss7;


getdata  gd2(atomcode, clk, prob1, prob2, prob3, prob4, prob5,
  prob6, prob7, prob8, be1, be2, be3, be4, be5, be6, be7, be8);
```

```
mul17b17os m331(clk, {1'b0, ss7}, {1'b0, Rnum}, rnoT);

assign rno = rnoT[31:16];

assign t1 = (energyr2 > be1) ? 1'b1 : 1'b0;
assign t2 = (energyr2 > be2) ? 1'b1 : 1'b0;
assign t3 = (energyr2 > be3) ? 1'b1 : 1'b0;
assign t4 = (energyr2 > be4) ? 1'b1 : 1'b0;
assign t5 = (energyr2 > be5) ? 1'b1 : 1'b0;
assign t6 = (energyr2 > be6) ? 1'b1 : 1'b0;
assign t7 = (energyr2 > be7) ? 1'b1 : 1'b0;
assign t8 = (energyr2 > be8) ? 1'b1 : 1'b0;

assign m1 = ({16{t5p}} & prob5r);
assign m2 = ({16{t1p}} & prob1r);
assign m3 = ({16{t7p}} & prob7r);
assign m4 = ({16{t3p}} & prob3r);

// first step elimination
assign ct1 = (rno > ss5r2) ? 1'b1 : 1'b0;
assign bb1 = (ct1 == 1) ? bbe5 : bbe1;
assign bb2 = (ct1 == 1) ? bbe6 : bbe2;
assign bb3 = (ct1 == 1) ? bbe7 : bbe3;
assign bb4 = (ct1 == 1) ? bbe8 : bbe4;
assign rnor1p = (ct1 == 1) ? rno - ss5r2 : rno;
assign ssdown = (ct1 == 1) ? ss3r2 : ss1r2;
assign savedown = (ct1 == 1) ? m1r4 : m2r4;
assign saveup = (ct1 == 1) ? m3r4 : m4r4;

// second step elimination
assign ct2 = (rnor1 > ssdownr) ? 1'b1 : 1'b0;
```

```
assign bb5 = (ct2 == 1) ? bb3r : bb1r;
assign bb6 = (ct2 == 1) ? bb4r : bb2r;
assign sssdown = (ct2 == 1) ? saveupr : savedownr;
assign rnor2p = (ct2 == 1) ? rnor1 - ssdownr : rnor1;

// third step elimination
assign ct3 = (rnor2 > sssdownr) ? 1'b1 : 1'b0;
assign bb7 = (ct3 == 1) ? bb6r : bb5r;

assign {bbe1, bbe2, bbe3, bbe4, bbe5, bbe6, bbe7, bbe8} = besave5;

assign BE = bb7r;

always @(posedge clk)
begin

    m1r1 <= m1;
    m1r2 <= m1r1;
    m1r3 <= m1r2;
    m1r4 <= m1r3;

    m2r1 <= m2;
    m2r2 <= m2r1;
    m2r3 <= m2r2;
    m2r4 <= m2r3;

    m3r1 <= m3;
    m3r2 <= m3r1;
    m3r3 <= m3r2;
    m3r4 <= m3r3;

    m4r1 <= m4;
    m4r2 <= m4r1;
```

```
m4r3 <= m4r2;
m4r4 <= m4r3;


ss5r1 <= ss5;
ss5r2 <= ss5r1;

ss3r1 <= ss3;
ss3r2 <= ss3r1;

ss1r1 <= ss1;
ss1r2 <= ss1r1;


besave1 <= {be1, be2, be3, be4, be5, be6, be7, be8};
besave2 <= besave1;
besave3 <= besave2;
besave4 <= besave3;
besave5 <= besave4;

saveupr <= saveup;
savedownr <= savedown;

bb1r <= bb1;
bb2r <= bb2;
bb3r <= bb3;
bb4r <= bb4;
bb5r <= bb5;
bb6r <= bb6;
bb7r <= bb7;
rnor1 <= rnor1p;
rnor2 <= rnor2p;
ssdownr <= ssdown;
```

```
sssdownr <= sssdown;

energyr1 <= energy;
energyr2 <= energyr1;

prob1r <= prob1;
prob2r <= prob2;
prob3r <= prob3;
prob4r <= prob4;
prob5r <= prob5;
prob6r <= prob6;
prob7r <= prob7;
prob8r <= prob8;

t1p <= t1;
t2p <= t2;
t3p <= t3;
t4p <= t4;
t5p <= t5;
t6p <= t6;
t7p <= t7;
t8p <= t8;

ss1 <= ({16{t1p}} & prob1r) + ({16{t2p}} & prob2r);
ss2 <= ({16{t3p}} & prob3r) + ({16{t4p}} & prob4r);
ss3 <= ({16{t5p}} & prob5r) + ({16{t6p}} & prob6r);
ss4 <= ({16{t7p}} & prob7r) + ({16{t8p}} & prob8r);

ss5 <= ss1 + ss2;
ss6 <= ss3 + ss4;

ss7 <= ss5 + ss6;
```

```
    end

endmodule
```

```
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*****************************************************************************/
// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mul17b17os.v when simulating
```

```
// the core, mul17b17os. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mul17b17os (
        clk,
        a,
        b,
        q);

input clk;
input [16 : 0] a;
input [16 : 0] b;
output [33 : 0] q;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,          // bram_addr_width
                1,          // c_a_type
                17,         // c_a_width
                17,         // c_baat
                0,          // c_b_constant
                1,          // c_b_type
                "0000000000000001",       // c_b_value
                17,         // c_b_width
                1,          // c_enable_rlocs
                0,          // c_has_aclr
                0,          // c_has_a_signed
                1,          // c_has_b
                0,          // c_has_ce
                0,          // c_has_loadb
                0,          // c_has_load_done
```

```
		0,		// c_has_nd
		0,		// c_has_o
		1,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		34,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.CLK(clk),
		.A(a),
		.B(b),
		.Q(q),
		.O(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
```

```
                .RFD(),
                .ND(),
                .RDY());


// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////
// Function to determine and report subshell ionization
// probabilities and respective binding energies
//
// This is valid for elements Z = 1:96
//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//



module getdata(atomcode, clk, prob1, prob2, prob3, prob4, prob5,
     prob6, prob7, prob8, be1, be2, be3, be4, be5, be6, be7, be8);

  input [6:0] atomcode;
  input clk;

  output [15:0] prob1, prob2, prob3, prob4, prob5, prob6,
               prob7, prob8;

  output [15:0] be1, be2, be3, be4, be5, be6, be7, be8;

  reg [7:0] atomcl, atomcu;

  always @(posedge clk)
  begin
    atomcl <= {atomcode,1'b0};
    atomcu <= {atomcode,1'b0} + 1;
```

```
  end

//  128 bit wide dual port blockram… 194 address spaces.  Loaded with  coefficient
//   File generated from the matlab script presented in a following appendix section
//   the logic behind these methods is described in the dissertation

  ionprob m1(atomcl, atomcu, clk, clk,
    {be1, be2, be3, be4, be5, be6, be7, be8}, {prob1, prob2,
    prob3, prob4, prob5, prob6, prob7, prob8});

endmodule
```

```
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*********************************************************************************/
// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file ionprob.v when simulating
```

```
// the core, ionprob. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module ionprob (
        addra,
        addrb,
        clka,
        clkb,
        douta,
        doutb);

input [7 : 0] addra;
input [7 : 0] addrb;
input clka;
input clkb;
output [127 : 0] douta;
output [127 : 0] doutb;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                8,      // c_addra_width
                8,      // c_addrb_width
                "0",    // c_default_data
                194,    // c_depth_a
                194,    // c_depth_b
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_dina
                0,      // c_has_dinb
                1,      // c_has_douta
                1,      // c_has_doutb
```

```
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
0,          // c_has_wea
0,          // c_has_web
18,         // c_limit_data_pitch
"ionprob.mif",      // c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
128,        // c_width_a
128,        // c_width_b
0,          // c_write_modea
0,          // c_write_modeb
"0",        // c_ybottom_addr
1,          // c_yclka_is_rising
1,          // c_yclkb_is_rising
1,          // c_yena_is_high
1,          // c_yenb_is_high
"hierarchy1",       // c_yhierarchy
0,          // c_ymake_bmm
"16kx1", // c_yprimitive_type
```

```
                1,          // c_ysinita_is_high
                1,          // c_ysinitb_is_high
                "1024",     // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywea_is_high
                1,          // c_yweb_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDRA(addra),
                .ADDRB(addrb),
                .CLKA(clka),
                .CLKB(clkb),
                .DOUTA(douta),
                .DOUTB(doutb),
                .DINA(),
                .DINB(),
                .ENA(),
                .ENB(),
                .NDA(),
                .NDB(),
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB(),
                .WEA(),
                .WEB());


// synopsys translate_on

endmodule
```

```
Xilinx ISE Device utilization summary:
---------------------------

Selected Device : 2vp100ff1696-6

 Number of Slices:                      575  out of  44096     1%
 Number of Slice Flip Flops:            824  out of  88192     0%
 Number of 4 input LUTs:                792  out of  88192     0%
 Number of bonded IOBs:                  58  out of   1164     4%
 Number of BRAMs:                         4  out of    444     0%
 Number of MULT18X18s:                    1  out of    444     0%
 Number of GCLKs:                         1  out of     16     6%
```

KNOCK-ON ELECTRON POLAR ANGLE DEFLECTION CALCULATION

```
//////////////////////////////////////////////////////
//
//  Function to determine the emission angles (mu values)
//   of the primary and secondary electrons following an
//   electron impact ionization event.

//   The formulae are based on:
//   M. J. Berger, 2nd symp. on Microdosimetry (1969) p. 541
//
//  Optimized in part for the Virtex-II Pro 100 FPGA
//   ----------------------------------------------

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//

module mott_angles(Wprime, Tprime, clk, Ti, primary_mu, secondary_mu);
   input [18:0] Wprime, Tprime, Ti;
   input clk;

   output [17:0] primary_mu, secondary_mu;



   wire [1:0] shiftw, shiftt;
   wire [33:0] ToK, WoK, PRIMp, SECp;
   wire [33:0] PRIMpp, SECpp;
   wire [16:0] invTi;
   wire [5:0] invTiS;  // only bottom 4 bits needed here.
```

```
wire [16:0] Wpred, Tpred;
wire [16:0] topW, topT;
wire [4:0] WpredS, TpredS;
wire [16:0] invmep4, invep4;
wire [5:0] NULLSH1, NULLSH2;  // always 0... and not used
wire NULL1, NULL2;
wire [17:0] Bprim, Bsec;
wire [35:0] Cprim, Csec;
wire [34:0] tempprim, tempsec;
wire [53:0] doutprim, doutsec;
wire [18:0] primmup, secmup;


reg [17:0] primmu, secmu;
reg [16:0] PRIMright, SECright;
reg [35:0] Cprimr1, Csecr1;

reg [4:0] netSW, netST, netSWr1, netSWr2, netSWr3,
     netSWr4, netSTr1, netSTr2, netSTr3, netSTr4;
reg [16:0] Wpredr1, Wpredr2, Wpredr3, Tpredr1, Tpredr2, Tpredr3;
reg [4:0] WpredSr1, WpredSr2, WpredSr3, TpredSr1, TpredSr2, TpredSr3;
reg [30:0] ToKin, WoKin;
reg [18:0] Wp1, Tp1;
reg [16:0] Wp2, Tp2;
reg [1:0] shiftwr1, shifttr1, shiftwr2, shifttr2, shiftwr3, shifttr3;
reg [16:0] topWr1, topWr2, topWr3, topTr1, topTr2, topTr3;
reg [26:0] PRIMppp, SECppp;


assign primary_mu = primmu;
assign secondary_mu = secmu;
```

```
reduce19to17p red97W(Wprime, Wpred, WpredS, clk),
              red97T(Tprime, Tpred, TpredS, clk);


double_inv_rounding di1({Ti, 15'b0}, {3'b100, ToKin}, clk, invTi,
                        invTiS, invep4, NULLSH1);

          double_inv_rounding di2({3'b100, WoKin}, NULLIN2, clk, invmep4, NULLSH2,
                          NULLOUT2, NULLOUTS2);

mul18to18 m1a({1'b0, invTi}, {1'b0, Wpredr3}, {NULL1 ,topW}, clk);
mul18to18 m2a({1'b0, invTi}, {1'b0, Tpredr3}, {NULL2 ,topT}, clk);

mul17b17os m3a(clk, {1'b0, Tp2}, 17'b10000011010101000, ToK);
mul17b17os m4a(clk, {1'b0, Wp2}, 17'b10000011010101000, WoK);

assign shiftw = (Wprime[18] == 1) ? 2'd0 : ((Wprime[17] == 1) ? 2'd1 : 2'd2);
assign shiftt = (Tprime[18] == 1) ? 2'd0 : ((Tprime[17] == 1) ? 2'd1 : 2'd2);

mul17b17os m17o1(clk, topWr3, invep4, PRIMp);
mul17b17os m17o2(clk, topTr3, invmep4, SECp);

assign PRIMpp = PRIMp >> netSWr4;
assign SECpp  = SECp  >> netSTr4;

// HDL GEN:  makecoe('invsin2theta.coe', @(x)cos(asin(sqrt(x))), 10, 17, 1, 36, 0, 1, 0)
//  Requires a dual ported 10x54 blockram module.  No input/output stages
invsin2theta innin(PRIMppp[26:17], SECppp[26:17], clk,        clk,        doutprim,             doutsec);


assign Bprim = doutprim[53:36];
assign Bsec = doutsec[53:36];
```

```
assign Cprim = doutprim[35:0];
assign Csec = doutsec[35:0];

mult17b18os m17o5(clk, PRIMright, Bprim, tempprim);
mult17b18os m17o6(clk, SECright,  Bsec, tempsec);




assign primmup = Cprimr1[34:16] + {{4{tempprim[34]}}, tempprim[34:20]};
assign secmup = Csecr1[34:16] + {{4{tempsec[34]}}, tempsec[34:20]};



always @(posedge clk)
begin
  primmu[16:0] <= primmup[18:2]; //+ primmup[1];
  primmu[17] <= 0; // since there is no backscattering from an electron-impact-ionization

  secmu[16:0] <= secmup[18:2];// + secmup[1];
  secmu[17] <= 0;


  PRIMppp <= PRIMpp[30:4];
  SECppp  <= SECpp[30:4];

  PRIMright <= PRIMppp[16:0];
  SECright <= SECppp[16:0];

  Cprimr1 <= Cprim;
  Csecr1 <= Csec;
```

```
Wp1 <= Wprime << shiftw;
Tp1 <= Tprime << shiftt;
Wp2 <= Wp1[18:2];
Tp2 <= Tp1[18:2];

Tpredr1 <= Tpred;
Tpredr2 <= Tpredr1;
Tpredr3 <= Tpredr2;
Wpredr1 <= Wpred;
Wpredr2 <= Wpredr1;
Wpredr3 <= Wpredr2;
TpredSr1 <= TpredS;
TpredSr2 <= TpredSr1;
TpredSr3 <= TpredSr2;
WpredSr1 <= WpredS;
WpredSr2 <= WpredSr1;
WpredSr3 <= WpredSr2;

topWr1 <= topW;
topWr2 <= topWr1;
topWr3 <= topWr2;

topTr1 <= topT;
topTr2 <= topTr1;
topTr3 <= topTr2;

netSW <= WpredSr3 - invTiS[4:0] + 2;
netST <= TpredSr3 - invTiS[4:0] + 2;

netSWr1 <= netSW;
netSWr2 <= netSWr1;
netSWr3 <= netSWr2;
netSWr4 <= netSWr3;
```

```
    netSTr1 <= netST;
    netSTr2 <= netSTr1;
    netSTr3 <= netSTr2;
    netSTr4 <= netSTr3;

    ToKin <= ToK[33:3] >> shifttr3;
    WoKin <= WoK[33:3] >> shiftwr3;

    shifttr1 <= shiftt;
    shifttr2 <= shifttr1;
    shifttr3 <= shifttr2;
    shiftwr1 <= shiftw;
    shiftwr2 <= shiftwr1;
    shiftwr3 <= shiftwr2;

  end

endmodule
```

```
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// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mul17b17os.v when simulating
```

```
// the core, mul17b17os. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mul17b17os (
        clk,
        a,
        b,
        q);

input clk;
input [16 : 0] a;
input [16 : 0] b;
output [33 : 0] q;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,          // bram_addr_width
                1,          // c_a_type
                17,         // c_a_width
                17,         // c_baat
                0,          // c_b_constant
                1,          // c_b_type
                "0000000000000001",       // c_b_value
                17,         // c_b_width
                1,          // c_enable_rlocs
                0,          // c_has_aclr
                0,          // c_has_a_signed
                1,          // c_has_b
                0,          // c_has_ce
                0,          // c_has_loadb
                0,          // c_has_load_done
```

```
		0,		// c_has_nd
		0,		// c_has_o
		1,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		34,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.CLK(clk),
		.A(a),
		.B(b),
		.Q(q),
		.O(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
```

```
                .RFD(),
                .ND(),
                .RDY());


// synopsys translate_on

endmodule
```

```
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*****************************************************************************/
// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mul18b18.v when simulating
```

```
// the core, mul18b18. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mul18b18 (
        a,
        b,
        o);

input [17 : 0] a;
input [17 : 0] b;
output [35 : 0] o;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,      // bram_addr_width
                0,      // c_a_type
                18,     // c_a_width
                18,     // c_baat
                0,      // c_b_constant
                0,      // c_b_type
                "0000000000000001",     // c_b_value
                18,     // c_b_width
                1,      // c_enable_rlocs
                0,      // c_has_aclr
                0,      // c_has_a_signed
                1,      // c_has_b
                0,      // c_has_ce
                0,      // c_has_loadb
                0,      // c_has_load_done
                0,      // c_has_nd
                1,      // c_has_o
```

```
		0,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		36,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.A(a),
		.B(b),
		.O(o),
		.CLK(),
		.Q(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
		.RFD(),
		.ND(),
```

```
                .RDY());

// synopsys translate_on

endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 26-Jul-2006
//////////////////////////////////////////////////////
// multiply two numbers with rounding
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module mul18to18(Ain, Bin, outputn, clk);

        input [17:0] Ain, Bin;

        output [17:0] outputn;
        input clk;

        wire [35:0] mulout;

        reg [17:0] outputregister;

        // reqires a 18 by 18 un-clocked signed multiplier with the following designation
        mul18b18 mul1(Ain, Bin, mulout);

        always @(posedge clk)
                begin
                outputregister <= mulout[34:17] + mulout[16];
```

```
                end

        assign outputn = outputregister;

endmodule
```

```
//////////////////////////////////////////////////////////////
// compute the inversion of a number between 0 and 1
//  perform the computation in duplicate to preserve blockram
// computes equivilancy to ~floating point.
//////////////////////////////////////////////////////////////

//
// Constructed for partial fulfillment of the requirements of a
// PhD in Nuclear Engineering, Texas A&M University
// Prepared in full by Alexander S. Pasciak
//

// INPUT: 34 bits, with the decimal at the left (all less than 0)

// OUTPUT:  mantissa = 17 bits AND always 0.XXXXXXX (unless it is 0)
//          shift = positive multiplicative shift


module double_inv_rounding(inputnum1, inputnum2, clk, outputnum1,
                        outputshift1, outputnum2, outputshift2);

  input [33:0] inputnum1, inputnum2;
  input clk;

  output [16:0] outputnum1, outputnum2;
  output [5:0] outputshift1, outputshift2;


  wire [27:0] redo1, redo2;
  wire [5:0] shed1, shed2;
  wire [53:0] sqramout1, sqramout2;
  wire [35:0] C1, C2;
```

```
wire [17:0] B1, B2;
wire [34:0] mout1, mout2;


reg [16:0] left1, left2;
reg [35:0] C1r, C2r;
reg [16:0] preout1, preout2;
reg [5:0] shift1r1, shift2r1, shift1r2, shift2r2, shift1r3, shift2r3;

// HDLgen Command:
// reduce2('reduce34to28.v', 'reduce34to28', 34, 28, 1)

reduce34to28   red1(inputnum1, redo1, shed1, clk),  // delay = 3
                    red2(inputnum2, redo2, shed2, clk);


// HDLgen Command:
// makecoe('invram.coe', @(x)((1 ./ ((x./2) + 0.5))), 10, 17, 1, 36, 0, 1, 0)
// ShiftB = 26,  ShiftC = 34
// requires a 10x54 bit read only blockram loaded with this COE (NO INPUT STAGE!)

invsram iram1 (redo1[26:17], redo2[26:17], clk, clk, sqramout1, sqramout2);

assign C1 = sqramout1[35:0];
assign C2 = sqramout2[35:0];
assign B1 = sqramout1[53:36];
assign B2 = sqramout2[53:36];

mult17b18os mmm1 (clk, {1'b0, left1}, B1, mout1),
         mmm2 (clk, {1'b0, left2}, B2, mout2);


always @(posedge clk)
```

```
    begin
    // delay stage 1
    left1 <= redo1[16:0];
    left2 <= redo2[16:0];
    shift1r1 <= shed1;  // this is a left shift
    shift2r1 <= shed2;
    // delay stage 2
    C1r <= C1;
    C2r <= C2;
    shift1r2 <= shift1r1 + 2;
    shift2r2 <= shift2r1 + 2;
    // delay stage 3
    preout1 <= C1r[35:19] + {{10{mout1[34]}}, mout1[34:28]} + C1r[18] + mout1[27];
    preout2 <= C2r[35:19] + {{10{mout2[34]}}, mout2[34:28]} + C2r[18] + mout2[27];
    shift1r3 <= shift1r2;
    shift2r3 <= shift2r2;

    end

    assign outputnum1 = preout1;
    assign outputnum2 = preout2;
    assign outputshift1 = shift1r3;
    assign outputshift2 = shift2r3;


endmodule
```

```
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// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file mult17b18os.v when simulating
```

```
// the core, mult17b18os. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module mult17b18os (
        clk,
        a,
        b,
        q);

input clk;
input [16 : 0] a;
input [17 : 0] b;
output [34 : 0] q;

// synopsys translate_off

        MULT_GEN_V7_0 #(
                9,          // bram_addr_width
                1,          // c_a_type
                17,         // c_a_width
                17,         // c_baat
                0,          // c_b_constant
                0,          // c_b_type
                "0000000000000001",       // c_b_value
                18,         // c_b_width
                1,          // c_enable_rlocs
                0,          // c_has_aclr
                0,          // c_has_a_signed
                1,          // c_has_b
                0,          // c_has_ce
                0,          // c_has_loadb
                0,          // c_has_load_done
```

```
		0,		// c_has_nd
		0,		// c_has_o
		1,		// c_has_q
		0,		// c_has_rdy
		0,		// c_has_rfd
		0,		// c_has_sclr
		0,		// c_has_swapb
		"mem",	// c_mem_init_prefix
		0,		// c_mem_type
		1,		// c_mult_type
		0,		// c_output_hold
		35,		// c_out_width
		0,		// c_pipeline
		0,		// c_reg_a_b_inputs
		0,		// c_sqm_type
		1,		// c_stack_adders
		1,		// c_standalone
		1,		// c_sync_enable
		0,		// c_use_luts
		0)		// c_v2_speed
inst (
		.CLK(clk),
		.A(a),
		.B(b),
		.Q(q),
		.O(),
		.A_SIGNED(),
		.LOADB(),
		.LOAD_DONE(),
		.SWAPB(),
		.CE(),
		.ACLR(),
		.SCLR(),
```

```
                .RFD(),
                .ND(),
                .RDY());


// synopsys translate_on

endmodule
```

```
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// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file invsin2theta.v when simulating
```

```
// the core, invsin2theta. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module invsin2theta (
        addra,
        addrb,
        clka,
        clkb,
        douta,
        doutb);

input [9 : 0] addra;
input [9 : 0] addrb;
input clka;
input clkb;
output [53 : 0] douta;
output [53 : 0] doutb;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                10,     // c_addra_width
                10,     // c_addrb_width
                "0",    // c_default_data
                1024,   // c_depth_a
                1024,   // c_depth_b
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_dina
                0,      // c_has_dinb
                1,      // c_has_douta
                1,      // c_has_doutb
```

```
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
0,          // c_has_wea
0,          // c_has_web
18,         // c_limit_data_pitch
"invsin2theta.mif",// c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
54,         // c_width_a
54,         // c_width_b
0,          // c_write_modea
0,          // c_write_modeb
"0",        // c_ybottom_addr
1,          // c_yclka_is_rising
1,          // c_yclkb_is_rising
1,          // c_yena_is_high
1,          // c_yenb_is_high
"hierarchy1",       // c_yhierarchy
0,          // c_ymake_bmm
"16kx1", // c_yprimitive_type
```

```
                1,          // c_ysinita_is_high
                1,          // c_ysinitb_is_high
                "1024",     // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywea_is_high
                1,          // c_yweb_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDRA(addra),
                .ADDRB(addrb),
                .CLKA(clka),
                .CLKB(clkb),
                .DOUTA(douta),
                .DOUTB(doutb),
                .DINA(),
                .DINB(),
                .ENA(),
                .ENB(),
                .NDA(),
                .NDB(),
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB(),
                .WEA(),
                .WEB());


// synopsys translate_on

Endmodule
```

```
//////////////////////////////////////////////////////
//  Prepared by Alexander S Pasciak
//  Partial synthesizeable verilog code specifically for the
//  execution of FPGA based Monte Carlo simulations.
//  (Specifically for the Xilinx Virtex-2-Pro 100 FPGA)
//  Texas A&M University, Department of Nuclear Engineering
//  Date prepared: 06-Oct-2006
//////////////////////////////////////////////////////
//   * No input stage.  Only 1 output stage.
//////////////////////////////////////////////////////



module reduce34to28(inputbits, outputbits, shiftbits, clk);

        input [33:0] inputbits;
        input clk;

        output [27:0] outputbits;
        output [5:0] shiftbits;

        wire and1, and2, and3, and4, and5, and6, and7, and8;

        wire [30:0] ta1, ta2, ta3, ta4, ta5, ta6, ta7, ta8;

        wire [5:0] sha1, sha2, sha3, sha4, sha5, sha6, sha7, sha8;

        wire [30:0] t2, t2p1, t2p2, t2p3;
        wire [2:0] sumshift, ss1, ss2, ss3;

        reg [5:0] shap1, shap2;
        reg [5:0] SHAP;
        reg [33:0] inputbitsr1;
```

```
reg [30:0] TAP;
reg [30:0] tpipe1;
reg [27:0] tpipe2;

reg and1p1, and2p1, and3p1, and4p1;

assign and1 = inputbits[33] | inputbits[32] | inputbits[31] | inputbits[30];
assign and2 = inputbits[29] | inputbits[28] | inputbits[27] | inputbits[26];
assign and3 = inputbits[25] | inputbits[24] | inputbits[23] | inputbits[22];
assign and4 = inputbits[21] | inputbits[20] | inputbits[19] | inputbits[18];
assign and5 = inputbits[17] | inputbits[16] | inputbits[15] | inputbits[14];
assign and6 = inputbits[13] | inputbits[12] | inputbits[11] | inputbits[10];
assign and7 = inputbits[9] | inputbits[8] | inputbits[7] | inputbits[6];
assign and8 = inputbits[5] | inputbits[4] | inputbits[3] | inputbits[2];


assign ta1 =  ((and1p1) == 1) ? inputbitsr1[33:3] : ta2;
assign ta2 =  ((and1p1 | and2p1) == 1) ? {inputbitsr1[29:0], 1'b0} : ta3;
assign ta3 =  ((and1p1 | and2p1 | and3p1) == 1) ? {inputbitsr1[25:0], 5'b0} : ta4;
assign ta4 =  ((and1p1 | and2p1 | and3p1 | and4p1) == 1) ? {inputbitsr1[21:0], 9'b0} : TAP;
assign ta5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? {inputbits[17:0], 13'b0} : ta6;
assign ta6 =  ((and1 | and2 | and3 | and4 | and5 | and6) == 1) ? {inputbits[13:0], 17'b0} : ta7;
assign ta7 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7) == 1) ? {inputbits[9:0], 21'b0} : ta8;
assign ta8 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7 | and8) == 1) ? {inputbits[5:0], 25'b0} : {inputbits[1:0], 29'b0};


assign sha1 =  ((and1p1) == 1) ? 0 : sha2;
assign sha2 =  ((and1p1 | and2p1) == 1) ? 4 : sha3;
assign sha3 =  ((and1p1 | and2p1 | and3p1) == 1) ? 8 : sha4;
assign sha4 =  ((and1p1 | and2p1 | and3p1 | and4p1) == 1) ? 12 : SHAP;
assign sha5 =  ((and1 | and2 | and3 | and4 | and5) == 1) ? 16 : sha6;
assign sha6 =  ((and1 | and2 | and3 | and4 | and5 | and6) == 1) ? 20 : sha7;
assign sha7 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7) == 1) ? 24 : sha8;
```

```
	assign sha8 =  ((and1 | and2 | and3 | and4 | and5 | and6 | and7 | and8) == 1) ? 28 : 32;

	assign t2 = (tpipe1[30:27] == 0) ? {tpipe1[26:0], 4'b0} : t2p1;
	assign t2p1 = (tpipe1[30:28] == 0) ? {tpipe1[27:0], 3'b0} : t2p2;
	assign t2p2 = (tpipe1[30:29] == 0) ? {tpipe1[28:0], 2'b0} : t2p3;
	assign t2p3 = (tpipe1[30:30] == 0) ? {tpipe1[29:0], 1'b0} : tpipe1[30:0];

	assign sumshift = (tpipe1[30:27] == 0) ? 4 : ss1;
	assign ss1 = (tpipe1[30:28] == 0) ? 3 : ss2;
	assign ss2 = (tpipe1[30:29] == 0) ? 2 : ss3;
	assign ss3 = (tpipe1[30:30] == 0) ? 1 : 0;

	always @(posedge clk)
		begin
		TAP <= ta5;
		SHAP <= sha5;
		inputbitsr1 <= inputbits;
		shap1 <= sha1;
		shap2 <= shap1 + sumshift;
		tpipe1 <= ta1;
		tpipe2 <= t2[30:3];

		//////////////////////
		and1p1 <= and1;
		and2p1 <= and2;
		and3p1 <= and3;
		and4p1 <= and4;
		end

	assign shiftbits = shap2;
	assign outputbits = tpipe2;

endmodule
```

```
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*****************************************************************************/
// The synopsys directives "translate_off/translate_on" specified below are
// supported by XST, FPGA Compiler II, Mentor Graphics and Synplicity synthesis
// tools. Ensure they are correct for your synthesis tool(s).

// You must compile the wrapper file invsram.v when simulating
```

```
// the core, invsram. When compiling the wrapper file, be sure to
// reference the XilinxCoreLib Verilog simulation library. For detailed
// instructions, please refer to the "CORE Generator Guide".

module invsram (
        addra,
        addrb,
        clka,
        clkb,
        douta,
        doutb);

input [9 : 0] addra;
input [9 : 0] addrb;
input clka;
input clkb;
output [53 : 0] douta;
output [53 : 0] doutb;

// synopsys translate_off

        BLKMEMDP_V6_1 #(
                10,     // c_addra_width
                10,     // c_addrb_width
                "0",    // c_default_data
                1024,   // c_depth_a
                1024,   // c_depth_b
                0,      // c_enable_rlocs
                0,      // c_has_default_data
                0,      // c_has_dina
                0,      // c_has_dinb
                1,      // c_has_douta
                1,      // c_has_doutb
```

```
0,          // c_has_ena
0,          // c_has_enb
0,          // c_has_limit_data_pitch
0,          // c_has_nda
0,          // c_has_ndb
0,          // c_has_rdya
0,          // c_has_rdyb
0,          // c_has_rfda
0,          // c_has_rfdb
0,          // c_has_sinita
0,          // c_has_sinitb
0,          // c_has_wea
0,          // c_has_web
18,         // c_limit_data_pitch
"invsram.mif",      // c_mem_init_file
0,          // c_pipe_stages_a
0,          // c_pipe_stages_b
0,          // c_reg_inputsa
0,          // c_reg_inputsb
"0",        // c_sinita_value
"0",        // c_sinitb_value
54,         // c_width_a
54,         // c_width_b
0,          // c_write_modea
0,          // c_write_modeb
"0",        // c_ybottom_addr
1,          // c_yclka_is_rising
1,          // c_yclkb_is_rising
1,          // c_yena_is_high
1,          // c_yenb_is_high
"hierarchy1",       // c_yhierarchy
0,          // c_ymake_bmm
"16kx1", // c_yprimitive_type
```

```
                1,          // c_ysinita_is_high
                1,          // c_ysinitb_is_high
                "1024",     // c_ytop_addr
                0,          // c_yuse_single_primitive
                1,          // c_ywea_is_high
                1,          // c_yweb_is_high
                1)          // c_yydisable_warnings
        inst (
                .ADDRA(addra),
                .ADDRB(addrb),
                .CLKA(clka),
                .CLKB(clkb),
                .DOUTA(douta),
                .DOUTB(doutb),
                .DINA(),
                .DINB(),
                .ENA(),
                .ENB(),
                .NDA(),
                .NDB(),
                .RFDA(),
                .RFDB(),
                .RDYA(),
                .RDYB(),
                .SINITA(),
                .SINITB(),
                .WEA(),
                .WEB());


// synopsys translate_on

endmodule
```

VITA

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