

ORNL-4897
UC-34 — Physics

Contract No. W-7405-eng-26

SOLID STATE DIVISION

CROSS SECTIONS FOR ATOMIC DISPLACEMENTS
IN SOLIDS BY FAST ELECTRONS

O. S. Oen

NOTICE

This report was prepared as an account of work sponsored by the United States Government. Neither the United States nor the United States Atomic Energy Commission, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information, apparatus, product or process disclosed, or represents that its use would not infringe privately owned rights.

AUGUST 1973

OAK RIDGE NATIONAL LABORATORY
Oak Ridge, Tennessee 37830
operated by
UNION CARBIDE CORPORATION
for the
U.S. ATOMIC ENERGY COMMISSION

MASTER

~~DIS~~TRIBUTION OF THIS DOCUMENT IS UNLIMITED

See

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency Thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.



1
2

3
4



CONTENTS

	Page
ABSTRACT	1
INTRODUCTION	1
METHOD OF CALCULATION	3
ADDITIONAL USE OF TABLES	6
ACCURACY AND OTHER CALCULATIONS	6
DISCUSSION OF FIGURES AND TABLES	7
FIGURES AND TABLES	
Fig. 1. Comparison of the Displacement Cross Sections Computed from the Mott Series and the McKinley-Feshbach Formula for Gold vs Electron Energy	10
Fig. 2. Ratio of the Primary Displacement Cross Section Computed from the Mott Series to that of the McKinley-Feshbach Formula for Uranium, Gold, Silver, and Copper vs Electron Energy	11
Fig. 3. The Ratio of Mott to Rutherford Scattering for Gold vs Electron Scattering Angle for Several Electron Energies	12
Fig. 4. The Ratio of Mott to Rutherford Scattering vs Electron Scattering Angle for $Z = 92, 79, 62, 47,$ and 29 for 2 MeV Electrons	13
Fig. 5. The Ratio of Mott to McKinley-Feshbach Scattering vs Electron Scattering Angle for Uranium, Gold, and Silver	14
Fig. 6. The Maximum Energy Transferred to an Atomic Nucleus by an Electron in a Head-on Elastic Collision vs Electron Energy for Several Elements	15
Tables 1-37 Give Primary and Total Displacement Cross Sections Computed Using the Mott Series for Different Elements and Threshold Energies vs Electron Energy	
Table 1. Hydrogen $Z=1$	16
Table 2. Helium $Z=2$	20
Table 3. Beryllium $Z=4$	24
Table 4. Carbon $Z=6$	28
Table 5. Oxygen $Z=8$	32

			Page
Table 6.	Magnesium	Z=12	36
Table 7.	Aluminum	Z=13	40
Table 8.	Silicon	Z=14	44
Table 9.	Potassium	Z=19	48
Table 10.	Titanium	Z=22	52
Table 11.	Vanadium	Z=23	56
Table 12.	Chromium	Z=24	60
Table 13.	Iron	Z=26	64
Table 14.	Nickel	Z=28	68
Table 15.	Copper	Z=29	72
Table 16.	Zinc	Z=30	76
Table 17.	Germanium	Z=32	80
Table 18.	Rubidium	Z=37	84
Table 19.	Zirconium	Z=40	88
Table 20.	Niobium	Z=41	92
Table 21.	Molybdenum	Z=42	96
Table 22.	Silver	Z=47	100
Table 23.	Tin	Z=50	104
Table 24.	Cesium	Z=55	108
Table 25.	Neodymium	Z=60	112
Table 26.	Terbium	Z=65	116
Table 27.	Ytterbium	Z=70	120
Table 28.	Hafnium	Z=72	124
Table 29.	Tantalum	Z=73	128
Table 30.	Tungsten	Z=74	132
Table 31.	Platinum	Z=78	136
Table 32.	Gold	Z=79	140
Table 33.	Lead	Z=82	144
Table 34.	Francium	Z=87	148
Table 35.	Uranium	Z=92	152
Table 36.	Plutonium	Z=94	156
Table 37.	Einsteinium	Z=99	160

Tables 38-55 Give the Ratio of Mott to Rutherford Scattering vs Electron Energies Ranging from 0.1 to 100 MeV for the Following Elements:

Table 38.	Z=1, 2	164
Table 39.	Z=4, 6	165
Table 40.	Z=8, 12	166
Table 41.	Z=13, 14	167
Table 42.	Z=19, 22	168
Table 43.	Z=23, 24	169
Table 44.	Z=26, 28	170
Table 45.	Z=29, 30	171
Table 46.	Z=32, 37	172
Table 47.	Z=40, 41	173
Table 48.	Z=42, 47	174
Table 49.	Z=50, 55	175

Table 50.	Z=60, 65	176
Table 51.	Z=70, 72	177
Table 52.	Z=73, 74	178
Table 53.	Z=79, 82	179
Table 54.	Z=87, 92	180
Table 55.	Z=94, 99	181

Tables 56-73 Give the Ratio of Mott to McKinley-Feshbach Scattering vs Electron Scattering Angle for Electron Energies from 0.1 to 100 MeV for the Following Elements:

Table 56.	Z=1, 2	182
Table 57.	Z=4, 6	183
Table 58.	Z=8, 12	184
Table 59.	Z=13, 14	185
Table 60.	Z=19, 22	186
Table 61.	Z=23, 24	187
Table 62.	Z=26, 28	188
Table 63.	Z=29, 30	189
Table 64.	Z=32, 37	190
Table 65.	Z=40, 41	191
Table 66.	Z=42, 47	192
Table 67.	Z=50, 55	193
Table 68.	Z=60, 65	194
Table 69.	Z=70, 72	195
Table 70.	Z=73, 74	196
Table 71.	Z=79, 82	197
Table 72.	Z=87, 92	198
Table 73.	Z=94, 99	199

Table 74.	The Differential Rutherford Scattering per Steradian with the Z^2 Factor Omitted vs Electron Scattering Angle	200
-----------	---	-----

CROSS SECTIONS FOR ATOMIC DISPLACEMENTS
IN SOLIDS BY FAST ELECTRONS

O. S. Oen

ABSTRACT

The Mott series has been used to calculate the number of displacements produced in elastic collisions between fast electrons and atomic nuclei. Displacement cross sections of 37 different elements spanning the atomic table were calculated for electron energies ranging from threshold to about 150 MeV. The Kinchin and Pease model was used with atomic thresholds ranging from 4 to 96 eV in steps of 4 eV. The results are compared with those using the less accurate McKinley-Feshbach formula frequently used in radiation damage studies. In addition, tables giving the differential scattering cross sections in 5° intervals for both the Mott series and the McKinley-Feshbach formula are included.

INTRODUCTION

The use of energetic electrons to produce radiation damage in solids is widespread. Their usefulness results from several factors: A monochromatic collimated beam can be readily obtained, they have a large penetrating ability, and it is believed that they produce a simpler type of damage than heavy particles such as neutrons or heavy ions. An earlier version of the present report has been widely used.¹ Because of a large number of requests it has seemed useful to produce an expanded version. This new version includes more values of the atomic displacement threshold, more electron energies, and a greater variety of elements. In particular a large number of threshold energies has been used since it has been

¹O. S. Oen, "Cross Sections for Atomic Displacements in Solids by Fast Electrons," ORNL-3813 (1965).

recently shown² that the displacement cross-section for a linear displacement probability can be obtained from the conventional sharp displacement cross-sections. The recent widespread use of the high energy electron microscope³ to introduce damage has prompted some aspects of the calculations. Some of the elements chosen in this work were selected because of their great potential in technological applications. The very high electron energy of the order 150 MeV was selected since it represents the energy available in the Oak Ridge linear electron accelerator.

In order to calculate the probability of displacing an atom in a solid from its normal lattice position by a fast electron it is necessary to know the scattering cross section between an electron and an atom. The scattering of a nonrelativistic electron by the Coulomb field of a point nucleus was first treated by Rutherford, and the relativistic extension was done by Mott⁴ using the Dirac theory of the electron. Since the electrons used in radiation damage are in the relativistic velocity range, it is necessary to use Mott's theory. Mott has expressed the scattering between a point nucleus and an electron as an infinite series of Legendre expansions. Since that series solution is cumbersome to evaluate, several authors have approximated it to get simpler, more tractable expressions. The so-called McKinley-Feshbach version of the Mott equation has been most frequently used to calculate atomic displacement cross sections for

²O. S. Oen, in *Radiation Effects in Semiconductors*, edited by F. L. Vook (Plenum, New York, 1968), p. 264.

³M. J. Makin, *Phil. Mag.* 18, 637 (1968).

⁴N. F. Mott, *Proc. Roy. Soc. (London)* A124, 426 (1929); A135, 429 (1932); N. F. Mott and H. S. W. Massey, *The Theory of Atomic Collisions* (Oxford University Press, New York, 1965), 3rd ed., chap. IX.

radiation damage research. Seitz and Koehler⁵ pointed out that the McKinley-Feshbach formula should be sufficiently accurate for light elements ($Z < 29$), but that for heavy elements it becomes necessary to use the more accurate Mott series formulation.

METHOD OF CALCULATION

The method used to calculate the atomic displacement cross sections by fast electrons follows closely that of Seitz and Koehler.⁵ The calculational procedures are outlined in the paragraphs below.

The energy transferred to a heavy nucleus by an electron scattered through an angle θ is given by

$$T = T_m \sin^2 \theta/2 \quad (1)$$

where T_m , the maximum transferred energy which occurs for a head-on collision, is

$$T_m = 2 \frac{E}{Mc^2} (E + 2mc^2) \quad (2)$$

Here E is the kinetic energy of the electron and M is the mass of the target atom. The rest energy of the electron is $mc^2 = 0.511$ MeV.

The conventional sharp displacement threshold model has been used. It assumes that an atom can be displaced only if it receives an energy equal or greater than some threshold energy, T_d . Upon receiving such an

⁵F. Seitz and J. S. Koehler, p. 305 in *Solid State Physics*, vol. 2, ed. by F. Seitz and D. Turnbull (Academic Press, New York, 1956). See also J. W. Corbett, *Electron Radiation Damage in Semiconductors and Metals* (Academic Press, New York, 1966).

energy, the probability that the atom is displaced is taken as unity. Furthermore, the primary displaced atom can, if sufficiently energetic, produce additional displaced atoms. The cascade model used is that of Kinchin and Pease⁶ which gives the average number of displacements, ν , produced by a primary knock-on of energy T as

$$\begin{aligned} \nu(T) &= 1 & T_d \leq T \leq 2T_d \\ &= T/2T_d & T > 2T_d \end{aligned} \quad (3)$$

The total cross section (primary plus secondaries) for producing atomic displacements by an electron of energy E can be written as

$$\sigma_{\text{tot}}(E, T_d) = \int_{T_d}^{T_m} \nu(T) \frac{d\sigma}{dT} dT \quad (4)$$

while the cross section for producing primary displacements only is

$$\sigma_p(E, T_d) = \int_{T_d}^{T_m} \frac{d\sigma}{dT} dT \quad (5)$$

In Eqs. (4) and (5) the quantity $d\sigma/dT$ is the differential scattering cross section for transferring an energy T to an atom by an electron of energy E . The above integrals can be done analytically for the McKinley-Feshbach version of $d\sigma/dT$, but numerical methods become necessary when using the Mott series. Rewriting Eq. (4) more explicitly using the results of Eq. (3) gives

⁶G. H. Kinchin and R. S. Pease, Repts. Progr. Phys. 18, 1 (1955).

$$\sigma_{\text{tot}}(E, T_d) = \frac{\pi Z^2 e^4 (1-\beta^2)}{m^2 c^4 \beta^4} \left\{ \int_{T_d/T_m}^1 \frac{dx}{x^2} M(x, E) \right\} \quad T_d \leq T_m \leq 2T_d \quad (4a)$$

$$= \frac{\pi Z^2 e^4 (1-\beta^2)}{m^2 c^4 \beta^4} \left\{ \int_{T_d/T_m}^{2T_d/T_m} \frac{M(x, E)}{x^2} dx + \int_{2T_d/T_m}^1 \frac{T_m}{2T_d} \frac{M(x, E)}{x} dx \right\} \quad T_m > 2T_d \quad (4b)$$

where $\beta^2 = E(E+2mc^2)/(E+mc^2)^2$. Z is the atomic number of the target nucleus, e is the electronic charge and $M(x, E)$ is the ratio of the Mott to the Rutherford cross section. The ratio $M(x, E)$ was calculated using the method of Doggett and Spencer⁷ and the integrals evaluated by 16 point Gauss-Legendre quadrature techniques. The integrand in the second integral of Eq. (4b) was transformed by the substitution $x = e^{-y}$ before evaluating the integral. The transformed integrand which varied less over the domain of integration proved easier to evaluate. The primary displacement cross section given by Eq. (5), when written out more explicitly, becomes identical to Eq. (4a) except that now there is no restriction on the magnitude of T_m provided it is larger than T_d . The substitution, $x = 1/y$, facilitated the evaluation of the integral for the primary cross sections.

The differential Rutherford scattering cross section per steradian is

$$\frac{d\sigma_R(\theta)}{d\Omega} = \frac{Z^2 e^4 (1-\beta^2)}{m^2 c^4 \beta^4 \sin^4 \frac{\theta}{2}} \quad (6)$$

The differential McKinley-Feshbach scattering cross section per steradian is

⁷J. A. Doggett and L. V. Spencer, Phys. Rev. 103, 1597 (1956).

$$\frac{d\sigma_{\text{McK-F}}(\theta)}{d\Omega} = \frac{d\sigma_{\text{R}}(\theta)}{d\Omega} \left[1 - \beta^2 \sin^2 \frac{\theta}{2} + \frac{\pi Z}{137} \beta \sin \frac{\theta}{2} \{1 - \sin \frac{\theta}{2}\} \right] . \quad (7)$$

ADDITIONAL USE OF TABLES

Tables of primary and total displacement cross sections constructed using Eqs. (4) and (5), respectively, are made more flexible by noting the following relationship.² If $\sigma_{\text{tot}}(E, T_d)$ is the total displacement cross section, it is easy to show that the quantity

$$C_1 \left[\sigma_{\text{tot}} \left(E, \frac{T_d}{2} \right) - \sigma_d \left(E, \frac{T_d}{2} \right) \right] \quad (8)$$

gives the displacement cross section for a linear displacement probability function of the form

$$\begin{aligned} P(T) &= 0 & \text{for } T \leq T_d \\ &= C_1 \left(\frac{T - T_d}{T_d} \right) & \text{for } T > T_d \end{aligned} \quad (9)$$

Here, C_1 is an adjustable slope parameter.

ACCURACY AND OTHER CALCULATIONS

All computations were performed on an IBM System/360 model 91 computer using long floating-point numbers (REAL*8, about 16 decimal digits).

The Mott series was evaluated using the computer code of Doggett and Spencer⁷ taking 36 terms in the Legendre sums. For those cases of overlap the present results, as expected, are in excellent agreement with theirs and therefore their comments on the accuracy of the method apply here also. They have made several comparisons with other calculations and find good agreement. It should be pointed out that these

calculations were made assuming a point nucleus. At ultra high electron energies and large scattering angles this assumption becomes less valid because of nuclear size effects.⁴

For convenience and accuracy in reproducing, the tables have been printed as output by the computer and therefore some of the values contain more than the three or four figures which are significant.

All of the integrations were performed using 16 point Gauss-Legendre quadrature techniques. The integration routine was checked by numerically integrating the McKinley-Feshbach version of the Mott series and comparing that with the analytical result. Excellent agreement was found.

The calculated displacement cross sections for gold agree well with those of Khandelwal and Merzbacher.⁸ The results appear also to agree well with those of Burke, Grossbard and Lowe.⁹ For the light elements they agree well with the McKinley-Feshbach formula. It is believed that the overall accuracy of the calculations should be good to within a few percent.

DISCUSSION OF FIGURES AND TABLES

A. Integral Displacement Cross Sections

- a) Figure 1 shows a comparison of the Mott and McKinley-Feshbach displacement cross sections for gold. The primary displacement cross section using Mott and McKinley-Feshbach scattering is shown as a ratio in Fig. 2.

⁸G. S. Khandelwal and E. Merzbacher, Phys. Rev. 130, 1822 (1963).

⁹E. A. Burke, N. J. Grossbard, and L. F. Lowe, "Calculated Cross Section for Atomic Displacements Produced by Electrons in the 1.0-3.0 MeV Energy Range," Air Force Cambridge Research Laboratories, AFCRL-65-286 (1965).

- b) The first 37 tables give the primary and total displacement cross sections as a function of electron energy using several displacement threshold energies for 37 different elements spanning the atomic table. The Mott series is used for the electron-nuclear differential scattering and it was computed by the procedure already described.

B. Differential Scattering Cross Sections

For some purposes it is desirable to calculate displacement cross sections using a more refined, but specialized displacement model than that of Kinchin and Pease. This occurs, for instance, when one is studying atomic displacements as a function of crystal orientation.¹⁰ For purposes such as these it would seem convenient to have available tables giving the Mott differential scattering.

- a) Figures 3 and 4 give the ratio of Mott to Rutherford scattering for different elements.
- b) Tables 38-55 give the ratio of Mott to Rutherford scattering as a function of electron scattering angle.
- c) Figure 5 gives the ratio of Mott to McKinley-Feshbach scattering.
- d) Tables 56-73 give the ratio of Mott to McKinley-Feshbach scattering as a function of electron scattering angle.
- e) Table 74 gives the differential Rutherford scattering cross section in barns per steradian with the Z^2 factor omitted.

¹⁰P. Jung and W. F. Schilling, Phys. Rev. B 5, 2046 (1972).

C. Auxiliary Results

Figure 6 gives the maximum energy in electron volts transferred to an atom by an electron in a head-on collision (Eq. 2) as a function of electron energy for several different elements.

The author is indebted to J. J. Coyne of the National Bureau of Standards for making available the computer code of J. A. Doggett and L. V. Spencer. He also wishes to thank J. H. Barrett, D. K. Holmes, M. S. Wechsler and especially M. T. Robinson for many stimulating discussions.

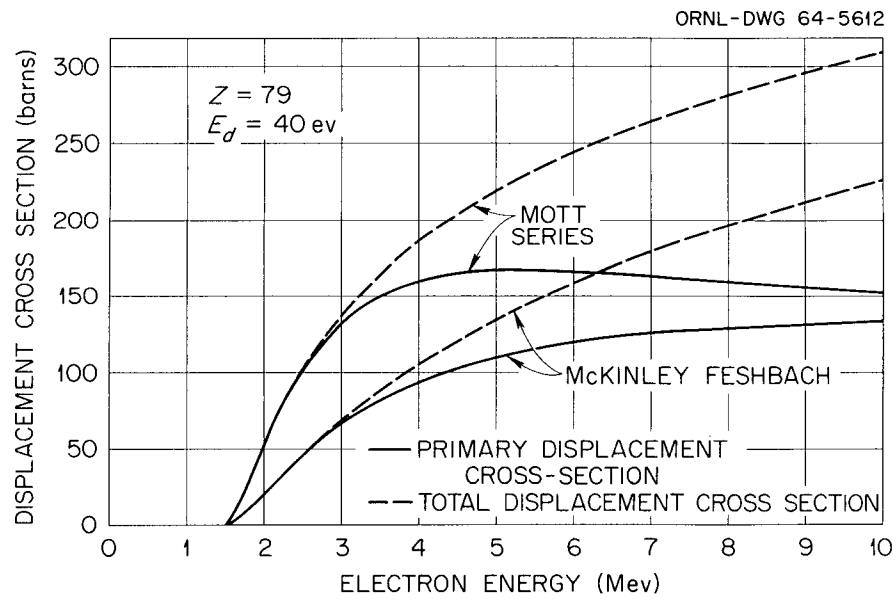


Fig. 1. Comparison of the Displacement Cross Sections Computer from the Mott Series and the McKinley-Feshbach Formula for Gold vs Electron Energy.

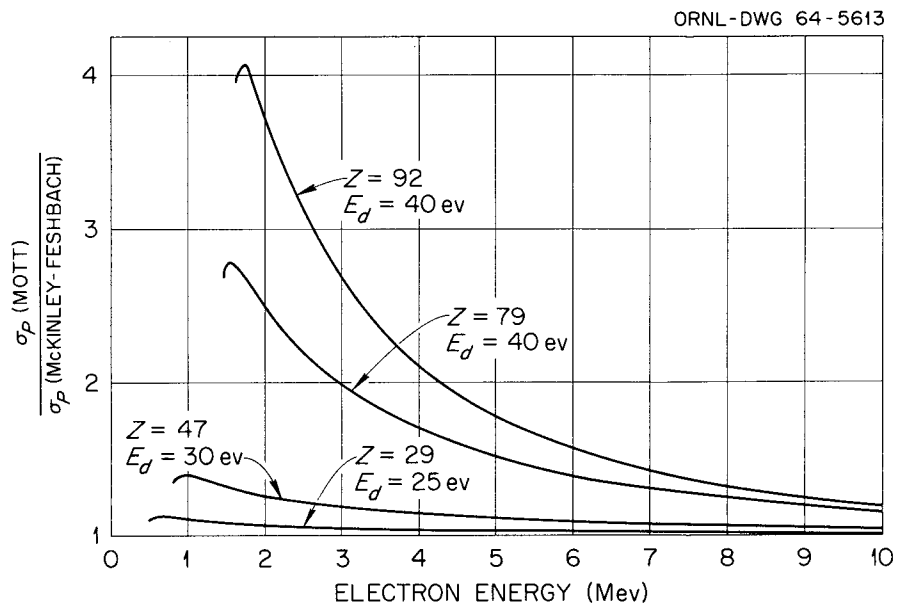


Fig. 2. Ratio of the Primary Displacement Cross Section Computed from the Mott Series to that of the McKinley-Feshbach Formula for Uranium, Gold, Silver, and Copper vs Electron Energy.

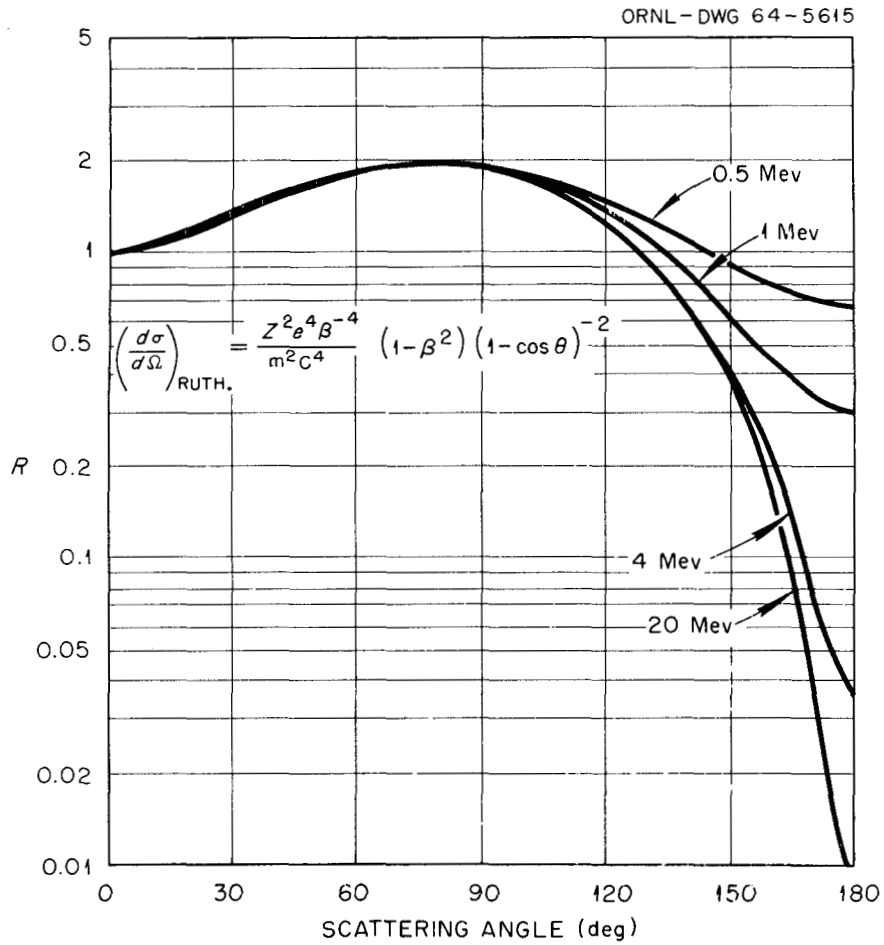


Fig. 3. The Ratio of Mott to Rutherford Scattering for Gold vs Electron Scattering Angle for Several Electron Energies.

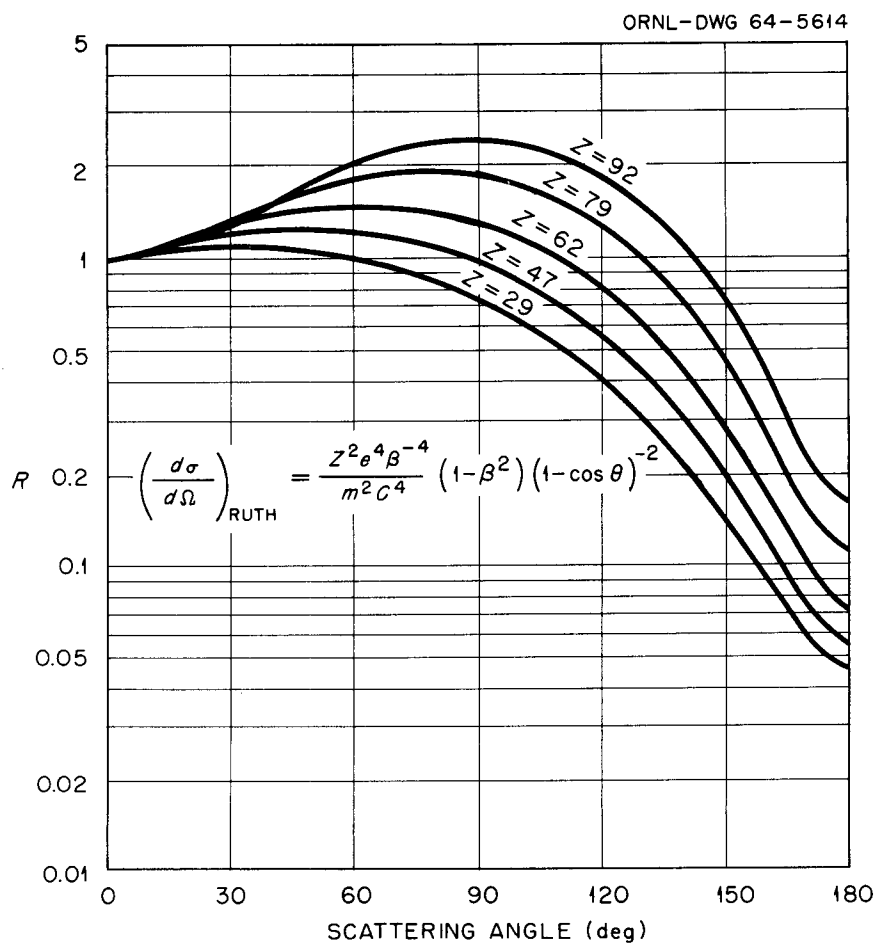


Fig. 4. The Ratio of Mott to Rutherford Scattering vs Electron Scattering Angle for $Z = 92, 79, 62, 47,$ and 29 for 2 MeV Electrons.

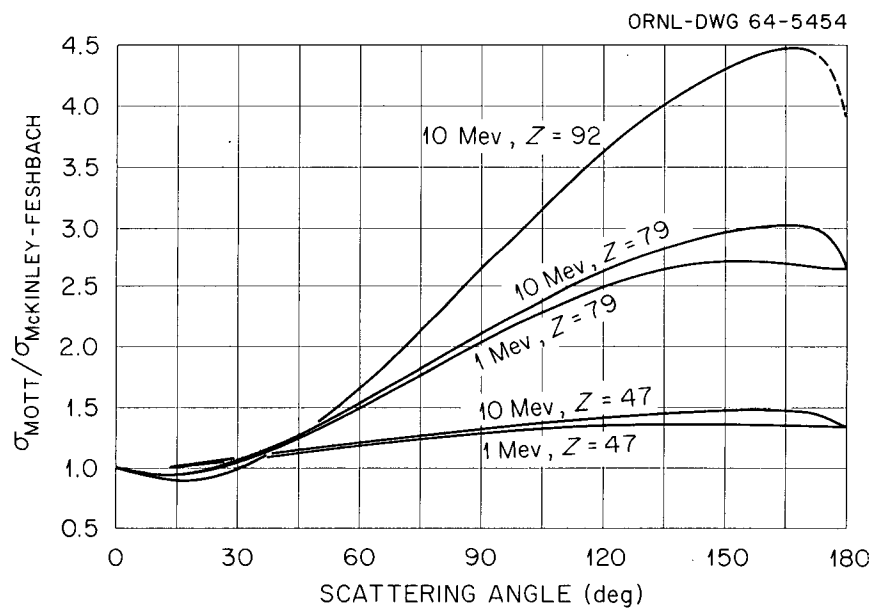


Fig. 5. The Ratio of Mott to McKinley-Feshbach Scattering vs Electron Scattering Angle for Uranium, Gold, and Silver.

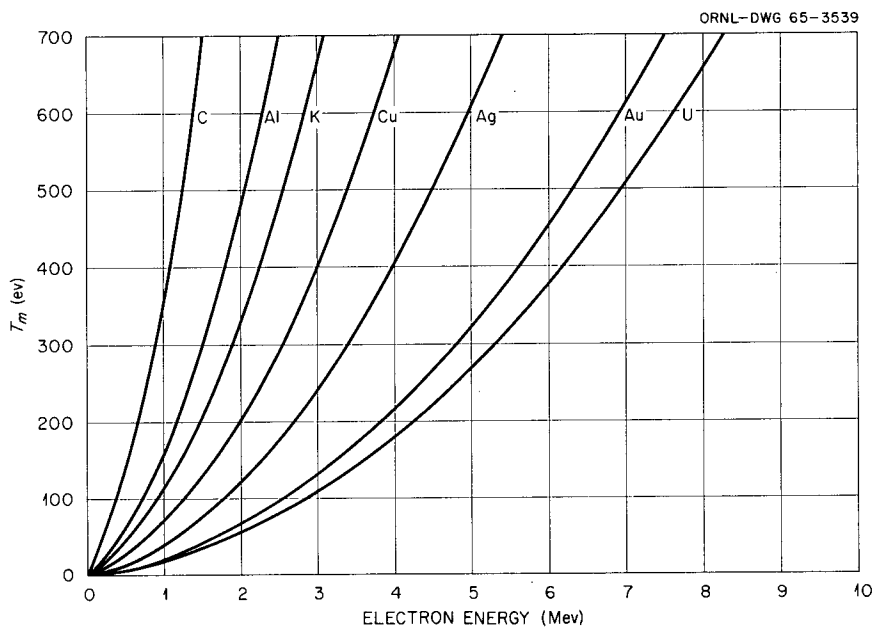


Fig. 6. The Maximum Energy Transferred to an Atomic Nucleus by an Electron in a Head-on Elastic Collision vs Electron Energy for Several Elements.

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z= 1 A= 1.008

TD= 4.0 EV ET=0.001834 MEV			TD= 8.0 EV ET=0.003661 MEV			TD=12.0 EV ET=0.005482 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.00185	42.27	42.27	0.00369	9.50	9.50	0.00553	4.69	4.69
0.00187	92.09	92.09	0.00373	22.04	22.04	0.00559	10.26	10.26
0.00190	162.90	162.90	0.00380	42.73	42.73	0.00570	19.88	19.88
0.00196	291.61	291.61	0.00391	72.28	72.28	0.00586	32.59	32.59
0.00203	422.53	422.53	0.00406	107.42	107.42	0.00608	47.89	47.89
0.00212	565.10	565.10	0.00424	142.94	142.94	0.00635	63.73	63.73
0.00223	707.05	707.05	0.00446	178.31	178.31	0.00668	79.51	79.51
0.00238	855.87	855.87	0.00475	214.33	214.33	0.00712	95.73	95.73
0.00256	983.75	983.75	0.00512	247.28	247.28	0.00767	110.28	110.28
0.00284	1108.00	1108.00	0.00567	277.88	277.88	0.00849	123.89	123.89
0.00320	1185.67	1185.67	0.00640	297.72	297.72	0.00959	132.85	132.85
0.00366	1212.54	1212.54	0.00732	304.53	304.53	0.01090	135.95	135.95
0.00421	1193.68	1203.55	0.00841	300.06	302.62	0.01260	134.09	135.27
0.00495	1134.07	1171.22	0.00988	285.56	295.00	0.01480	127.79	132.07
0.00586	1047.55	1120.02	0.01170	264.25	282.64	0.01750	118.57	126.83
0.00696	947.82	1055.99	0.01390	239.63	267.08	0.02080	107.76	120.12
0.00825	846.89	985.96	0.01640	215.41	250.53	0.02460	97.00	112.87
0.00953	763.63	924.10	0.01900	194.45	235.18	0.02850	87.82	106.25
0.01100	685.12	862.12	0.02190	175.26	220.26	0.03280	79.51	99.88
0.01280	608.07	797.55	0.02560	155.70	204.10	0.03830	71.00	92.97
0.01550	520.34	718.94	0.03110	133.78	184.74	0.04650	61.44	84.67
0.01830	453.04	654.43	0.03660	117.58	169.47	0.05480	54.30	78.07
0.02750	320.35	514.04	0.05490	85.17	135.92	0.08220	40.18	63.81
0.03660	250.92	431.64	0.07320	68.08	116.25	0.10900	32.88	55.73
0.05500	178.28	336.37	0.10900	50.74	94.50	0.16400	25.20	46.62
0.09160	118.96	249.17	0.18300	36.14	74.64	0.27400	19.05	39.09
0.18300	73.90	175.50	0.36600	25.51	60.07	0.54800	14.64	34.60
0.36600	51.73	138.32	0.73200	20.57	55.66	1.09000	12.71	35.05
0.55000	44.71	128.57	1.09000	19.14	56.50	1.64000	12.17	37.01
0.91600	39.58	125.55	1.83000	18.14	60.25	2.74000	11.82	40.72
1.28000	37.65	127.85	2.56000	17.81	63.86	3.83000	11.71	43.66
1.83000	36.37	133.12	3.66000	17.60	68.44	5.48000	11.64	47.13
3.66000	35.22	149.09	7.32000	17.42	78.68	10.90000	11.59	54.35
7.33000	34.86	169.49	14.66000	17.38	89.86	21.90000	11.58	62.08
12.80000	34.76	187.42	25.60000	17.36	99.29	38.30000	11.57	68.42
18.30000	34.74	199.29	36.60000	17.36	105.37	54.80000	11.57	72.51

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z= 1 A= 1.008

TD=16.0 EV ET=0.007296 MEV			TD=20.0 EV ET=0.009104 MEV			TD=24.0 EV ET=0.010905 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.00736	2.63	2.63	0.00919	1.81	1.81	0.01100	1.15	1.15
0.00744	5.77	5.77	0.00928	3.63	3.63	0.01110	2.33	2.33
0.00758	10.97	10.97	0.00946	7.06	7.06	0.01130	4.57	4.57
0.00780	18.38	18.38	0.00974	11.90	11.90	0.01150	7.63	7.63
0.00809	26.92	26.92	0.01010	17.34	17.34	0.01210	12.07	12.07
0.00846	36.11	36.11	0.01050	22.50	22.50	0.01260	15.81	15.81
0.00890	44.98	44.98	0.01110	28.80	28.80	0.01330	20.06	20.06
0.00948	54.03	54.03	0.01180	34.46	34.46	0.01410	23.84	23.84
0.01020	62.12	62.12	0.01270	39.73	39.73	0.01520	27.63	27.63
0.01130	69.91	69.91	0.01410	44.88	44.88	0.01690	31.28	31.28
0.01270	74.87	74.87	0.01590	48.15	48.15	0.01900	33.53	33.53
0.01450	76.81	76.81	0.01820	49.39	49.40	0.02180	34.46	34.46
0.01670	75.91	76.56	0.02090	48.83	49.27	0.02500	34.11	34.42
0.01960	72.53	74.91	0.02450	46.71	48.28	0.02940	32.65	33.77
0.02330	67.28	72.00	0.02910	43.43	46.50	0.03480	30.46	32.61
0.02770	61.29	68.35	0.03450	39.72	44.28	0.04140	27.87	31.09
0.03280	55.28	64.37	0.04090	35.90	41.80	0.04900	25.29	29.44
0.03790	50.29	60.82	0.04730	32.74	39.59	0.05670	23.12	27.96
0.04370	45.62	57.30	0.05460	29.78	37.39	0.06540	21.11	26.49
0.05100	40.93	53.55	0.06370	26.83	35.09	0.07530	19.10	24.95
0.06200	35.61	49.02	0.07730	23.52	32.32	0.09260	16.84	23.11
0.07290	31.73	45.51	0.09100	21.06	30.16	0.10900	15.17	21.68
0.10900	24.00	37.94	0.13600	16.23	25.58	0.16300	11.89	18.69
0.14500	19.95	33.64	0.18200	13.67	23.00	0.21800	10.17	17.06
0.21800	15.77	29.02	0.27300	11.12	20.41	0.32700	8.46	15.51
0.36400	12.46	25.52	0.45500	9.12	18.70	0.54500	7.14	14.70
0.72900	10.15	24.21	0.91000	7.76	18.70	1.09000	6.27	15.30
1.45000	9.20	25.90	1.82000	7.21	20.74	2.18000	5.94	17.38
2.18000	8.94	27.90	2.73000	7.08	22.59	3.27000	5.86	19.07
3.64000	8.79	31.13	4.55000	7.00	25.39	5.45000	5.82	21.52
5.10000	8.74	33.55	6.37000	6.97	27.41	7.63000	5.80	23.25
7.29000	8.71	36.29	9.10000	6.96	29.66	10.90000	5.79	25.17
14.50000	8.69	41.86	18.20000	6.95	34.23	21.80000	5.79	29.01
29.10000	8.68	47.72	36.40000	6.94	38.93	43.60000	5.79	32.94
51.00000	8.68	52.52	63.70000	6.94	42.77	76.30000	5.79	36.15
72.90000	8.68	55.59	91.00000	6.94	45.23	109.00000	5.79	38.20

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z= 1 A= 1.008

TD=28.0 EV ET=0.012701 MEV			TD=32.0 EV ET=0.014490 MEV			TD=36.0 EV ET=0.016274 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.01280	0.77	0.77	0.01460	0.57	0.57	0.01640	0.46	0.46
0.01290	1.52	1.52	0.01470	1.08	1.08	0.01650	0.82	0.82
0.01320	3.63	3.63	0.01500	2.51	2.51	0.01690	2.16	2.16
0.01350	5.56	5.56	0.01550	4.66	4.66	0.01740	3.67	3.67
0.01400	8.41	8.41	0.01600	6.55	6.55	0.01800	5.26	5.26
0.01470	11.75	11.75	0.01680	9.09	9.09	0.01880	7.06	7.06
0.01540	14.46	14.46	0.01760	11.17	11.17	0.01980	8.90	8.90
0.01650	17.76	17.76	0.01880	13.59	13.59	0.02110	10.75	10.75
0.01770	20.35	20.35	0.02020	15.63	15.63	0.02270	12.39	12.39
0.01960	22.97	22.97	0.02240	17.67	17.67	0.02520	14.02	14.02
0.02220	24.76	24.76	0.02530	19.02	19.02	0.02840	15.08	15.08
0.02540	25.43	25.43	0.02890	19.56	19.56	0.03250	15.52	15.53
0.02920	25.18	25.43	0.03330	19.39	19.58	0.03740	15.41	15.56
0.03420	24.17	25.00	0.03910	18.62	19.27	0.04390	14.82	15.34
0.04060	22.56	24.17	0.04630	17.43	18.68	0.05200	13.90	14.90
0.04820	20.71	23.11	0.05500	16.04	17.90	0.06180	12.81	14.31
0.05710	18.84	21.94	0.06520	14.62	17.03	0.07320	11.72	13.65
0.06600	17.28	20.89	0.07530	13.46	16.27	0.08460	10.81	13.07
0.07620	15.82	19.85	0.08690	12.36	15.51	0.09760	9.97	12.50
0.08890	14.37	18.77	0.10100	11.30	14.73	0.11300	9.17	11.93
0.10700	12.81	17.53	0.12300	10.06	13.77	0.13800	8.19	11.20
0.12700	11.55	16.48	0.14400	9.19	13.07	0.16200	7.51	10.67
0.19000	9.20	14.43	0.21700	7.40	11.60	0.24400	6.14	9.61
0.25400	7.97	13.36	0.28900	6.51	10.88	0.32500	5.46	9.12
0.38100	6.77	12.42	0.43400	5.62	10.31	0.48800	4.79	8.80
0.63500	5.86	12.10	0.72400	4.96	10.30	0.81300	4.30	8.97
1.27000	5.27	13.00	1.44000	4.55	11.32	1.62000	4.00	10.07
2.54000	5.06	15.03	2.89000	4.40	13.26	3.25300	3.90	11.90
3.81000	5.01	16.56	4.34000	4.37	14.66	4.88000	3.88	13.19
6.35000	4.98	18.73	7.24000	4.35	16.61	8.13000	3.87	14.94
8.89000	4.97	20.24	10.10000	4.35	17.94	11.30000	3.86	16.33
12.70000	4.96	21.90	14.40000	4.34	19.40	16.20000	3.86	17.45
25.40000	4.96	25.22	28.90000	4.34	22.33	32.50000	3.86	20.06
50.80000	4.96	28.60	57.90000	4.34	25.30	65.00000	3.86	22.70
88.90000	4.96	31.36	101.00000	4.34	27.70	113.00000	3.86	24.82
127.00000	4.96	33.12	144.00000	4.34	29.23	162.00000	3.86	26.21

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z= 1 A= 1.008

TD=40.0 EV ET=0.018051 MEV			TD=44.0 EV ET=0.019822 MEV			TD=48.0 EV ET=0.021588 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.01820	0.40	0.40	0.02000	0.36	0.36	0.02180	0.33	0.33
0.01840	0.91	0.91	0.02020	0.75	0.75	0.02200	0.63	0.63
0.01870	1.65	1.65	0.02060	1.48	1.48	0.02240	1.20	1.20
0.01930	2.98	2.98	0.02120	2.47	2.47	0.02300	1.98	1.98
0.02000	4.33	4.33	0.02200	3.64	3.64	0.02390	3.00	3.00
0.02090	5.80	5.80	0.02290	4.75	4.75	0.02500	4.05	4.05
0.02200	7.27	7.27	0.02410	5.97	5.97	0.02630	5.06	5.06
0.02340	8.72	8.72	0.02570	7.23	7.23	0.02800	6.09	6.09
0.02520	10.08	10.08	0.02770	8.36	8.36	0.03020	7.06	7.06
0.02790	11.37	11.37	0.03070	9.45	9.45	0.03340	7.95	7.95
0.03150	12.26	12.26	0.03460	10.17	10.17	0.03770	8.58	8.58
0.03610	12.63	12.63	0.03960	10.49	10.49	0.04310	8.85	8.85
0.04150	12.55	12.68	0.04550	10.43	10.54	0.04960	8.81	8.91
0.04870	12.09	12.52	0.05350	10.06	10.42	0.05820	8.52	8.82
0.05770	11.36	12.18	0.06340	9.47	10.16	0.06900	8.03	8.62
0.06850	10.50	11.73	0.07530	8.77	9.80	0.08200	7.46	8.33
0.08120	9.63	11.22	0.08920	8.07	9.40	0.09710	6.88	8.01
0.09380	8.91	10.77	0.10300	7.49	9.05	0.11200	6.40	7.73
0.10800	8.25	10.33	0.11800	6.97	8.72	0.12900	5.96	7.46
0.12600	7.58	9.87	0.13800	6.42	8.35	0.15100	5.51	7.17
0.15300	6.83	9.33	0.16800	5.81	7.93	0.18300	5.02	6.84
0.18000	6.28	8.93	0.19800	5.36	7.62	0.21500	4.66	6.61
0.27000	5.22	8.15	0.29700	4.51	7.05	0.32300	3.96	6.19
0.36100	4.68	7.82	0.39600	4.09	6.83	0.43100	3.62	6.06
0.54100	4.16	7.67	0.59400	3.68	6.79	0.64700	3.30	6.10
0.90200	3.79	7.96	0.99100	3.39	7.17	1.07000	3.07	6.51
1.80000	3.57	9.08	1.98000	3.23	8.29	2.15000	2.95	7.63
3.61000	3.50	10.81	3.96000	3.18	9.92	4.31000	2.91	9.17
5.41000	3.49	11.99	5.94000	3.17	11.01	6.47000	2.90	10.19
9.02000	3.48	13.60	9.91000	3.16	12.49	10.70000	2.90	11.53
12.60000	3.47	14.69	13.80000	3.16	13.48	15.10000	2.89	12.48
18.00000	3.47	15.87	19.80000	3.16	14.57	21.50000	2.89	13.46
36.10000	3.47	18.23	39.60000	3.16	16.71	43.10000	2.89	15.44
72.20000	3.47	20.61	79.20000	3.16	18.88	86.30000	2.89	17.43
126.00000	3.47	22.53	138.00000	3.16	20.62	151.00000	2.89	19.04
180.00000	3.47	23.77	198.00000	3.16	21.76	215.00000	2.89	20.06

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN H
 Z= 1 A= 1.008

TD=52.0 EV ET=0.023347 MEV			TD=56.0 EV ET=0.025101 MEV			TD=60.0 EV ET=0.026849 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.02350	0.19	0.19	0.02530	0.20	0.20	0.02710	0.20	0.20
0.02380	0.55	0.55	0.02560	0.48	0.48	0.02730	0.36	0.36
0.02420	0.99	0.99	0.02610	0.93	0.93	0.02790	0.80	0.80
0.02490	1.71	1.71	0.02680	1.50	1.50	0.02870	1.33	1.33
0.02590	2.60	2.60	0.02780	2.22	2.22	0.02980	1.97	1.97
0.02700	3.43	3.43	0.02910	3.00	3.00	0.03110	2.61	2.61
0.02840	4.30	4.30	0.03060	3.74	3.74	0.03270	3.26	3.26
0.03030	5.21	5.21	0.03260	4.51	4.51	0.03490	3.95	3.95
0.03260	6.01	6.01	0.03510	5.21	5.21	0.03750	4.54	4.54
0.03610	6.79	6.79	0.03890	5.89	5.89	0.04160	5.14	5.14
0.04080	7.34	7.34	0.04390	6.35	6.35	0.04690	5.55	5.55
0.04660	7.58	7.58	0.05020	6.56	6.57	0.05360	5.74	5.74
0.05360	7.55	7.63	0.05770	6.55	6.62	0.06170	5.74	5.80
0.06300	7.31	7.57	0.06770	6.35	6.58	0.07240	5.57	5.77
0.07470	6.90	7.41	0.08030	6.01	6.45	0.08590	5.28	5.67
0.08870	6.43	7.18	0.09530	5.61	6.27	0.10200	4.94	5.52
0.10500	5.94	6.93	0.11200	5.22	6.07	0.12000	4.60	5.36
0.12100	5.55	6.70	0.13000	4.87	5.87	0.13900	4.31	5.20
0.14000	5.17	6.47	0.15000	4.55	5.69	0.16100	4.04	5.05
0.16300	4.81	6.25	0.17500	4.24	5.51	0.18700	3.78	4.91
0.19800	4.39	5.99	0.21300	3.89	5.30	0.22800	3.48	4.74
0.23300	4.10	5.81	0.25100	3.64	5.16	0.26800	3.27	4.64
0.35000	3.52	5.50	0.37600	3.17	4.95	0.40200	2.87	4.49
0.46600	3.24	5.43	0.50200	2.94	4.92	0.53600	2.68	4.50
0.70000	2.98	5.54	0.75300	2.72	5.08	0.80500	2.51	4.69
1.16000	2.81	5.99	1.25000	2.58	5.55	1.34000	2.39	5.17
2.33000	2.71	7.08	2.51000	2.51	6.61	2.68000	2.33	6.20
4.66000	2.68	8.53	5.02000	2.49	7.99	5.36000	2.32	7.51
7.00000	2.68	9.49	7.53000	2.48	8.88	8.05000	2.32	8.35
11.60000	2.67	10.74	12.50000	2.48	10.05	13.40000	2.32	9.46
16.30000	2.67	11.61	17.50000	2.48	10.85	18.70000	2.31	10.20
23.30000	2.67	12.53	25.10000	2.48	11.72	26.80000	2.31	11.01
46.60000	2.67	14.35	50.20000	2.48	13.41	53.60000	2.31	12.59
93.30000	2.67	16.19	100.00000	2.48	15.11	107.00000	2.31	14.18
163.00000	2.67	17.67	175.00000	2.48	16.49	187.00000	2.31	15.46

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN H
 Z= 1 A= 1.008

TD=64.0 EV ET=0.028592 MEV			TD=68.0 EV ET=0.030329 MEV			TD=72.0 EV ET=0.032060 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.02880	0.14	0.14	0.03060	0.15	0.15	0.03230	0.11	0.11
0.02910	0.33	0.33	0.03090	0.31	0.31	0.03270	0.29	0.29
0.02970	0.70	0.70	0.03150	0.62	0.62	0.03330	0.55	0.55
0.03050	1.14	1.14	0.03240	1.03	1.03	0.03430	0.94	0.94
0.03170	1.72	1.72	0.03360	1.52	1.52	0.03550	1.35	1.35
0.03310	2.29	2.29	0.03510	2.03	2.03	0.03710	1.81	1.81
0.03480	2.86	2.86	0.03700	2.56	2.56	0.03910	2.29	2.29
0.03710	3.46	3.46	0.03940	3.08	3.08	0.04160	2.75	2.75
0.04000	4.01	4.01	0.04240	3.56	3.56	0.04480	3.18	3.18
0.04430	4.54	4.54	0.04700	4.03	4.03	0.04960	3.60	3.60
0.05000	4.90	4.90	0.05300	4.36	4.36	0.05610	3.90	3.90
0.05710	5.07	5.07	0.06060	4.51	4.51	0.06410	4.04	4.05
0.06570	5.07	5.13	0.06970	4.52	4.57	0.07370	4.05	4.10
0.07710	4.93	5.11	0.08180	4.40	4.56	0.08650	3.95	4.10
0.09140	4.68	5.03	0.09700	4.19	4.50	0.10200	3.77	4.05
0.10800	4.40	4.91	0.11500	3.93	4.40	0.12100	3.56	3.97
0.12800	4.10	4.77	0.13600	3.68	4.28	0.14400	3.33	3.87
0.14800	3.85	4.65	0.15700	3.47	4.18	0.16600	3.14	3.79
0.17100	3.62	4.53	0.18100	3.27	4.09	0.19200	2.97	3.71
0.20000	3.39	4.41	0.21200	3.07	3.99	0.22400	2.80	3.64
0.24300	3.14	4.28	0.25700	2.86	3.89	0.27200	2.61	3.56
0.28500	2.96	4.20	0.30300	2.70	3.83	0.32000	2.48	3.52
0.42800	2.63	4.11	0.45400	2.42	3.78	0.48000	2.24	3.50
0.57100	2.47	4.15	0.60600	2.28	3.84	0.64100	2.12	3.58
0.85700	2.32	4.35	0.90900	2.16	4.07	0.96100	2.02	3.82
1.42000	2.23	4.84	1.51000	2.09	4.56	1.60000	1.96	4.31
2.85000	2.18	5.84	3.03000	2.05	5.53	3.20000	1.94	5.25
5.71000	2.17	7.09	6.06000	2.04	6.71	6.41000	1.93	6.38
8.57000	2.17	7.88	9.09000	2.04	7.47	9.61000	1.93	7.10
14.20000	2.17	8.92	15.10000	2.04	8.45	16.00000	1.93	8.03
20.00000	2.17	9.63	21.20000	2.04	9.12	22.40000	1.93	8.66
28.50000	2.17	10.38	30.30000	2.04	9.83	32.00000	1.93	9.33
57.10000	2.17	11.87	60.60000	2.04	11.23	64.10000	1.93	10.66
114.00000	2.17	13.36	121.00000	2.04	12.63	128.00000	1.93	11.98
200.00000	2.17	14.57	212.00000	2.04	13.77	224.00000	1.93	13.06

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z = 1 A = 1.008

TD=76.0 EV ET=0.033786 MEV			TD=80.0 EV ET=0.035506 MEV			TD=84.0 EV ET=0.037221 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.03410	0.13	0.13	0.03580	0.10	0.10	0.03750	0.08	0.08
0.03440	0.24	0.24	0.03620	0.23	0.23	0.03790	0.20	0.20
0.03510	0.50	0.50	0.03690	0.45	0.45	0.03870	0.42	0.42
0.03610	0.83	0.83	0.03790	0.74	0.74	0.03980	0.69	0.69
0.03750	1.24	1.24	0.03940	1.12	1.12	0.04130	1.01	1.01
0.03910	1.63	1.63	0.04110	1.48	1.48	0.04310	1.34	1.34
0.04120	2.06	2.06	0.04330	1.86	1.86	0.04540	1.69	1.69
0.04390	2.48	2.48	0.04610	2.24	2.24	0.04830	2.03	2.03
0.04720	2.86	2.86	0.04970	2.60	2.60	0.05210	2.36	2.36
0.05230	3.24	3.24	0.05500	2.94	2.94	0.05760	2.67	2.67
0.05910	3.51	3.51	0.06210	3.18	3.18	0.06510	2.90	2.90
0.06750	3.65	3.65	0.07100	3.31	3.31	0.07440	3.01	3.01
0.07770	3.66	3.70	0.08160	3.32	3.36	0.08560	3.03	3.07
0.09120	3.57	3.71	0.09580	3.25	3.37	0.10000	2.97	3.08
0.10800	3.41	3.67	0.11300	3.11	3.34	0.11900	2.84	3.06
0.12800	3.22	3.60	0.13400	2.94	3.29	0.14100	2.70	3.02
0.15200	3.02	3.52	0.15900	2.77	3.23	0.16700	2.55	2.97
0.17500	2.87	3.46	0.18400	2.63	3.17	0.19300	2.42	2.92
0.20200	2.72	3.39	0.21300	2.49	3.12	0.22300	2.30	2.88
0.23600	2.57	3.33	0.24800	2.37	3.07	0.26000	2.19	2.84
0.28700	2.40	3.27	0.30100	2.23	3.03	0.31600	2.07	2.82
0.33700	2.29	3.25	0.35500	2.13	3.01	0.37200	1.98	2.81
0.50600	2.08	3.26	0.53200	1.94	3.05	0.55800	1.83	2.87
0.67500	1.98	3.36	0.71000	1.86	3.16	0.74400	1.76	2.98
1.01000	1.90	3.60	1.06000	1.79	3.41	1.11000	1.70	3.24
1.68000	1.85	4.09	1.77000	1.75	3.89	1.86000	1.67	3.72
3.37000	1.83	5.00	3.55000	1.74	4.77	3.72000	1.65	4.57
6.75000	1.83	6.08	7.10000	1.74	5.81	7.44000	1.65	5.57
10.10000	1.83	6.76	10.60000	1.74	6.46	11.10000	1.65	6.18
16.80000	1.83	7.65	17.70000	1.74	7.31	18.60000	1.65	7.00
23.60000	1.83	8.25	24.80000	1.74	7.88	26.00000	1.65	7.54
33.70000	1.83	8.89	35.50000	1.74	8.49	37.20000	1.65	8.12
67.50000	1.83	10.14	71.00000	1.74	9.68	74.40000	1.65	9.25
135.00000	1.83	11.40	142.00000	1.74	10.87	148.00000	1.65	10.38
236.00000	1.83	12.42	248.00000	1.74	11.84	260.00000	1.65	11.31

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN H
Z = 1 A = 1.008

TD=88.0 EV ET=0.038931 MEV			TD=92.0 EV ET=0.040635 MEV			TD=96.0 EV ET=0.042334 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.03930	0.10	0.10	0.04100	0.08	0.08	0.04270	0.07	0.07
0.03970	0.20	0.20	0.04140	0.17	0.17	0.04310	0.15	0.15
0.04040	0.36	0.36	0.04220	0.34	0.34	0.04400	0.32	0.32
0.04160	0.62	0.62	0.04340	0.57	0.57	0.04520	0.52	0.52
0.04320	0.93	0.93	0.04510	0.85	0.85	0.04690	0.77	0.77
0.04510	1.23	1.23	0.04710	1.13	1.13	0.04910	1.04	1.04
0.04740	1.53	1.53	0.04950	1.41	1.41	0.05160	1.30	1.30
0.05060	1.86	1.86	0.05280	1.71	1.71	0.05500	1.57	1.57
0.05450	2.16	2.16	0.05680	1.97	1.97	0.05920	1.82	1.82
0.06030	2.44	2.44	0.06290	2.24	2.24	0.06560	2.07	2.07
0.06810	2.65	2.65	0.07110	2.43	2.43	0.07400	2.24	2.24
0.07780	2.76	2.76	0.08120	2.53	2.54	0.08460	2.34	2.34
0.08950	2.77	2.81	0.09340	2.55	2.59	0.09730	2.36	2.39
0.10500	2.72	2.83	0.10900	2.51	2.60	0.11400	2.32	2.41
0.12400	2.62	2.81	0.13000	2.41	2.60	0.13500	2.24	2.41
0.14700	2.49	2.78	0.15400	2.30	2.57	0.16000	2.14	2.39
0.17500	2.35	2.74	0.18200	2.18	2.54	0.19000	2.03	2.36
0.20200	2.24	2.70	0.21100	2.08	2.51	0.22000	1.94	2.36
0.23300	2.14	2.67	0.24300	1.99	2.49	0.25400	1.86	2.33
0.27200	2.04	2.65	0.28400	1.90	2.47	0.29600	1.78	2.31
0.33000	1.93	2.63	0.34500	1.81	2.46	0.35900	1.70	2.31
0.38900	1.85	2.63	0.40600	1.74	2.47	0.42300	1.64	2.33
0.58300	1.72	2.70	0.60900	1.62	2.56	0.63500	1.54	2.43
0.77800	1.66	2.82	0.81200	1.57	2.68	0.84600	1.50	2.56
1.16000	1.61	3.08	1.21000	1.53	2.94	1.27000	1.46	2.82
1.94000	1.59	3.55	2.03000	1.51	3.41	2.11000	1.45	3.27
3.89000	1.58	4.38	4.06000	1.51	4.21	4.23000	1.45	4.05
7.78000	1.58	5.34	8.12000	1.51	5.13	8.46000	1.45	4.94
11.60000	1.58	5.93	12.10000	1.51	5.70	12.70000	1.45	5.50
19.40000	1.58	6.71	20.30000	1.51	6.45	21.10000	1.45	6.20
27.20000	1.58	7.23	28.40000	1.51	6.94	29.60000	1.45	6.68
38.90000	1.58	7.78	40.60000	1.51	7.47	42.30000	1.45	7.19
77.80000	1.58	8.86	81.20000	1.51	8.51	84.60000	1.45	8.18
155.00000	1.58	9.95	162.00000	1.51	9.55	169.00000	1.45	9.18

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
 Z= 2 A= 4.003

TD= 4.0 EV ET=0.007244 MEV			TD= 8.0 EV ET=0.014388 MEV			TD=12.0 EV ET=0.021436 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.00731	11.08	11.08	0.01450	2.39	2.39	0.02160	1.05	1.05
0.00738	22.36	22.36	0.01460	4.45	4.45	0.02180	2.28	2.28
0.00753	45.12	45.12	0.01490	10.32	10.32	0.02220	4.62	4.62
0.00775	75.36	75.36	0.01530	17.43	17.43	0.02290	8.33	8.33
0.00804	110.17	110.17	0.01590	26.77	26.77	0.02370	12.04	12.04
0.00840	146.63	146.63	0.01660	35.96	35.96	0.02480	16.36	16.36
0.00883	182.16	182.16	0.01750	45.58	45.58	0.02610	20.51	20.51
0.00941	219.23	219.23	0.01870	55.41	55.41	0.02780	24.73	24.73
0.01010	251.19	251.19	0.02010	63.67	63.67	0.03000	28.68	28.68
0.01120	283.46	283.46	0.02230	71.91	71.91	0.03320	32.34	32.34
0.01260	303.98	303.98	0.02510	77.23	77.23	0.03750	34.88	34.88
0.01440	312.00	312.00	0.02870	79.45	79.46	0.04280	35.97	35.97
0.01660	308.30	310.97	0.03300	78.82	79.57	0.04930	35.82	36.20
0.01950	294.45	304.23	0.03880	75.69	78.33	0.05780	34.62	35.86
0.02310	273.60	292.69	0.04600	70.84	75.92	0.06850	32.65	35.03
0.02750	249.09	277.75	0.05460	65.21	72.77	0.08140	30.33	33.88
0.03250	224.98	261.79	0.06470	59.47	69.26	0.09640	27.97	32.58
0.03760	204.51	247.25	0.07480	54.71	66.13	0.11100	26.07	31.46
0.04340	185.42	232.87	0.08630	50.27	63.04	0.12800	24.25	30.33
0.05070	166.25	217.55	0.10000	46.03	59.94	0.15000	22.39	29.14
0.06150	144.87	199.35	0.12200	40.92	56.01	0.18200	20.38	27.81
0.07240	128.95	184.96	0.14300	37.35	53.15	0.21400	18.92	26.85
0.10800	97.66	154.33	0.21500	30.10	47.15	0.32100	16.09	25.14
0.14400	81.03	136.68	0.28700	26.41	44.19	0.42800	14.68	24.58
0.21700	63.93	117.77	0.43100	22.79	41.84	0.64300	13.35	24.74
0.36200	50.50	103.52	0.71900	20.08	41.73	1.07000	12.42	26.41
0.72400	41.07	98.09	1.43000	18.38	45.81	2.14000	11.90	30.86
1.44000	37.14	104.76	2.87000	17.77	53.59	4.28000	11.73	37.04
2.17000	36.09	112.83	4.31000	17.63	59.24	6.43000	11.69	41.16
3.62000	35.44	125.79	7.19000	17.54	67.06	10.70000	11.67	46.62
5.07000	35.23	135.53	10.00000	17.52	72.38	15.00000	11.67	50.37
7.24000	35.11	146.52	14.30000	17.50	78.30	21.40000	11.66	54.37
14.40000	35.01	168.97	28.70000	17.49	90.11	42.80000	11.66	62.29
28.90000	34.99	192.59	57.50000	17.49	102.09	85.70000	11.66	70.31
50.70000	34.98	211.95	100.00000	17.49	111.70	150.00000	11.66	76.81
72.40000	34.98	224.30	143.00000	17.49	117.93	214.00000	11.66	80.94

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
 Z= 2 A= 4.003

TD=16.0 EV ET=0.028391 MEV			TD=20.0 EV ET=0.035259 MEV			TD=24.0 EV ET=0.042041 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.02860	0.57	0.57	0.03560	0.48	0.48	0.04240	0.30	0.30
0.02890	1.36	1.36	0.03590	0.89	0.89	0.04280	0.62	0.62
0.02950	2.85	2.85	0.03660	1.79	1.79	0.04370	1.29	1.29
0.03030	4.65	4.65	0.03770	3.08	3.08	0.04490	2.12	2.12
0.03150	7.02	7.02	0.03910	4.51	4.51	0.04660	3.14	3.14
0.03290	9.35	9.35	0.04090	6.06	6.06	0.04870	4.21	4.21
0.03460	11.67	11.67	0.04300	7.55	7.55	0.05120	5.26	5.26
0.03690	14.11	14.11	0.04580	9.11	9.11	0.05460	6.38	6.38
0.03970	16.28	16.28	0.04930	10.53	10.53	0.05880	7.39	7.39
0.04400	18.43	18.43	0.05460	11.93	11.93	0.06510	8.39	8.39
0.04960	19.90	19.90	0.06170	12.94	12.94	0.07350	9.12	9.12
0.05670	20.61	20.61	0.07050	13.43	13.44	0.08400	9.50	9.51
0.06530	20.61	20.84	0.08100	13.49	13.66	0.09660	9.59	9.71
0.07660	20.03	20.78	0.09510	13.20	13.70	0.11300	9.43	9.80
0.09080	19.04	20.45	0.11200	12.66	13.59	0.13400	9.10	9.79
0.10700	17.91	19.98	0.13300	11.98	13.38	0.15900	8.69	9.71
0.12700	16.68	19.40	0.15800	11.27	13.11	0.18900	8.25	9.61
0.14700	15.66	18.89	0.18300	10.68	12.88	0.21800	7.90	9.52
0.17000	14.71	18.40	0.21100	10.14	12.68	0.25200	7.56	9.45
0.19800	13.80	17.92	0.24600	9.62	12.49	0.29400	7.25	9.41
0.24100	12.77	17.39	0.29900	9.05	12.31	0.35700	6.90	9.40
0.28300	12.05	17.06	0.35200	8.64	12.24	0.42000	6.67	9.46
0.42500	10.66	16.67	0.52800	7.89	12.39	0.63000	6.25	9.85
0.56700	10.00	16.82	0.70500	7.55	12.80	0.84000	6.06	10.37
0.85100	9.40	17.65	1.05000	7.26	13.80	1.26000	5.92	11.43
1.41000	9.02	19.59	1.76000	7.09	15.75	2.10000	5.85	13.26
2.83000	8.82	23.60	3.52000	7.02	19.28	4.20000	5.83	16.38
5.67000	8.77	28.63	7.05000	7.00	23.48	8.40000	5.83	19.97
8.51000	8.76	31.84	10.50000	7.00	26.06	12.60000	5.83	22.19
14.10000	8.75	36.00	17.60000	7.00	29.51	21.00000	5.83	25.06
19.80000	8.75	38.86	24.60000	7.00	31.78	29.40000	5.83	26.97
28.30000	8.75	41.90	35.20000	7.00	34.24	42.00000	5.83	29.02
56.70000	8.74	47.89	70.50000	7.00	39.04	84.00000	5.83	33.02
113.00000	8.74	53.88	141.00000	7.00	43.87	168.00000	5.83	37.04
198.00000	8.74	58.77	246.00000	7.00	47.75	294.00000	5.83	40.30

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=28.0 EV ET=0.048741 MEV			TD=32.0 EV ET=0.055362 MEV			TD=36.0 EV ET=0.061906 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.04920	0.24	0.24	0.05590	0.19	0.19	0.06250	0.15	0.15
0.04970	0.50	0.50	0.05640	0.36	0.36	0.06310	0.30	0.30
0.05060	0.93	0.93	0.05750	0.72	0.72	0.06430	0.57	0.57
0.05210	1.58	1.58	0.05920	1.23	1.23	0.06620	0.98	0.98
0.05410	2.35	2.35	0.06140	1.80	1.80	0.06870	1.44	1.44
0.05650	3.13	3.13	0.06420	2.42	2.42	0.07180	1.93	1.93
0.05940	3.91	3.91	0.06750	3.02	3.02	0.07550	2.41	2.41
0.06330	4.73	4.73	0.07190	3.65	3.65	0.08040	2.91	2.91
0.06820	5.49	5.49	0.07750	4.25	4.25	0.08660	3.39	3.39
0.07550	6.24	6.24	0.08580	4.84	4.84	0.09590	3.87	3.87
0.08520	6.80	6.80	0.09680	5.28	5.28	0.10800	4.23	4.23
0.09740	7.11	7.12	0.11000	5.54	5.54	0.12300	4.46	4.46
0.11200	7.20	7.30	0.12700	5.64	5.72	0.14200	4.56	4.62
0.13100	7.13	7.41	0.14900	5.62	5.84	0.16700	4.56	4.75
0.15500	6.93	7.46	0.17700	5.49	5.92	0.19800	4.49	4.85
0.18500	6.66	7.46	0.21000	5.32	5.96	0.23500	4.39	4.92
0.21900	6.39	7.44	0.24900	5.15	6.00	0.27800	4.28	4.99
0.25300	6.16	7.44	0.28700	5.00	6.04	0.32100	4.18	5.05
0.29200	5.95	7.44	0.33200	4.87	6.09	0.37100	4.10	5.13
0.34100	5.76	7.47	0.38700	4.75	6.17	0.43300	4.03	5.24
0.41400	5.55	7.56	0.47000	4.62	6.31	0.52600	3.95	5.41
0.48700	5.40	7.68	0.55300	4.54	6.46	0.61900	3.90	5.58
0.73100	5.16	8.20	0.83000	4.40	7.03	0.92800	3.84	6.17
0.97400	5.07	8.75	1.10000	4.36	7.58	1.23000	3.83	6.72
1.46000	5.01	9.79	1.66000	4.34	8.60	1.85000	3.84	7.68
2.43000	4.99	11.48	2.76000	4.35	10.17	3.09000	3.86	9.15
4.87000	4.99	14.28	5.53000	4.36	12.69	6.19000	3.88	11.44
9.74000	5.00	17.42	11.00000	4.37	15.45	12.30000	3.88	13.91
14.60000	5.00	19.34	16.60000	4.37	17.17	18.50000	3.89	15.44
24.30000	5.00	21.80	27.60000	4.37	19.33	30.90000	3.89	17.38
34.10000	5.00	23.46	38.70000	4.37	20.78	43.30000	3.89	18.67
48.70000	5.00	25.22	55.30000	4.37	22.32	61.90000	3.89	20.05
97.40000	5.00	28.65	110.00000	4.37	25.31	123.00000	3.89	22.70
194.00000	5.00	32.08	221.00000	4.37	28.35	247.00000	3.89	25.40

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=40.0 EV ET=0.068376 MEV			TD=44.0 EV ET=0.074775 MEV			TD=48.0 EV ET=0.081104 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.06900	0.12	0.12	0.07550	0.10	0.10	0.08190	0.09	0.09
0.06970	0.24	0.24	0.07620	0.20	0.20	0.08270	0.17	0.17
0.07110	0.48	0.48	0.07770	0.39	0.39	0.08430	0.33	0.33
0.07310	0.79	0.79	0.08000	0.66	0.66	0.08670	0.56	0.56
0.07580	1.16	1.16	0.08290	0.97	0.97	0.09000	0.82	0.82
0.07930	1.57	1.57	0.08670	1.31	1.31	0.09400	1.10	1.10
0.08340	1.97	1.97	0.09120	1.64	1.64	0.09890	1.38	1.38
0.08880	2.38	2.38	0.09720	1.99	1.99	0.10500	1.67	1.67
0.09570	2.77	2.77	0.10400	2.29	2.29	0.11300	1.95	1.95
0.10500	3.14	3.14	0.11500	2.63	2.63	0.12500	2.24	2.24
0.11900	3.47	3.47	0.13000	2.91	2.91	0.14100	2.48	2.48
0.13600	3.68	3.68	0.14900	3.10	3.10	0.16200	2.65	2.66
0.15700	3.78	3.83	0.17100	3.19	3.24	0.18600	2.74	2.79
0.18400	3.80	3.96	0.20100	3.23	3.37	0.21900	2.79	2.91
0.21800	3.77	4.06	0.23900	3.22	3.48	0.25900	2.80	3.02
0.25900	3.71	4.15	0.28400	3.19	3.58	0.30800	2.79	3.13
0.30700	3.64	4.24	0.33600	3.15	3.68	0.36400	2.77	3.24
0.35500	3.58	4.33	0.38800	3.12	3.77	0.42100	2.76	3.34
0.41000	3.53	4.42	0.44800	3.10	3.88	0.48600	2.75	3.45
0.47800	3.49	4.54	0.52300	3.07	4.01	0.56700	2.75	3.59
0.58100	3.45	4.73	0.63500	3.06	4.21	0.68900	2.75	3.79
0.68300	3.43	4.91	0.74700	3.05	4.40	0.81100	2.76	3.98
1.02000	3.41	5.51	1.12000	3.07	4.99	1.21000	2.79	4.56
1.36000	3.42	6.04	1.49000	3.08	5.51	1.62000	2.81	5.07
2.05000	3.44	6.97	2.24000	3.12	6.38	2.43000	2.85	5.89
3.41000	3.46	8.32	3.73000	3.15	7.64	4.05000	2.88	7.08
6.83000	3.49	10.42	7.47000	3.17	9.58	8.11000	2.91	8.88
13.60000	3.50	12.67	14.90000	3.18	11.65	16.20000	2.91	10.79
20.50000	3.50	14.06	22.40000	3.18	12.90	24.30000	2.91	11.93
34.10000	3.50	15.80	37.30000	3.18	14.49	40.50000	2.91	13.39
47.80000	3.50	16.96	52.30000	3.18	15.55	56.70000	2.91	14.36
68.30000	3.50	18.20	74.70000	3.18	16.68	81.10000	2.91	15.40
136.00000	3.50	20.60	149.00000	3.18	18.86	162.00000	2.91	17.41
273.00000	3.50	23.03	299.00000	3.18	21.07	324.00000	2.91	19.42

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=52.0 EV ET=0.087367 MEV			TD=56.0 EV ET=0.093565 MEV			TD=60.0 EV ET=0.099700 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.08820	0.07	0.07	0.09450	0.07	0.07	0.10000	0.02	0.02
0.08910	0.15	0.15	0.09540	0.13	0.13	0.10100	0.08	0.08
0.09080	0.29	0.29	0.09730	0.25	0.25	0.10300	0.18	0.18
0.09340	0.48	0.48	0.10000	0.41	0.41	0.10600	0.33	0.33
0.09690	0.70	0.70	0.10300	0.57	0.57	0.11000	0.51	0.51
0.10100	0.93	0.93	0.10800	0.80	0.80	0.11500	0.70	0.70
0.10600	1.17	1.17	0.11400	1.03	1.03	0.12100	0.89	0.89
0.11300	1.43	1.43	0.12100	1.24	1.24	0.12900	1.09	1.09
0.12200	1.68	1.68	0.13000	1.45	1.45	0.13900	1.29	1.29
0.13500	1.94	1.94	0.14500	1.70	1.70	0.15400	1.49	1.49
0.15200	2.15	2.15	0.16300	1.88	1.88	0.17400	1.66	1.66
0.17400	2.30	2.30	0.18700	2.02	2.02	0.19900	1.79	1.79
0.20000	2.39	2.43	0.21500	2.11	2.14	0.22900	1.88	1.91
0.23500	2.44	2.55	0.25200	2.16	2.26	0.26900	1.94	2.02
0.27900	2.47	2.66	0.29900	2.20	2.37	0.31900	1.98	2.14
0.33100	2.47	2.77	0.35500	2.21	2.49	0.37800	2.00	2.25
0.39300	2.47	2.89	0.42100	2.23	2.60	0.44800	2.02	2.37
0.45400	2.47	2.99	0.48600	2.24	2.71	0.51800	2.04	2.48
0.52400	2.48	3.11	0.56100	2.25	2.83	0.59800	2.06	2.60
0.61100	2.48	3.25	0.65400	2.26	2.97	0.69700	2.08	2.74
0.74200	2.50	3.45	0.79500	2.29	3.17	0.84700	2.11	2.93
0.87300	2.51	3.64	0.93500	2.31	3.36	0.99600	2.14	3.12
1.31000	2.56	4.21	1.40000	2.36	3.91	1.49000	2.19	3.66
1.74000	2.59	4.69	1.87000	2.40	4.38	1.99000	2.23	4.11
2.62000	2.63	5.48	2.80000	2.44	5.12	2.99000	2.27	4.82
4.36000	2.66	6.59	4.67000	2.47	6.18	4.98000	2.30	5.82
8.73000	2.68	8.27	9.35000	2.49	7.75	9.96000	2.32	7.29
17.40000	2.69	10.03	18.70000	2.50	9.40	19.90000	2.33	8.83
26.20000	2.69	11.10	28.00000	2.50	10.38	29.90000	2.33	9.76
43.60000	2.69	12.45	46.70000	2.50	11.64	49.80000	2.33	10.93
61.10000	2.69	13.35	65.40000	2.50	12.47	69.70000	2.33	11.71
87.30000	2.69	14.30	93.50000	2.50	13.36	99.60000	2.33	12.53
174.00000	2.69	16.15	187.00000	2.50	15.08	199.00000	2.33	14.14

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=64.0 EV ET=0.105774 MEV			TD=68.0 EV ET=0.111788 MEV			TD=72.0 EV ET=0.117745 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.10600	0.01	0.01	0.11200	0.01	0.01	0.11800	0.01	0.01
0.10700	0.06	0.06	0.11400	0.09	0.09	0.12000	0.08	0.08
0.11000	0.19	0.19	0.11600	0.16	0.16	0.12200	0.14	0.14
0.11300	0.32	0.32	0.11900	0.27	0.27	0.12500	0.23	0.23
0.11700	0.46	0.46	0.12400	0.42	0.42	0.13000	0.36	0.36
0.12200	0.62	0.62	0.12900	0.55	0.55	0.13600	0.50	0.50
0.12900	0.80	0.80	0.13600	0.71	0.71	0.14300	0.63	0.63
0.13700	0.97	0.97	0.14500	0.87	0.87	0.15300	0.79	0.79
0.14800	1.15	1.15	0.15600	1.02	1.02	0.16400	0.92	0.92
0.16300	1.32	1.32	0.17300	1.19	1.19	0.18200	1.07	1.07
0.18500	1.48	1.48	0.19500	1.33	1.33	0.20600	1.21	1.21
0.21100	1.60	1.61	0.22300	1.44	1.45	0.23500	1.31	1.31
0.24300	1.68	1.71	0.25700	1.52	1.55	0.27000	1.39	1.41
0.28500	1.75	1.83	0.30100	1.59	1.66	0.31700	1.45	1.52
0.33800	1.79	1.94	0.35700	1.64	1.77	0.37600	1.50	1.63
0.40100	1.82	2.05	0.42400	1.68	1.88	0.44700	1.55	1.74
0.47500	1.85	2.17	0.50300	1.71	2.00	0.52900	1.59	1.86
0.55000	1.88	2.28	0.58100	1.74	2.11	0.61200	1.62	1.97
0.63400	1.90	2.40	0.67000	1.76	2.23	0.70600	1.65	2.08
0.74000	1.93	2.54	0.78200	1.79	2.37	0.82400	1.68	2.22
0.89900	1.96	2.73	0.95000	1.83	2.56	1.00000	1.72	2.41
1.05000	1.99	2.91	1.11000	1.86	2.73	1.17000	1.75	2.58
1.58000	2.05	3.43	1.67000	1.93	3.24	1.76000	1.81	3.07
2.11000	2.09	3.87	2.23000	1.96	3.66	2.35000	1.85	3.47
3.17000	2.13	4.55	3.35000	2.00	4.31	3.53000	1.89	4.10
5.28000	2.16	5.49	5.58000	2.03	5.21	5.88000	1.92	4.95
10.50000	2.18	6.87	11.10000	2.05	6.51	11.70000	1.94	6.19
21.10000	2.18	8.33	22.30000	2.06	7.89	23.50000	1.94	7.50
31.70000	2.19	9.20	33.50000	2.06	8.71	35.30000	1.94	8.27
52.80000	2.19	10.30	55.80000	2.06	9.75	58.80000	1.94	9.25
74.00000	2.19	11.04	78.20000	2.06	10.44	82.40000	1.94	9.90
105.00000	2.19	11.80	111.00000	2.06	11.15	117.00000	1.94	10.58
211.00000	2.19	13.32	223.00000	2.06	12.58	235.00000	1.94	11.93

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=76.0 EV ET=0.123647 MEV			TD=80.0 EV ET=0.129493 MEV			TD=84.0 EV ET=0.135287 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.12400	0.01	0.01	0.13000	0.01	0.01	0.13600	0.02	0.02
0.12600	0.07	0.07	0.13200	0.06	0.06	0.13700	0.04	0.04
0.12800	0.12	0.12	0.13400	0.11	0.11	0.14000	0.10	0.10
0.13200	0.23	0.23	0.13800	0.20	0.20	0.14400	0.18	0.18
0.13700	0.34	0.34	0.14300	0.30	0.30	0.15000	0.28	0.28
0.14300	0.45	0.45	0.15000	0.42	0.42	0.15600	0.37	0.37
0.15000	0.57	0.57	0.15700	0.52	0.52	0.16500	0.48	0.48
0.16000	0.70	0.70	0.16800	0.64	0.64	0.17500	0.58	0.58
0.17300	0.84	0.84	0.18100	0.76	0.76	0.18900	0.70	0.70
0.19100	0.97	0.97	0.20000	0.89	0.89	0.20900	0.81	0.81
0.21600	1.10	1.10	0.22600	1.00	1.00	0.23600	0.92	0.92
0.24700	1.20	1.20	0.25800	1.10	1.10	0.27000	1.01	1.01
0.28400	1.27	1.30	0.29700	1.17	1.20	0.31100	1.09	1.11
0.33300	1.34	1.40	0.34900	1.24	1.30	0.36500	1.15	1.21
0.39500	1.39	1.51	0.41400	1.29	1.40	0.43200	1.21	1.31
0.46900	1.44	1.62	0.49200	1.34	1.51	0.51400	1.26	1.42
0.55600	1.48	1.74	0.58200	1.38	1.63	0.60800	1.30	1.53
0.64200	1.51	1.84	0.67300	1.42	1.73	0.70300	1.34	1.64
0.74100	1.54	1.96	0.77600	1.45	1.85	0.81100	1.37	1.75
0.86500	1.58	2.09	0.90600	1.49	1.98	0.94700	1.41	1.88
1.05000	1.62	2.28	1.10000	1.53	2.16	1.14000	1.45	2.05
1.23000	1.65	2.44	1.29000	1.56	2.32	1.35000	1.48	2.21
1.85000	1.72	2.92	1.94000	1.63	2.79	2.02000	1.55	2.66
2.47000	1.75	3.31	2.58000	1.66	3.16	2.70000	1.59	3.02
3.70000	1.79	3.90	3.88000	1.70	3.73	4.05000	1.62	3.57
6.18000	1.82	4.73	6.47000	1.73	4.52	6.76000	1.65	4.33
12.30000	1.84	5.90	12.90000	1.74	5.64	13.50000	1.66	5.40
24.70000	1.84	7.14	25.80000	1.75	6.81	27.00000	1.66	6.52
37.00000	1.84	7.87	38.80000	1.75	7.52	40.50000	1.67	7.19
61.80000	1.84	8.81	64.70000	1.75	8.40	67.60000	1.67	8.03
86.50000	1.84	9.42	90.60000	1.75	8.98	94.70000	1.67	8.59
123.00000	1.84	10.06	129.00000	1.75	9.60	135.00000	1.67	9.18
247.00000	1.84	11.34	258.00000	1.75	10.81	270.00000	1.67	10.33

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN HE
Z= 2 A= 4.003

TD=88.0 EV ET=0.141030 MEV			TD=92.0 EV ET=0.146722 MEV			TD=96.0 EV ET=0.152366 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.14200	0.02	0.02	0.14800	0.02	0.02	0.15300	0.01	0.01
0.14300	0.04	0.04	0.14900	0.04	0.04	0.15500	0.04	0.04
0.14600	0.09	0.09	0.15200	0.09	0.09	0.15800	0.08	0.08
0.15000	0.16	0.16	0.15600	0.15	0.15	0.16300	0.15	0.15
0.15600	0.25	0.25	0.16200	0.23	0.23	0.16900	0.22	0.22
0.16300	0.34	0.34	0.17000	0.32	0.32	0.17600	0.29	0.29
0.17200	0.44	0.44	0.17900	0.41	0.41	0.18500	0.37	0.37
0.18300	0.54	0.54	0.19000	0.50	0.50	0.19800	0.46	0.46
0.19700	0.64	0.64	0.20500	0.59	0.59	0.21300	0.55	0.55
0.21800	0.75	0.75	0.22700	0.70	0.70	0.23600	0.65	0.65
0.24600	0.85	0.85	0.25600	0.79	0.79	0.26600	0.74	0.74
0.28200	0.94	0.95	0.29300	0.88	0.88	0.30400	0.82	0.82
0.32400	1.01	1.03	0.33700	0.94	0.96	0.35000	0.88	0.90
0.38000	1.07	1.13	0.39600	1.01	1.06	0.41100	0.95	0.99
0.45100	1.13	1.23	0.46900	1.06	1.16	0.48700	1.00	1.09
0.53500	1.18	1.33	0.55700	1.12	1.26	0.57800	1.06	1.19
0.63400	1.23	1.45	0.66000	1.16	1.37	0.68500	1.11	1.30
0.73300	1.27	1.55	0.76200	1.20	1.47	0.79200	1.14	1.40
0.84600	1.30	1.66	0.88000	1.24	1.58	0.91400	1.18	1.51
0.98700	1.34	1.79	1.02000	1.27	1.70	1.06000	1.21	1.62
1.19000	1.38	1.95	1.24000	1.32	1.87	1.29000	1.26	1.79
1.41000	1.41	2.12	1.46000	1.35	2.02	1.52000	1.29	1.94
2.11000	1.48	2.55	2.20000	1.41	2.45	2.28000	1.35	2.36
2.82000	1.51	2.90	2.93000	1.45	2.79	3.04000	1.39	2.68
4.23000	1.55	3.43	4.40000	1.48	3.30	4.57000	1.42	3.18
7.05000	1.57	4.15	7.33000	1.50	3.99	7.61000	1.44	3.85
14.10000	1.59	5.19	14.60000	1.52	4.98	15.20000	1.45	4.80
28.20000	1.59	6.26	29.30000	1.52	6.01	30.40000	1.46	5.78
42.30000	1.59	6.89	44.00000	1.52	6.62	45.70000	1.46	6.37
70.50000	1.59	7.70	73.30000	1.52	7.39	76.10000	1.46	7.10
98.70000	1.59	8.23	102.00000	1.52	7.89	106.00000	1.46	7.58
141.00000	1.59	8.79	146.00000	1.52	8.43	152.00000	1.46	8.11
282.00000	1.59	9.89	293.00000	1.52	9.49	304.00000	1.46	9.11

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD= 4.0 EV ET=0.016169 MEV			TD= 8.0 EV ET=0.031857 MEV			TD=12.0 EV ET=0.047105 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.01630	7.81	7.81	0.03210	1.87	1.87	0.04750	0.93	0.93
0.01640	13.62	13.62	0.03240	4.11	4.11	0.04800	2.06	2.06
0.01680	35.53	35.53	0.03310	9.02	9.02	0.04890	3.98	3.98
0.01730	60.11	60.11	0.03400	14.76	14.76	0.05040	6.89	6.89
0.01790	86.03	86.03	0.03530	22.04	22.04	0.05220	9.96	9.96
0.01870	115.40	115.40	0.03690	29.62	29.62	0.05460	13.44	13.44
0.01970	145.31	145.31	0.03880	36.99	36.99	0.05740	16.78	16.78
0.02100	175.33	175.33	0.04140	44.85	44.85	0.06120	20.34	20.34
0.02260	202.08	202.08	0.04460	51.89	51.89	0.06590	23.59	23.59
0.02500	227.76	227.76	0.04930	58.63	58.63	0.07300	26.83	26.83
0.02820	245.35	245.35	0.05570	63.55	63.55	0.08240	29.24	29.24
0.03230	252.80	252.83	0.06370	65.95	65.97	0.09420	30.58	30.60
0.03710	251.14	253.59	0.07320	66.14	66.91	0.10800	30.97	31.37
0.04360	241.70	250.17	0.08600	64.53	66.96	0.12700	30.63	31.84
0.05170	226.75	243.07	0.10100	61.78	66.25	0.15300	29.75	32.00
0.06140	209.30	233.60	0.12100	58.07	64.91	0.17800	28.60	31.97
0.07270	191.61	223.07	0.14300	54.48	63.42	0.21100	27.37	31.86
0.08400	176.89	213.67	0.16500	51.50	62.10	0.24400	26.36	31.79
0.09700	163.03	204.30	0.19100	48.64	60.80	0.28200	25.43	31.77
0.11300	149.43	194.67	0.22300	45.87	59.58	0.32900	24.54	31.84
0.13700	134.11	183.31	0.27000	42.88	58.36	0.40000	23.58	32.14
0.16100	122.87	174.69	0.31800	40.69	57.65	0.47100	22.92	32.58
0.24200	100.53	157.38	0.47700	36.62	57.42	0.70600	21.79	34.57
0.32300	89.21	149.34	0.63700	34.70	58.71	0.94200	21.32	36.80
0.48500	78.14	144.01	0.95500	32.99	62.53	1.41000	20.97	41.00
0.80800	69.97	146.66	1.59000	31.91	70.42	2.35300	20.81	47.93
1.61000	64.90	164.20	3.18000	31.36	85.48	4.71000	20.77	59.46
3.23000	63.07	193.70	6.37000	31.19	103.80	9.42000	20.75	72.41
4.85000	62.64	214.43	9.55000	31.15	115.34	14.10000	20.74	80.33
8.08000	62.37	242.67	15.90000	31.12	130.38	23.50000	20.73	90.57
11.30000	62.29	262.10	22.30000	31.11	140.57	32.90000	20.73	97.39
16.10000	62.24	283.09	31.80000	31.10	151.36	47.10000	20.73	104.73
32.30000	62.20	325.23	63.70000	31.09	172.68	94.20000	20.73	118.97
64.60000	62.18	367.78	127.00000	31.09	194.00	188.00000	20.73	133.24
113.00000	62.18	402.33	223.00000	31.09	211.45	329.00000	20.73	144.81
161.00000	62.18	424.25	318.00000	31.09	222.46	471.00000	20.73	152.24

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD=16.0 EV ET=0.061946 MEV			TD=20.0 EV ET=0.076413 MEV			TD=24.0 EV ET=0.090532 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.06250	0.56	0.56	0.07710	0.37	0.37	0.09140	0.27	0.27
0.06310	1.15	1.15	0.07790	0.78	0.78	0.09230	0.55	0.55
0.06440	2.35	2.35	0.07940	1.51	1.51	0.09410	1.07	1.07
0.06620	3.87	3.87	0.08170	2.53	2.53	0.09680	1.78	1.78
0.06870	5.72	5.72	0.08480	3.74	3.74	0.10000	2.53	2.53
0.07180	7.68	7.68	0.08860	5.01	5.01	0.10500	3.54	3.54
0.07550	9.62	9.62	0.09320	6.28	6.28	0.11000	4.37	4.37
0.08050	11.68	11.68	0.09930	7.63	7.63	0.11700	5.32	5.32
0.08670	13.59	13.59	0.10600	8.76	8.76	0.12600	6.26	6.26
0.09600	15.52	15.52	0.11800	10.17	10.17	0.14000	7.27	7.27
0.10800	16.98	16.98	0.13300	11.23	11.23	0.15800	8.08	8.08
0.12300	17.91	17.92	0.15200	11.95	11.97	0.18100	8.67	8.68
0.14200	18.35	18.61	0.17500	12.36	12.54	0.20800	9.03	9.18
0.16700	18.38	19.14	0.20600	12.54	13.07	0.24400	9.26	9.67
0.19800	18.12	19.53	0.24400	12.54	13.53	0.28900	9.39	10.14
0.23500	17.71	19.84	0.29000	12.44	13.96	0.34400	9.44	10.61
0.27800	17.27	20.13	0.34300	12.32	14.38	0.40700	9.48	11.08
0.32200	16.90	20.41	0.39700	12.22	14.78	0.47000	9.50	11.51
0.37100	16.58	20.74	0.45800	12.14	15.22	0.54300	9.54	11.99
0.43300	16.27	21.17	0.53400	12.08	15.76	0.63300	9.58	12.56
0.52600	15.97	21.85	0.64900	12.03	16.56	0.76900	9.65	13.37
0.61900	15.78	22.57	0.76400	12.02	17.33	0.90500	9.72	14.14
0.92900	15.51	24.97	1.14000	12.07	19.69	1.35000	9.90	16.38
1.23000	15.44	27.14	1.52000	12.14	21.77	1.81000	10.03	18.32
1.85000	15.44	31.02	2.29000	12.25	25.24	2.71000	10.17	21.37
3.09000	15.49	36.89	3.82000	12.36	30.25	4.52000	10.28	25.73
6.19000	15.54	46.08	7.64000	12.42	37.85	9.05000	10.35	32.22
12.30000	15.55	55.98	15.20000	12.44	45.91	18.10000	10.36	39.06
18.50000	15.55	62.07	22.90000	12.44	50.85	27.10000	10.37	43.13
30.90000	15.55	69.85	38.20000	12.44	57.09	45.20000	10.36	48.35
43.30000	15.55	75.02	53.40000	12.44	61.20	63.30000	10.36	51.80
61.90000	15.55	80.51	76.40000	12.44	65.62	90.50000	10.36	55.48
123.00000	15.55	91.12	152.00000	12.44	74.13	181.00000	10.36	62.63
247.00000	15.54	101.92	305.00000	12.44	82.77	362.00000	10.36	69.80

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD=28.0 EV ET=0.104327 MEV			TD=32.0 EV ET=0.117819 MEV			TD=36.0 EV ET=0.131028 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.10500	0.14	0.14	0.11800	0.03	0.03	0.13200	0.10	0.10
0.10600	0.34	0.34	0.12000	0.30	0.30	0.13300	0.19	0.19
0.10800	0.71	0.71	0.12200	0.56	0.56	0.13600	0.47	0.47
0.11100	1.23	1.23	0.12600	1.03	1.03	0.14000	0.81	0.81
0.11500	1.85	1.85	0.13000	1.45	1.45	0.14500	1.19	1.19
0.12100	2.64	2.64	0.13600	1.99	1.99	0.15100	1.58	1.58
0.12700	3.29	3.29	0.14300	2.53	2.53	0.15900	2.03	2.03
0.13500	4.00	4.00	0.15300	3.15	3.15	0.17000	2.53	2.53
0.14600	4.75	4.75	0.16400	3.68	3.68	0.18300	2.99	2.99
0.16100	5.47	5.47	0.18200	4.31	4.31	0.20300	3.51	3.51
0.18200	6.13	6.13	0.20600	4.86	4.86	0.22900	3.96	3.96
0.20800	6.62	6.64	0.23500	5.28	5.30	0.26200	4.35	4.36
0.23900	6.97	7.09	0.27000	5.60	5.70	0.30100	4.65	4.74
0.28100	7.23	7.56	0.31800	5.87	6.15	0.35300	4.91	5.14
0.33300	7.41	8.02	0.37700	6.09	6.59	0.41900	5.14	5.57
0.39600	7.55	8.49	0.44700	6.26	7.05	0.49700	5.34	6.02
0.46900	7.66	8.97	0.53000	6.42	7.53	0.58900	5.52	6.49
0.54200	7.76	9.42	0.61200	6.55	7.97	0.68100	5.66	6.92
0.62500	7.85	9.90	0.70600	6.67	8.44	0.78600	5.80	7.37
0.73000	7.95	10.47	0.82400	6.79	8.99	0.91700	5.94	7.90
0.88600	8.07	11.26	1.00000	6.94	9.75	1.11000	6.10	8.62
1.04000	8.17	11.98	1.17000	7.06	10.42	1.31000	6.23	9.29
1.56000	8.41	14.11	1.76000	7.32	12.42	1.96000	6.49	11.14
2.08000	8.55	15.86	2.35000	7.46	14.04	2.62000	6.63	12.63
3.12000	8.70	18.61	3.53000	7.61	16.54	3.93000	6.76	14.91
5.21000	8.81	22.46	5.89000	7.71	19.98	6.55000	6.85	18.01
10.40000	8.87	28.09	11.70000	7.76	24.92	13.10000	6.90	22.49
20.80000	8.88	33.99	23.50000	7.77	30.15	26.20000	6.91	27.13
31.20000	8.88	37.51	35.30000	7.77	33.25	39.30000	6.91	29.88
52.10000	8.88	42.00	58.90000	7.77	37.18	65.50000	6.91	33.37
73.00000	8.88	44.97	82.40000	7.77	39.77	91.70000	6.91	35.68
104.00000	8.88	48.10	117.00000	7.77	42.48	131.00000	6.91	38.13
208.00000	8.88	54.23	235.00000	7.77	47.88	262.00000	6.91	42.90

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD=40.0 EV ET=0.143971 MEV			TD=44.0 EV ET=0.156663 MEV			TD=48.0 EV ET=0.169118 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.14500	0.08	0.08	0.15800	0.08	0.08	0.17000	0.04	0.04
0.14600	0.15	0.15	0.15900	0.13	0.13	0.17200	0.13	0.13
0.14900	0.36	0.36	0.16200	0.29	0.29	0.17500	0.25	0.25
0.15400	0.67	0.67	0.16700	0.54	0.54	0.18000	0.44	0.44
0.15900	0.96	0.96	0.17300	0.80	0.80	0.18700	0.69	0.69
0.16700	1.35	1.35	0.18100	1.10	1.10	0.19500	0.96	0.96
0.17500	1.68	1.68	0.19100	1.43	1.43	0.20500	1.21	1.21
0.18700	2.09	2.09	0.20300	1.75	1.75	0.21900	1.49	1.49
0.20100	2.47	2.47	0.21900	2.09	2.09	0.23600	1.79	1.79
0.22300	2.91	2.91	0.24200	2.46	2.46	0.26200	2.13	2.13
0.25100	3.31	3.31	0.27400	2.83	2.83	0.29500	2.45	2.45
0.28700	3.66	3.67	0.31300	3.14	3.16	0.33800	2.74	2.76
0.33100	3.94	4.02	0.36000	3.41	3.48	0.38800	2.99	3.06
0.38800	4.21	4.41	0.42200	3.67	3.84	0.45600	3.25	3.41
0.46000	4.44	4.82	0.50100	3.91	4.24	0.54100	3.48	3.79
0.54700	4.65	5.25	0.59500	4.12	4.66	0.64200	3.70	4.18
0.64700	4.84	5.70	0.70400	4.31	5.09	0.76100	3.89	4.60
0.74800	4.99	6.11	0.81400	4.47	5.49	0.87900	4.05	4.99
0.86300	5.14	6.55	0.93900	4.61	5.91	1.01000	4.19	5.38
1.00000	5.28	7.04	1.09000	4.76	6.38	1.18000	4.33	5.84
1.22000	5.45	7.74	1.33000	4.93	7.05	1.43000	4.49	6.46
1.43000	5.57	8.36	1.56000	5.05	7.63	1.69000	4.62	7.04
2.15000	5.83	10.10	2.34000	5.29	9.26	2.53000	4.85	8.57
2.87000	5.96	11.48	3.13000	5.42	10.56	3.38000	4.97	9.77
4.31000	6.08	13.58	4.69000	5.53	12.48	5.07000	5.07	11.57
7.19000	6.17	16.41	7.83000	5.61	15.09	8.45000	5.14	13.98
14.30000	6.21	20.43	15.60000	5.65	18.78	16.90000	5.18	17.39
28.70000	6.22	24.64	31.30000	5.65	22.61	33.80000	5.18	20.89
43.10000	6.22	27.13	46.90000	5.65	24.86	50.70000	5.18	22.97
71.90000	6.22	30.28	78.30000	5.65	27.74	84.50000	5.18	25.59
100.00000	6.22	32.32	109.00000	5.65	29.60	118.00000	5.18	27.31
143.00000	6.22	34.53	156.00000	5.65	31.61	169.00000	5.18	29.17
287.00000	6.22	38.85	313.00000	5.65	35.54	338.00000	5.18	32.75

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
 Z= 4 A= 9.013

TD=52.0 EV			TD=56.0 EV			TD=60.0 EV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.18300	0.06	0.06	0.19500	0.05	0.05	0.20700	0.04	0.04
0.18400	0.09	0.09	0.19700	0.10	0.10	0.20900	0.09	0.09
0.18800	0.23	0.23	0.20100	0.21	0.21	0.21300	0.18	0.18
0.19400	0.41	0.41	0.20600	0.34	0.34	0.21900	0.31	0.31
0.20100	0.60	0.60	0.21400	0.52	0.52	0.22700	0.46	0.46
0.21000	0.82	0.82	0.22400	0.72	0.72	0.23800	0.64	0.64
0.22100	1.05	1.05	0.23500	0.91	0.91	0.25000	0.81	0.81
0.23500	1.30	1.30	0.25100	1.14	1.14	0.26600	1.01	1.01
0.25300	1.55	1.55	0.27000	1.37	1.37	0.28700	1.22	1.22
0.28100	1.86	1.86	0.29900	1.64	1.64	0.31800	1.47	1.47
0.31700	2.15	2.15	0.33800	1.91	1.91	0.35900	1.72	1.72
0.36200	2.42	2.44	0.38600	2.17	2.18	0.41000	1.96	1.97
0.41700	2.67	2.73	0.44400	2.40	2.45	0.47100	2.18	2.23
0.48900	2.91	3.06	0.52200	2.63	2.77	0.55300	2.40	2.53
0.58000	3.14	3.42	0.61800	2.86	3.11	0.65600	2.63	2.86
0.68900	3.35	3.80	0.73400	3.07	3.48	0.77900	2.83	3.22
0.81600	3.55	4.21	0.87000	3.26	3.87	0.92300	3.02	3.59
0.94300	3.70	4.57	1.00000	3.41	4.21	1.06000	3.16	3.92
1.08000	3.84	4.94	1.16000	3.55	4.60	1.23000	3.30	4.29
1.26000	3.98	5.38	1.35000	3.68	5.02	1.43000	3.43	4.69
1.54000	4.14	6.00	1.64000	3.84	5.59	1.74000	3.58	5.24
1.81000	4.25	6.53	1.93000	3.95	6.09	2.05000	3.68	5.72
2.72000	4.48	7.99	2.90000	4.16	7.47	3.07000	3.88	7.02
3.62000	4.58	9.10	3.86000	4.26	8.52	4.10000	3.98	8.02
5.44000	4.68	10.79	5.80000	4.35	10.11	6.15000	4.06	9.51
9.06000	4.75	13.02	9.66000	4.41	12.19	10.20000	4.12	11.45
18.10000	4.78	16.18	19.30000	4.44	15.13	20.50000	4.14	14.22
36.20000	4.78	19.42	38.60000	4.44	18.15	41.00000	4.15	17.04
54.40000	4.78	21.34	58.00000	4.44	19.93	61.50000	4.15	18.70
90.60000	4.78	23.76	96.60000	4.44	22.18	102.00000	4.15	20.79
126.00000	4.78	25.33	135.00000	4.44	23.66	143.00000	4.15	22.18
181.00000	4.78	27.06	193.00000	4.44	25.25	205.00000	4.15	23.67

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
 Z= 4 A= 9.013

TD=64.0 EV			TD=68.0 EV			TD=72.0 EV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.21800	0.02	0.02	0.23000	0.03	0.03	0.24100	0.02	0.02
0.22100	0.08	0.08	0.23200	0.06	0.06	0.24400	0.06	0.06
0.22500	0.16	0.16	0.23700	0.14	0.14	0.24900	0.13	0.13
0.23100	0.26	0.26	0.24400	0.25	0.25	0.25600	0.22	0.22
0.24000	0.41	0.41	0.25300	0.37	0.37	0.26500	0.33	0.33
0.25100	0.56	0.56	0.26400	0.50	0.50	0.27700	0.45	0.45
0.26400	0.72	0.72	0.27800	0.65	0.65	0.29200	0.59	0.59
0.28100	0.90	0.90	0.29600	0.81	0.81	0.31100	0.74	0.74
0.30300	1.09	1.09	0.31900	0.99	0.99	0.33500	0.90	0.90
0.33600	1.32	1.32	0.35300	1.20	1.20	0.37100	1.09	1.09
0.37900	1.55	1.55	0.39900	1.42	1.42	0.41900	1.30	1.30
0.43300	1.78	1.79	0.45600	1.63	1.64	0.47900	1.51	1.52
0.49800	1.99	2.04	0.52400	1.83	1.88	0.55000	1.70	1.74
0.58500	2.21	2.33	0.61600	2.05	2.16	0.64600	1.91	2.01
0.69300	2.43	2.65	0.73000	2.26	2.47	0.76600	2.11	2.31
0.82300	2.63	2.99	0.86700	2.45	2.80	0.91000	2.30	2.63
0.97500	2.81	3.35	1.02000	2.63	3.13	1.07000	2.47	2.95
1.12000	2.95	3.67	1.18000	2.77	3.45	1.24000	2.61	3.26
1.30000	3.09	4.02	1.36000	2.89	3.78	1.43000	2.73	3.58
1.51000	3.21	4.40	1.59000	3.02	4.15	1.67000	2.85	3.94
1.84000	3.35	4.93	1.94000	3.15	4.67	2.03000	2.98	4.42
2.16000	3.45	5.39	2.28000	3.25	5.11	2.39000	3.07	4.85
3.25000	3.64	6.64	3.42000	3.43	6.29	3.59000	3.24	5.98
4.33000	3.73	7.58	4.56000	3.51	7.18	4.79000	3.32	6.83
6.50000	3.81	8.98	6.84000	3.59	8.51	7.18000	3.39	8.09
10.80000	3.86	10.82	11.40000	3.63	10.26	11.90000	3.43	9.73
21.60000	3.88	13.41	22.80000	3.65	12.70	23.90000	3.45	12.05
43.30000	3.89	16.06	45.60000	3.66	15.19	47.90000	3.45	14.42
65.00000	3.89	17.62	68.40000	3.66	16.66	71.80000	3.45	15.80
108.00000	3.89	19.58	114.00000	3.66	18.52	119.00000	3.45	17.54
151.00000	3.89	20.88	159.00000	3.66	19.73	167.00000	3.45	18.70
216.00000	3.89	22.27	228.00000	3.66	21.04	239.00000	3.45	19.94

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD=76.0 EV ET=0.250621 MEV			TD=80.0 EV ET=0.261563 MEV			TD=84.0 EV ET=0.272352 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.25300	0.03	0.03	0.26400	0.03	0.03	0.27500	0.03	0.03
0.25500	0.05	0.05	0.26600	0.05	0.05	0.27700	0.04	0.04
0.26000	0.11	0.11	0.27200	0.11	0.11	0.28300	0.10	0.10
0.26800	0.20	0.20	0.27900	0.18	0.18	0.29100	0.17	0.17
0.27800	0.30	0.30	0.29000	0.27	0.27	0.30200	0.25	0.25
0.29000	0.41	0.41	0.30300	0.38	0.38	0.31500	0.34	0.34
0.30500	0.53	0.53	0.31900	0.49	0.49	0.33200	0.45	0.45
0.32500	0.67	0.67	0.34000	0.62	0.62	0.35400	0.57	0.57
0.35000	0.82	0.82	0.36600	0.76	0.76	0.38100	0.70	0.70
0.38800	1.00	1.00	0.40500	0.93	0.93	0.42200	0.86	0.86
0.43800	1.20	1.20	0.45700	1.11	1.11	0.47600	1.04	1.04
0.50100	1.40	1.41	0.52300	1.30	1.31	0.54400	1.22	1.23
0.57600	1.58	1.62	0.60100	1.48	1.52	0.62600	1.39	1.43
0.67600	1.78	1.88	0.70600	1.68	1.77	0.73500	1.58	1.67
0.80100	1.98	2.17	0.83700	1.87	2.05	0.87100	1.77	1.94
0.95200	2.17	2.48	0.99300	2.05	2.35	1.03000	1.94	2.22
1.12000	2.33	2.79	1.17000	2.21	2.65	1.22000	2.10	2.53
1.30000	2.47	3.09	1.36000	2.34	2.95	1.41000	2.22	2.80
1.50000	2.58	3.40	1.56000	2.45	3.23	1.63000	2.34	3.09
1.75000	2.70	3.75	1.83000	2.56	3.58	1.90000	2.44	3.41
2.13000	2.82	4.21	2.22000	2.68	4.02	2.31000	2.56	3.84
2.50000	2.91	4.61	2.61000	2.77	4.41	2.72000	2.64	4.22
3.75000	3.07	5.69	3.92000	2.92	5.45	4.08000	2.78	5.21
5.01000	3.15	6.51	5.23000	2.99	6.23	5.44000	2.85	5.96
7.51000	3.21	7.71	7.84000	3.05	7.37	8.17000	2.91	7.06
12.50000	3.25	9.28	13.00000	3.09	8.85	13.60000	2.94	8.49
25.00000	3.27	11.48	26.10000	3.11	10.95	27.20000	2.96	10.48
50.10000	3.27	13.71	52.30000	3.11	13.08	54.40000	2.96	12.50
75.10000	3.27	15.03	78.40000	3.11	14.33	81.70000	2.96	13.70
125.00000	3.27	16.69	130.00000	3.11	15.89	136.00000	2.96	15.20
175.00000	3.27	17.78	183.00000	3.11	16.95	190.00000	2.96	16.18

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN BE
Z= 4 A= 9.013

TD=88.0 EV ET=0.282994 MEV			TD=92.0 EV ET=0.293496 MEV			TD=96.0 EV ET=0.303862 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.28500	0.02	0.02	0.29600	0.02	0.02	0.30600	0.01	0.01
0.28800	0.04	0.04	0.29900	0.04	0.04	0.30900	0.03	0.03
0.29400	0.09	0.09	0.30500	0.08	0.08	0.31600	0.08	0.08
0.30200	0.15	0.15	0.31400	0.14	0.14	0.32500	0.13	0.13
0.31400	0.23	0.23	0.32500	0.21	0.21	0.33700	0.20	0.20
0.32800	0.32	0.32	0.34000	0.30	0.30	0.35200	0.27	0.27
0.34500	0.42	0.42	0.35800	0.39	0.39	0.37000	0.36	0.36
0.36700	0.52	0.52	0.38100	0.49	0.49	0.39500	0.46	0.46
0.39600	0.65	0.65	0.41000	0.60	0.60	0.42500	0.56	0.56
0.43800	0.80	0.80	0.45400	0.75	0.75	0.47000	0.70	0.70
0.49500	0.97	0.97	0.51300	0.91	0.91	0.53100	0.86	0.86
0.56500	1.14	1.15	0.58600	1.08	1.09	0.60700	1.02	1.03
0.65000	1.31	1.35	0.67500	1.24	1.28	0.69800	1.18	1.21
0.76400	1.50	1.58	0.79200	1.42	1.50	0.82000	1.35	1.43
0.90500	1.68	1.84	0.93900	1.60	1.76	0.97200	1.53	1.68
1.07000	1.85	2.12	1.11000	1.76	2.02	1.15000	1.68	1.94
1.27000	2.00	2.42	1.32000	1.91	2.31	1.36000	1.83	2.21
1.47000	2.12	2.68	1.52000	2.03	2.57	1.58000	1.95	2.47
1.69000	2.23	2.95	1.76000	2.13	2.84	1.82000	2.04	2.73
1.98000	2.33	3.27	2.05000	2.23	3.14	2.12000	2.14	3.02
2.40000	2.44	3.68	2.49000	2.34	3.54	2.58000	2.24	3.41
2.82000	2.52	4.04	2.93000	2.41	3.89	3.03000	2.31	3.74
4.24000	2.66	5.01	4.40000	2.55	4.81	4.55000	2.44	4.63
5.65000	2.72	5.72	5.86000	2.61	5.50	6.07000	2.50	5.30
8.48000	2.78	6.77	8.80000	2.66	6.51	9.11000	2.55	6.27
14.10000	2.81	8.13	14.60000	2.69	7.81	15.10000	2.58	7.51
28.20000	2.82	10.04	29.30000	2.70	9.64	30.30000	2.59	9.27
56.50000	2.83	11.97	58.60000	2.70	11.49	60.70000	2.59	11.05
84.80000	2.83	13.11	88.00000	2.70	12.58	91.10000	2.59	12.09
141.00000	2.83	14.54	146.00000	2.70	13.94	151.00000	2.59	13.39
198.00000	2.83	15.50	205.00000	2.70	14.86	212.00000	2.59	14.27

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN C
Z= 6 A= 12.011

TD= 4.0 EV ET=0.021439 MEV			TD= 8.0 EV ET=0.042048 MEV			TD=12.0 EV ET=0.061915 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.02160	9.27	9.27	0.04240	2.63	2.63	0.06250	1.34	1.34
0.02180	20.42	20.42	0.04280	5.52	5.52	0.06310	2.66	2.66
0.02220	41.55	41.55	0.04370	11.64	11.64	0.06430	5.17	5.17
0.02290	75.05	75.05	0.04490	19.07	19.07	0.06620	8.79	8.79
0.02370	108.58	108.58	0.04660	28.34	28.34	0.06870	12.98	12.98
0.02480	147.67	147.67	0.04870	38.05	38.05	0.07180	17.41	17.41
0.02610	185.31	185.31	0.05120	47.56	47.56	0.07550	21.78	21.78
0.02780	223.58	223.58	0.05460	57.71	57.71	0.08040	26.37	26.37
0.03000	259.43	259.43	0.05880	66.93	66.93	0.08560	30.71	30.71
0.03320	292.79	292.79	0.06510	76.05	76.05	0.09590	35.11	35.11
0.03750	316.10	316.10	0.07350	82.79	82.79	0.10800	38.49	38.49
0.04280	326.33	326.38	0.08400	86.43	86.48	0.12300	40.61	40.65
0.04930	325.34	328.77	0.09670	87.35	88.45	0.14200	41.65	42.24
0.05780	314.84	326.10	0.11300	86.12	89.40	0.16700	41.77	43.49
0.06860	297.20	318.84	0.13400	83.23	89.44	0.19800	41.21	44.41
0.08140	276.54	308.75	0.15900	79.55	88.89	0.23500	40.32	45.15
0.09640	255.39	297.27	0.18900	75.63	88.06	0.27800	39.34	45.84
0.11100	238.20	287.27	0.21800	72.48	87.38	0.32100	38.52	46.48
0.12800	221.76	277.22	0.25200	69.49	86.81	0.37100	37.77	47.25
0.15000	204.91	266.53	0.29400	66.61	86.44	0.43300	37.08	48.24
0.18200	186.67	254.67	0.35700	63.48	86.48	0.52600	36.38	49.82
0.21400	173.36	246.03	0.42000	61.29	87.02	0.61900	35.93	51.45
0.32100	147.43	230.65	0.63000	57.33	90.69	0.92800	35.27	56.88
0.42800	134.48	225.67	0.84000	55.58	95.43	1.23000	35.09	61.83
0.64300	122.05	227.19	1.26000	54.12	105.07	1.85000	35.02	70.59
1.07000	113.23	242.31	2.10000	53.27	121.58	3.09000	35.06	83.84
2.14000	107.96	282.46	4.20000	52.85	149.83	6.19000	35.10	104.57
4.28000	106.09	338.19	8.40000	52.68	182.19	12.30000	35.07	126.88
6.43000	105.61	375.37	12.60000	52.62	202.19	18.50000	35.05	140.60
10.70000	105.30	424.61	21.00000	52.57	228.02	30.90000	35.04	158.13
15.00000	105.20	458.34	29.40000	52.55	245.28	43.30000	35.03	169.76
21.40000	105.13	494.40	42.00000	52.54	263.72	61.90000	35.02	182.15
42.80000	105.08	565.80	84.00000	52.53	299.78	123.00000	35.02	206.04
85.70000	105.06	638.06	168.00000	52.53	336.02	247.00000	35.02	230.38
150.00000	105.05	696.59	294.00000	52.52	365.35	433.00000	35.02	250.00
214.00000	105.05	733.80	420.00000	52.52	384.05	619.00000	35.01	262.50

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN C
Z= 6 A= 12.011

TD=16.0 EV ET=0.081117 MEV			TD=20.0 EV ET=0.099715 MEV			TD=24.0 EV ET=0.117763 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.08190	0.78	0.78	0.10000	0.15	0.15	0.11800	0.08	0.08
0.08270	1.55	1.55	0.10100	0.67	0.67	0.12000	0.69	0.69
0.08430	3.01	3.01	0.10300	1.66	1.66	0.12200	1.27	1.27
0.08670	5.01	5.01	0.10600	3.02	3.02	0.12500	2.33	2.33
0.09000	7.44	7.44	0.11000	4.62	4.62	0.13000	3.28	3.28
0.09400	9.96	9.96	0.11500	6.33	6.33	0.13600	4.52	4.52
0.09890	12.53	12.53	0.12100	8.06	8.06	0.14300	5.73	5.73
0.10500	15.11	15.11	0.12900	9.91	9.91	0.15300	7.14	7.14
0.11300	17.69	17.69	0.13900	11.68	11.68	0.16400	8.34	8.34
0.12500	20.38	20.38	0.15400	13.56	13.56	0.18200	9.77	9.77
0.14100	22.61	22.61	0.17400	15.17	15.17	0.20600	11.04	11.04
0.16200	24.21	24.25	0.19900	16.38	16.41	0.23500	12.01	12.05
0.18600	25.10	25.50	0.22900	17.20	17.50	0.27000	12.75	12.98
0.21900	25.60	26.70	0.26900	17.80	18.59	0.31700	13.38	13.99
0.25900	25.73	27.77	0.31900	18.19	19.67	0.37500	13.88	15.02
0.30800	25.68	28.81	0.37800	18.46	20.73	0.44700	14.29	16.08
0.36500	25.56	29.85	0.44800	18.68	21.85	0.52900	14.65	17.18
0.42100	25.46	30.80	0.51800	18.85	22.87	0.61200	14.94	18.19
0.48600	25.38	31.85	0.59800	19.02	23.98	0.70600	15.21	19.26
0.56700	25.33	33.12	0.69800	19.21	25.28	0.82400	15.49	20.52
0.68900	25.33	34.96	0.84700	19.45	27.10	1.00000	15.83	22.25
0.81100	25.37	36.73	0.99700	19.66	28.80	1.17000	16.08	23.78
1.21000	25.57	42.00	1.49000	20.13	33.69	1.76000	16.64	28.31
1.62000	25.76	46.64	1.99000	20.42	37.79	2.35000	16.94	31.96
2.43000	26.00	54.11	2.99000	20.71	44.26	3.53000	17.23	37.62
4.05000	26.19	64.87	4.98000	20.93	53.27	5.88000	17.43	45.36
8.11000	26.29	81.10	9.97000	21.02	66.57	11.70000	17.52	56.53
16.20000	26.29	98.30	19.90000	21.03	80.48	23.50000	17.52	68.30
24.30000	26.28	108.64	29.90000	21.02	88.83	35.30000	17.52	75.29
40.50000	26.27	121.81	49.80000	21.02	99.39	58.80000	17.51	84.11
56.70000	26.27	130.55	69.80000	21.01	106.42	82.40000	17.51	89.97
81.10000	26.27	139.87	99.70000	21.01	113.87	117.00000	17.51	96.08
162.00000	26.26	157.96	199.00000	21.01	128.33	235.00000	17.51	108.25

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN C
Z= 6 A= 12.011

TD=28.0 EV ET=0.135308 MEV			TD=32.0 EV ET=0.152388 MEV			TD=36.0 EV ET=0.169040 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.13600	0.14	0.14	0.15300	0.09	0.09	0.17000	0.10	0.10
0.13800	0.54	0.54	0.15500	0.36	0.36	0.17200	0.29	0.29
0.14000	0.91	0.91	0.15800	0.75	0.75	0.17500	0.58	0.58
0.14400	1.61	1.61	0.16300	1.35	1.35	0.18900	1.01	1.01
0.15000	2.54	2.54	0.16900	1.98	1.98	0.18700	1.56	1.56
0.15600	3.35	3.35	0.17600	2.64	2.64	0.19600	2.17	2.17
0.16500	4.37	4.37	0.18500	3.36	3.36	0.20600	2.75	2.75
0.17500	5.31	5.31	0.19800	4.22	4.22	0.21900	3.38	3.38
0.18900	6.34	6.34	0.21300	5.00	5.00	0.23600	4.05	4.05
0.20900	7.43	7.43	0.23600	5.91	5.91	0.26200	4.84	4.84
0.23600	8.45	8.45	0.26600	6.76	6.76	0.29500	5.57	5.57
0.27000	9.31	9.34	0.30400	7.51	7.54	0.33800	6.25	6.28
0.31100	10.00	10.19	0.35000	8.14	8.31	0.38800	6.83	6.97
0.36500	10.61	11.12	0.41100	8.74	9.17	0.45600	7.41	7.78
0.43200	11.15	12.08	0.48700	9.29	10.08	0.54000	7.95	8.64
0.51400	11.62	13.10	0.57900	9.78	11.05	0.64200	8.45	9.56
0.60800	12.04	14.15	0.68500	10.22	12.05	0.76000	8.89	10.51
0.70300	12.38	15.13	0.79200	10.58	12.98	0.87900	9.25	11.39
0.81100	12.69	16.15	0.91400	10.90	13.95	1.01300	9.56	12.28
0.94700	13.01	17.34	1.06000	11.21	15.03	1.18000	9.88	13.35
1.15000	13.37	18.97	1.29000	11.59	16.56	1.43000	10.24	14.75
1.35000	13.65	20.43	1.52000	11.87	17.94	1.69000	10.51	16.06
2.02000	14.20	24.52	2.28000	12.41	21.72	2.53000	11.02	19.53
2.70000	14.49	27.81	3.04000	12.67	24.68	3.38000	11.27	22.25
4.05000	14.76	32.81	4.57000	12.92	29.18	5.07000	11.49	26.31
6.76000	14.94	39.61	7.61000	13.07	35.20	8.45000	11.62	31.73
13.50000	15.01	49.34	15.20000	13.13	43.79	16.90000	11.67	39.43
27.00000	15.02	59.42	30.40000	13.14	52.65	33.80000	11.68	47.33
40.50000	15.01	65.41	45.70000	13.14	57.92	50.70000	11.68	51.99
67.60000	15.01	73.01	76.10000	13.13	64.55	84.50000	11.67	57.91
94.70000	15.01	78.04	106.00000	13.13	68.88	118.00000	11.67	61.79
135.00000	15.01	83.34	152.00000	13.13	73.59	169.00000	11.67	65.96
270.00000	15.01	93.71	304.00000	13.13	82.67	338.00000	11.67	74.03

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN C
Z= 6 A= 12.011

TD=40.0 EV ET=0.185293 MEV			TD=44.0 EV ET=0.201176 MEV			TD=48.0 EV ET=0.216712 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.18700	0.13	0.13	0.20300	0.11	0.11	0.21800	0.06	0.06
0.18800	0.20	0.20	0.20500	0.22	0.22	0.22100	0.19	0.19
0.19200	0.48	0.48	0.20900	0.43	0.43	0.22500	0.36	0.36
0.19800	0.87	0.87	0.21500	0.73	0.73	0.23100	0.60	0.60
0.20500	1.28	1.28	0.22300	1.09	1.09	0.24000	0.92	0.92
0.21400	1.75	1.75	0.23300	1.49	1.49	0.25100	1.27	1.27
0.22600	2.28	2.28	0.24500	1.91	1.91	0.26400	1.64	1.64
0.24000	2.80	2.80	0.26100	2.38	2.38	0.28100	2.04	2.04
0.25900	3.38	3.38	0.28100	2.87	2.87	0.30300	2.48	2.48
0.28700	4.05	4.05	0.31100	3.45	3.45	0.33500	2.99	2.99
0.32400	4.71	4.71	0.35200	4.05	4.05	0.37900	3.54	3.54
0.37000	5.31	5.34	0.40200	4.61	4.64	0.43300	4.06	4.09
0.42600	5.87	6.00	0.46200	5.13	5.24	0.49800	4.55	4.66
0.50000	6.42	6.75	0.54300	5.66	5.95	0.58500	5.06	5.32
0.59200	6.94	7.56	0.64300	6.17	6.72	0.69300	5.55	6.05
0.70400	7.43	8.43	0.76400	6.64	7.55	0.82300	6.01	6.84
0.83300	7.87	9.34	0.90500	7.07	8.41	0.97500	6.42	7.66
0.96300	8.22	10.17	1.04000	7.40	9.17	1.12000	6.74	8.38
1.11000	8.53	11.03	1.20000	7.70	9.99	1.30000	7.04	9.19
1.29000	8.84	12.00	1.40000	8.00	10.92	1.51000	7.32	10.05
1.57000	9.19	13.35	1.70000	8.33	12.18	1.84000	7.64	11.26
1.85000	9.44	14.55	2.01000	8.58	13.32	2.16000	7.86	12.29
2.77000	9.91	17.76	3.01000	9.02	16.31	3.25000	8.27	15.12
3.70000	10.14	20.25	4.02000	9.22	18.62	4.33000	8.46	17.25
5.55000	10.34	23.96	6.03000	9.40	22.04	6.50000	8.62	20.42
9.26000	10.46	28.90	10.00000	9.51	26.51	10.80000	8.72	24.55
18.50000	10.51	35.85	20.10000	9.55	32.90	21.60000	8.76	30.39
37.00000	10.51	42.97	40.20000	9.55	39.39	43.30000	8.76	36.37
55.50000	10.51	47.18	60.30000	9.55	43.22	65.00000	8.76	39.89
92.60000	10.51	52.52	100.00000	9.55	48.02	108.00000	8.76	44.31
129.00000	10.51	55.99	140.00000	9.55	51.22	151.00000	8.76	47.23
185.00000	10.51	59.76	201.00000	9.55	54.66	216.00000	8.75	50.35

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN C
 Z= 6 A= 12.011

TD=52.0 EV ET=0.231924 MEV			TD=56.0 EV ET=0.246830 MEV			TD=60.0 EV ET=0.261448 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.23400	0.08	0.08	0.24900	0.06	0.06	0.26400	0.06	0.06
0.23600	0.15	0.15	0.25100	0.12	0.12	0.26600	0.11	0.11
0.24100	0.32	0.32	0.25600	0.26	0.26	0.27100	0.23	0.23
0.24800	0.54	0.54	0.26400	0.47	0.47	0.27900	0.40	0.40
0.25700	0.80	0.80	0.27300	0.69	0.69	0.29000	0.62	0.62
0.26900	1.11	1.11	0.28600	0.97	0.97	0.30300	0.86	0.86
0.28200	1.41	1.41	0.30100	1.25	1.25	0.31800	1.10	1.10
0.30100	1.78	1.78	0.32000	1.57	1.57	0.33900	1.39	1.39
0.32400	2.17	2.17	0.34500	1.92	1.92	0.36600	1.72	1.72
0.35900	2.64	2.64	0.38200	2.35	2.35	0.40500	2.11	2.11
0.40500	3.13	3.13	0.43100	2.80	2.80	0.45700	2.54	2.54
0.46300	3.62	3.64	0.49300	3.26	3.29	0.52200	2.97	2.99
0.53300	4.08	4.18	0.56700	3.70	3.79	0.60100	3.39	3.47
0.62600	4.57	4.81	0.66600	4.17	4.40	0.70500	3.83	4.04
0.74200	5.05	5.51	0.78900	4.63	5.06	0.83600	4.28	4.68
0.88100	5.49	6.26	0.93700	5.05	5.77	0.99300	4.69	5.37
1.04000	5.88	7.03	1.11000	5.44	6.52	1.17000	5.05	6.06
1.20000	6.19	7.73	1.28000	5.73	7.19	1.35000	5.33	6.70
1.39000	6.48	8.49	1.48000	6.01	7.91	1.56000	5.59	7.38
1.62000	6.75	9.33	1.72000	6.26	8.69	1.83000	5.85	8.17
1.97000	7.05	10.46	2.09000	6.54	9.75	2.22000	6.11	9.17
2.31000	7.25	11.42	2.46000	6.74	10.69	2.61000	6.29	10.05
3.47000	7.64	14.06	3.70000	7.10	13.18	3.92000	6.63	12.40
4.63000	7.81	16.06	4.93000	7.26	15.05	5.22000	6.78	14.16
6.95000	7.96	19.01	7.40000	7.40	17.81	7.84000	6.91	16.75
11.50000	8.05	22.82	12.30000	7.48	21.39	13.00000	6.98	20.10
23.10000	8.08	28.26	24.60000	7.51	26.43	26.10000	7.00	24.83
46.30000	8.08	33.79	49.30000	7.51	31.56	52.20000	7.01	29.61
69.50000	8.08	37.04	74.00000	7.51	34.58	78.40000	7.01	32.43
115.00000	8.08	41.08	123.00000	7.50	38.37	130.00000	7.00	35.96
162.00000	8.08	43.84	172.00000	7.50	40.88	183.00000	7.00	38.34

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN C
 Z= 6 A= 12.011

TD=64.0 EV ET=0.275795 MEV			TD=68.0 EV ET=0.289885 MEV			TD=72.0 EV ET=0.303732 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.27800	0.05	0.05	0.29200	0.04	0.04	0.30600	0.03	0.03
0.28100	0.11	0.11	0.29500	0.09	0.09	0.30900	0.08	0.08
0.28600	0.21	0.21	0.30100	0.19	0.19	0.31500	0.17	0.17
0.29500	0.37	0.37	0.31000	0.33	0.33	0.32400	0.29	0.29
0.30600	0.56	0.56	0.32100	0.49	0.49	0.33700	0.45	0.45
0.31900	0.76	0.76	0.33600	0.69	0.69	0.35200	0.62	0.62
0.33600	0.99	0.99	0.35300	0.89	0.89	0.37000	0.81	0.81
0.35800	1.26	1.26	0.37600	1.13	1.13	0.39400	1.03	1.03
0.38600	1.55	1.55	0.40500	1.40	1.40	0.42500	1.28	1.28
0.42700	1.91	1.91	0.44900	1.75	1.75	0.47000	1.60	1.60
0.48200	2.31	2.31	0.50700	2.12	2.12	0.53100	1.96	1.96
0.55100	2.72	2.74	0.57900	2.51	2.53	0.60700	2.33	2.35
0.63400	3.12	3.20	0.66600	2.89	2.97	0.69800	2.70	2.77
0.74400	3.55	3.75	0.78200	3.31	3.49	0.82000	3.10	3.27
0.88200	3.98	4.36	0.92700	3.72	4.08	0.97100	3.49	3.84
1.04000	4.36	4.99	1.10000	4.10	4.71	1.15000	3.85	4.43
1.24000	4.73	5.70	1.30000	4.43	5.36	1.36300	4.18	5.06
1.43000	5.00	6.31	1.50000	4.70	5.94	1.57000	4.43	5.62
1.65000	5.24	6.95	1.73000	4.93	6.56	1.82900	4.66	6.23
1.93000	5.48	7.69	2.02000	5.16	7.26	2.12000	4.87	6.89
2.34000	5.73	8.65	2.46000	5.40	8.19	2.58000	5.10	7.78
2.75000	5.90	9.48	2.89000	5.56	8.98	3.03000	5.26	8.53
4.13000	6.22	11.71	4.34000	5.86	11.10	4.55000	5.54	10.55
5.51000	6.36	13.38	5.79000	5.99	12.68	6.07000	5.66	12.05
8.27000	6.48	15.82	8.69000	6.10	14.99	9.11000	5.76	14.24
13.70000	6.54	18.96	14.40000	6.16	17.95	15.10000	5.82	17.05
27.50000	6.57	23.40	28.90000	6.18	22.14	30.30000	5.84	21.01
55.10000	6.57	27.90	57.90000	6.18	26.37	60.70000	5.84	25.01
82.70000	6.57	30.54	86.90000	6.18	28.86	91.10000	5.84	27.37
137.00000	6.57	33.84	144.00000	6.18	31.97	151.00000	5.84	30.30
193.00000	6.57	36.08	202.00000	6.18	34.06	212.00000	5.84	32.28

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN C
 Z= 6 A= 12.011

TD=76.0 EV ET=0.317346 MEV			TD=80.0 EV ET=0.330741 MEV			TD=84.0 EV ET=0.343926 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.32000	0.03	0.03	0.33400	0.04	0.04	0.34700	0.03	0.03
0.32300	0.07	0.07	0.33700	0.07	0.07	0.35000	0.06	0.06
0.33000	0.16	0.16	0.34300	0.14	0.14	0.35700	0.13	0.13
0.33900	0.27	0.27	0.35300	0.24	0.24	0.36800	0.23	0.23
0.35200	0.41	0.41	0.36700	0.37	0.37	0.38100	0.34	0.34
0.36800	0.57	0.57	0.38300	0.52	0.52	0.39800	0.47	0.47
0.38700	0.74	0.74	0.40300	0.68	0.68	0.41900	0.63	0.63
0.41200	0.95	0.95	0.42900	0.87	0.87	0.44700	0.81	0.81
0.44400	1.18	1.18	0.46300	1.09	1.09	0.48100	1.01	1.01
0.49100	1.48	1.48	0.51200	1.37	1.37	0.53300	1.28	1.28
0.55500	1.82	1.82	0.57800	1.69	1.70	0.60100	1.59	1.59
0.63400	2.17	2.19	0.66100	2.04	2.05	0.68700	1.91	1.93
0.72900	2.52	2.59	0.76000	2.38	2.44	0.79100	2.24	2.31
0.85600	2.91	3.08	0.89300	2.75	2.91	0.92800	2.60	2.76
1.01000	3.28	3.61	1.05000	3.10	3.41	1.10000	2.96	3.26
1.20000	3.64	4.19	1.25000	3.45	3.98	1.30000	3.28	3.79
1.42000	3.95	4.80	1.48000	3.75	4.57	1.54000	3.58	4.36
1.65000	4.21	5.37	1.71000	3.99	5.09	1.78000	3.80	4.87
1.90000	4.42	5.93	1.98000	4.20	5.65	2.06000	4.00	5.41
2.22000	4.62	6.57	2.31000	4.39	6.26	2.40000	4.19	5.99
2.69000	4.84	7.40	2.81000	4.60	7.08	2.92000	4.39	6.77
3.17000	4.99	8.14	3.30000	4.74	7.77	3.43000	4.52	7.44
4.76000	5.25	10.06	4.96000	4.99	9.62	5.15000	4.76	9.20
6.34000	5.37	11.49	6.61000	5.10	10.98	6.87000	4.86	10.51
9.52000	5.46	13.57	9.92000	5.19	12.96	10.30000	4.94	12.40
15.80000	5.51	16.25	16.50000	5.24	15.52	17.10000	4.99	14.83
31.70000	5.53	20.00	33.00000	5.25	19.07	34.30000	5.00	18.23
63.40000	5.53	23.79	66.10000	5.25	22.68	68.70000	5.00	21.67
95.20000	5.53	26.02	99.20000	5.25	24.80	103.00000	5.00	23.68
158.00000	5.53	28.81	165.00000	5.25	27.46	171.00000	5.00	26.21

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN C
 Z= 6 A= 12.011

TD=88.0 EV ET=0.356911 MEV			TD=92.0 EV ET=0.369704 MEV			TD=96.0 EV ET=0.382314 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.36000	0.03	0.03	0.37300	0.03	0.03	0.38600	0.03	0.03
0.36400	0.06	0.06	0.37700	0.06	0.06	0.38900	0.05	0.05
0.37100	0.12	0.12	0.38400	0.11	0.11	0.39700	0.10	0.10
0.38100	0.20	0.20	0.39500	0.19	0.19	0.40900	0.18	0.18
0.39600	0.32	0.32	0.41000	0.29	0.29	0.42400	0.27	0.27
0.41400	0.44	0.44	0.42800	0.41	0.41	0.44300	0.38	0.38
0.43500	0.58	0.58	0.45100	0.54	0.54	0.46600	0.50	0.50
0.46300	0.75	0.75	0.48000	0.70	0.70	0.49700	0.66	0.66
0.49900	0.94	0.94	0.51700	0.88	0.88	0.53500	0.83	0.83
0.55300	1.20	1.20	0.57300	1.13	1.13	0.59200	1.06	1.06
0.62400	1.49	1.49	0.64600	1.41	1.41	0.66900	1.34	1.34
0.71300	1.81	1.82	0.73900	1.71	1.73	0.76400	1.63	1.64
0.82000	2.12	2.18	0.85000	2.02	2.08	0.87900	1.92	1.98
0.96300	2.47	2.62	0.99800	2.36	2.50	1.03000	2.25	2.38
1.14000	2.81	3.11	1.18000	2.69	2.97	1.22000	2.57	2.84
1.35000	3.13	3.62	1.40000	2.99	3.47	1.45000	2.87	3.34
1.60000	3.42	4.17	1.66000	3.27	4.01	1.72000	3.14	3.85
1.85000	3.63	4.67	1.92000	3.48	4.49	1.98000	3.33	4.30
2.14000	3.83	5.18	2.21000	3.66	4.97	2.29000	3.51	4.78
2.49000	4.00	5.74	2.58000	3.83	5.52	2.67000	3.68	5.31
3.03000	4.19	6.50	3.14000	4.01	6.24	3.24000	3.85	6.00
3.56000	4.32	7.14	3.69000	4.14	6.86	3.82000	3.97	6.61
5.35000	4.55	8.83	5.54000	4.35	8.49	5.73000	4.17	8.18
7.13000	4.64	10.08	7.39000	4.44	9.69	7.64000	4.26	9.33
10.70000	4.72	11.90	11.00000	4.52	11.40	11.40000	4.33	10.98
17.80000	4.76	14.23	18.40000	4.56	13.66	19.10000	4.37	13.15
35.60000	4.78	17.47	36.90000	4.57	16.77	38.20000	4.38	16.13
71.30000	4.78	20.75	73.90000	4.57	19.91	76.40000	4.38	19.13
107.00000	4.78	22.68	110.00000	4.57	21.71	114.00000	4.38	20.87
178.00000	4.78	25.10	184.00000	4.57	24.06	191.00000	4.38	23.12

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD= 4.0 EV ET=0.028371 MEV			TD= 8.0 EV ET=0.055322 MEV			TD=12.0 EV ET=0.081048 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.02860	10.08	10.08	0.05580	2.76	2.76	0.08180	1.34	1.34
0.02890	22.81	22.81	0.05640	6.09	6.09	0.08260	2.72	2.72
0.02950	46.76	46.76	0.05750	11.86	11.86	0.08420	5.33	5.33
0.03030	75.83	75.83	0.05910	19.53	19.53	0.08670	9.06	9.06
0.03140	111.08	111.08	0.06140	29.23	29.23	0.08990	13.27	13.27
0.03290	151.69	151.69	0.06410	38.93	38.93	0.09400	17.90	17.90
0.03460	189.20	189.20	0.06740	48.74	48.74	0.09880	22.41	22.41
0.03680	227.26	227.26	0.07190	59.29	59.29	0.10500	27.10	27.10
0.03970	263.92	263.92	0.07740	68.88	68.88	0.11300	31.73	31.73
0.04390	298.35	298.35	0.08570	78.62	78.62	0.12500	36.57	36.57
0.04960	323.32	323.32	0.09680	86.14	86.14	0.14100	40.59	40.59
0.05670	335.28	335.38	0.11000	90.52	90.59	0.16200	43.50	43.58
0.06520	335.96	339.71	0.12700	92.47	93.73	0.18600	45.15	45.85
0.07660	327.19	339.30	0.14900	92.29	95.98	0.21800	46.06	48.01
0.09070	311.70	334.60	0.17700	90.51	97.47	0.25900	46.36	50.02
0.10700	293.60	327.39	0.21000	87.96	98.43	0.30700	46.30	51.89
0.12700	273.97	318.50	0.24800	85.24	99.22	0.36400	46.10	53.79
0.14700	257.62	310.53	0.28700	82.90	99.99	0.42100	45.92	55.55
0.17000	242.29	302.80	0.33100	80.79	100.94	0.48600	45.77	57.46
0.19800	227.51	295.29	0.38700	78.73	102.34	0.56700	45.68	59.75
0.24100	210.68	287.03	0.47000	76.59	104.71	0.68800	45.65	63.05
0.28300	198.80	281.79	0.55300	75.14	107.34	0.81000	45.69	66.23
0.42500	175.77	275.77	0.82900	72.73	116.71	1.21000	45.99	75.70
0.56700	164.59	278.35	1.10000	71.80	125.72	1.62000	46.26	84.01
0.85100	154.20	291.75	1.65000	71.11	142.01	2.43000	46.59	97.36
1.41000	147.13	323.12	2.76000	70.77	167.54	4.05000	46.84	116.56
2.83000	142.95	387.79	5.53000	70.55	208.19	8.10000	46.92	145.43
5.67000	141.35	468.51	11.00000	70.36	252.49	16.20000	46.86	176.12
8.51000	140.89	520.08	16.50000	70.27	279.66	24.30000	46.82	194.53
14.10000	140.57	586.82	27.60000	70.21	314.75	40.50000	46.79	217.98
19.80000	140.45	632.72	38.70000	70.18	338.05	56.70000	46.78	233.54
28.30000	140.38	681.59	55.30000	70.17	362.79	81.00000	46.77	250.08
56.70000	140.31	777.67	110.00000	70.15	410.68	162.00000	46.76	282.34
113.00000	140.29	873.74	221.00000	70.14	459.45	324.00000	46.76	314.67
198.00000	140.27	952.14	387.00000	70.13	498.67	567.00000	46.75	340.80

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD=16.0 EV ET=0.105701 MEV			TD=20.0 EV ET=0.129406 MEV			TD=24.0 EV ET=0.152265 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.10600	0.24	0.24	0.13000	0.25	0.25	0.15300	0.19	0.19
0.10700	1.01	1.01	0.13100	0.66	0.66	0.15500	0.67	0.67
0.10900	2.49	2.49	0.13400	1.83	1.83	0.15800	1.37	1.37
0.11300	5.16	5.16	0.13800	3.26	3.26	0.16200	2.23	2.23
0.11700	7.51	7.51	0.14300	4.85	4.85	0.16900	3.57	3.57
0.12200	10.07	10.07	0.15000	6.77	6.77	0.17600	4.74	4.74
0.12800	12.66	12.66	0.15700	8.40	8.40	0.18500	6.04	6.04
0.13700	15.80	15.80	0.16800	10.51	10.51	0.19700	7.47	7.47
0.14700	18.49	18.49	0.18100	12.45	12.45	0.21300	8.99	8.99
0.16300	21.60	21.60	0.20000	14.55	14.55	0.23600	10.63	10.63
0.18400	24.27	24.27	0.22600	16.53	16.53	0.26600	12.17	12.17
0.21100	26.36	26.43	0.25800	18.14	18.20	0.30400	13.53	13.58
0.24300	27.83	28.32	0.29700	19.43	19.80	0.35000	14.69	14.99
0.28500	28.95	30.25	0.34900	20.58	21.54	0.41100	15.79	16.55
0.33800	29.77	32.19	0.41400	21.55	23.35	0.48700	16.78	18.21
0.40100	30.38	34.14	0.49100	22.38	25.20	0.57800	17.67	19.95
0.47500	30.89	36.16	0.58200	23.11	27.16	0.68500	18.47	21.78
0.54900	31.29	38.01	0.67200	23.69	28.92	0.79100	19.09	23.43
0.63400	31.67	40.00	0.77600	24.23	30.81	0.91300	19.67	25.19
0.73900	32.07	42.30	0.90500	24.78	32.99	1.06000	20.23	27.14
0.89800	32.56	45.55	1.09000	25.38	35.84	1.29000	20.89	29.90
1.05000	32.94	48.42	1.29000	25.87	38.65	1.52000	21.37	32.38
1.58000	33.82	57.05	1.94000	26.84	46.29	2.28000	22.29	39.14
2.11000	34.30	64.10	2.58000	27.32	52.28	3.04000	22.73	44.42
3.17000	34.76	75.13	3.88000	27.76	61.62	4.56000	23.13	52.43
5.28000	35.06	90.38	6.47000	28.03	74.26	7.61000	23.36	63.21
10.50000	35.16	112.51	12.90000	28.11	92.36	15.20000	23.42	78.51
21.10000	35.13	136.02	25.80000	28.09	111.19	30.40000	23.41	94.28
31.70000	35.11	149.98	38.80000	28.08	122.43	45.60000	23.40	103.62
52.80000	35.09	167.63	64.70000	28.07	136.62	76.10000	23.39	115.49
73.90000	35.08	179.32	90.50000	28.06	145.97	106.00000	23.39	123.19
105.00000	35.08	191.56	129.00000	28.06	155.87	152.00000	23.38	131.58
211.00000	35.07	215.95	258.00000	28.06	175.26	304.00000	23.38	147.75

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD=28.0 EV ET=0.174361 MEV			TD=32.0 EV ET=0.195767 MEV			TD=36.0 EV ET=0.216543 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.17600	0.27	0.27	0.19700	0.14	0.14	0.21800	0.12	0.12
0.17700	0.43	0.43	0.19900	0.36	0.36	0.22000	0.28	0.28
0.18100	1.03	1.03	0.20300	0.78	0.78	0.22500	0.66	0.66
0.18600	1.73	1.73	0.20900	1.37	1.37	0.23100	1.08	1.08
0.19300	2.62	2.62	0.21700	2.07	2.07	0.24000	1.66	1.66
0.20200	3.61	3.61	0.22700	2.85	2.85	0.25100	2.29	2.29
0.21200	4.57	4.57	0.23800	3.59	3.59	0.26400	2.94	2.94
0.22600	5.69	5.69	0.25400	4.51	4.51	0.28100	3.67	3.67
0.24400	6.86	6.86	0.27400	5.45	5.45	0.30300	4.47	4.47
0.27000	8.17	8.17	0.30300	6.54	6.54	0.33500	5.39	5.39
0.30500	9.47	9.47	0.34200	7.65	7.65	0.37800	6.37	6.37
0.34800	10.64	10.69	0.39100	8.70	8.75	0.43300	7.33	7.38
0.40100	11.70	11.95	0.45000	9.67	9.89	0.49800	8.22	8.41
0.47000	12.73	13.36	0.52800	10.64	11.18	0.58400	9.14	9.61
0.55700	13.70	14.89	0.62600	11.58	12.61	0.69200	10.03	10.94
0.66200	14.60	16.53	0.74300	12.44	14.13	0.82200	10.86	12.36
0.78400	15.39	18.23	0.88000	13.22	15.71	0.97400	11.61	13.85
0.90600	16.02	19.77	1.01000	13.80	17.08	1.12000	12.17	15.15
1.04000	16.58	21.34	1.17000	14.37	18.63	1.29000	12.68	16.53
1.22000	17.16	23.26	1.37000	14.92	20.39	1.51000	13.20	18.16
1.48000	17.78	25.75	1.66000	15.50	22.66	1.84000	13.76	20.32
1.74000	18.23	27.97	1.95000	15.91	24.68	2.16000	14.14	22.17
2.61000	19.08	34.04	2.93000	16.70	30.20	3.24000	14.85	27.19
3.48000	19.48	38.73	3.91000	17.05	34.42	4.33000	15.17	31.04
5.23000	19.83	45.80	5.87000	17.35	40.70	6.49000	15.43	36.67
8.71000	20.02	55.14	9.78000	17.52	48.98	10.80000	15.57	44.08
17.40000	20.07	68.36	19.50000	17.56	60.58	21.60000	15.61	54.48
34.80000	20.06	81.93	39.10000	17.55	72.53	43.30000	15.60	65.12
52.30000	20.05	89.99	58.70000	17.55	79.58	64.90000	15.60	71.37
87.10000	20.05	100.13	97.80000	17.54	88.47	108.00000	15.59	79.26
122.00000	20.04	106.85	137.00000	17.54	94.35	151.00000	15.59	84.46
174.00000	20.04	113.94	195.00000	17.54	100.52	216.00000	15.59	90.02

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD=40.0 EV ET=0.236743 MEV			TD=44.0 EV ET=0.256411 MEV			TD=48.0 EV ET=0.275587 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.23900	0.14	0.14	0.25800	0.08	0.08	0.27800	0.09	0.09
0.24100	0.26	0.26	0.26100	0.21	0.21	0.28100	0.20	0.20
0.24600	0.54	0.54	0.26600	0.44	0.44	0.28600	0.37	0.37
0.25300	0.92	0.92	0.27400	0.77	0.77	0.29400	0.64	0.64
0.26200	1.36	1.36	0.28400	1.15	1.15	0.30500	0.97	0.97
0.27400	1.88	1.88	0.29700	1.59	1.59	0.31900	1.36	1.36
0.28800	2.42	2.42	0.31200	2.05	2.05	0.33600	1.78	1.78
0.30700	3.06	3.06	0.33300	2.62	2.62	0.35800	2.26	2.26
0.33100	3.74	3.74	0.35800	3.19	3.19	0.38500	2.78	2.78
0.36600	4.56	4.56	0.39700	3.94	3.94	0.42700	3.45	3.45
0.41400	5.45	5.45	0.44800	4.73	4.73	0.48200	4.18	4.18
0.47300	6.31	6.35	0.51200	5.53	5.56	0.55100	4.92	4.96
0.54400	7.13	7.31	0.58900	6.30	6.46	0.63300	5.64	5.78
0.63900	8.01	8.44	0.69200	7.13	7.52	0.74400	6.43	6.78
0.75700	8.86	9.68	0.82000	7.93	8.69	0.88100	7.19	7.88
0.89900	9.65	11.01	0.97400	8.69	9.94	1.04000	7.88	9.03
1.06000	10.34	12.37	1.15000	9.35	11.23	1.24000	8.54	10.31
1.23000	10.90	13.66	1.33000	9.87	12.42	1.43000	9.03	11.41
1.42000	11.40	14.98	1.53000	10.32	13.62	1.65000	9.46	12.57
1.65000	11.86	16.42	1.79000	10.77	15.03	1.92000	9.87	13.85
2.01000	12.37	18.43	2.17000	11.24	16.86	2.34000	10.32	15.60
2.36000	12.73	20.14	2.56000	11.58	18.49	2.75000	10.62	17.10
3.55000	13.38	24.79	3.84000	12.17	22.77	4.13000	11.17	21.09
4.73000	13.66	28.27	5.12000	12.43	25.98	5.51000	11.40	24.07
7.10000	13.89	33.42	7.69000	12.64	30.71	8.26000	11.59	28.41
11.80000	14.02	40.11	12.80000	12.75	36.84	13.70000	11.68	34.02
23.60000	14.05	49.50	25.60000	12.77	45.41	27.50000	11.71	41.94
47.30000	14.04	59.10	51.20000	12.76	54.12	55.10000	11.70	49.95
71.00000	14.04	64.74	76.90000	12.76	59.26	82.60000	11.70	54.64
118.00000	14.03	71.83	128.00000	12.76	65.72	137.00000	11.69	60.53
165.00000	14.03	76.51	179.00000	12.76	69.99	192.00000	11.69	64.46

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
 Z= 8 A= 16.000

TD=52.0 EV			TD=56.0 EV			TD=60.0 EV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.29700	0.08	0.08	0.31500	0.06	0.06	0.33300	0.05	0.05
0.30000	0.17	0.17	0.31800	0.13	0.13	0.33700	0.13	0.13
0.30600	0.34	0.34	0.32500	0.29	0.29	0.34300	0.25	0.25
0.31400	0.55	0.55	0.33400	0.49	0.49	0.35300	0.43	0.43
0.32600	0.85	0.85	0.34600	0.74	0.74	0.36600	0.66	0.66
0.34100	1.19	1.19	0.36200	1.04	1.04	0.38300	0.93	0.93
0.35900	1.56	1.56	0.38100	1.37	1.37	0.40300	1.22	1.22
0.38200	1.98	1.98	0.40600	1.76	1.76	0.42900	1.57	1.57
0.41200	2.46	2.46	0.43700	2.18	2.18	0.46200	1.96	1.96
0.45600	3.06	3.06	0.48400	2.74	2.74	0.51200	2.48	2.48
0.51500	3.73	3.73	0.54700	3.37	3.37	0.57800	3.07	3.07
0.58800	4.42	4.46	0.62500	4.02	4.06	0.66000	3.68	3.71
0.67600	5.11	5.24	0.71800	4.67	4.79	0.76000	4.30	4.42
0.79400	5.85	6.18	0.84400	5.38	5.69	0.89200	4.97	5.27
0.94100	6.58	7.23	1.00000	6.07	6.68	1.05000	5.61	6.17
1.11000	7.23	8.31	1.18000	6.71	7.71	1.25000	6.24	7.20
1.32000	7.86	9.50	1.40000	7.28	8.83	1.48000	6.79	8.26
1.53000	8.33	10.58	1.62000	7.72	9.84	1.71000	7.20	9.21
1.76000	8.73	11.65	1.87000	8.11	10.88	1.98000	7.58	10.21
2.06000	9.13	12.90	2.18000	8.47	12.03	2.31000	7.92	11.31
2.50000	9.54	14.52	2.65000	8.86	13.56	2.80000	8.28	12.75
2.94000	9.82	15.93	3.12000	9.13	14.90	3.30000	8.53	14.01
4.41000	10.32	19.64	4.68000	9.59	18.39	4.95000	8.96	17.30
5.88000	10.53	22.41	6.25000	9.78	20.99	6.60000	9.14	19.73
8.82000	10.70	26.46	9.37000	9.94	24.76	9.91000	9.28	23.28
14.70000	10.79	31.70	15.60000	10.02	29.64	16.50000	9.35	27.85
29.40000	10.81	38.99	31.20000	10.03	36.41	33.00000	9.36	34.18
58.80000	10.80	46.37	62.50000	10.03	43.29	66.00000	9.36	40.59
88.20000	10.80	50.71	93.70000	10.03	47.32	99.10000	9.36	44.36
147.00000	10.79	56.20	156.00000	10.02	52.41	165.00000	9.35	49.11

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
 Z= 8 A= 16.000

TD=64.0 EV			TD=68.0 EV			TD=72.0 EV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.35100	0.05	0.05	0.36800	0.04	0.04	0.38500	0.04	0.04
0.35400	0.10	0.10	0.37200	0.10	0.10	0.38900	0.09	0.09
0.36100	0.22	0.22	0.37900	0.20	0.20	0.39700	0.18	0.18
0.37200	0.39	0.39	0.39000	0.34	0.34	0.40800	0.31	0.31
0.38600	0.60	0.60	0.40500	0.54	0.54	0.42400	0.49	0.49
0.40300	0.83	0.83	0.42300	0.75	0.75	0.44300	0.68	0.68
0.42400	1.09	1.09	0.44500	0.99	0.99	0.46600	0.91	0.91
0.45200	1.42	1.42	0.47400	1.29	1.29	0.49600	1.18	1.18
0.48700	1.78	1.78	0.51100	1.63	1.63	0.53400	1.49	1.49
0.53900	2.26	2.26	0.56600	2.08	2.08	0.59200	1.92	1.92
0.60900	2.82	2.82	0.63900	2.60	2.60	0.66800	2.41	2.41
0.69600	3.40	3.43	0.73000	3.15	3.18	0.76400	2.95	2.98
0.80000	3.99	4.10	0.83900	3.72	3.82	0.87800	3.48	3.58
0.93900	4.63	4.90	0.98600	4.33	4.60	1.03000	4.07	4.32
1.11000	5.26	5.80	1.16000	4.92	5.42	1.22000	4.65	5.15
1.32000	5.85	6.77	1.38000	5.49	6.36	1.45000	5.19	6.04
1.56000	6.36	7.77	1.64000	5.99	7.35	1.71000	5.66	6.94
1.80000	6.76	8.67	1.89000	6.36	8.19	1.98000	6.02	7.78
2.08000	7.11	9.61	2.19000	6.70	9.11	2.29000	6.34	8.65
2.43000	7.43	10.66	2.55000	7.01	10.10	2.67000	6.63	9.59
2.95000	7.77	12.03	3.10000	7.33	11.41	3.24000	6.93	10.83
3.48000	8.01	13.24	3.65000	7.55	12.54	3.82000	7.13	11.92
5.22000	8.40	16.35	5.47000	7.92	15.48	5.73000	7.48	14.72
6.96000	8.57	18.64	7.30000	8.07	17.66	7.64000	7.63	16.78
10.40000	8.70	21.94	10.90000	8.19	20.77	11.40000	7.74	19.72
17.40000	8.77	26.28	18.20000	8.25	24.84	19.10000	7.79	23.60
34.80000	8.78	32.22	36.50000	8.26	30.46	38.20000	7.80	28.90
69.60000	8.77	38.23	73.00000	8.26	36.12	76.40000	7.80	34.24
104.00000	8.77	41.73	109.00000	8.26	39.41	114.00000	7.80	37.35
174.00000	8.77	46.22	182.00000	8.25	43.63	191.00000	7.80	41.35

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD=76.0 EV ET=0.398570 MEV			TD=80.0 EV ET=0.414806 MEV			TD=84.0 EV ET=0.430763 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.40200	0.04	0.04	0.41800	0.03	0.03	0.43500	0.04	0.04
0.40600	0.08	0.08	0.42300	0.08	0.08	0.43900	0.07	0.07
0.41400	0.16	0.16	0.43100	0.15	0.15	0.44700	0.13	0.13
0.42600	0.29	0.29	0.44300	0.26	0.26	0.46000	0.24	0.24
0.44200	0.44	0.44	0.46000	0.40	0.40	0.47800	0.37	0.37
0.46200	0.62	0.62	0.48100	0.57	0.57	0.49900	0.53	0.53
0.48600	0.83	0.83	0.50600	0.77	0.77	0.52500	0.71	0.71
0.51800	1.09	1.09	0.53900	1.01	1.01	0.55900	0.93	0.93
0.55700	1.38	1.38	0.58000	1.28	1.28	0.60300	1.20	1.20
0.61700	1.78	1.78	0.64200	1.66	1.66	0.66700	1.56	1.56
0.69700	2.25	2.25	0.72500	2.11	2.11	0.75300	1.99	1.99
0.79700	2.76	2.79	0.82900	2.60	2.63	0.86100	2.46	2.48
0.91600	3.28	3.37	0.95400	3.10	3.19	0.99000	2.93	3.02
1.07000	3.83	4.06	1.11000	3.61	3.84	1.16000	3.45	3.67
1.27000	4.39	4.86	1.32000	4.16	4.62	1.37000	3.96	4.40
1.51000	4.91	5.72	1.57000	4.67	5.44	1.63000	4.45	5.20
1.79000	5.37	6.62	1.86000	5.10	6.30	1.93000	4.86	6.02
2.07000	5.71	7.41	2.15000	5.43	7.06	2.23000	5.18	6.75
2.39000	6.01	8.23	2.48000	5.71	7.84	2.58000	5.45	7.51
2.78000	6.28	9.13	2.90000	5.98	8.73	3.01000	5.70	8.35
3.38000	6.57	10.32	3.52000	6.25	9.86	3.66000	5.96	9.45
3.98000	6.77	11.35	4.14000	6.43	10.84	4.30000	6.13	10.38
5.97000	7.09	14.02	6.22000	6.74	13.40	6.46000	6.43	12.83
7.97000	7.23	15.99	8.29000	6.87	15.27	8.61000	6.55	14.61
11.90000	7.33	18.79	12.40000	6.97	17.94	12.90000	6.64	17.18
19.90000	7.38	22.45	20.70000	7.01	21.42	21.50000	6.68	20.48
39.80000	7.39	27.47	41.40000	7.02	26.19	43.00000	6.69	25.03
79.70000	7.39	32.55	82.90000	7.02	31.02	86.10000	6.68	29.63
119.00000	7.39	35.50	124.00000	7.02	33.83	129.00000	6.68	32.32
199.00000	7.38	39.28	207.00000	7.02	37.41	215.00000	6.68	35.72

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN O
Z= 8 A= 16.000

TD=88.0 EV ET=0.446454 MEV			TD=92.0 EV ET=0.461891 MEV			TD=96.0 EV ET=0.477087 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.45000	0.03	0.03	0.46600	0.03	0.03	0.48100	0.02	0.02
0.45500	0.06	0.06	0.47100	0.06	0.06	0.48600	0.05	0.05
0.46400	0.13	0.13	0.48000	0.12	0.12	0.49600	0.11	0.11
0.47700	0.22	0.22	0.49400	0.21	0.21	0.51000	0.19	0.19
0.49500	0.34	0.34	0.51200	0.32	0.32	0.52900	0.30	0.30
0.51700	0.49	0.49	0.53500	0.45	0.45	0.55300	0.43	0.43
0.54400	0.66	0.66	0.56300	0.61	0.61	0.58200	0.58	0.58
0.58000	0.87	0.87	0.60000	0.81	0.81	0.62000	0.77	0.77
0.62500	1.12	1.12	0.64600	1.05	1.05	0.66700	0.99	0.99
0.69200	1.47	1.47	0.71500	1.38	1.38	0.73900	1.31	1.31
0.78100	1.88	1.88	0.80800	1.78	1.78	0.83400	1.69	1.69
0.89200	2.33	2.35	0.92300	2.21	2.24	0.95400	2.11	2.14
1.02000	2.77	2.85	1.06000	2.65	2.74	1.09000	2.52	2.60
1.20000	3.28	3.50	1.24000	3.13	3.34	1.28000	3.00	3.19
1.42000	3.78	4.20	1.47000	3.62	4.03	1.52000	3.47	3.87
1.69000	4.25	4.97	1.75000	4.07	4.77	1.81000	3.90	4.59
2.00000	4.65	5.76	2.07000	4.45	5.53	2.14000	4.27	5.32
2.32000	4.95	6.49	2.40000	4.74	6.23	2.48000	4.55	5.99
2.67000	5.21	7.20	2.77000	4.99	6.93	2.86000	4.79	6.67
3.12000	5.45	8.01	3.23000	5.22	7.70	3.33000	5.01	7.40
3.79000	5.70	9.06	3.92000	5.46	8.71	4.05000	5.23	8.38
4.46000	5.86	9.97	4.61000	5.61	9.57	4.77000	5.38	9.23
6.69000	6.14	12.30	6.92000	5.87	11.82	7.15000	5.63	11.38
8.92000	6.25	14.01	9.23000	5.98	13.46	9.54000	5.73	12.96
13.30000	6.34	16.44	13.80000	6.06	15.80	14.30000	5.81	15.22
22.30000	6.38	19.63	23.00000	6.10	18.83	23.80000	5.85	18.11
44.60000	6.38	23.98	46.10000	6.11	23.00	47.70000	5.85	22.11
89.20000	6.38	28.36	92.30000	6.10	27.20	95.40000	5.85	26.13
133.00000	6.38	30.89	138.00000	6.10	29.64	143.00000	5.85	28.49
223.00000	6.38	34.18	230.00000	6.10	32.75	238.00000	5.85	31.46

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
Z=12 A= 24.320

TD= 4.0 EV ET=0.042549 MEV			TD= 8.0 EV ET=0.082054 MEV			TD=12.0 EV ET=0.119086 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.04290	10.24	10.24	0.08280	2.91	2.91	0.12000	1.13	1.13
0.04340	24.29	24.29	0.08360	5.93	5.93	0.12100	2.32	2.32
0.04420	45.51	45.51	0.08530	12.00	12.00	0.12300	4.62	4.62
0.04550	76.96	76.96	0.08770	19.83	19.83	0.12700	8.83	8.83
0.04720	113.08	113.08	0.09100	29.38	29.38	0.13200	13.49	13.49
0.04930	151.07	151.07	0.09510	39.56	39.56	0.13800	18.31	18.31
0.05190	189.79	189.79	0.10000	49.72	49.72	0.14500	23.07	23.07
0.05530	229.55	229.55	0.10600	59.80	59.80	0.15400	28.12	28.12
0.05950	265.93	265.93	0.11400	70.19	70.19	0.16600	33.42	33.42
0.06590	302.81	302.81	0.12700	81.92	81.92	0.18400	39.23	39.23
0.07440	330.28	330.28	0.14300	90.88	90.88	0.20800	44.48	44.48
0.08500	345.58	345.78	0.16400	97.55	97.72	0.23800	48.71	48.86
0.09780	350.10	354.48	0.18800	101.47	103.03	0.27300	51.89	52.82
0.11400	346.27	359.15	0.22100	103.86	108.26	0.32100	54.68	57.16
0.13600	335.26	360.35	0.26200	104.80	113.02	0.38100	56.92	61.59
0.16100	321.49	359.01	0.31100	104.89	117.53	0.45200	58.73	66.06
0.19100	306.54	356.55	0.36900	104.61	122.10	0.53500	60.27	70.68
0.22100	293.99	354.38	0.42600	104.31	126.20	0.61900	61.48	74.94
0.25500	282.41	352.70	0.49200	104.04	130.70	0.71400	62.57	79.40
0.29700	271.14	351.82	0.57400	103.85	136.04	0.83300	63.68	84.59
0.36100	258.55	352.60	0.69700	103.76	143.69	1.01000	64.93	91.66
0.42500	249.64	355.24	0.82000	103.80	150.97	1.19000	65.89	98.21
0.63800	233.21	370.96	1.23000	104.21	172.76	1.78000	67.76	116.36
0.85000	225.63	390.42	1.64000	104.56	191.32	2.39000	68.68	131.14
1.27000	218.86	429.05	2.46000	104.93	221.35	3.57000	69.44	153.73
2.12000	214.19	495.47	4.10000	105.06	264.36	5.95000	69.80	184.66
4.25000	211.07	608.43	8.20000	104.76	328.77	11.90000	69.71	229.33
8.50000	209.36	736.90	16.40000	104.35	397.09	23.80000	69.51	275.72
12.70000	208.77	815.41	24.60000	104.19	438.04	35.70000	69.42	303.29
21.20000	208.33	918.04	41.00000	104.07	490.20	59.50000	69.36	338.27
29.70000	208.16	986.52	57.40000	104.02	524.79	83.30000	69.34	361.41
42.50000	208.05	1059.85	82.00000	103.99	561.57	119.00000	69.32	385.99
85.00000	207.93	1202.59	164.00000	103.95	633.26	238.00000	69.29	433.86
170.00000	207.86	1346.01	328.00000	103.92	705.13	476.00000	69.27	481.81

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
Z=12 A= 24.320

TD=16.0 EV ET=0.154059 MEV			TD=20.0 EV ET=0.187283 MEV			TD=24.0 EV ET=0.218997 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.15500	0.52	0.52	0.18900	0.51	0.51	0.22100	0.36	0.36
0.15700	1.58	1.58	0.19100	1.08	1.08	0.22300	0.70	0.70
0.16000	3.10	3.10	0.19400	1.90	1.90	0.22700	1.37	1.37
0.16400	4.99	4.99	0.20000	3.43	3.43	0.23400	2.47	2.47
0.17100	7.94	7.94	0.20700	5.05	5.05	0.24300	3.74	3.74
0.17800	10.52	10.52	0.21700	7.10	7.10	0.25400	5.13	5.13
0.18700	13.39	13.39	0.22800	9.04	9.04	0.26700	6.58	6.58
0.20000	16.83	16.83	0.24300	11.30	11.30	0.28400	8.22	8.22
0.21500	20.01	20.01	0.26200	13.65	13.65	0.30600	10.00	10.00
0.23800	23.76	23.76	0.29000	16.39	16.39	0.33900	12.19	12.19
0.26900	27.40	27.40	0.32700	19.13	19.13	0.38300	14.47	14.47
0.30800	30.62	30.75	0.37400	21.74	21.85	0.43700	16.65	16.75
0.35400	33.32	33.99	0.43000	24.08	24.61	0.50300	18.74	19.17
0.41500	35.89	37.60	0.50500	26.46	27.78	0.59100	20.91	21.99
0.49200	38.24	41.48	0.59900	28.70	31.23	0.70000	22.97	25.06
0.58500	40.34	45.57	0.71100	30.73	34.85	0.83200	24.89	28.35
0.69300	42.19	49.79	0.84200	32.54	38.64	0.98500	26.58	31.76
0.80100	43.62	53.62	0.97300	33.94	42.06	1.13000	27.82	34.68
0.92400	44.92	57.64	1.12000	35.18	45.58	1.31000	29.02	37.99
1.07000	46.13	62.01	1.31000	36.41	49.72	1.53000	30.14	41.64
1.30000	47.54	68.24	1.59000	37.72	55.15	1.86000	31.33	46.49
1.54000	48.59	74.05	1.87000	38.64	59.97	2.18000	32.13	50.63
2.31000	50.47	89.33	2.80000	40.30	72.94	3.28000	33.59	62.03
3.08000	51.32	101.22	3.74000	41.02	82.96	4.37000	34.19	70.57
4.62000	51.99	119.17	5.61000	41.58	97.81	6.56000	34.65	83.23
7.70000	52.30	143.20	9.36000	41.82	117.47	10.90000	34.84	99.70
15.40000	52.24	177.34	18.70000	41.77	145.03	21.80000	34.80	122.87
30.80000	52.10	212.44	37.40000	41.67	173.25	43.70000	34.72	146.54
46.20000	52.05	233.21	56.10000	41.63	189.91	65.60000	34.69	160.48
77.00000	52.01	259.52	93.60000	41.61	211.05	109.00000	34.67	177.96
107.00000	52.00	276.52	131.00000	41.59	224.96	153.00000	34.66	189.66
154.00000	51.98	295.37	187.00000	41.59	239.70	218.00000	34.65	201.89

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
Z=12 A= 24.320

TD=28.0 EV ET=0.249389 MEV			TD=32.0 EV ET=0.278612 MEV			TD=36.0 EV ET=0.306791 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.25100	0.19	0.19	0.28100	0.19	0.19	0.30900	0.13	0.13
0.25400	0.53	0.53	0.28400	0.43	0.43	0.31200	0.31	0.31
0.25900	1.08	1.08	0.28900	0.82	0.82	0.31900	0.70	0.70
0.26600	1.81	1.81	0.29800	1.47	1.47	0.32800	1.18	1.18
0.27600	2.76	2.76	0.30900	2.21	2.21	0.34000	1.78	1.78
0.28900	3.88	3.88	0.32300	3.07	3.07	0.35500	2.47	2.47
0.30400	5.02	5.02	0.33900	3.96	3.96	0.37400	3.27	3.27
0.32400	6.36	6.36	0.36200	5.09	5.09	0.39800	4.18	4.18
0.34900	7.79	7.79	0.39000	6.29	6.29	0.42900	5.22	5.22
0.38600	9.56	9.56	0.43100	7.79	7.79	0.47500	6.56	6.56
0.43600	11.50	11.50	0.48700	9.50	9.50	0.53600	8.06	8.06
0.49800	13.43	13.52	0.55700	11.24	11.32	0.61300	9.63	9.71
0.57300	15.30	15.67	0.64000	12.92	13.25	0.70500	11.19	11.48
0.67300	17.28	18.21	0.75200	14.74	15.56	0.82800	12.87	13.60
0.79800	19.20	21.00	0.89100	16.51	18.11	0.98100	14.51	15.95
0.94700	20.96	23.97	1.05000	18.07	20.71	1.16000	15.98	18.40
1.12000	22.51	27.04	1.25000	19.56	23.63	1.38000	17.35	21.08
1.29000	23.68	29.77	1.44000	20.64	26.12	1.59000	18.34	23.38
1.49000	24.75	32.68	1.67000	21.64	28.85	1.84000	19.24	25.85
1.74000	25.76	35.96	1.95000	22.55	31.83	2.14000	20.04	28.50
2.11000	26.81	40.24	2.36000	23.48	35.66	2.60000	20.90	32.07
2.49000	27.55	44.09	2.78000	24.13	39.08	3.06000	21.48	35.16
3.74000	28.81	54.12	4.17000	25.23	48.03	4.60000	22.46	43.30
4.98000	29.33	61.59	5.57000	25.68	54.74	6.13000	22.84	49.29
7.48000	29.71	72.63	8.35000	26.00	64.46	9.20000	23.12	58.03
12.40000	29.86	86.81	13.90000	26.12	77.06	15.30000	23.22	69.27
24.90000	29.82	106.88	27.80000	26.09	94.59	30.60000	23.18	84.89
49.80000	29.76	127.15	55.70000	26.03	112.40	61.30000	23.14	100.75
74.80000	29.73	139.13	83.50000	26.01	122.84	92.00000	23.12	110.06
124.00000	29.72	154.06	139.00000	26.00	136.02	153.00000	23.11	121.76
174.00000	29.71	164.09	195.00000	25.99	144.79	214.00000	23.11	129.49

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
Z=12 A= 24.320

TD=40.0 EV ET=0.334032 MEV			TD=44.0 EV ET=0.360421 MEV			TD=48.0 EV ET=0.386034 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.33700	0.13	0.13	0.36400	0.12	0.12	0.38900	0.08	0.08
0.34000	0.26	0.26	0.36700	0.23	0.23	0.39300	0.19	0.19
0.34700	0.56	0.56	0.37400	0.46	0.46	0.40100	0.40	0.40
0.35700	0.97	0.97	0.38500	0.81	0.81	0.41300	0.71	0.71
0.37000	1.47	1.47	0.40000	1.27	1.27	0.42800	1.08	1.08
0.38700	2.08	2.08	0.41800	1.78	1.78	0.44700	1.52	1.52
0.40700	2.74	2.74	0.43900	2.34	2.34	0.47000	2.03	2.03
0.43400	3.55	3.55	0.46800	3.05	3.05	0.50100	2.66	2.66
0.46700	4.44	4.44	0.50400	3.85	3.85	0.54000	3.39	3.39
0.51700	5.63	5.63	0.55800	4.92	4.92	0.59800	4.37	4.37
0.58400	7.00	7.00	0.63000	6.17	6.17	0.67500	5.52	5.52
0.66800	8.44	8.52	0.72000	7.50	7.57	0.77200	6.76	6.83
0.76800	9.88	10.15	0.82800	8.84	9.08	0.88700	8.01	8.24
0.90100	11.42	12.10	0.97300	10.30	10.92	1.04000	9.36	9.93
1.06000	12.89	14.18	1.15000	11.70	12.92	1.23000	10.68	11.82
1.26000	14.31	16.52	1.36000	12.98	15.05	1.46000	11.91	13.85
1.50000	15.58	19.02	1.62000	14.17	17.38	1.73000	12.98	15.97
1.73000	16.50	21.16	1.87000	15.02	19.38	2.00000	13.78	17.86
2.00000	17.32	23.42	2.16000	15.77	21.47	2.31300	14.47	19.81
2.33000	18.06	25.89	2.52000	16.46	23.79	2.70000	15.11	21.99
2.83000	18.84	29.16	3.06000	17.16	26.81	3.28000	15.76	24.81
3.34000	19.37	32.05	3.60000	17.63	29.42	3.86000	16.19	27.24
5.01000	20.23	39.43	5.40000	18.41	36.21	5.79000	16.89	33.52
6.68000	20.57	44.89	7.20000	18.71	41.21	7.72000	17.16	38.14
10.00000	20.81	52.77	10.80000	18.93	48.44	11.50000	17.35	44.69
16.70000	20.89	63.01	18.00000	18.99	57.75	19.30000	17.41	53.36
33.40000	20.86	77.10	36.00000	18.96	70.58	38.60000	17.38	65.14
66.80000	20.82	91.35	72.00000	18.93	83.55	77.20000	17.35	77.03
100.00000	20.81	99.68	108.00000	18.92	91.17	115.00000	17.34	83.90
167.00000	20.80	110.30	180.00000	18.91	100.79	193.00000	17.33	92.84

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
 Z=12 A= 24.320

TD=52.0 EV ET=0.410936 MEV			TD=56.0 EV ET=0.435183 MEV			TD=60.0 EV ET=0.458823 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.41500	0.09	0.09	0.43900	0.07	0.07	0.46300	0.06	0.06
0.41900	0.18	0.18	0.44300	0.14	0.14	0.46700	0.12	0.12
0.42700	0.35	0.35	0.45200	0.30	0.30	0.47700	0.28	0.28
0.43900	0.60	0.60	0.46500	0.53	0.53	0.49000	0.47	0.47
0.45600	0.95	0.95	0.48300	0.84	0.84	0.50900	0.74	0.74
0.47600	1.33	1.33	0.50400	1.18	1.18	0.53200	1.06	1.06
0.50100	1.79	1.79	0.53000	1.59	1.59	0.55900	1.43	1.43
0.53400	2.36	2.36	0.56500	2.11	2.11	0.59600	1.91	1.91
0.57500	3.02	3.02	0.60900	2.72	2.72	0.64200	2.47	2.47
0.63600	3.92	3.92	0.67400	3.56	3.56	0.71100	3.26	3.26
0.71900	5.00	5.00	0.76100	4.56	4.56	0.80200	4.19	4.20
0.82100	6.15	6.21	0.87000	5.65	5.71	0.91700	5.22	5.28
0.94500	7.33	7.55	1.00000	6.75	6.96	1.05000	6.24	6.43
1.10000	8.55	9.07	1.17000	7.94	8.45	1.23000	7.37	7.85
1.31000	9.84	10.92	1.39000	9.15	10.17	1.46000	8.51	9.47
1.56000	11.01	12.87	1.65000	10.23	11.98	1.74000	9.55	11.23
1.84000	11.99	14.81	1.95000	11.15	13.83	2.06000	10.43	13.00
2.13000	12.74	16.60	2.26000	11.86	15.53	2.38000	11.09	14.57
2.46000	13.39	18.43	2.61000	12.46	17.25	2.75000	11.65	16.20
2.87000	13.97	20.44	3.04000	13.00	19.13	3.21000	12.16	18.00
3.49000	14.57	23.09	3.69000	13.55	21.59	3.89000	12.66	20.29
4.10000	14.96	25.33	4.35000	13.92	23.73	4.58000	13.00	22.30
6.16000	15.61	31.20	6.52000	14.50	29.19	6.88000	13.55	27.45
8.21000	15.85	35.48	8.70000	14.73	33.20	9.17000	13.75	31.19
12.30000	16.02	41.63	13.00000	14.88	38.90	13.70000	13.89	36.52
20.50000	16.07	49.55	21.70000	14.92	46.28	22.90000	13.93	43.90
41.00000	16.04	60.44	43.50000	14.90	56.44	45.80000	13.90	52.45
82.10000	16.02	71.44	87.00000	14.87	66.65	91.70000	13.88	62.45
123.00000	16.01	77.88	130.00000	14.86	72.58	137.00000	13.87	67.99
205.00000	16.00	86.02	217.00000	14.86	80.17	229.00000	13.86	75.09

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
 Z=12 A= 24.320

TD=64.0 EV ET=0.481901 MEV			TD=68.0 EV ET=0.504455 MEV			TD=72.0 EV ET=0.526518 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.48600	0.05	0.05	0.50900	0.05	0.05	0.53100	0.04	0.04
0.49100	0.12	0.12	0.51400	0.11	0.11	0.53700	0.10	0.10
0.50100	0.25	0.25	0.52400	0.22	0.22	0.54700	0.19	0.19
0.51500	0.42	0.42	0.53900	0.38	0.38	0.56300	0.35	0.35
0.53400	0.66	0.66	0.55900	0.59	0.59	0.58400	0.55	0.55
0.55900	0.96	0.96	0.58500	0.87	0.87	0.61000	0.79	0.79
0.58700	1.29	1.29	0.61500	1.18	1.18	0.64200	1.09	1.09
0.62600	1.74	1.74	0.65500	1.59	1.59	0.68400	1.47	1.47
0.67400	2.26	2.26	0.70600	2.09	2.09	0.73700	1.94	1.94
0.74600	2.99	2.99	0.78100	2.78	2.78	0.81600	2.59	2.59
0.84300	3.89	3.89	0.88200	3.62	3.62	0.92100	3.39	3.40
0.96300	4.86	4.91	1.00000	4.49	4.54	1.05000	4.26	4.31
1.10000	5.81	5.99	1.16000	5.50	5.68	1.21000	5.18	5.35
1.30000	6.94	7.41	1.36000	6.53	6.97	1.42300	6.16	6.59
1.54000	8.01	8.94	1.61000	7.53	8.42	1.68000	7.12	7.97
1.83000	8.98	10.58	1.91000	8.45	9.97	2.00000	8.00	9.48
2.16000	9.79	12.23	2.27000	9.25	11.61	2.36000	8.74	10.98
2.50000	10.41	13.74	2.62000	9.82	13.02	2.73000	9.29	12.35
2.89000	10.94	15.29	3.02000	10.31	14.46	3.15000	9.76	13.73
3.37000	11.42	16.98	3.53000	10.76	16.09	3.68000	10.18	15.27
4.09000	11.89	19.17	4.28000	11.21	18.15	4.47000	10.60	17.25
4.81000	12.20	21.05	5.04000	11.50	19.94	5.26000	10.87	18.95
7.22000	12.71	25.89	7.56000	11.97	24.52	7.89000	11.31	23.28
9.63000	12.90	29.42	10.00000	12.14	27.76	10.50000	11.47	26.42
14.40000	13.02	34.44	15.10000	12.26	32.61	15.70000	11.58	30.90
24.00000	13.06	40.91	25.20000	12.29	38.71	26.30300	11.60	36.72
48.10000	13.03	49.81	50.40000	12.27	47.07	52.60000	11.58	44.62
96.30000	13.01	58.76	100.00000	12.25	55.39	105.00000	11.56	52.54
144.00000	13.00	63.97	151.00000	12.24	60.41	157.00000	11.56	57.17

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
 Z=12 A= 24.320

TD=76.0 EV ET=0.548122 MEV			TD=80.0 EV ET=0.569294 MEV			TD=84.0 EV ET=0.590059 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.55300	0.04	0.04	0.57400	0.03	0.03	0.59500	0.03	0.03
0.55900	0.09	0.09	0.58000	0.08	0.08	0.60100	0.07	0.07
0.57000	0.18	0.18	0.59200	0.17	0.17	0.61300	0.15	0.15
0.58600	0.32	0.32	0.60900	0.29	0.29	0.63100	0.27	0.27
0.60800	0.50	0.50	0.63100	0.46	0.46	0.65400	0.42	0.42
0.63500	0.73	0.73	0.66000	0.67	0.67	0.68400	0.63	0.63
0.66800	1.00	1.00	0.69400	0.93	0.93	0.71900	0.86	0.86
0.71200	1.36	1.36	0.74000	1.27	1.27	0.76700	1.19	1.19
0.76700	1.80	1.80	0.79700	1.69	1.69	0.82600	1.59	1.59
0.84900	2.42	2.42	0.88200	2.28	2.28	0.91400	2.15	2.15
0.95900	3.19	3.19	0.99600	3.01	3.02	1.03000	2.84	2.84
1.09000	4.00	4.05	1.13000	3.78	3.82	1.18000	3.63	3.68
1.26000	4.90	5.06	1.30000	4.61	4.76	1.35000	4.40	4.55
1.47000	5.81	6.21	1.53000	5.53	5.92	1.59000	5.28	5.67
1.75000	6.76	7.58	1.82000	6.43	7.23	1.89000	6.12	6.88
2.08000	7.59	9.01	2.16000	7.22	8.59	2.24000	6.89	8.22
2.46000	8.30	10.46	2.56000	7.90	10.00	2.65000	7.54	9.56
2.85000	8.83	11.78	2.96000	8.40	11.25	3.06000	8.01	10.74
3.28000	9.26	13.08	3.41000	8.81	12.50	3.54000	8.41	11.97
3.83000	9.66	14.54	3.98000	9.19	13.89	4.13000	8.77	13.31
4.65000	10.05	16.43	4.83000	9.56	15.69	5.01000	9.12	15.02
5.48000	10.31	18.05	5.69000	9.81	17.24	5.90000	9.35	16.50
8.22000	10.72	22.18	8.53000	10.19	21.16	8.85000	9.71	20.26
10.90000	10.87	25.12	11.30000	10.33	23.95	11.80000	9.84	22.98
16.40000	10.97	29.44	17.00000	10.42	28.06	17.70000	9.93	26.87
27.40000	10.99	34.93	28.40000	10.44	33.28	29.50000	9.95	31.82
54.80000	10.97	42.42	56.90000	10.42	40.42	59.00000	9.93	38.60
109.00000	10.96	49.89	113.00000	10.41	47.50	118.00000	9.91	45.43
164.00000	10.95	54.34	170.00000	10.40	51.73	177.00000	9.91	49.43

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MG
 Z=12 A= 24.320

TD=88.0 EV ET=0.610440 MEV			TD=92.0 EV ET=0.630457 MEV			TD=96.0 EV ET=0.650128 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.61600	0.03	0.03	0.63600	0.03	0.03	0.65600	0.03	0.03
0.62200	0.07	0.07	0.64300	0.06	0.06	0.66300	0.06	0.06
0.63400	0.14	0.14	0.65500	0.13	0.13	0.67600	0.12	0.12
0.65300	0.25	0.25	0.67400	0.23	0.23	0.69500	0.21	0.21
0.67700	0.39	0.39	0.69900	0.37	0.37	0.72100	0.34	0.34
0.70800	0.58	0.58	0.73100	0.55	0.55	0.75400	0.51	0.51
0.74400	0.81	0.81	0.76900	0.76	0.76	0.79300	0.72	0.72
0.79300	1.12	1.12	0.81900	1.05	1.05	0.84500	1.00	1.00
0.85400	1.49	1.49	0.88200	1.41	1.41	0.91000	1.34	1.34
0.94600	2.04	2.04	0.97700	1.94	1.94	1.00000	1.81	1.81
1.06000	2.67	2.67	1.10000	2.57	2.57	1.13000	2.43	2.43
1.22000	3.45	3.50	1.26000	3.30	3.34	1.30000	3.16	3.20
1.40000	4.21	4.36	1.45000	4.04	4.19	1.49000	3.85	3.99
1.64000	5.03	5.40	1.70000	4.84	5.20	1.75000	4.63	4.98
1.95000	5.86	6.61	2.01000	5.61	6.33	2.08000	5.40	6.10
2.31000	6.58	7.85	2.39000	6.31	7.55	2.47000	6.07	7.28
2.74000	7.20	9.16	2.83000	6.90	8.79	2.92000	6.63	8.47
3.17000	7.66	10.31	3.27000	7.33	9.89	3.38000	7.05	9.54
3.66000	8.04	11.48	3.78000	7.70	11.03	3.90000	7.39	10.61
4.27000	8.38	12.76	4.41000	8.02	12.26	4.55000	7.70	11.80
5.18000	8.71	14.40	5.35000	8.34	13.83	5.52000	8.00	13.32
6.10000	8.93	15.82	6.30000	8.55	15.19	6.50000	8.20	14.62
9.15000	9.27	19.41	9.45000	8.87	18.64	9.75000	8.51	17.94
12.20000	9.40	22.02	12.60000	8.99	21.14	13.00000	8.62	20.33
18.30000	9.48	25.73	18.90000	9.06	24.70	19.50000	8.69	23.75
30.50000	9.49	30.47	31.50000	9.08	29.23	32.50000	8.70	28.09
61.00000	9.48	36.94	63.00000	9.06	35.42	65.00000	8.69	34.03
122.00000	9.46	43.45	126.00000	9.05	41.65	130.00000	8.67	40.00
183.00000	9.46	47.27	189.00000	9.05	45.31	195.00000	8.67	43.51

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AL
 Z=13 A= 26.980

TD= 4.0 EV ET=0.047006 MEV			TD= 8.0 EV ET=0.090349 MEV			TD=12.0 EV ET=0.130772 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.04740	9.99	9.99	0.09120	2.90	2.90	0.13200	1.33	1.33
0.04790	22.23	22.23	0.09210	5.87	5.87	0.13300	2.37	2.37
0.04880	43.05	43.05	0.09390	11.49	11.49	0.13600	5.36	5.36
0.05020	72.63	72.63	0.09660	19.21	19.21	0.13900	8.13	8.13
0.05210	107.94	107.94	0.10000	27.87	27.87	0.14500	13.09	13.09
0.05450	145.81	145.81	0.10400	36.75	36.75	0.15100	17.39	17.39
0.05730	182.23	182.23	0.11000	47.91	47.91	0.15900	22.29	22.29
0.06110	221.17	221.17	0.11700	58.32	58.32	0.17000	27.79	27.79
0.06580	256.88	256.88	0.12600	68.63	68.63	0.18300	32.92	32.92
0.07280	292.50	292.50	0.14000	79.95	79.95	0.20200	38.54	38.54
0.08220	319.81	319.81	0.15800	89.18	89.18	0.22800	43.91	43.91
0.09400	335.65	335.91	0.18000	95.89	96.07	0.26100	48.48	48.65
0.10800	341.15	345.53	0.20700	100.47	102.07	0.30000	52.10	53.07
0.12600	338.83	351.63	0.24300	103.58	108.00	0.35300	55.39	57.96
0.15000	329.96	354.66	0.28900	105.37	113.75	0.41800	58.13	62.94
0.17800	318.07	355.33	0.34300	106.29	119.23	0.49600	60.46	68.08
0.21100	305.21	355.04	0.40600	106.81	124.76	0.58800	62.50	73.46
0.24400	294.37	354.82	0.46900	107.14	129.81	0.68000	64.07	78.34
0.28200	284.21	355.12	0.54200	107.45	135.29	0.78400	65.49	83.43
0.32900	274.37	356.45	0.63200	107.81	141.68	0.91500	66.90	89.34
0.39900	263.67	360.09	0.76700	108.31	150.70	1.11000	68.47	97.36
0.47000	256.02	365.23	0.90300	108.78	159.21	1.30000	69.59	104.43
0.70500	242.16	387.27	1.35000	109.90	183.82	1.96000	71.83	124.93
0.94000	235.82	411.40	1.80000	110.55	204.51	2.61000	72.84	140.88
1.41000	230.14	456.98	2.71000	111.11	237.82	3.92000	73.65	165.46
2.35000	226.20	531.28	4.51000	111.29	284.30	6.53000	73.97	198.65
4.70000	223.30	653.96	9.03000	110.92	353.42	13.00000	73.81	245.97
9.40000	221.54	791.71	18.00000	110.45	425.78	26.10000	73.56	295.51
14.10000	220.92	876.20	27.10000	110.27	469.63	39.20000	73.47	324.82
23.50000	220.45	984.91	45.10000	110.13	524.77	65.30000	73.40	361.85
32.90000	220.28	1057.43	63.20000	110.08	561.52	91.50000	73.37	386.42
47.00000	220.16	1134.79	90.30000	110.04	600.48	130.00000	73.35	412.04
94.00000	220.02	1285.97	180.00000	109.99	676.01	261.00000	73.32	462.99
188.00000	219.94	1437.79	361.00000	109.95	752.37	523.00000	73.29	513.86

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AL
 Z=13 A= 26.980

TD=16.0 EV ET=0.168795 MEV			TD=20.0 EV ET=0.204801 MEV			TD=24.0 EV ET=0.239081 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.17000	0.58	0.58	0.20600	0.31	0.31	0.24100	0.30	0.30
0.17200	1.52	1.52	0.20800	0.83	0.83	0.24300	0.61	0.61
0.17500	2.87	2.87	0.21200	1.81	1.81	0.24800	1.36	1.36
0.18000	4.95	4.95	0.21900	3.39	3.39	0.25500	2.33	2.33
0.18700	7.58	7.58	0.22700	5.04	5.04	0.26500	3.61	3.61
0.19500	10.22	10.22	0.23700	6.87	6.87	0.27700	4.99	4.99
0.20500	13.09	13.09	0.24900	8.81	8.81	0.29100	6.42	6.42
0.21900	16.45	16.45	0.26600	11.15	11.15	0.31000	8.12	8.12
0.23600	19.76	19.76	0.28600	13.45	13.45	0.33400	9.95	9.95
0.26100	23.55	23.55	0.31700	16.33	16.33	0.37000	12.22	12.22
0.29500	27.36	27.36	0.35800	19.27	19.27	0.41800	14.65	14.65
0.33700	30.78	30.92	0.40900	22.07	22.19	0.47900	17.06	17.17
0.38800	33.83	34.54	0.47100	24.69	25.25	0.54900	19.33	19.79
0.45500	36.77	38.56	0.55200	27.34	28.72	0.64500	21.75	22.90
0.54000	39.53	42.95	0.65500	29.90	32.58	0.76500	24.09	26.33
0.64100	41.99	47.51	0.77800	32.23	36.65	0.90800	26.23	29.96
0.75900	44.16	52.27	0.92100	34.28	40.86	1.07000	28.07	33.63
0.87700	45.85	56.57	1.06000	35.83	44.57	1.24000	29.55	37.10
1.01000	47.34	61.02	1.22000	37.22	48.46	1.43000	30.83	40.62
1.18000	48.82	66.21	1.43000	38.62	53.10	1.67000	32.05	44.63
1.43000	50.40	73.05	1.74000	40.08	59.16	2.03000	33.33	49.94
1.68000	51.52	79.15	2.04000	41.06	64.34	2.39000	34.21	54.58
2.53000	53.60	96.04	3.07000	42.84	78.62	3.58000	35.71	66.80
3.37000	54.48	108.90	4.09000	43.57	89.35	4.78000	36.33	76.06
5.06000	55.16	128.28	6.14000	44.12	105.31	7.17000	36.77	89.60
8.43000	55.42	153.97	10.20000	44.32	126.12	11.90000	36.92	107.12
16.80000	55.31	190.11	20.40000	44.23	155.46	23.90000	36.84	131.87
33.70000	55.15	227.51	40.90000	44.10	185.49	47.80000	36.75	156.88
50.60000	55.09	249.57	61.40000	44.06	203.18	71.70000	36.71	171.61
84.30000	55.04	277.42	102.00000	44.03	225.37	119.00000	36.69	190.09
118.00000	55.02	295.82	143.00000	44.02	240.17	167.00000	36.68	202.46
168.00000	55.01	315.17	204.00000	44.00	255.74	239.00000	36.67	215.57

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AL
Z=13 A= 26.980

TD=28.0 EV ET=0.271861 MEV			TD=32.0 EV ET=0.303322 MEV			TD=36.0 EV ET=0.333613 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.27400	0.22	0.22	0.30600	0.19	0.19	0.33600	0.13	0.13
0.27700	0.53	0.53	0.30900	0.41	0.41	0.34000	0.33	0.33
0.28200	1.02	1.02	0.31500	0.82	0.82	0.34600	0.64	0.64
0.29000	1.76	1.76	0.32400	1.41	1.41	0.35600	1.12	1.12
0.30100	2.71	2.71	0.33600	2.14	2.14	0.37000	1.76	1.76
0.31500	3.80	3.80	0.35100	2.99	2.99	0.38600	2.44	2.44
0.33100	4.93	4.93	0.37000	3.96	3.96	0.40700	3.26	3.26
0.35300	6.30	6.30	0.39400	5.07	5.07	0.43300	4.18	4.18
0.38000	7.76	7.76	0.42400	6.30	6.30	0.46700	5.28	5.28
0.42100	9.66	9.66	0.47000	7.93	7.93	0.51700	6.69	6.69
0.47500	11.71	11.71	0.53000	9.72	9.72	0.58300	8.29	8.30
0.54300	13.82	13.92	0.60600	11.61	11.70	0.66700	10.02	10.10
0.62500	15.89	16.29	0.69700	13.48	13.83	0.76700	11.72	12.04
0.73400	18.08	19.08	0.81800	15.48	16.36	0.90000	13.56	14.36
0.86900	20.20	22.14	0.97000	17.44	19.18	1.06000	15.31	16.85
1.03000	22.14	25.40	1.15000	19.23	22.15	1.26000	16.98	19.62
1.22000	23.88	28.82	1.36000	20.80	25.24	1.50000	18.48	22.57
1.41000	25.20	31.89	1.57000	21.99	28.02	1.73000	19.56	25.10
1.63000	26.37	35.11	1.81000	23.03	30.88	2.00000	20.52	27.77
1.90000	27.44	38.66	2.12000	24.03	34.19	2.33000	21.38	30.69
2.31000	28.58	43.39	2.57000	25.03	38.39	2.83000	22.29	34.55
2.71000	29.33	47.42	3.03000	25.71	42.12	3.33000	22.89	37.90
4.07000	30.64	58.25	4.54000	26.84	51.73	5.00000	23.88	46.62
5.43000	31.15	66.32	6.06000	27.28	58.91	6.67000	24.27	53.06
8.15000	31.52	78.10	9.09000	27.59	69.30	10.00000	24.53	62.36
13.50000	31.64	93.18	15.10000	27.68	82.65	16.60000	24.60	74.26
27.10000	31.57	114.47	30.30000	27.62	101.34	33.30000	24.54	90.91
54.30000	31.49	136.01	60.60000	27.55	120.16	66.70000	24.49	107.70
81.50000	31.47	148.67	90.90000	27.53	131.24	100.00000	24.47	117.54
135.00000	31.45	164.46	151.00000	27.51	145.13	166.00000	24.46	129.88
190.00000	31.44	175.16	212.00000	27.51	154.43	233.00000	24.45	138.14

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AL
Z=13 A= 26.980

TD=40.0 EV ET=0.362854 MEV			TD=44.0 EV ET=0.391148 MEV			TD=48.0 EV ET=0.418581 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.36600	0.13	0.13	0.39500	0.12	0.12	0.42200	0.08	0.08
0.37000	0.28	0.28	0.39800	0.21	0.21	0.42600	0.18	0.18
0.37700	0.55	0.55	0.40600	0.45	0.45	0.43500	0.40	0.40
0.38800	0.96	0.96	0.41800	0.80	0.80	0.44700	0.68	0.68
0.40200	1.45	1.45	0.43400	1.25	1.25	0.46400	1.06	1.06
0.42000	2.04	2.04	0.45300	1.75	1.75	0.48500	1.52	1.52
0.44200	2.72	2.72	0.47700	2.35	2.35	0.51000	2.03	2.03
0.47100	3.55	3.55	0.50800	3.07	3.07	0.54400	2.70	2.70
0.50700	4.48	4.48	0.54700	3.91	3.91	0.58600	3.46	3.46
0.56200	5.76	5.76	0.60600	5.06	5.06	0.64800	4.50	4.50
0.63400	7.22	7.23	0.68400	6.40	6.41	0.73200	5.75	5.75
0.72500	8.79	8.88	0.78200	7.85	7.93	0.83700	7.10	7.17
0.83400	10.37	10.67	0.89900	9.31	9.59	0.96200	8.46	8.71
0.97900	12.08	12.81	1.05000	10.86	11.52	1.13000	9.95	10.59
1.16000	13.76	15.21	1.25000	12.46	13.81	1.33000	11.36	12.59
1.37000	15.24	17.68	1.48000	13.86	16.15	1.59000	12.74	14.91
1.63000	16.62	20.40	1.76000	15.13	18.67	1.88000	13.88	17.19
1.88000	17.61	22.74	2.03000	16.04	20.84	2.17000	14.73	19.23
2.17000	18.48	25.17	2.34000	16.83	23.08	2.51000	15.47	21.36
2.53000	19.27	27.87	2.73000	17.56	25.59	2.93000	16.14	23.70
3.08000	20.10	31.45	3.32000	18.30	28.88	3.55000	16.80	26.70
3.62000	20.63	34.49	3.91000	18.79	31.71	4.18000	17.25	29.32
5.44000	21.52	42.45	5.86000	19.58	38.98	6.27000	17.96	36.06
7.25000	21.85	48.28	7.82000	19.88	44.34	8.37000	18.23	41.00
10.80000	22.08	56.57	11.70000	20.07	51.99	12.50000	18.40	48.02
18.10000	22.14	67.52	19.50000	20.12	61.88	20.90000	18.44	57.16
36.20000	22.09	82.46	39.10000	20.08	75.53	41.80000	18.40	69.65
72.50000	22.04	97.59	78.20000	20.03	89.27	83.70000	18.36	82.27
108.00000	22.02	106.31	117.00000	20.02	97.28	125.00000	18.35	89.59
181.00000	22.01	117.63	195.00000	20.01	107.47	209.00000	18.34	98.98

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN AL
 Z=13 A= 26.980

TD=52.0 EV ET=0.445227 MEV			TD=56.0 EV ET=0.471151 MEV			TD=60.0 EV ET=0.496408 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.44900	0.08	0.08	0.47500	0.06	0.06	0.50100	0.06	0.06
0.45400	0.17	0.17	0.48000	0.15	0.15	0.50600	0.13	0.13
0.46300	0.35	0.35	0.48900	0.29	0.29	0.51600	0.27	0.27
0.47600	0.60	0.60	0.50400	0.53	0.53	0.53100	0.47	0.47
0.49400	0.94	0.94	0.52200	0.81	0.81	0.55100	0.74	0.74
0.51600	1.33	1.33	0.54600	1.18	1.18	0.57500	1.06	1.06
0.54300	1.80	1.80	0.57400	1.60	1.60	0.60500	1.44	1.44
0.57800	2.39	2.39	0.61200	2.15	2.15	0.64500	1.94	1.94
0.62300	3.09	3.09	0.65900	2.79	2.79	0.69400	2.53	2.53
0.69000	4.06	4.06	0.73000	3.69	3.69	0.76900	3.38	3.38
0.77900	5.22	5.22	0.82400	4.77	4.78	0.86800	4.40	4.40
0.89000	6.47	6.54	0.94200	5.96	6.02	0.99200	5.52	5.58
1.02000	7.73	7.96	1.08000	7.14	7.36	1.14000	6.65	6.87
1.20000	9.15	9.74	1.27000	8.48	9.04	1.34000	7.91	8.45
1.42000	10.50	11.69	1.50000	9.74	10.86	1.58000	9.10	10.16
1.69000	11.77	13.81	1.79000	10.94	12.89	1.88000	10.21	12.05
2.00000	12.83	15.96	2.12000	11.95	14.93	2.23000	11.16	13.99
2.31000	13.62	17.88	2.44000	12.67	16.69	2.58000	11.86	15.72
2.67000	14.31	19.87	2.82000	13.31	18.56	2.97000	12.44	17.43
3.11000	14.92	22.03	3.29000	13.88	20.61	3.47000	12.98	19.38
3.78000	15.54	24.87	4.00000	14.45	23.27	4.21000	13.51	21.87
4.45000	15.95	27.31	4.71000	14.83	25.56	4.96000	13.86	24.02
6.67000	16.59	33.56	7.06000	15.42	31.40	7.44000	14.40	29.51
8.90000	16.84	38.15	9.42000	15.64	35.68	9.92000	14.60	33.51
13.30000	16.99	44.65	14.10000	15.78	41.76	14.80000	14.73	39.16
22.20000	17.02	53.08	23.50000	15.81	49.58	24.80000	14.75	46.54
44.50000	16.98	64.66	47.10000	15.77	60.34	49.60000	14.72	56.56
89.00000	16.95	76.30	94.20000	15.74	71.15	99.20000	14.69	66.66
133.00000	16.94	83.06	141.00000	15.73	77.46	148.00000	14.68	72.50
222.00000	16.93	91.71	235.00000	15.72	85.47	248.00000	14.67	80.05

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN AL
 Z=13 A= 26.980

TD=64.0 EV ET=0.521047 MEV			TD=68.0 EV ET=0.545111 MEV			TD=72.0 EV ET=0.568639 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.52600	0.06	0.06	0.55000	0.05	0.05	0.57400	0.05	0.05
0.53100	0.12	0.12	0.55600	0.11	0.11	0.58000	0.10	0.10
0.54100	0.23	0.23	0.56600	0.21	0.21	0.59100	0.19	0.19
0.55700	0.42	0.42	0.58300	0.38	0.38	0.60800	0.34	0.34
0.57800	0.66	0.66	0.60500	0.60	0.60	0.63100	0.55	0.55
0.60400	0.96	0.96	0.63200	0.87	0.87	0.65900	0.80	0.80
0.63500	1.31	1.31	0.66500	1.20	1.20	0.69300	1.10	1.10
0.67700	1.77	1.77	0.70800	1.63	1.63	0.73900	1.51	1.51
0.72900	2.33	2.33	0.76300	2.16	2.16	0.79600	2.00	2.00
0.80700	3.12	3.12	0.84400	2.89	2.89	0.88100	2.71	2.71
0.91100	4.08	4.09	0.95300	3.81	3.81	0.99500	3.58	3.58
1.04000	5.13	5.19	1.09000	4.82	4.88	1.13000	4.49	4.55
1.19000	6.18	6.38	1.25000	5.83	6.03	1.30000	5.48	5.67
1.40000	7.38	7.89	1.47000	6.97	7.47	1.53000	6.57	7.04
1.66000	8.54	9.56	1.74000	8.06	9.04	1.81000	7.61	8.54
1.97000	9.58	11.33	2.07000	9.06	10.75	2.16000	8.57	10.20
2.34000	10.49	13.19	2.45000	9.89	12.49	2.55000	9.35	11.83
2.70000	11.13	14.79	2.83000	10.51	14.02	2.95000	9.94	13.31
3.12000	11.69	16.46	3.27000	11.03	15.60	3.41000	10.43	14.82
3.64000	12.19	18.28	3.81000	11.49	17.32	3.98000	10.87	16.47
4.24000	12.68	20.64	4.63000	11.96	19.56	4.83000	11.31	18.58
5.21000	13.01	22.68	5.45000	12.26	21.48	5.68000	11.59	20.39
7.81000	13.51	27.84	8.17000	12.72	26.36	8.52000	12.02	25.02
10.40000	13.69	31.59	10.90000	12.89	29.91	11.30000	12.18	28.32
15.60000	13.81	36.96	16.30000	13.00	34.95	17.00000	12.28	33.15
26.00000	13.83	43.82	27.20000	13.02	41.43	28.40000	12.29	39.29
52.10000	13.80	53.25	54.50000	12.98	50.31	56.80000	12.26	47.66
104.00000	13.77	62.69	109.00000	12.96	59.22	113.00000	12.24	56.02
156.00000	13.76	68.25	163.00000	12.95	64.41	170.00000	12.23	60.99

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN AL
 Z=13 A= 26.980

TD=76.0 EV ET=0.591665 MEV			TD=80.0 EV ET=0.614220 MEV			TD=84.0 EV ET=0.636332 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.59700	0.04	0.04	0.62000	0.04	0.04	0.64200	0.03	0.03
0.60300	0.08	0.08	0.62600	0.08	0.08	0.64900	0.07	0.07
0.61500	0.18	0.18	0.63800	0.16	0.16	0.66100	0.14	0.14
0.63300	0.32	0.32	0.65700	0.29	0.29	0.68000	0.26	0.26
0.65600	0.50	0.50	0.68100	0.46	0.46	0.70600	0.43	0.43
0.68600	0.74	0.74	0.71200	0.68	0.68	0.73800	0.63	0.63
0.72100	1.02	1.02	0.74900	0.95	0.95	0.77600	0.89	0.89
0.76900	1.40	1.40	0.79800	1.31	1.31	0.82700	1.23	1.23
0.82800	1.87	1.87	0.85900	1.75	1.75	0.89000	1.64	1.64
0.91700	2.54	2.54	0.95200	2.39	2.39	0.98600	2.26	2.26
1.03000	3.33	3.34	1.07000	3.15	3.16	1.11000	3.00	3.00
1.18000	4.27	4.32	1.22000	4.02	4.07	1.27000	3.85	3.90
1.36000	5.22	5.41	1.41000	4.95	5.13	1.46000	4.71	4.88
1.59000	6.22	6.67	1.65000	5.92	6.35	1.71000	5.64	6.06
1.89000	7.24	8.15	1.96000	6.88	7.76	2.03000	6.56	7.41
2.24000	8.12	9.68	2.33000	7.74	9.25	2.41000	7.38	8.83
2.66000	8.89	11.29	2.76000	8.46	10.77	2.86000	8.07	10.30
3.07000	9.43	12.67	3.19000	8.98	12.11	3.30000	8.57	11.57
3.54000	9.90	14.09	3.68000	9.42	13.47	3.81000	8.98	12.88
4.14000	10.32	15.68	4.29000	9.81	14.96	4.45000	9.36	14.32
5.02000	10.72	17.69	5.22000	10.20	16.90	5.40000	9.72	16.16
5.91000	10.99	19.42	6.14000	10.45	18.55	6.36000	9.96	17.75
8.87000	11.40	23.83	9.21000	10.83	22.75	9.54000	10.32	21.75
11.80000	11.54	26.99	12.20000	10.97	25.71	12.70000	10.45	24.64
17.70000	11.63	31.55	18.40000	11.05	30.10	19.00000	10.52	28.74
29.50000	11.64	37.34	30.70000	11.06	35.63	31.80000	10.53	34.04
59.10000	11.62	45.30	61.40000	11.04	43.17	63.60000	10.51	41.22
118.00000	11.59	53.25	122.00000	11.01	50.68	127.00000	10.49	48.43
177.00000	11.59	57.93	184.00000	11.01	55.18	190.00000	10.48	52.63

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN AL
 Z=13 A= 26.980

TD=88.0 EV ET=0.658025 MEV			TD=92.0 EV ET=0.679324 MEV			TD=96.0 EV ET=0.700247 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.66400	0.03	0.03	0.68600	0.03	0.03	0.70700	0.03	0.03
0.67100	0.07	0.07	0.69200	0.06	0.06	0.71400	0.06	0.06
0.68400	0.14	0.14	0.70600	0.13	0.13	0.72300	0.12	0.12
0.70400	0.25	0.25	0.72600	0.22	0.22	0.74900	0.21	0.21
0.73000	0.40	0.40	0.75400	0.37	0.37	0.77700	0.35	0.35
0.76300	0.59	0.59	0.78800	0.55	0.55	0.81200	0.52	0.52
0.80200	0.83	0.83	0.82800	0.78	0.78	0.85400	0.74	0.74
0.85500	1.15	1.15	0.88300	1.09	1.09	0.91000	1.03	1.03
0.92100	1.56	1.56	0.95100	1.48	1.48	0.98000	1.40	1.40
1.01000	2.09	2.09	1.05000	2.02	2.02	1.08000	1.92	1.92
1.15000	2.86	2.87	1.18000	2.70	2.70	1.22000	2.59	2.60
1.31000	3.66	3.70	1.35000	3.48	3.53	1.40000	3.37	3.42
1.51000	4.50	4.67	1.56000	4.31	4.47	1.61000	4.14	4.30
1.77000	5.40	5.81	1.83000	5.18	5.58	1.89000	4.98	5.37
2.10000	6.28	7.10	2.17000	6.02	6.82	2.24000	5.79	6.57
2.50000	7.07	8.49	2.58000	6.77	8.15	2.66000	6.50	7.84
2.96000	7.72	9.88	3.05000	7.39	9.48	3.15000	7.10	9.13
3.42000	8.20	11.11	3.53000	7.85	10.67	3.64000	7.54	10.27
3.94000	8.59	12.35	4.07000	8.23	11.87	4.20000	7.90	11.43
4.60000	8.94	13.73	4.75000	8.57	13.19	4.90000	8.22	12.70
5.59000	9.29	15.51	5.77000	8.90	14.89	5.95000	8.53	14.33
6.58000	9.51	17.02	6.79000	9.11	16.34	7.00000	8.73	15.72
9.87000	9.85	20.85	10.10000	9.42	19.94	10.50000	9.04	19.25
13.10000	9.97	23.58	13.50000	9.54	22.62	14.00000	9.15	21.80
19.70000	10.05	27.55	20.30000	9.61	26.42	21.00000	9.21	25.43
32.90000	10.06	32.59	33.90000	9.62	31.24	35.00000	9.22	30.04
65.80000	10.03	39.45	67.90000	9.59	37.82	70.00000	9.19	36.33
131.00000	10.01	46.30	135.00000	9.58	44.36	140.00000	9.18	42.65
197.00000	10.01	50.37	203.00000	9.57	48.25	210.00000	9.17	46.36

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
 Z=14 A= 28.090

TD= 4.0 EV ET=0.048856 MEV			TD= 8.0 EV ET=0.093777 MEV			TD=12.0 EV ET=0.135586 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.04930	11.65	11.65	0.09470	3.26	3.26	0.13600	0.47	0.47
0.04980	24.28	24.28	0.09560	6.33	6.33	0.13800	2.67	2.67
0.05080	48.14	48.14	0.09750	12.48	12.48	0.14100	5.77	5.77
0.05220	78.63	78.63	0.10000	19.94	19.94	0.14500	9.57	9.57
0.05420	117.02	117.02	0.10400	30.54	30.54	0.15000	13.85	13.85
0.05660	156.25	156.25	0.10800	39.74	39.74	0.15700	19.09	19.09
0.05960	196.72	196.72	0.11400	51.38	51.38	0.16500	24.18	24.18
0.06350	238.17	238.17	0.12100	62.37	62.37	0.17600	29.97	29.97
0.06830	276.23	276.23	0.13100	74.43	74.43	0.18900	35.43	35.43
0.07570	315.64	315.64	0.14500	86.37	86.37	0.21000	42.04	42.04
0.08540	345.26	345.26	0.16400	96.80	96.80	0.23700	47.99	47.99
0.09770	362.96	363.25	0.18700	104.37	104.59	0.27100	53.09	53.28
0.11200	369.47	374.16	0.21500	109.64	111.42	0.31100	57.18	58.26
0.13100	367.71	381.67	0.25300	113.43	118.36	0.36600	61.02	63.87
0.15600	358.92	385.87	0.30000	115.74	124.97	0.43300	64.25	69.58
0.18500	346.89	387.54	0.35600	117.13	131.41	0.51500	67.08	75.61
0.21900	333.84	388.22	0.42100	118.04	137.90	0.61000	69.50	81.78
0.25400	322.49	388.88	0.48700	118.67	143.90	0.70500	71.37	87.38
0.29300	312.19	390.11	0.56200	119.25	150.28	0.81300	73.06	93.25
0.34100	302.22	392.51	0.65600	119.86	157.79	0.94900	74.71	100.05
0.41500	291.01	397.84	0.79700	120.65	168.33	1.15000	76.53	109.16
0.48800	283.24	404.48	0.93700	121.30	178.07	1.35000	77.84	117.35
0.73200	268.99	431.31	1.40000	122.74	206.23	2.03000	80.34	140.47
0.97700	262.45	459.76	1.87000	123.51	229.91	2.71000	81.45	158.65
1.46000	256.58	511.79	2.81000	124.11	267.40	4.06000	82.28	186.13
2.44000	252.33	596.66	4.68000	124.23	319.75	6.77000	82.57	223.40
4.88000	249.03	734.78	9.37000	123.69	397.13	13.50000	82.31	276.42
9.77000	246.95	889.22	18.70000	123.11	478.06	27.10000	81.99	331.69
14.60000	246.22	982.70	28.10000	122.89	526.75	40.60000	81.88	364.17
24.40000	245.67	1104.66	46.80000	122.72	588.32	67.70000	81.79	405.53
34.10000	245.46	1185.10	65.60000	122.66	629.31	94.90000	81.76	432.94
48.80000	245.32	1271.77	93.70000	122.61	672.70	135.00000	81.73	461.59
97.70000	245.15	1440.51	187.00000	122.55	757.01	271.00000	81.69	518.35
195.00000	245.04	1609.18	375.00000	122.49	842.08	542.00000	81.65	574.87

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
 Z=14 A= 28.090

TD=16.0 EV ET=0.174850 MEV			TD=20.0 EV ET=0.211985 MEV			TD=24.0 EV ET=0.247304 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.17600	0.58	0.58	0.21400	0.55	0.55	0.24900	0.28	0.28
0.17800	1.56	1.56	0.21600	1.07	1.07	0.25200	0.76	0.76
0.18100	2.97	2.97	0.22000	2.09	2.09	0.25700	1.54	1.54
0.18700	5.57	5.57	0.22600	3.51	3.51	0.26400	2.56	2.56
0.19400	8.29	8.29	0.23500	5.46	5.46	0.27400	3.90	3.90
0.20200	11.06	11.06	0.24500	7.39	7.39	0.28600	5.35	5.35
0.21300	14.36	14.36	0.25800	9.60	9.60	0.30100	6.98	6.98
0.22700	17.89	17.89	0.27500	12.08	12.08	0.32100	8.87	8.87
0.24400	21.41	21.41	0.29600	14.66	14.66	0.34500	10.91	10.91
0.27100	25.78	25.78	0.32800	17.85	17.85	0.38300	13.42	13.42
0.30500	29.90	29.90	0.37000	21.13	21.13	0.43200	16.12	16.12
0.34900	33.82	33.98	0.42300	24.32	24.46	0.49400	18.86	18.98
0.40200	37.31	38.11	0.48700	27.32	27.94	0.56800	21.47	21.98
0.47200	40.74	42.74	0.57200	30.39	31.96	0.66700	24.23	25.52
0.55900	43.90	47.71	0.67800	33.32	36.33	0.79100	26.91	29.43
0.66400	46.77	52.97	0.80500	35.99	40.97	0.93900	29.35	33.57
0.78600	49.29	58.40	0.95300	38.35	45.78	1.11000	31.48	37.83
0.90900	51.24	63.36	1.10000	40.15	50.09	1.28000	33.11	41.64
1.04000	52.89	68.20	1.27000	41.76	54.63	1.48000	34.58	45.71
1.22000	54.62	74.26	1.48000	43.27	59.71	1.73000	35.95	50.28
1.48000	56.43	82.08	1.80000	44.91	66.56	2.10000	37.37	56.24
1.74000	57.69	89.03	2.11000	46.00	72.41	2.47000	38.33	61.45
2.62000	59.98	108.12	3.17000	47.94	88.44	3.70000	39.97	75.21
3.49000	60.93	122.59	4.23000	48.73	100.56	4.94000	40.62	85.60
5.24000	61.63	144.35	6.35000	49.29	118.45	7.41000	41.07	100.76
8.74000	61.86	173.17	10.50000	49.45	141.50	12.30000	41.20	120.34
17.40000	61.67	213.46	21.10000	49.31	174.47	24.70000	41.07	147.95
34.90000	61.46	255.17	42.30000	49.15	207.96	49.40000	40.95	175.84
52.40000	61.39	279.76	63.50000	49.10	227.67	74.10000	40.91	192.26
87.40000	61.33	310.87	105.00000	49.06	252.17	123.00000	40.88	212.85
122.00000	61.31	331.21	148.00000	49.04	268.93	173.00000	40.87	226.74
174.00000	61.29	352.88	211.00000	49.03	286.26	247.00000	40.86	241.24

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=28.0 EV ET=0.281049 MEV			TD=32.0 EV ET=0.313415 MEV			TD=36.0 EV ET=0.344556 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.28300	0.21	0.21	0.31600	0.20	0.20	0.34800	0.19	0.19
0.28600	0.53	0.53	0.31900	0.42	0.42	0.35100	0.35	0.35
0.29200	1.15	1.15	0.32500	0.85	0.85	0.35800	0.72	0.72
0.30000	1.92	1.92	0.33500	1.54	1.54	0.36800	1.23	1.23
0.31100	2.92	2.92	0.34700	2.31	2.31	0.38200	1.90	1.90
0.32600	4.16	4.16	0.36300	3.27	3.27	0.39900	2.67	2.67
0.34200	5.35	5.35	0.38200	4.30	4.30	0.42000	3.54	3.54
0.36500	6.88	6.88	0.40700	5.54	5.54	0.44700	4.58	4.58
0.39300	8.51	8.51	0.43800	6.91	6.91	0.48200	5.79	5.79
0.43500	10.61	10.61	0.48500	8.72	8.72	0.53400	7.39	7.39
0.49100	12.94	12.94	0.54800	10.78	10.78	0.60200	9.20	9.20
0.56200	15.35	15.47	0.62600	12.91	13.01	0.68900	11.16	11.26
0.64600	17.68	18.13	0.72000	15.03	15.43	0.79200	13.09	13.45
0.75800	20.17	21.29	0.84600	17.32	18.32	0.93000	15.19	16.10
0.89900	22.62	24.82	1.00000	19.52	21.47	1.10000	17.23	19.00
1.06000	24.76	28.41	1.19000	21.59	24.92	1.30000	19.06	22.05
1.26000	26.78	32.37	1.41000	23.38	28.47	1.55000	20.76	25.42
1.46000	28.29	35.92	1.62000	24.68	31.51	1.79000	21.98	28.31
1.68000	29.56	39.45	1.88000	25.89	34.91	2.06000	23.02	31.24
1.96000	30.78	43.49	2.19000	26.96	38.52	2.41000	24.01	34.62
2.38000	32.03	48.79	2.66000	28.08	43.30	2.92000	24.99	38.92
2.81000	32.89	53.52	3.13000	28.82	47.45	3.44000	25.66	42.71
4.21000	34.29	65.62	4.70000	30.04	58.31	5.16000	26.73	52.47
5.62000	34.84	74.69	6.26000	30.50	66.29	6.89000	27.13	59.71
8.43000	35.21	87.85	9.40000	30.81	77.95	10.30000	27.39	70.03
14.00000	35.30	104.78	15.60000	30.88	92.83	17.20000	27.45	83.48
28.10000	35.19	128.54	31.30000	30.79	113.67	34.40000	27.36	101.96
56.20000	35.10	152.49	62.60000	30.71	134.66	68.90000	27.29	120.68
84.30000	35.06	166.58	94.00000	30.68	147.03	103.00000	27.27	131.57
140.00000	35.04	184.26	156.00000	30.66	162.49	172.00000	27.25	145.48
196.00000	35.03	196.01	219.00000	30.65	172.85	241.00000	27.24	154.64

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=40.0 EV ET=0.374604 MEV			TD=44.0 EV ET=0.403665 MEV			TD=48.0 EV ET=0.431830 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.37800	0.14	0.14	0.40700	0.11	0.11	0.43600	0.11	0.11
0.38200	0.31	0.31	0.41100	0.24	0.24	0.44000	0.21	0.21
0.38900	0.59	0.59	0.41900	0.49	0.49	0.44900	0.44	0.44
0.40000	1.02	1.02	0.43100	0.86	0.86	0.46200	0.76	0.76
0.41500	1.57	1.57	0.44800	1.36	1.36	0.47900	1.16	1.16
0.43400	2.24	2.24	0.46800	1.92	1.92	0.50000	1.65	1.65
0.45700	3.00	3.00	0.49200	2.56	2.56	0.52600	2.23	2.23
0.48600	3.88	3.88	0.52400	3.37	3.37	0.56100	2.96	2.96
0.52400	4.95	4.95	0.56500	4.32	4.32	0.60400	3.82	3.82
0.58000	6.37	6.37	0.62500	5.60	5.60	0.66900	5.00	5.00
0.65500	8.04	8.04	0.70600	7.13	7.13	0.75500	6.40	6.41
0.74900	9.82	9.91	0.80700	8.77	8.86	0.86300	7.93	8.01
0.86100	11.60	11.94	0.92800	10.44	10.74	0.99300	9.49	9.78
1.01000	13.54	14.36	1.08000	12.15	12.89	1.16000	11.13	11.83
1.19000	15.38	16.99	1.29000	14.00	15.53	1.38000	12.82	14.26
1.42000	17.17	19.97	1.53000	15.60	18.21	1.64000	14.32	16.79
1.68000	18.66	22.95	1.81000	16.98	20.98	1.94000	15.60	19.38
1.94000	19.78	25.61	2.09000	18.01	23.45	2.24000	16.55	21.68
2.24000	20.75	28.37	2.42000	18.92	26.06	2.59000	17.38	24.09
2.62000	21.65	31.47	2.82000	19.71	28.86	3.02000	18.11	26.70
3.18000	22.54	35.45	3.43000	20.53	32.56	3.67000	18.86	30.13
3.74000	23.13	38.87	4.03000	21.06	35.70	4.31000	19.33	33.03
5.61000	24.08	47.77	6.05000	21.91	43.88	6.47000	20.10	40.59
7.49000	24.43	54.33	8.07000	22.22	49.87	8.63000	20.38	46.11
11.20000	24.66	63.69	12.10000	22.42	58.48	12.90000	20.55	53.96
18.70000	24.70	75.83	20.10000	22.45	69.44	21.50000	20.58	64.10
37.40000	24.62	92.50	40.30000	22.38	84.67	43.10000	20.51	78.08
74.90000	24.56	109.35	80.70000	22.33	100.00	86.30000	20.46	92.14
112.00000	24.54	119.16	121.00000	22.31	108.98	129.00000	20.45	100.32
187.00000	24.52	131.68	201.00000	22.29	120.26	215.00000	20.44	110.72

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=52.0 EV ET=0.459178 MEV			TD=56.0 EV ET=0.485777 MEV			TD=50.0 EV ET=0.511683 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.46300	0.08	0.08	0.49000	0.07	0.07	0.51500	0.06	0.06
0.46800	0.18	0.18	0.49500	0.16	0.16	0.52100	0.13	0.13
0.47700	0.37	0.37	0.50500	0.33	0.33	0.53200	0.29	0.29
0.49100	0.65	0.65	0.51900	0.57	0.57	0.54700	0.51	0.51
0.50900	1.01	1.01	0.53900	0.90	0.90	0.56700	0.79	0.79
0.53200	1.45	1.45	0.56300	1.29	1.29	0.59300	1.16	1.16
0.56000	1.98	1.98	0.59200	1.76	1.76	0.62400	1.59	1.59
0.59600	2.63	2.63	0.63100	2.37	2.37	0.66500	2.15	2.15
0.64200	3.41	3.41	0.68000	3.09	3.09	0.71600	2.82	2.82
0.71100	4.50	4.50	0.75200	4.10	4.10	0.79300	3.77	3.77
0.80300	5.82	5.82	0.85000	5.33	5.34	0.89500	4.92	4.93
0.91800	7.25	7.33	0.97100	6.67	6.75	1.02000	6.16	6.23
1.05000	8.65	8.91	1.11000	7.99	8.24	1.17000	7.44	7.67
1.23000	10.22	10.87	1.31000	9.53	10.18	1.38000	8.89	9.51
1.46000	11.79	13.12	1.55000	10.98	12.26	1.63000	10.24	11.45
1.74000	13.22	15.54	1.84000	12.29	14.49	1.94000	11.50	13.60
2.06000	14.42	17.98	2.18000	13.42	16.80	2.30000	12.56	15.79
2.38000	15.31	20.14	2.52000	14.25	18.84	2.66000	13.34	17.73
2.75000	16.07	22.38	2.91000	14.95	20.94	3.07000	13.99	19.70
3.21000	16.75	24.84	3.40000	15.59	23.26	3.58000	14.57	21.86
3.90000	17.43	28.03	4.12000	16.21	26.21	4.34000	15.15	24.64
4.59000	17.87	30.77	4.85000	16.62	28.77	5.11000	15.53	27.05
6.88000	18.57	37.77	7.28000	17.25	35.34	7.67000	16.11	33.21
9.18000	18.82	42.90	9.71000	17.48	40.11	10.20000	16.32	37.64
13.70000	18.97	50.15	14.50000	17.62	46.87	15.30000	16.44	44.03
22.90000	18.99	59.58	24.20000	17.63	55.62	25.50000	16.46	52.18
45.90000	18.93	72.49	48.50000	17.58	67.62	51.10000	16.41	63.39
91.80000	18.89	85.46	97.10000	17.54	79.68	102.00000	16.37	74.61
137.00000	18.87	92.97	145.00000	17.53	86.67	153.00000	16.36	81.21
229.00000	18.86	102.63	242.00000	17.52	95.62	255.00000	16.35	89.53

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=64.0 EV ET=0.536950 MEV			TD=68.0 EV ET=0.561621 MEV			TD=72.0 EV ET=0.585737 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.54200	0.06	0.06	0.56700	0.06	0.06	0.59100	0.05	0.05
0.54700	0.12	0.12	0.57200	0.11	0.11	0.59700	0.10	0.10
0.55800	0.26	0.26	0.58400	0.23	0.23	0.60900	0.21	0.21
0.57400	0.45	0.45	0.60000	0.41	0.41	0.62600	0.37	0.37
0.59600	0.72	0.72	0.62300	0.65	0.65	0.65000	0.60	0.60
0.62200	1.05	1.05	0.65100	0.96	0.96	0.67900	0.88	0.88
0.65500	1.45	1.45	0.68500	1.32	1.32	0.71400	1.21	1.21
0.69800	1.97	1.97	0.73000	1.81	1.81	0.76100	1.67	1.67
0.75100	2.58	2.58	0.78600	2.39	2.39	0.82000	2.23	2.23
0.83200	3.48	3.48	0.87000	3.23	3.23	0.90700	3.02	3.02
0.93900	4.57	4.57	0.98200	4.26	4.27	1.02000	3.97	3.97
1.07000	5.74	5.81	1.12000	5.39	5.46	1.17000	5.09	5.15
1.23000	6.97	7.20	1.29000	6.57	6.80	1.34000	6.17	6.38
1.44000	8.29	8.86	1.51000	7.82	8.38	1.58000	7.42	7.96
1.71000	9.61	10.77	1.79000	9.06	10.18	1.87000	8.58	9.66
2.04000	10.81	12.83	2.13000	10.18	12.11	2.22000	9.63	11.48
2.41000	11.79	14.87	2.52000	11.12	14.06	2.63000	10.53	13.36
2.79000	12.53	16.71	2.92000	11.82	15.83	3.04000	11.17	15.01
3.22000	13.14	18.58	3.36000	12.38	17.56	3.51000	11.72	16.70
3.75000	13.68	20.60	3.93000	12.90	19.53	4.10000	12.21	18.56
4.56000	14.23	23.27	4.77000	13.41	22.04	4.97000	12.68	20.92
5.36000	14.57	25.52	5.61000	13.73	24.17	5.85000	12.98	22.96
8.05000	15.11	31.33	8.42000	14.23	29.65	8.78000	13.45	28.15
10.70000	15.30	35.48	11.20000	14.41	33.59	11.70000	13.61	31.90
16.10000	15.42	41.54	16.80000	14.51	39.25	17.50000	13.71	37.22
26.80000	15.43	49.17	28.00000	14.52	46.46	29.20000	13.71	44.05
53.60000	15.38	59.66	56.10000	14.47	56.36	58.50000	13.67	53.41
107.00000	15.35	70.18	112.00000	14.44	66.27	117.00000	13.64	62.79
161.00000	15.33	76.42	168.00000	14.43	72.10	175.00000	13.63	68.26

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=76.0 EV ET=0.609335 MEV			TD=80.0 EV ET=0.632445 MEV			TD=84.0 EV ET=0.655098 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.61500	0.04	0.04	0.63800	0.04	0.04	0.66100	0.04	0.04
0.62100	0.09	0.09	0.64500	0.09	0.09	0.66800	0.08	0.08
0.63300	0.19	0.19	0.65700	0.17	0.17	0.68100	0.16	0.16
0.65100	0.34	0.34	0.67600	0.31	0.31	0.70000	0.28	0.28
0.67600	0.55	0.55	0.70200	0.51	0.51	0.72700	0.47	0.47
0.70600	0.80	0.80	0.73300	0.75	0.75	0.75900	0.69	0.69
0.74300	1.13	1.13	0.77100	1.05	1.05	0.79900	0.98	0.98
0.79200	1.55	1.55	0.82200	1.45	1.45	0.85100	1.36	1.36
0.85300	2.08	2.08	0.88500	1.95	1.95	0.91700	1.84	1.84
0.98400	2.84	2.84	0.98000	2.67	2.67	1.01000	2.49	2.49
1.06000	3.73	3.74	1.10000	3.53	3.53	1.14000	3.35	3.35
1.21000	4.76	4.82	1.26000	4.54	4.60	1.31000	4.34	4.40
1.40000	5.88	6.09	1.45000	5.57	5.77	1.50000	5.29	5.49
1.64000	7.02	7.54	1.70000	6.67	7.16	1.76000	6.35	6.83
1.94000	8.13	9.16	2.02000	7.75	8.76	2.09000	7.39	8.36
2.31000	9.15	10.93	2.40000	8.71	10.44	2.48000	8.30	9.96
2.74000	10.00	12.73	2.84000	9.51	12.14	2.94000	9.07	11.61
3.16000	10.60	14.29	3.28000	10.09	13.64	3.40000	9.63	13.06
3.65000	11.12	15.90	3.79000	10.58	15.18	3.93000	10.10	14.54
4.26000	11.58	17.66	4.42000	11.01	16.86	4.58000	10.50	16.14
5.17000	12.02	19.92	5.37000	11.44	19.03	5.56000	10.90	18.21
6.09000	12.31	21.87	6.32000	11.70	20.88	6.55000	11.16	19.98
9.14000	12.75	26.81	9.48000	12.11	25.58	9.82000	11.54	24.46
12.10000	12.90	30.29	12.60000	12.26	28.93	13.10000	11.68	27.71
18.20000	12.99	35.40	18.90000	12.34	33.77	19.60000	11.75	32.29
30.40000	12.99	41.90	31.60000	12.34	39.95	32.70000	11.75	38.16
60.90000	12.95	50.76	63.20000	12.30	48.36	65.50000	11.71	46.19
121.00000	12.92	59.57	126.00000	12.27	56.77	131.00000	11.69	54.23
182.00000	12.91	64.82	189.00000	12.27	61.72	196.00000	11.68	58.92

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SI
Z=14 A= 28.090

TD=88.0 EV ET=0.677319 MEV			TD=92.0 EV ET=0.699132 MEV			TD=96.0 EV ET=0.720559 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.68400	0.04	0.04	0.70600	0.03	0.03	0.72700	0.03	0.03
0.69000	0.07	0.07	0.71300	0.07	0.07	0.73400	0.06	0.06
0.70400	0.15	0.15	0.72700	0.14	0.14	0.74900	0.13	0.13
0.72400	0.26	0.26	0.74800	0.25	0.25	0.77000	0.23	0.23
0.75100	0.43	0.43	0.77600	0.41	0.41	0.79900	0.38	0.38
0.78500	0.65	0.65	0.81000	0.60	0.60	0.83500	0.57	0.57
0.82600	0.92	0.92	0.85200	0.86	0.86	0.87900	0.82	0.82
0.88000	1.28	1.28	0.90800	1.21	1.21	0.93600	1.14	1.14
0.94800	1.74	1.74	0.97800	1.64	1.64	1.00900	1.52	1.52
1.04000	2.34	2.34	1.08000	2.26	2.26	1.11000	2.14	2.14
1.18000	3.19	3.20	1.22000	3.06	3.06	1.26000	2.94	2.94
1.35000	4.12	4.18	1.39000	3.92	3.98	1.44000	3.79	3.85
1.55000	5.05	5.24	1.60000	4.83	5.02	1.65000	4.64	4.82
1.82000	6.07	6.54	1.88000	5.82	6.28	1.94000	5.60	6.04
2.16000	7.07	8.01	2.23000	6.77	7.68	2.30000	6.51	7.39
2.57000	7.95	9.56	2.65000	7.61	9.17	2.73000	7.31	8.82
3.04000	8.68	11.13	3.14000	8.32	10.69	3.24000	7.99	10.30
3.52000	9.21	12.53	3.63000	8.82	12.03	3.74000	8.47	11.57
4.06000	9.65	13.93	4.19000	9.24	13.38	4.32000	8.87	12.88
4.74000	10.04	15.48	4.89000	9.61	14.87	5.04000	9.22	14.31
5.75000	10.42	17.46	5.94000	9.98	16.78	6.12000	9.57	16.14
6.77000	10.66	19.15	6.99000	10.20	18.40	7.20000	9.78	17.69
10.10000	11.02	23.39	10.40000	10.54	22.43	10.80000	10.11	21.64
13.50000	11.15	26.51	13.90000	10.66	25.42	14.40000	10.22	24.49
20.30000	11.22	30.94	20.90000	10.73	29.66	21.60000	10.28	28.54
33.80000	11.22	36.53	34.90000	10.73	35.04	36.00000	10.28	33.68
67.70000	11.18	44.19	69.90000	10.69	42.37	72.00000	10.25	40.69
135.00000	11.16	51.84	139.00000	10.67	49.66	144.00000	10.23	47.74
203.00000	11.15	56.38	209.00000	10.67	54.00	216.00000	10.22	51.87

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
 Z=19 A= 39.100

TD= 4.0 EV ET=0.066879 MEV			TD= 8.0 EV ET=0.126783 MEV			TD=12.0 EV ET=0.181525 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.06750	11.72	11.72	0.12800	3.16	3.16	0.18300	1.24	1.24
0.06820	24.45	24.45	0.12900	5.69	5.69	0.18500	2.87	2.87
0.06950	46.85	46.85	0.13100	10.54	10.54	0.18800	5.21	5.21
0.07150	78.38	78.38	0.13500	19.53	19.53	0.19400	9.58	9.58
0.07420	115.98	115.98	0.14000	29.56	29.56	0.20100	14.19	14.19
0.07750	155.37	155.37	0.14700	41.72	41.72	0.21000	19.47	19.47
0.08150	195.18	195.18	0.15400	52.07	52.07	0.22100	25.09	25.09
0.08690	238.04	238.04	0.16400	64.37	64.37	0.23500	31.19	31.19
0.09360	278.23	278.23	0.17700	77.04	77.04	0.25400	38.04	38.04
0.10300	317.72	317.72	0.19600	90.85	90.85	0.28100	45.73	45.73
0.11700	353.62	353.62	0.22100	103.54	103.54	0.31700	53.53	53.53
0.13300	375.60	376.01	0.25300	114.45	114.81	0.36300	60.96	61.27
0.15300	388.38	393.75	0.29100	123.07	125.32	0.41700	67.50	68.93
0.18000	393.55	409.41	0.34200	130.74	136.69	0.49000	74.11	77.76
0.21400	392.22	422.40	0.40500	137.04	148.26	0.58000	80.15	87.13
0.25400	387.24	433.35	0.48100	142.26	160.14	0.68900	85.58	97.04
0.30000	380.90	443.55	0.57000	146.63	172.34	0.81500	90.28	107.25
0.34700	375.07	452.93	0.65900	149.90	183.35	0.94300	93.85	116.45
0.40100	369.50	463.23	0.76000	152.77	194.84	1.08000	96.82	125.49
0.46800	364.06	475.79	0.88700	155.53	208.11	1.27000	99.92	136.86
0.56800	358.19	494.35	1.07000	158.42	225.48	1.54000	102.97	151.20
0.66800	354.11	512.65	1.26000	160.52	241.78	1.81000	105.04	163.88
1.00000	346.66	570.12	1.90000	164.21	287.42	2.72000	108.51	198.31
1.33000	343.06	621.17	2.53000	165.56	322.95	3.63000	109.75	224.53
2.00000	339.12	707.96	3.80000	166.23	377.39	5.44000	110.41	263.30
3.34000	335.27	836.11	6.33000	165.82	450.97	9.07000	110.21	314.56
6.68000	330.76	1031.96	12.60000	164.40	555.72	18.10000	109.36	386.25
13.30000	327.54	1241.27	25.30000	163.28	665.41	36.30000	108.73	460.02
20.00000	326.40	1369.09	38.00000	162.91	730.31	54.40000	108.53	503.30
33.40000	325.57	1531.99	63.30000	162.63	812.28	90.70000	108.38	558.23
46.80000	325.24	1640.03	88.70000	162.51	866.66	127.00000	108.31	594.48
66.80000	324.99	1754.44	126.00000	162.41	923.33	181.00000	108.25	632.66
133.00000	324.63	1976.55	253.00000	162.25	1036.04	363.00000	108.14	707.74

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
 Z=19 A= 39.100

TD=16.0 EV ET=0.232246 MEV			TD=20.0 EV ET=0.279720 MEV			TD=24.0 EV ET=0.324500 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.23400	0.67	0.67	0.28200	0.47	0.47	0.32700	0.32	0.32
0.23600	1.41	1.41	0.28500	1.08	1.08	0.33000	0.69	0.69
0.24100	3.20	3.20	0.29000	2.07	2.07	0.33700	1.54	1.54
0.24800	5.55	5.55	0.29900	3.74	3.74	0.34700	2.71	2.71
0.25700	8.33	8.33	0.31000	5.65	5.65	0.36000	4.13	4.13
0.26900	11.68	11.68	0.32400	7.89	7.89	0.37600	5.77	5.77
0.28300	15.15	15.15	0.34100	10.35	10.35	0.39500	7.58	7.58
0.30100	19.06	19.06	0.36300	13.21	13.21	0.42100	9.85	9.85
0.32500	23.53	23.53	0.39100	16.42	16.42	0.45400	12.44	12.44
0.35900	28.78	28.78	0.43300	20.56	20.56	0.50200	15.76	15.76
0.40600	34.61	34.61	0.48900	25.16	25.16	0.56700	19.62	19.63
0.46400	40.30	40.55	0.55900	29.87	30.09	0.64900	23.70	23.90
0.53400	45.72	46.79	0.64300	34.46	35.33	0.74600	27.69	28.43
0.62700	51.33	54.03	0.75500	39.32	41.50	0.87600	31.98	33.84
0.74300	56.68	61.92	0.89500	44.02	48.32	1.03000	35.94	39.53
0.88200	61.50	70.26	1.06000	48.20	55.41	1.23000	39.82	46.08
1.04000	65.61	78.66	1.25000	51.80	62.67	1.46000	43.09	52.71
1.20000	68.75	86.31	1.45000	54.63	69.49	1.68000	45.42	58.36
1.39000	71.58	94.52	1.67000	56.96	76.24	1.94000	47.47	64.37
1.62000	74.11	103.45	1.95000	59.14	83.93	2.27000	49.36	71.15
1.97000	76.75	115.40	2.37000	61.35	94.01	2.75000	51.19	79.72
2.32000	78.48	125.83	2.79000	62.78	102.75	3.24000	52.39	87.29
3.48000	81.25	153.25	4.19000	65.01	125.60	4.86000	54.21	106.75
4.64000	82.21	173.79	5.59000	65.76	142.52	6.49000	54.81	121.16
6.96000	82.70	203.91	8.39000	66.12	167.12	9.73000	55.08	141.86
11.60000	82.53	243.10	13.90000	65.96	198.46	16.20000	54.93	168.44
23.20000	81.92	297.61	27.90000	65.49	242.57	32.40000	54.54	205.16
46.40000	81.50	353.01	55.90000	65.18	287.13	64.90000	54.30	242.35
69.60000	81.37	385.63	83.90000	65.08	313.31	97.30000	54.22	264.13
116.00000	81.27	426.87	139.00000	65.00	345.94	162.00000	54.16	291.61
162.00000	81.22	453.86	195.00000	64.97	367.85	227.00000	54.13	309.80

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=28.0 EV ET=0.367000 MEV			TD=32.0 EV ET=0.407536 MEV			TD=36.0 EV ET=0.446356 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.37000	0.25	0.25	0.41100	0.20	0.20	0.45000	0.16	0.16
0.37400	0.58	0.58	0.41500	0.44	0.44	0.45500	0.37	0.37
0.38100	1.15	1.15	0.42300	0.90	0.90	0.46400	0.76	0.76
0.39200	2.02	2.02	0.43600	1.63	1.63	0.47700	1.31	1.31
0.40700	3.15	3.15	0.45200	2.51	2.51	0.49500	2.05	2.05
0.42500	4.43	4.43	0.47200	3.56	3.56	0.51700	2.94	2.94
0.44700	5.91	5.91	0.49700	4.81	4.81	0.54400	4.00	4.00
0.47700	7.79	7.79	0.52900	6.34	6.34	0.58000	5.35	5.35
0.51300	9.87	9.87	0.57000	8.16	8.16	0.62400	6.92	6.92
0.56800	12.73	12.73	0.63100	10.65	10.65	0.69100	9.14	9.14
0.64200	16.09	16.10	0.71300	13.62	13.63	0.78100	11.81	11.82
0.73400	19.65	19.83	0.81500	16.80	16.96	0.89200	14.67	14.83
0.84400	23.20	23.85	0.93700	19.99	20.58	1.02000	17.47	17.99
0.99000	27.00	28.64	1.10000	23.44	24.93	1.20000	20.66	22.00
1.17000	30.65	33.89	1.30000	26.73	29.67	1.42000	23.68	26.36
1.39000	34.00	39.56	1.54000	29.69	34.71	1.69000	26.45	31.09
1.65000	36.90	45.47	1.83000	32.31	40.07	2.00000	28.75	35.86
1.90000	38.96	50.53	2.11000	34.15	44.66	2.32000	30.47	40.21
2.20000	40.78	55.95	2.44000	35.75	49.49	2.67000	31.85	44.45
2.56000	42.36	61.74	2.85000	37.17	54.80	3.12000	33.11	49.27
3.11000	43.96	69.39	3.46000	38.55	61.62	3.79000	34.33	55.44
3.67000	44.99	76.10	4.07000	39.42	67.48	4.46000	35.10	60.73
5.50000	46.50	93.05	6.11000	40.72	82.57	6.69000	36.22	74.27
7.34000	46.99	105.53	8.15000	41.13	93.58	8.92000	36.56	84.11
11.00000	47.20	123.41	12.20000	41.29	109.28	13.30000	36.69	98.00
18.30000	47.05	146.28	20.30000	41.15	129.38	22.30000	36.57	116.18
36.70000	46.73	177.97	40.70000	40.88	157.15	44.60000	36.32	140.83
73.40000	46.53	209.82	81.50000	40.71	185.10	89.20000	36.18	165.65
110.00000	46.47	228.49	122.00000	40.66	201.40	133.00000	36.14	180.00
183.00000	46.42	252.01	203.00000	40.62	222.00	223.00000	36.10	198.59

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=40.0 EV ET=0.483663 MEV			TD=44.0 EV ET=0.519620 MEV			TD=48.0 EV ET=0.554364 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.48800	0.14	0.14	0.52400	0.11	0.11	0.55900	0.09	0.09
0.49300	0.31	0.31	0.53000	0.27	0.27	0.56500	0.22	0.22
0.50300	0.63	0.63	0.54000	0.53	0.53	0.57600	0.45	0.45
0.51700	1.09	1.09	0.55500	0.91	0.91	0.59300	0.81	0.81
0.53600	1.71	1.71	0.57600	1.46	1.46	0.61500	1.28	1.28
0.56100	2.51	2.51	0.60200	2.14	2.14	0.64300	1.89	1.89
0.59000	3.42	3.42	0.63300	2.94	2.94	0.67600	2.61	2.61
0.62800	4.58	4.58	0.67500	4.02	4.02	0.72000	3.56	3.56
0.67700	6.02	6.02	0.72700	5.30	5.30	0.77600	4.75	4.75
0.74900	8.00	8.00	0.80500	7.13	7.13	0.85900	6.42	6.42
0.84600	10.42	10.44	0.90900	9.34	9.36	0.97000	8.48	8.49
0.96700	13.06	13.21	1.03000	11.62	11.75	1.10000	10.61	10.73
1.11000	15.70	16.20	1.19000	14.18	14.64	1.27000	12.97	13.41
1.30000	18.55	19.79	1.40000	16.89	18.06	1.49000	15.45	16.55
1.54000	21.34	23.83	1.66000	19.47	21.83	1.77000	17.87	20.09
1.83000	23.84	28.14	1.97000	21.74	25.79	2.10300	19.97	23.78
2.17000	25.95	32.57	2.33000	23.65	29.83	2.49300	21.75	27.59
2.51000	27.48	36.48	2.70000	25.06	33.49	2.88000	23.03	30.94
2.90000	28.76	40.47	3.11000	26.20	37.08	3.32000	24.07	34.30
3.38000	29.87	44.80	3.63000	27.21	41.11	3.88000	25.00	38.05
4.11000	30.96	50.46	4.41000	28.19	46.29	4.71000	25.89	42.82
4.83000	31.63	55.24	5.19000	28.80	50.70	5.54000	26.43	46.89
7.25000	32.62	67.54	7.79000	29.67	61.96	8.31000	27.21	57.26
9.67000	32.91	76.46	10.30000	29.92	69.87	11.00000	27.43	64.56
14.50000	33.02	89.19	15.50000	30.01	81.57	16.60000	27.51	75.39
24.10000	32.90	105.32	25.90000	29.90	96.42	27.70000	27.40	88.99
48.30000	32.68	127.59	51.90000	29.71	116.69	55.40000	27.23	107.54
96.70000	32.56	149.98	103.00000	29.60	136.79	110.00000	27.13	125.99
145.00000	32.52	163.08	155.00000	29.56	148.81	166.00000	27.10	137.08

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=52.0 EV ET=0.588011 MEV			TD=56.0 EV ET=0.620657 MEV			TD=60.0 EV ET=0.652388 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.59300	0.08	0.08	0.62600	0.07	0.07	0.65800	0.06	0.06
0.59900	0.18	0.18	0.63300	0.17	0.17	0.66500	0.15	0.15
0.61100	0.39	0.39	0.64500	0.34	0.34	0.67800	0.30	0.30
0.62900	0.71	0.71	0.66400	0.62	0.62	0.69800	0.56	0.56
0.65200	1.12	1.12	0.68800	0.99	0.99	0.72400	0.90	0.90
0.68200	1.67	1.67	0.71900	1.48	1.48	0.75600	1.34	1.34
0.71700	2.32	2.32	0.75700	2.10	2.10	0.79500	1.89	1.89
0.76400	3.20	3.20	0.80600	2.89	2.89	0.84800	2.66	2.66
0.82300	4.29	4.29	0.86800	3.90	3.90	0.91300	3.59	3.59
0.91100	5.84	5.84	0.96200	5.37	5.37	1.01000	4.94	4.94
1.02000	7.62	7.63	1.08000	7.07	7.08	1.14000	6.63	6.64
1.17000	9.79	9.91	1.24000	9.13	9.25	1.30000	8.47	8.58
1.35000	11.99	12.41	1.42000	11.09	11.48	1.50000	10.42	10.80
1.58000	14.27	15.31	1.67000	13.29	14.28	1.76000	12.46	13.42
1.88000	16.55	18.66	1.98000	15.38	17.37	2.08000	14.38	16.28
2.23000	18.50	22.11	2.35000	17.20	20.62	2.47000	16.10	19.35
2.64000	20.13	25.63	2.79000	18.75	23.99	2.93000	17.54	22.51
3.05000	21.30	28.74	3.22000	19.83	26.88	3.39000	18.56	25.28
3.52000	22.27	31.89	3.72000	20.73	29.85	3.91000	19.38	28.05
4.11000	23.12	35.37	4.34000	21.51	33.09	4.56000	20.10	31.08
4.99000	23.93	39.81	5.27000	22.25	37.25	5.54000	20.79	34.99
5.88000	24.43	43.63	6.20000	22.70	40.78	6.52000	21.21	38.31
6.82000	25.13	53.25	9.30000	23.34	49.75	9.78000	21.79	46.71
11.70000	25.33	60.07	12.40000	23.52	56.21	13.00000	21.96	52.70
17.60000	25.39	70.01	18.60000	23.57	65.40	19.50000	22.00	61.29
29.40000	25.29	82.61	31.00000	23.48	77.05	32.60000	21.91	72.24
58.80000	25.13	99.74	62.00000	23.33	92.97	65.20000	21.77	87.11
117.00000	25.04	116.83	124.00000	23.25	108.97	130.00000	21.70	101.97
176.00000	25.01	127.00	186.00000	23.23	118.34	195.00000	21.68	110.73

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=64.0 EV ET=0.683276 MEV			TD=68.0 EV ET=0.713385 MEV			TD=72.0 EV ET=0.742771 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.69000	0.07	0.07	0.72000	0.06	0.06	0.75000	0.05	0.05
0.69600	0.13	0.13	0.72700	0.12	0.12	0.75700	0.10	0.10
0.71000	0.27	0.27	0.74100	0.24	0.24	0.77200	0.22	0.22
0.73100	0.50	0.50	0.76300	0.45	0.45	0.79400	0.41	0.41
0.75800	0.81	0.81	0.79100	0.73	0.73	0.82400	0.68	0.68
0.79200	1.22	1.22	0.82700	1.12	1.12	0.86100	1.03	1.03
0.83300	1.74	1.74	0.87000	1.60	1.60	0.90500	1.49	1.49
0.88800	2.44	2.44	0.92700	2.26	2.26	0.96500	2.10	2.10
0.95600	3.32	3.32	0.99800	3.09	3.09	1.03000	2.79	2.79
1.05000	4.50	4.50	1.10000	4.25	4.25	1.15000	4.04	4.04
1.19000	6.14	6.16	1.24000	5.74	5.75	1.29000	5.40	5.41
1.36000	7.91	8.02	1.42000	7.44	7.55	1.48000	7.04	7.14
1.57000	9.76	10.14	1.64000	9.21	9.57	1.70000	8.66	8.99
1.84000	11.68	12.59	1.92000	11.01	11.89	2.00000	10.42	11.27
2.18000	13.52	15.35	2.28000	12.77	14.54	2.37000	12.08	13.76
2.59000	15.14	18.26	2.71000	14.30	17.31	2.82000	13.54	16.42
3.07000	16.48	21.23	3.21000	15.56	20.12	3.34000	14.72	19.09
3.55000	17.43	23.84	3.70000	16.43	22.54	3.86000	15.56	21.43
4.09000	18.20	26.43	4.28000	17.17	25.06	4.45000	16.24	23.77
4.78000	18.88	29.34	4.99000	17.79	27.76	5.19000	16.82	26.34
5.80000	19.51	33.00	6.06000	18.39	31.24	6.31000	17.38	29.66
6.83000	19.90	36.13	7.13000	18.74	34.19	7.42000	17.72	32.44
10.20000	20.44	43.95	10.70000	19.24	41.65	11.10000	18.18	39.45
13.60000	20.59	49.63	14.20000	19.38	46.93	14.80000	18.30	44.52
20.40000	20.62	57.69	21.40000	19.41	54.61	22.20000	18.33	51.71
34.10000	20.54	67.97	35.60000	19.33	64.20	37.10000	18.25	60.86
68.30000	20.41	81.95	71.30000	19.21	77.36	74.20000	18.14	73.26
136.00000	20.34	95.86	142.00000	19.15	90.46	148.00000	18.08	85.67

2

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=76.0 EV ET=0.771484 MEV			TD=80.0 EV ET=0.799568 MEV			TD=84.0 EV ET=0.827062 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.77900	0.05	0.05	0.80700	0.04	0.04	0.83500	0.04	0.04
0.78600	0.09	0.09	0.81500	0.09	0.09	0.84300	0.08	0.08
0.80200	0.20	0.20	0.83100	0.19	0.19	0.86000	0.17	0.17
0.82500	0.38	0.38	0.85500	0.35	0.35	0.88400	0.32	0.32
0.85600	0.63	0.63	0.88700	0.58	0.58	0.91800	0.54	0.54
0.89400	0.95	0.95	0.92700	0.89	0.89	0.95900	0.84	0.84
0.94100	1.39	1.39	0.97500	1.29	1.29	1.00000	1.15	1.15
1.00000	1.95	1.95	1.03000	1.77	1.77	1.07000	1.71	1.71
1.08000	2.72	2.72	1.11000	2.48	2.48	1.15000	2.36	2.36
1.19000	3.77	3.77	1.23000	3.54	3.54	1.28000	3.42	3.42
1.35000	5.19	5.20	1.39000	4.86	4.87	1.44000	4.64	4.65
1.54000	6.69	6.80	1.59000	6.32	6.42	1.65000	6.06	6.16
1.77000	8.24	8.57	1.83000	7.81	8.13	1.90000	7.49	7.81
2.08000	9.91	10.73	2.15000	9.41	10.20	2.23000	9.01	9.78
2.46000	11.46	13.09	2.55000	10.92	12.48	2.64000	10.43	11.95
2.93000	12.86	15.63	3.03000	12.23	14.89	3.14000	11.68	14.26
3.47000	13.98	18.18	3.59000	13.29	17.32	3.72000	12.69	16.60
4.01000	14.77	20.41	4.15000	14.05	19.45	4.30000	13.41	18.63
4.62000	15.40	22.62	4.79000	14.66	21.60	4.96000	13.98	20.68
5.40000	15.96	25.11	5.59000	15.18	23.94	5.78000	14.47	22.89
6.55000	16.48	28.22	6.79000	15.67	26.93	7.03000	14.94	25.77
7.71000	16.79	30.88	7.99000	15.96	29.46	8.27000	15.21	28.28
11.50000	17.22	37.49	11.90000	16.36	35.73	12.40000	15.59	34.27
15.40000	17.34	42.38	15.90000	16.47	40.34	16.50000	15.69	38.60
23.10000	17.36	49.19	23.90000	16.49	46.86	24.80000	15.71	44.81
38.50000	17.29	57.82	39.90000	16.42	55.08	41.30000	15.64	52.61
77.10000	17.18	69.60	79.90000	16.32	66.28	82.70000	15.55	63.27
154.00000	17.13	81.37	159.00000	16.27	77.40	165.00000	15.50	73.91

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN K
Z=19 A= 39.100

TD=88.0 EV ET=0.854003 MEV			TD=92.0 EV ET=0.880423 MEV			TD=96.0 EV ET=0.906350 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.86200	0.03	0.03	0.88900	0.03	0.03	0.91500	0.03	0.03
0.87100	0.08	0.08	0.89800	0.07	0.07	0.92400	0.06	0.06
0.88800	0.16	0.16	0.91500	0.15	0.15	0.94200	0.14	0.14
0.91300	0.30	0.30	0.94200	0.28	0.28	0.96900	0.26	0.26
0.94700	0.50	0.50	0.97700	0.47	0.47	1.00000	0.41	0.41
0.99000	0.78	0.78	1.02000	0.73	0.73	1.05000	0.69	0.69
1.04000	1.13	1.13	1.07000	1.06	1.06	1.10000	0.99	0.99
1.11000	1.65	1.65	1.14000	1.54	1.54	1.17000	1.44	1.44
1.19000	2.26	2.26	1.23000	2.18	2.18	1.26000	2.04	2.04
1.32000	3.24	3.24	1.36000	3.09	3.09	1.40000	2.95	2.95
1.49000	4.44	4.46	1.54000	4.28	4.29	1.58000	4.07	4.08
1.70000	5.77	5.86	1.76000	5.56	5.66	1.81000	5.33	5.42
1.96000	7.16	7.46	2.02000	6.85	7.15	2.08000	6.58	6.87
2.30000	8.61	9.35	2.37000	8.24	8.97	2.44000	7.92	8.62
2.73000	9.99	11.47	2.81000	9.56	10.99	2.90000	9.20	10.60
3.24000	11.17	13.66	3.34000	10.70	13.12	3.44000	10.28	12.62
3.84000	12.14	15.90	3.96000	11.63	15.28	4.07000	11.16	14.67
4.44000	12.82	17.86	4.57000	12.27	17.13	4.71000	11.78	16.49
5.12000	13.36	19.81	5.28000	12.80	19.03	5.43000	12.27	18.29
5.97000	13.83	21.95	6.16000	13.24	21.08	6.34000	12.70	20.27
7.25000	14.27	24.68	7.48000	13.66	23.70	7.70000	13.10	22.79
8.54000	14.53	27.00	8.80000	13.91	25.92	9.06000	13.33	24.92
12.80000	14.89	32.82	13.20000	14.24	31.49	13.50000	13.65	30.18
17.00000	14.98	36.93	17.60000	14.33	35.49	18.10000	13.73	34.09
25.60000	14.99	42.89	26.40000	14.34	41.14	27.10000	13.74	39.48
42.70000	14.93	50.36	44.00000	14.28	48.27	45.30000	13.68	46.36
85.40000	14.84	60.52	88.00000	14.19	58.00	90.60000	13.60	55.69
170.00000	14.79	70.65	176.00000	14.15	67.75	181.00000	13.56	65.02

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
 Z=22 A= 47.900

TD= 4.0 EV ET=0.080890 MEV			TD= 8.0 EV ET=0.151984 MEV			TD=12.0 EV ET=0.216159 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.08160	10.18	10.18	0.15300	2.04	2.04	0.21800	1.20	1.20
0.08250	22.63	22.63	0.15500	5.94	5.94	0.22000	2.47	2.47
0.08410	43.57	43.57	0.15800	11.50	11.50	0.22400	4.93	4.93
0.08650	72.38	72.38	0.16200	18.40	18.40	0.23100	8.95	8.95
0.08970	106.49	106.49	0.16800	27.79	27.79	0.23900	13.17	13.17
0.09380	144.10	144.10	0.17600	38.78	38.78	0.25000	18.41	18.41
0.09860	180.97	180.97	0.18500	49.42	49.42	0.26300	23.89	23.89
0.10500	220.67	220.67	0.19700	61.35	61.35	0.28100	30.47	30.47
0.11300	258.84	258.84	0.21200	73.49	73.49	0.30200	37.00	37.00
0.12500	299.48	299.48	0.23500	87.88	87.88	0.33500	45.43	45.43
0.14100	334.03	334.03	0.26500	101.59	101.59	0.37800	54.13	54.13
0.16100	359.14	359.69	0.30300	113.98	114.42	0.43200	62.65	63.02
0.18600	375.73	381.54	0.34900	124.65	127.09	0.49700	70.64	72.24
0.21800	385.42	401.48	0.41000	134.69	141.04	0.58300	78.78	82.81
0.25800	389.65	419.77	0.48600	143.54	155.66	0.69100	86.48	94.34
0.30700	390.32	437.24	0.57700	151.13	170.73	0.82100	93.38	106.49
0.36400	389.15	454.31	0.68300	157.57	186.18	0.97200	99.30	118.95
0.42000	387.55	469.37	0.79000	162.42	200.20	1.12000	103.64	129.90
0.48500	385.79	485.68	0.91100	166.59	214.65	1.29300	107.41	141.28
0.56600	383.96	504.91	1.06000	170.43	230.86	1.51300	110.99	154.52
0.68700	381.90	532.06	1.29000	174.56	253.25	1.83000	114.51	171.47
0.80800	380.43	557.67	1.51000	177.19	272.32	2.16000	116.86	186.75
1.21000	377.37	633.50	2.27000	181.59	326.15	3.24000	120.40	226.44
1.61000	375.37	697.43	3.03000	182.96	367.68	4.32000	121.46	256.24
2.42000	372.28	801.71	4.55000	183.32	430.00	6.48000	121.79	300.01
4.04000	368.22	950.37	7.59000	182.33	512.94	10.80000	121.16	357.06
8.08000	362.72	1171.39	15.10000	180.29	629.14	21.60000	119.91	436.51
16.10000	358.85	1404.05	30.30000	178.89	789.90	43.20000	119.13	517.32
24.20000	357.54	1544.89	45.50000	178.44	821.17	64.80000	118.88	564.92
40.40000	356.56	1723.93	75.90000	178.10	911.36	108.00000	118.68	625.10
56.60000	356.16	1842.50	106.00000	177.94	970.37	151.00000	118.59	664.63
80.80000	355.83	1968.00	151.00000	177.80	1032.94	216.00000	118.50	706.88
161.00000	355.31	2211.58	303.00000	177.55	1156.22	432.00000	118.33	788.72

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
 Z=22 A= 47.900

TD=16.0 EV ET=0.275113 MEV			TD=20.0 EV ET=0.329944 MEV			TD=24.0 EV ET=0.381413 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.27700	0.56	0.56	0.33300	0.50	0.50	0.38500	0.36	0.36
0.28000	1.44	1.44	0.33600	0.98	0.98	0.38900	0.76	0.76
0.28600	3.14	3.14	0.34300	2.08	2.08	0.39500	1.44	1.44
0.29400	5.28	5.28	0.35300	3.59	3.59	0.40800	2.59	2.59
0.30500	8.03	8.03	0.36600	5.45	5.45	0.42300	3.96	3.96
0.31900	11.25	11.25	0.38200	7.60	7.60	0.44200	5.63	5.63
0.33500	14.61	14.61	0.40200	10.10	10.10	0.46500	7.55	7.55
0.35700	18.75	18.75	0.42800	13.10	13.10	0.49500	9.91	9.91
0.38500	23.39	23.39	0.46100	16.56	16.56	0.53300	12.68	12.68
0.42600	29.23	29.23	0.51100	21.19	21.19	0.59100	16.52	16.52
0.48100	35.75	35.75	0.57700	26.45	26.46	0.66700	20.94	20.95
0.55000	42.43	42.74	0.65900	31.95	32.21	0.76200	25.67	25.91
0.63200	48.86	50.07	0.75800	37.42	38.42	0.87700	30.44	31.31
0.74200	55.68	58.74	0.89000	43.25	45.78	1.02000	35.24	37.34
0.88000	62.24	68.30	1.05000	48.72	53.68	1.22000	40.41	44.80
1.04000	67.94	78.06	1.25000	53.83	62.38	1.44000	44.63	52.03
1.23000	72.96	88.31	1.48000	58.11	71.19	1.71000	48.40	59.83
1.43000	76.84	97.92	1.71000	61.26	79.01	1.98000	51.13	66.74
1.65000	80.01	107.39	1.97000	63.88	86.93	2.28000	53.34	73.58
1.92000	82.82	117.79	2.30000	66.27	95.88	2.66000	55.34	81.26
2.33000	85.67	131.58	2.80000	68.62	107.61	3.24000	57.30	91.37
2.75000	87.53	143.81	3.29000	70.07	117.52	3.81000	58.49	99.89
4.12000	90.21	175.05	4.94000	72.18	143.41	5.72000	60.19	121.91
5.50000	91.00	198.35	6.59000	72.77	162.42	7.62000	60.64	137.89
8.25000	91.20	232.04	9.89000	72.90	189.81	11.40000	60.71	160.77
13.70000	90.71	275.19	16.40000	72.48	224.55	19.00000	60.34	190.18
27.50000	89.82	335.59	32.90000	71.80	273.06	38.10000	59.79	230.72
55.00000	89.29	396.43	65.90000	71.40	321.96	76.20000	59.49	271.44
82.50000	89.12	432.22	98.90000	71.28	350.66	114.00000	59.39	295.20
137.00000	88.99	477.09	164.00000	71.18	386.48	190.00000	59.31	325.36
192.00000	88.92	506.96	230.00000	71.13	410.44	266.00000	59.27	345.23

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
Z=22 A= 47.900

TD=28.0 EV			ET=0.430070 MEV			TD=32.0 EV			ET=0.476333 MEV			TD=36.0 EV			ET=0.520523 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.43400	0.26	0.26	0.48100	0.22	0.22	0.52500	0.16	0.16									
0.43800	0.53	0.53	0.48500	0.41	0.41	0.53000	0.33	0.33									
0.44700	1.12	1.12	0.49500	0.88	0.88	0.54100	0.72	0.72									
0.46000	1.97	1.97	0.50900	1.54	1.54	0.55600	1.25	1.25									
0.47700	3.05	3.05	0.52800	2.43	2.43	0.57700	2.00	2.00									
0.49800	4.35	4.35	0.55200	3.54	3.54	0.60300	2.93	2.93									
0.52400	5.91	5.91	0.58100	4.85	4.85	0.63500	4.08	4.08									
0.55900	7.93	7.93	0.61900	6.53	6.53	0.67600	5.53	5.53									
0.60200	10.26	10.26	0.66600	8.53	8.53	0.72800	7.31	7.31									
0.66600	13.48	13.48	0.73800	11.39	11.39	0.80600	9.85	9.85									
0.75200	17.33	17.35	0.83300	14.81	14.82	0.91000	12.93	12.94									
0.86000	21.52	21.74	0.95200	18.53	18.73	1.04000	16.30	16.49									
0.98900	25.71	26.49	1.09000	22.18	22.87	1.19000	19.59	20.23									
1.16000	30.19	32.15	1.28000	26.24	27.99	1.40000	23.32	24.94									
1.37000	34.44	38.32	1.52000	30.17	33.72	1.66000	26.84	30.11									
1.63000	38.34	45.04	1.81000	33.65	39.80	1.97000	29.93	35.53									
1.93000	41.57	51.84	2.14000	36.49	45.86	2.34000	32.54	41.18									
2.23000	43.91	57.85	2.47000	38.53	51.21	2.70000	34.36	46.01									
2.58000	45.89	64.09	2.85000	40.24	56.68	3.12000	35.88	51.01									
3.01000	47.59	70.84	3.33000	41.73	62.76	3.64000	37.19	56.45									
3.65000	49.21	79.50	4.04000	43.14	70.48	4.20000	38.43	63.44									
4.30000	50.22	87.03	4.76000	44.01	77.17	5.20000	39.17	69.39									
6.45000	51.61	106.14	7.14000	45.18	94.07	7.80000	40.18	84.54									
8.60000	51.97	120.02	9.52000	45.48	106.31	10.40000	40.42	95.48									
12.90000	52.01	139.90	14.20000	45.49	123.54	15.60000	40.42	111.08									
21.50000	51.68	165.21	23.80000	45.20	146.01	26.00000	40.16	130.88									
43.00000	51.23	199.91	47.60000	44.81	176.42	52.00000	39.82	157.95									
86.00000	50.98	234.85	95.20000	44.60	207.02	104.00000	39.64	185.17									
129.00000	50.90	255.36	142.00000	44.53	224.73	156.00000	39.58	201.13									
215.00000	50.83	281.22	238.00000	44.47	247.61	260.00000	39.53	221.25									

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
Z=22 A= 47.900

TD=40.0 EV			ET=0.562896 MEV			TD=44.0 EV			ET=0.603660 MEV			TD=48.0 EV			ET=0.642984 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.56800	0.13	0.13	0.60900	0.11	0.11	0.64900	0.10	0.10									
0.57400	0.30	0.30	0.61500	0.24	0.24	0.65500	0.20	0.20									
0.58500	0.59	0.59	0.62700	0.49	0.49	0.66800	0.43	0.43									
0.60200	1.06	1.06	0.64500	0.89	0.89	0.68700	0.77	0.77									
0.62400	1.69	1.69	0.67000	1.47	1.47	0.71300	1.27	1.27									
0.65200	2.49	2.49	0.70000	2.18	2.18	0.74500	1.90	1.90									
0.68600	3.48	3.48	0.73600	3.05	3.05	0.78400	2.70	2.70									
0.73100	4.79	4.79	0.78400	4.22	4.22	0.83500	3.76	3.76									
0.78800	6.41	6.41	0.84500	5.69	5.69	0.90000	5.11	5.11									
0.87200	8.69	8.69	0.93500	7.77	7.77	0.99600	7.04	7.04									
0.98500	11.51	11.53	1.05000	10.24	10.26	1.12000	9.35	9.37									
1.12000	14.48	14.65	1.20000	13.09	13.25	1.28000	11.99	12.15									
1.29000	17.64	18.24	1.38000	15.98	16.53	1.47000	14.65	15.18									
1.51000	20.95	22.44	1.62000	19.08	20.48	1.73000	17.57	18.91									
1.80000	24.26	27.33	1.93000	22.11	24.99	2.05000	20.28	22.97									
2.13000	27.01	32.22	2.29000	24.67	29.57	2.44000	22.69	27.31									
2.53000	29.38	37.39	2.71000	26.78	34.24	2.89000	24.63	31.66									
2.92000	31.02	41.81	3.13000	28.27	38.34	3.34000	26.00	35.47									
3.37000	32.37	46.33	3.62000	29.51	42.56	3.85000	27.10	39.29									
3.94000	33.55	51.36	4.22000	30.55	47.08	4.50000	28.07	43.55									
4.78000	34.64	57.69	5.13000	31.54	52.95	5.46000	28.95	48.91									
5.62000	35.30	63.07	6.03000	32.12	57.87	6.42000	29.47	53.46									
8.44000	36.17	76.84	9.05000	32.90	70.44	9.64000	30.16	65.05									
11.20000	36.38	86.57	12.00000	33.07	79.29	12.80000	30.32	73.23									
16.80000	36.37	100.65	18.10000	33.05	92.30	19.20000	30.29	85.02									
28.10000	36.13	118.63	30.10000	32.83	108.49	32.10000	30.09	100.03									
56.20000	35.83	143.02	60.30000	32.56	130.73	64.20000	29.85	120.39									
112.00000	35.67	167.40	120.00000	32.43	152.86	128.00000	29.72	140.74									
168.00000	35.62	181.77	181.00000	32.38	166.11	192.00000	29.68	152.72									

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN TI
 Z=22 A= 47.900

TD=52.0 EV ET=0.681012 MEV			TD=56.0 EV ET=0.717864 MEV			TD=60.0 EV ET=0.753642 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.68700	0.08	0.08	0.72500	0.08	0.08	0.76100	0.07	0.07
0.69400	0.18	0.18	0.73200	0.16	0.16	0.76800	0.14	0.14
0.70800	0.38	0.38	0.74600	0.33	0.33	0.78300	0.29	0.29
0.72800	0.68	0.68	0.76800	0.61	0.61	0.80600	0.54	0.54
0.75500	1.12	1.12	0.79600	1.00	1.00	0.83600	0.90	0.90
0.78900	1.69	1.69	0.83200	1.53	1.53	0.87400	1.39	1.39
0.83000	2.41	2.41	0.87500	2.19	2.19	0.91900	2.00	2.00
0.88500	3.41	3.41	0.93300	3.11	3.11	0.97900	2.85	2.85
0.95300	4.64	4.64	1.00000	4.18	4.18	1.05000	3.86	3.86
1.05000	6.35	6.35	1.11000	5.90	5.90	1.16000	5.40	5.40
1.19000	8.65	8.67	1.25000	7.94	7.96	1.31000	7.37	7.38
1.36000	11.11	11.27	1.43000	10.27	10.42	1.50000	9.58	9.72
1.56000	13.57	14.08	1.65000	12.67	13.17	1.73000	11.83	12.30
1.83000	16.23	17.50	1.93000	15.12	16.33	2.03000	14.17	15.34
2.17000	18.77	21.31	2.29000	17.50	19.92	2.41000	16.41	18.74
2.58000	20.98	25.34	2.72000	19.54	23.68	2.86000	18.31	22.26
3.06000	22.80	29.43	3.23000	21.24	27.54	3.39000	19.87	25.86
3.54000	24.07	33.01	3.73000	22.40	30.85	3.91000	20.94	28.94
4.08000	25.08	36.56	4.30000	23.33	34.17	4.52000	21.82	32.13
4.76000	25.95	40.47	5.02000	24.13	37.85	5.27000	22.56	35.54
5.78000	26.76	45.47	6.10000	24.88	42.53	6.40000	23.24	39.93
6.81000	27.24	49.74	7.17000	25.31	46.46	7.53000	23.64	43.63
10.20000	27.85	60.42	10.70000	25.86	56.31	11.30000	24.15	52.98
13.60000	27.99	68.10	14.30000	25.99	63.53	15.00000	24.25	59.57
20.40000	27.95	79.00	21.50000	25.95	73.72	22.60000	24.22	69.14
34.00000	27.77	92.79	35.80000	25.78	86.51	37.60000	24.05	81.08
68.10000	27.55	111.64	71.70000	25.57	104.02	75.30000	23.87	97.42
136.00000	27.43	130.47	143.00000	25.47	121.48	150.00000	23.77	113.69
204.00000	27.40	141.53	215.00000	25.44	131.81	226.00000	23.74	123.39

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN TI
 Z=22 A= 47.900

TD=64.0 EV ET=0.788436 MEV			TD=68.0 EV ET=0.822321 MEV			TD=72.0 EV ET=0.855367 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.79600	0.06	0.06	0.83000	0.05	0.05	0.86300	0.04	0.04
0.80400	0.13	0.13	0.83800	0.11	0.11	0.87200	0.10	0.10
0.81900	0.26	0.26	0.85500	0.24	0.24	0.88900	0.22	0.22
0.84300	0.49	0.49	0.87900	0.44	0.44	0.91500	0.41	0.41
0.87500	0.82	0.82	0.91200	0.75	0.75	0.94900	0.69	0.69
0.91400	1.27	1.27	0.95300	1.16	1.16	0.99200	1.08	1.08
0.96100	1.83	1.83	1.00000	1.67	1.67	1.04000	1.55	1.55
1.02000	2.58	2.58	1.06000	2.35	2.35	1.11000	2.27	2.27
1.10000	3.60	3.60	1.15000	3.40	3.40	1.19000	3.12	3.12
1.22000	5.12	5.12	1.27000	4.77	4.77	1.32000	4.48	4.48
1.37000	6.89	6.91	1.43000	6.49	6.51	1.49000	6.15	6.17
1.57000	8.99	9.13	1.64000	8.49	8.63	1.71000	8.07	8.20
1.81000	11.11	11.57	1.89000	10.50	10.94	1.96000	9.90	10.32
2.12000	13.30	14.41	2.22000	12.60	13.69	2.30000	11.88	12.91
2.52000	15.42	17.65	2.63000	14.56	16.70	2.73000	13.76	15.81
2.99000	17.20	20.97	3.12000	16.24	19.85	3.25000	15.38	18.87
3.54000	18.66	24.34	3.70000	17.61	23.08	3.84000	16.65	21.86
4.09000	19.67	27.29	4.27000	18.55	25.84	4.44000	17.55	24.52
4.73000	20.49	30.30	4.93000	19.31	28.66	5.13000	18.27	27.21
5.51000	21.17	33.50	5.75000	19.95	31.71	5.98000	18.87	30.09
6.70000	21.81	37.65	6.98000	20.54	35.60	7.27000	19.42	33.80
7.88000	22.18	41.13	8.22000	20.88	38.90	8.55000	19.74	36.91
11.80000	22.64	49.87	12.30000	21.31	47.14	12.80000	20.13	44.71
15.70000	22.74	56.11	16.40000	21.40	53.06	17.10000	20.21	50.35
23.60000	22.70	65.05	24.60000	21.36	61.44	25.60000	20.17	58.23
39.40000	22.55	76.32	41.10000	21.22	72.07	42.70000	20.04	68.24
78.80000	22.37	91.62	82.20000	21.05	86.47	85.50000	19.88	81.88
157.00000	22.28	106.88	164.00000	20.97	100.87	171.00000	19.81	95.52

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
Z=22 A= 47.900

TD=76.0 EV ET=0.887632 MEV			TD=80.0 EV ET=0.919170 MEV			TD=84.0 EV ET=0.950027 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.89600	0.04	0.04	0.92800	0.04	0.04	0.95900	0.04	0.04
0.90500	0.09	0.09	0.93700	0.08	0.08	0.96900	0.08	0.08
0.92300	0.20	0.20	0.95500	0.18	0.18	0.98800	0.17	0.17
0.94900	0.37	0.37	0.98300	0.35	0.35	1.01000	0.29	0.29
0.98500	0.64	0.64	1.02000	0.60	0.60	1.05000	0.53	0.53
1.02000	0.93	0.93	1.06000	0.89	0.89	1.10000	0.87	0.87
1.08000	1.46	1.46	1.12000	1.38	1.38	1.15000	1.24	1.24
1.15000	2.12	2.12	1.19000	1.99	1.99	1.23000	1.88	1.88
1.24000	2.99	2.99	1.28000	2.79	2.79	1.33000	2.70	2.70
1.37000	4.24	4.24	1.42000	4.03	4.03	1.47000	3.85	3.85
1.55000	5.86	5.88	1.60000	5.53	5.54	1.66000	5.31	5.33
1.77000	7.62	7.74	1.83000	7.23	7.35	1.90000	6.95	7.07
2.04000	9.43	9.85	2.11000	8.97	9.37	2.18000	8.56	8.94
2.39000	11.30	12.30	2.48000	10.79	11.76	2.56000	10.28	11.22
2.84000	13.10	15.09	2.94000	12.47	14.39	3.04000	11.91	13.76
3.37000	14.60	17.94	3.49000	13.90	17.12	3.61000	13.27	16.39
3.99000	15.82	20.83	4.13000	15.05	19.87	4.27000	14.36	19.01
4.61000	16.66	23.35	4.77000	15.84	22.27	4.94000	15.12	21.33
5.32000	17.33	25.89	5.51000	16.48	24.70	5.70000	15.72	23.64
6.21000	17.89	28.65	6.43000	17.02	27.33	6.65000	16.22	26.14
7.54000	18.41	32.15	7.81000	17.50	30.68	8.07000	16.68	29.32
8.87000	18.71	35.11	9.19000	17.78	33.49	9.50000	16.94	32.02
13.30000	19.08	42.54	13.70000	18.12	40.47	14.20000	17.26	38.71
17.70000	19.15	47.82	18.30000	18.19	45.55	19.00000	17.32	43.59
26.60000	19.11	55.37	27.50000	18.15	52.72	28.50000	17.28	50.39
44.30000	18.98	64.83	45.90000	18.03	61.75	47.50000	17.17	58.97
88.70000	18.84	77.75	91.90000	17.89	74.03	95.00000	17.04	70.65
177.00000	18.76	90.63	183.00000	17.83	86.24	190.00000	16.98	82.35

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TI
Z=22 A= 47.900

TD=88.0 EV ET=0.980245 MEV			TD=92.0 EV ET=1.009863 MEV			TD=96.0 EV ET=1.038916 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.99000	0.03	0.03	1.01000	0.00	0.00	1.04000	0.00	0.00
0.99900	0.07	0.07	1.03000	0.07	0.07	1.05000	0.03	0.03
1.01000	0.12	0.12	1.05000	0.15	0.15	1.08000	0.13	0.13
1.04000	0.26	0.26	1.08000	0.28	0.28	1.11000	0.26	0.26
1.08000	0.47	0.47	1.12000	0.49	0.49	1.15000	0.45	0.45
1.13000	0.79	0.79	1.17000	0.78	0.78	1.20300	0.72	0.72
1.19000	1.20	1.20	1.23000	1.16	1.16	1.26000	1.07	1.07
1.27000	1.79	1.79	1.31000	1.71	1.71	1.35000	1.65	1.65
1.37000	2.55	2.55	1.41000	2.43	2.43	1.45000	2.32	2.32
1.51000	3.62	3.62	1.56000	3.49	3.49	1.61000	3.38	3.38
1.71000	5.06	5.07	1.76000	4.83	4.85	1.81000	4.63	4.65
1.96000	6.64	6.76	2.01000	6.32	6.43	2.07000	6.08	6.19
2.25000	8.19	8.56	2.32000	7.86	8.23	2.38000	7.52	7.87
2.64000	9.83	10.74	2.72000	9.43	10.31	2.80000	9.06	9.92
3.13000	11.37	13.16	3.23000	10.91	12.65	3.32000	10.47	12.16
3.72000	12.68	15.68	3.83000	12.15	15.05	3.94000	11.67	14.47
4.41000	13.73	18.23	4.54000	13.15	17.50	4.67000	12.62	16.82
5.09000	14.45	20.42	5.25000	13.84	19.62	5.40000	13.28	18.87
5.88000	15.02	22.64	6.05000	14.38	21.72	6.23000	13.80	20.90
6.86000	15.50	25.04	7.06000	14.83	24.02	7.27000	14.23	23.11
8.33000	15.93	28.10	8.58000	15.25	26.96	8.83000	14.62	25.92
9.80000	16.18	30.66	10.00000	15.47	29.28	10.30000	14.83	28.16
14.70000	16.48	37.12	15.10000	15.77	35.56	15.50000	15.11	34.14
19.60000	16.54	41.72	20.10000	15.82	39.95	20.70000	15.16	38.39
29.40000	16.50	48.22	30.20000	15.78	46.19	31.10000	15.12	44.38
49.00000	16.38	56.42	50.40000	15.67	54.05	51.90000	15.02	51.91
98.00000	16.26	67.56	100.00000	15.56	64.59	103.00000	14.91	62.02
196.00000	16.20	78.73	201.00000	15.50	75.36	207.00000	14.85	72.34

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
 Z=23 A= 50.950

TD= 4.0 EV			ET=0.085670 MEV			TD= 8.0 EV			ET=0.160497 MEV			TD=12.0 EV			ET=0.227784 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.08650	10.95	10.95	0.16200	2.79	2.79	0.23000	1.34	1.34									
0.08730	21.14	21.14	0.16300	4.60	4.60	0.23200	2.52	2.52									
0.08900	41.72	41.72	0.16600	9.82	9.82	0.23600	4.80	4.80									
0.09160	70.56	70.56	0.17100	17.90	17.90	0.24300	8.57	8.57									
0.09500	104.04	104.04	0.17800	28.06	28.06	0.25200	13.02	13.02									
0.09930	140.56	140.56	0.18600	38.26	38.26	0.26400	18.38	18.38									
0.10400	174.31	174.31	0.19500	48.26	48.26	0.27700	23.57	23.57									
0.11100	215.16	215.16	0.20800	60.49	60.49	0.29600	30.20	30.20									
0.11900	251.34	251.34	0.22400	72.79	72.79	0.31800	36.79	36.79									
0.13200	293.49	293.49	0.24800	87.20	87.20	0.35300	45.50	45.50									
0.14900	328.86	328.86	0.28000	101.45	101.45	0.39800	54.47	54.47									
0.17100	355.78	356.42	0.32000	114.34	114.81	0.45500	63.44	63.83									
0.19700	373.15	379.04	0.36900	125.77	128.30	0.52300	71.86	73.50									
0.23100	384.42	400.62	0.43300	136.52	143.02	0.61500	80.66	84.86									
0.27400	390.44	421.03	0.51300	146.16	158.60	0.72900	88.82	97.00									
0.32500	392.83	440.22	0.60900	154.50	171.45	0.86500	96.19	109.90									
0.38500	393.30	459.35	0.72200	161.65	191.45	1.02000	102.34	122.78									
0.44500	392.94	476.50	0.83400	166.92	206.31	1.18000	107.07	134.68									
0.51400	392.31	494.83	0.96200	171.48	221.75	1.36000	111.05	146.76									
0.59900	391.54	516.03	1.12000	175.66	239.08	1.59000	114.75	160.60									
0.72800	390.57	546.14	1.36000	180.03	262.55	1.93000	118.41	178.56									
0.85600	389.81	574.06	1.60000	182.89	283.35	2.27000	120.76	194.22									
1.28000	387.87	655.43	2.40000	187.36	339.63	3.41000	124.29	235.76									
1.71000	386.18	724.38	3.20000	188.66	382.85	4.55000	125.27	266.80									
2.57000	383.15	834.27	4.81000	188.85	447.80	6.83000	125.47	312.21									
4.28000	378.88	988.70	8.02000	187.64	533.56	11.30000	124.69	370.26									
8.56000	372.96	1217.63	16.00000	185.37	653.91	22.70000	123.29	452.61									
17.10000	368.85	1458.53	32.00000	183.89	777.65	45.50000	122.45	536.00									
25.70000	367.48	1603.51	48.10000	183.41	851.13	68.30000	122.19	585.04									
42.80000	366.46	1786.86	80.20000	183.04	943.78	113.00000	121.98	646.02									
59.90000	366.03	1908.41	112.00000	182.87	1004.44	159.00000	121.87	687.42									
85.60000	365.67	2037.80	160.00000	182.71	1069.25	227.00000	121.77	730.59									
171.00000	365.08	2289.06	320.00000	182.42	1195.32	455.00000	121.57	814.95									

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
 Z=23 A= 50.950

TD=16.0 EV			ET=0.289435 MEV			TD=20.0 EV			ET=0.346666 MEV			TD=24.0 EV			ET=0.400309 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.29200	0.71	0.71	0.35000	0.51	0.51	0.40400	0.35	0.35									
0.29500	1.53	1.53	0.35300	0.96	0.96	0.40800	0.72	0.72									
0.30100	3.11	3.11	0.36000	1.99	1.99	0.41600	1.45	1.45									
0.30900	5.12	5.12	0.37000	3.41	3.41	0.42800	2.53	2.53									
0.32100	7.95	7.95	0.38400	5.31	5.31	0.44400	3.93	3.93									
0.33500	11.01	11.01	0.40200	7.62	7.62	0.46400	5.62	5.62									
0.35300	14.61	14.61	0.42200	10.03	10.03	0.48800	7.55	7.55									
0.37600	18.77	18.77	0.45000	13.16	13.16	0.52000	10.00	10.00									
0.40500	23.44	23.44	0.48500	16.74	16.74	0.56000	12.87	12.87									
0.44800	29.44	29.44	0.53700	21.49	21.49	0.62000	16.81	16.81									
0.50600	36.26	36.26	0.60600	26.96	26.97	0.70000	21.45	21.46									
0.57800	43.23	43.55	0.69300	32.79	33.08	0.80000	26.43	26.68									
0.66500	50.08	51.35	0.79700	38.55	39.61	0.92000	31.42	32.34									
0.78100	57.32	60.53	0.93500	44.67	47.33	1.08000	36.77	39.08									
0.92600	64.25	70.61	1.10000	50.33	55.51	1.28000	41.90	46.54									
1.09000	70.13	80.67	1.31000	55.72	64.69	1.52000	46.45	54.42									
1.30000	75.66	92.03	1.55000	60.18	73.90	1.80000	50.29	62.48									
1.50000	79.51	101.64	1.80000	63.55	82.40	2.08000	53.06	69.61									
1.73000	82.79	111.55	2.07000	66.22	90.60	2.40000	55.36	76.87									
2.02000	85.76	122.70	2.42000	68.67	100.03	2.80000	57.38	84.89									
2.46000	88.70	137.39	2.94000	71.03	112.14	3.40000	59.32	95.25									
2.89000	90.51	149.80	3.46000	72.48	122.55	4.00000	60.50	104.13									
4.34000	93.15	182.47	5.19000	74.52	149.36	6.00000	62.13	126.90									
5.78000	93.85	206.41	6.93000	75.04	169.09	8.00000	62.52	143.48									
8.68000	93.94	241.33	10.30000	75.08	196.70	12.00000	62.52	167.23									
14.40000	93.33	285.75	17.30000	74.56	233.40	20.00000	62.08	197.53									
28.90000	92.35	347.91	34.60000	73.81	283.12	40.00000	61.47	239.09									
57.80000	91.78	410.50	69.30000	73.39	333.40	80.00000	61.15	280.96									
86.80000	91.60	447.39	103.00000	73.27	362.20	120.00000	61.04	305.54									
144.00000	91.46	493.43	173.00000	73.15	399.95	200.00000	60.95	336.54									

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
 Z=23 A= 50.950

TD=28.0 EV			ET=0.450966 MEV			TD=32.0 EV			ET=0.499085 MEV			TD=36.0 EV			ET=0.545014 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.45500	0.25	0.25	0.50400	0.22	0.22	0.55000	0.16	0.16									
0.45900	0.50	0.50	0.50900	0.44	0.44	0.55500	0.33	0.33									
0.46900	1.12	1.12	0.51900	0.88	0.88	0.56500	0.69	0.69									
0.48200	1.92	1.92	0.53400	1.55	1.55	0.58300	1.27	1.27									
0.50000	3.02	3.02	0.55300	2.40	2.40	0.60400	1.99	1.99									
0.52300	4.39	4.39	0.57800	3.52	3.52	0.63200	2.96	2.96									
0.55000	5.97	5.97	0.60800	4.85	4.85	0.66400	4.08	4.08									
0.58600	7.99	7.99	0.64800	6.59	6.59	0.70900	5.62	5.62									
0.63100	10.41	10.41	0.69800	8.69	8.69	0.76300	7.49	7.49									
0.69800	13.75	13.75	0.77300	11.67	11.67	0.84400	10.12	10.12									
0.78900	17.83	17.83	0.87300	15.26	15.26	0.95300	13.35	13.37									
0.90100	22.18	22.41	0.99800	19.18	19.40	1.09000	16.91	17.12									
1.03000	26.41	27.20	1.14000	22.94	23.67	1.25000	20.42	21.11									
1.21000	31.17	33.19	1.34000	27.23	29.08	1.47000	24.31	26.05									
1.44000	35.82	39.97	1.59000	31.32	35.07	1.74000	27.94	31.42									
1.71000	39.83	46.95	1.89000	34.91	41.37	2.07000	31.17	37.18									
2.02000	43.14	53.97	2.24000	37.89	47.79	2.45000	33.81	42.96									
2.34000	45.58	60.37	2.59000	40.01	53.45	2.83000	35.68	48.04									
2.70000	47.57	66.75	2.99000	41.75	59.17	3.27000	37.23	53.24									
3.15000	49.29	73.79	3.49000	43.25	65.46	3.81000	38.53	58.85									
3.83000	50.95	82.92	4.24000	44.67	73.54	4.63000	39.77	66.13									
4.50000	51.93	90.60	4.99000	45.51	80.42	5.45000	40.51	72.32									
6.76000	53.27	110.45	7.48000	46.63	97.88	8.17000	41.46	87.96									
9.01000	53.58	124.78	9.98000	46.88	110.55	10.90000	41.67	99.28									
13.50000	53.56	145.22	14.90000	46.84	128.36	16.30000	41.62	115.23									
22.50000	53.17	171.29	24.90000	46.50	151.36	27.20000	41.31	135.67									
45.00000	52.67	206.98	49.90000	46.07	182.73	54.50000	40.94	163.58									
90.10000	52.40	242.97	99.80000	45.84	214.20	109.00000	40.74	191.57									
135.00000	52.31	263.99	149.00000	45.77	232.44	163.00000	40.68	207.85									

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
 Z=23 A= 50.950

TD=40.0 EV			ET=0.589027 MEV			TD=44.0 EV			ET=0.631345 MEV			TD=48.0 EV			ET=0.672151 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.59400	0.12	0.12	0.63700	0.11	0.11	0.67900	0.09	0.09									
0.60000	0.27	0.27	0.64300	0.23	0.23	0.68500	0.20	0.20									
0.61200	0.58	0.58	0.65600	0.49	0.49	0.69900	0.43	0.43									
0.63000	1.06	1.06	0.67500	0.90	0.90	0.71900	0.78	0.78									
0.65300	1.68	1.68	0.70000	1.45	1.45	0.74500	1.28	1.28									
0.68300	2.53	2.53	0.73200	2.19	2.19	0.77900	1.92	1.92									
0.71800	3.52	3.52	0.77000	3.09	3.09	0.82000	2.75	2.75									
0.76500	4.87	4.87	0.82000	4.30	4.30	0.87300	3.85	3.85									
0.82400	6.54	6.54	0.88300	5.81	5.81	0.94100	5.26	5.26									
0.91200	8.93	8.93	0.97800	8.02	8.02	1.04000	7.25	7.25									
1.03000	11.89	11.90	1.10000	10.64	10.66	1.17000	9.68	9.70									
1.17000	14.98	15.16	1.26000	13.68	13.86	1.34000	12.50	12.67									
1.35000	18.34	18.98	1.45000	16.71	17.33	1.54000	15.29	15.86									
1.59000	21.92	23.55	1.70000	19.92	21.44	1.81000	18.30	19.74									
1.88000	25.20	28.45	2.02000	23.02	26.09	2.15000	21.17	24.06									
2.23000	28.10	33.63	2.39000	25.62	30.80	2.55000	23.59	28.49									
2.65000	30.54	39.04	2.84000	27.85	35.79	3.02000	25.59	33.03									
3.06000	32.22	43.67	3.28000	29.37	40.05	3.49000	26.99	37.00									
3.53000	33.58	48.36	3.78000	30.60	44.33	4.03000	28.12	41.01									
4.12000	34.76	53.52	4.41000	31.65	49.06	4.70000	29.07	45.37									
5.00000	35.85	60.10	5.36000	32.64	55.13	5.71000	29.96	50.96									
5.89000	36.50	65.74	6.31000	33.21	60.28	6.72000	30.47	55.70									
8.83000	37.33	79.91	9.47000	33.94	73.26	10.00000	31.12	67.40									
11.70000	37.50	89.90	12.60000	34.09	82.51	13.40000	31.25	76.11									
17.60000	37.44	104.51	18.90000	34.03	95.73	20.10000	31.18	88.25									
29.40000	37.16	122.97	31.50000	33.77	112.46	33.60000	30.95	103.70									
58.90000	36.83	148.11	63.10000	33.48	135.34	67.20000	30.68	124.63									
117.00000	36.66	173.06	126.00000	33.33	158.20	134.00000	30.55	145.56									
176.00000	36.61	187.94	189.00000	33.28	171.63	201.00000	30.50	157.87									

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
 Z=23 A= 50.950

TD=52.0 EV ET=0.711596 MEV			TD=56.0 EV ET=0.749807 MEV			TD=60.0 EV ET=0.786894 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.71800	0.08	0.08	0.75700	0.08	0.08	0.79400	0.06	0.06
0.72500	0.17	0.17	0.76400	0.15	0.15	0.80200	0.14	0.14
0.74000	0.38	0.38	0.77900	0.32	0.32	0.81800	0.29	0.29
0.76100	0.68	0.68	0.80200	0.61	0.61	0.84100	0.54	0.54
0.78900	1.12	1.12	0.83200	1.01	1.01	0.87300	0.91	0.91
0.82500	1.72	1.72	0.86900	1.54	1.54	0.91200	1.40	1.40
0.86800	2.47	2.47	0.91400	2.23	2.23	0.96000	2.05	2.05
0.92500	3.49	3.49	0.97400	3.18	3.18	1.02000	2.89	2.89
0.99600	4.78	4.78	1.04000	4.23	4.23	1.10000	4.03	4.03
1.10000	6.62	6.62	1.16000	6.12	6.12	1.21000	5.58	5.58
1.24000	8.92	8.94	1.31000	8.31	8.33	1.37000	7.69	7.70
1.42000	11.55	11.71	1.49000	10.65	10.80	1.57000	10.01	10.17
1.63000	14.13	14.67	1.72000	13.17	13.69	1.80000	12.27	12.76
1.92000	16.97	18.35	2.02000	15.78	17.08	2.12000	14.77	16.02
2.27000	19.56	22.27	2.39000	18.21	20.78	2.51000	17.05	19.51
2.70000	21.85	26.48	2.84000	20.33	24.71	2.99000	19.06	23.26
3.20000	23.70	30.73	3.37000	22.06	28.71	3.54000	20.65	26.98
3.70000	24.99	34.44	3.89000	23.24	32.14	4.09000	21.75	30.23
4.26000	26.00	38.10	4.49000	24.19	35.62	4.72000	22.63	33.49
4.98000	26.89	42.21	5.24000	25.00	39.42	5.50000	23.36	37.02
6.04000	27.69	47.36	6.37000	25.74	44.28	6.68000	24.04	41.56
7.11000	28.15	51.76	7.49000	26.16	48.36	7.86000	24.43	45.39
10.60000	28.73	62.65	11.20000	26.68	58.58	11.80000	24.91	55.05
14.20000	28.84	70.70	14.90000	26.78	65.90	15.70000	25.00	61.90
21.30000	28.78	81.93	22.40000	26.72	76.39	23.60000	24.93	71.71
35.50000	28.56	96.12	37.40000	26.52	89.63	39.30000	24.74	84.00
71.10000	28.32	115.50	74.90000	26.29	107.63	78.60000	24.54	100.78
142.00000	28.20	134.86	149.00000	26.18	125.51	157.00000	24.43	117.57

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN V
 Z=23 A= 50.950

TD=64.0 EV ET=0.822950 MEV			TD=68.0 EV ET=0.858057 MEV			TD=72.0 EV ET=0.892285 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.83100	0.06	0.06	0.86600	0.05	0.05	0.90100	0.05	0.05
0.83900	0.12	0.12	0.87500	0.11	0.11	0.91000	0.10	0.10
0.85500	0.26	0.26	0.89200	0.24	0.24	0.92700	0.21	0.21
0.88000	0.49	0.49	0.91800	0.45	0.45	0.95400	0.41	0.41
0.91300	0.83	0.83	0.95200	0.76	0.76	0.99000	0.70	0.70
0.95400	1.29	1.29	0.99500	1.19	1.19	1.03000	1.06	1.06
1.00000	1.84	1.84	1.04000	1.67	1.67	1.08000	1.54	1.54
1.06000	2.59	2.59	1.11000	2.46	2.46	1.15000	2.26	2.26
1.15000	3.74	3.74	1.20000	3.51	3.51	1.24000	3.21	3.21
1.27000	5.26	5.26	1.32000	4.89	4.89	1.38000	4.68	4.68
1.44000	7.28	7.30	1.50000	6.84	6.85	1.56000	6.46	6.48
1.64000	9.38	9.53	1.71000	8.84	8.98	1.78000	8.38	8.52
1.89000	11.59	12.08	1.97000	10.93	11.40	2.05000	10.36	10.81
2.22000	13.90	15.11	2.31000	13.10	14.24	2.40000	12.39	13.49
2.63000	16.06	18.43	2.74000	15.14	17.41	2.85000	14.34	16.52
3.12000	17.89	21.89	3.26000	16.90	20.75	3.39000	16.00	19.69
3.70000	19.39	25.43	3.86000	18.30	24.07	4.01000	17.31	22.83
4.27000	20.42	28.46	4.46000	19.26	26.97	4.63000	18.21	25.56
4.93000	21.24	31.55	5.14000	20.02	29.85	5.35000	18.94	28.35
5.76000	21.94	34.93	6.00000	20.67	33.03	6.24000	19.54	31.35
6.99000	22.56	39.19	7.29000	21.25	37.07	7.58000	20.09	35.17
8.22000	22.92	42.78	8.58000	21.58	40.48	8.92000	20.40	38.39
12.30000	23.36	51.78	12.80000	21.98	48.91	13.30000	20.77	46.36
16.40000	23.43	58.26	17.10000	22.05	55.06	17.80000	20.83	52.21
24.60000	23.37	67.42	25.70000	21.99	63.72	26.70000	20.77	60.36
41.10000	23.19	79.03	42.90000	21.82	74.64	44.60000	20.61	70.69
82.20000	23.00	94.76	85.80000	21.65	89.45	89.20000	20.44	84.69
164.00000	22.91	110.48	171.00000	21.56	104.23	178.00000	20.36	98.67

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN V
Z=23 A= 50.950

TD=76.0 EV ET=0.925699 MEV			TD=80.0 EV ET=0.958353 MEV			TD=84.0 EV ET=0.990297 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.93400	0.04	0.04	0.96700	0.04	0.04	1.00000	0.04	0.04
0.94400	0.09	0.09	0.97700	0.08	0.08	1.01000	0.08	0.08
0.96200	0.20	0.20	0.99600	0.18	0.18	1.02000	0.12	0.12
0.99000	0.38	0.38	1.02000	0.32	0.32	1.05000	0.27	0.27
1.02000	0.59	0.59	1.06000	0.58	0.58	1.09000	0.51	0.51
1.07000	1.00	1.00	1.11000	0.95	0.95	1.14000	0.84	0.84
1.12000	1.44	1.44	1.16000	1.35	1.35	1.20000	1.29	1.29
1.20000	2.19	2.19	1.24000	2.04	2.04	1.28000	1.92	1.92
1.29000	3.06	3.06	1.34000	2.94	2.94	1.38000	2.75	2.75
1.43000	4.41	4.41	1.48000	4.18	4.18	1.53000	3.99	3.99
1.61000	6.05	6.06	1.67000	5.78	5.79	1.73000	5.54	5.55
1.85000	7.98	8.11	1.91000	7.55	7.68	1.98000	7.25	7.38
2.12000	9.79	10.23	2.20000	9.35	9.78	2.27000	8.91	9.32
2.49000	11.77	12.83	2.58000	11.22	12.25	2.67000	10.73	11.73
2.96000	13.63	15.74	3.06000	12.97	14.99	3.16000	12.37	14.33
3.51000	15.18	18.70	3.64000	14.46	17.87	3.76000	13.80	17.09
4.16000	16.43	21.73	4.31000	15.64	20.74	4.45000	14.92	19.82
4.81000	17.29	24.36	4.98000	16.45	23.24	5.14000	15.68	22.20
5.55000	17.97	26.98	5.75000	17.09	25.75	5.94000	16.29	24.62
6.47000	18.53	29.82	6.70000	17.62	28.45	6.93000	16.80	27.22
7.86000	19.04	33.45	8.14000	18.10	31.91	8.41000	17.25	30.50
9.25000	19.33	36.51	9.58000	18.37	34.83	9.90000	17.50	33.29
13.80000	19.67	44.09	14.30000	18.69	42.04	14.80000	17.81	40.20
18.50000	19.73	49.67	19.10000	18.74	47.28	19.80000	17.85	45.22
27.70000	19.67	57.36	28.70000	18.68	54.66	29.70000	17.79	52.22
46.20000	19.52	67.12	47.90000	18.54	63.95	49.50000	17.66	61.05
92.50000	19.36	80.40	95.80000	18.39	76.55	99.00000	17.52	73.05
185.00000	19.29	93.70	191.00000	18.32	89.12	198.00000	17.45	85.08

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN V
Z=23 A= 50.950

TD=88.0 EV ET=1.021575 MEV			TD=92.0 EV ET=1.052227 MEV			TD=96.0 EV ET=1.082290 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.03000	0.03	0.03	1.06000	0.02	0.02	1.09000	0.02	0.02
1.04000	0.06	0.06	1.07000	0.06	0.06	1.10000	0.05	0.05
1.06000	0.15	0.15	1.09000	0.13	0.13	1.12000	0.12	0.12
1.09000	0.29	0.29	1.12000	0.26	0.26	1.15000	0.23	0.23
1.13000	0.51	0.51	1.16000	0.46	0.46	1.20000	0.46	0.46
1.18000	0.82	0.82	1.22000	0.80	0.80	1.25000	0.73	0.73
1.24000	1.23	1.23	1.28000	1.19	1.19	1.32000	1.15	1.15
1.32000	1.82	1.82	1.36000	1.74	1.74	1.40000	1.66	1.66
1.43000	2.67	2.67	1.47000	2.52	2.52	1.51000	2.40	2.40
1.58000	3.82	3.82	1.63000	3.67	3.67	1.67000	3.47	3.47
1.78000	5.26	5.28	1.84000	5.08	5.10	1.89000	4.86	4.87
2.04000	6.92	7.04	2.10000	6.62	6.75	2.16000	6.36	6.48
2.34000	8.52	8.92	2.42000	8.21	8.61	2.48000	7.85	8.22
2.75000	10.25	11.21	2.84000	9.85	10.80	2.92000	9.46	10.38
3.26000	11.84	13.73	3.36000	11.35	13.19	3.46000	10.91	12.70
3.88000	13.20	16.38	3.99000	12.64	15.70	4.11000	12.14	15.12
4.59000	14.26	19.00	4.73000	13.66	18.24	4.87000	13.12	17.56
5.31000	15.00	21.30	5.47000	14.36	20.45	5.62000	13.78	19.65
6.12000	15.57	23.57	6.31000	14.91	22.64	6.49000	14.30	21.77
7.15000	16.05	26.07	7.36000	15.36	25.02	7.57000	14.73	24.05
8.68000	16.48	29.23	8.94000	15.77	28.04	9.19000	15.12	26.95
10.20000	16.71	31.86	10.50000	15.99	30.56	10.80000	15.33	29.37
15.30000	17.00	38.52	15.70000	16.26	36.89	16.20000	15.58	35.49
20.40000	17.04	43.26	21.00000	16.30	41.48	21.60000	15.62	39.84
30.60000	16.98	49.95	31.50000	16.24	47.88	32.40000	15.56	45.98
51.00000	16.85	58.38	52.60000	16.12	55.97	54.10000	15.44	53.74
102.00000	16.72	69.84	105.00000	15.99	66.91	108.00000	15.32	64.22
204.00000	16.65	81.32	210.00000	15.93	77.89	216.00000	15.27	74.75

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
 Z=24 A= 52.010

TD= 4.0 EV ET=0.087322 MEV			TD= 8.0 EV ET=0.163431 MEV			TD=12.0 EV ET=0.231782 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.08810	10.62	10.62	0.16500	3.01	3.01	0.23400	1.39	1.39
0.08900	22.48	22.48	0.16600	4.88	4.88	0.23600	2.61	2.61
0.09080	44.95	44.95	0.16900	10.29	10.29	0.24100	5.56	5.56
0.09340	74.70	74.70	0.17400	18.68	18.68	0.24800	9.44	9.44
0.09690	110.29	110.29	0.18100	29.25	29.25	0.25700	14.04	14.04
0.10100	146.42	146.42	0.18900	39.90	39.90	0.26300	19.16	19.16
0.10600	183.78	183.78	0.19900	51.47	51.47	0.28200	25.01	25.01
0.11300	226.25	226.25	0.21200	64.17	64.17	0.30100	31.97	31.97
0.12200	268.21	268.21	0.22800	77.04	77.04	0.32400	39.21	39.21
0.13500	311.39	311.39	0.25300	92.80	92.80	0.35900	48.41	48.41
0.15200	348.14	348.14	0.28600	108.22	108.22	0.40500	58.14	58.14
0.17400	376.64	377.31	0.32600	121.87	122.38	0.46300	67.86	68.28
0.20000	395.50	401.57	0.37500	134.10	136.78	0.53300	77.10	78.89
0.23500	408.43	425.53	0.44100	146.02	153.00	0.62500	86.49	91.01
0.27900	415.61	448.11	0.52200	156.51	169.86	0.74100	95.45	104.30
0.33100	418.81	469.32	0.62100	165.76	187.64	0.88000	103.41	118.24
0.39200	419.87	490.42	0.73500	173.47	205.62	1.04000	110.13	132.38
0.45400	419.90	509.62	0.84900	179.20	221.75	1.20000	115.12	145.03
0.52300	419.57	529.41	0.98000	184.15	238.58	1.39000	119.52	158.54
0.61100	419.01	553.05	1.14000	188.61	257.23	1.62000	123.36	173.19
0.74200	418.22	585.87	1.38000	193.20	282.18	1.97000	127.25	192.73
0.87300	417.53	616.43	1.63000	196.29	305.17	2.31000	129.64	209.27
1.30000	415.51	703.74	2.45000	200.88	366.08	3.47000	133.23	253.88
1.74000	413.54	778.61	3.26000	202.07	412.17	4.63000	134.15	287.15
2.61000	410.01	896.21	4.90000	202.05	481.77	6.95000	134.20	335.75
4.36000	405.02	1062.80	8.17000	200.51	573.53	11.50000	133.22	397.81
8.73000	398.25	1308.11	16.30000	197.90	702.10	23.10000	131.61	485.74
17.40000	393.66	1564.58	32.60000	196.23	834.20	46.30000	130.67	574.75
26.10000	392.14	1718.61	49.00000	195.70	912.61	69.50000	130.37	627.07
43.60000	391.00	1915.46	81.70000	195.29	1011.47	115.00000	130.13	692.15
61.10000	390.51	2045.66	114.00000	195.09	1076.01	162.00000	130.01	736.46
87.30000	390.09	2183.63	163.00000	194.90	1145.32	231.00000	129.89	782.35
174.00000	389.39	2450.75	326.00000	194.55	1279.78	463.00000	129.65	872.30

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
 Z=24 A= 52.010

TD=16.0 EV ET=0.294353 MEV			TD=20.0 EV ET=0.352401 MEV			TD=24.0 EV ET=0.406785 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.29700	0.76	0.76	0.35500	0.41	0.41	0.41000	0.31	0.31
0.30000	1.61	1.61	0.35900	1.04	1.04	0.41400	0.70	0.70
0.30600	3.25	3.25	0.36600	2.11	2.11	0.42300	1.56	1.56
0.31400	5.34	5.34	0.37700	3.73	3.73	0.43500	2.69	2.69
0.32600	8.30	8.30	0.39100	5.71	5.71	0.45100	4.15	4.15
0.34100	11.73	11.73	0.40800	8.00	8.00	0.47100	5.92	5.92
0.35900	15.50	15.50	0.42900	10.66	10.66	0.49600	8.05	8.05
0.38200	19.88	19.88	0.45800	14.08	14.08	0.52800	10.64	10.64
0.41200	24.98	24.98	0.49300	17.86	17.86	0.56900	13.76	13.76
0.45600	31.49	31.49	0.54600	23.01	23.01	0.63000	18.01	18.01
0.51500	38.85	38.86	0.61600	28.92	28.93	0.71100	23.02	23.04
0.58800	46.38	46.74	0.70400	35.21	35.51	0.81300	28.44	28.72
0.67700	53.86	55.24	0.81000	41.47	42.62	0.93500	33.85	34.85
0.79400	61.64	65.10	0.95100	48.13	51.03	1.09000	39.39	41.83
0.94100	69.11	76.00	1.12000	54.28	59.94	1.30000	45.15	50.19
1.11000	75.55	87.03	1.33000	59.98	69.70	1.54000	49.99	58.57
1.32000	81.39	99.10	1.58000	64.88	79.89	1.83000	54.18	67.45
1.53000	85.63	109.80	1.83000	68.41	88.89	2.11000	57.09	75.01
1.76000	89.05	120.30	2.11000	71.29	97.89	2.44000	59.56	82.94
2.06000	92.24	132.50	2.46000	73.83	107.86	2.84000	61.66	91.43
2.50000	95.28	148.02	2.99000	76.30	120.91	3.45000	63.70	102.58
2.94000	97.16	161.44	3.52000	77.81	132.11	4.06000	64.93	112.12
4.41000	99.82	196.38	5.28000	79.86	160.85	6.10000	66.56	136.61
5.88000	100.48	222.13	7.04000	80.33	181.86	8.13000	66.92	154.33
8.83000	100.46	259.49	10.50000	80.28	211.64	12.20000	66.84	179.75
14.70000	99.70	307.27	17.60000	79.65	250.69	20.30000	66.31	212.00
29.40000	98.57	373.31	35.20000	78.79	303.76	40.60000	65.61	256.36
58.80000	97.94	440.10	70.40000	78.32	357.31	81.30000	65.24	301.12
88.30000	97.74	479.47	105.00000	78.17	388.31	122.00000	65.13	327.37
147.00000	97.57	528.91	176.00000	78.04	428.42	203.00000	65.02	360.34

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
 Z=24 A= 52.010

TD=28.0 EV ET=0.458122 MEV			TD=32.0 EV ET=0.506873 MEV			TD=36.0 EV ET=0.553394 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.46200	0.25	0.25	0.51100	0.19	0.19	0.55800	0.16	0.16
0.46700	0.58	0.58	0.51700	0.47	0.47	0.56400	0.36	0.36
0.47600	1.16	1.16	0.52700	0.93	0.93	0.57500	0.74	0.74
0.49000	2.06	2.06	0.54200	1.63	1.63	0.59200	1.34	1.34
0.50800	3.21	3.21	0.56200	2.57	2.57	0.61400	2.14	2.14
0.53100	4.65	4.65	0.58700	3.75	3.75	0.64100	3.13	3.13
0.55800	6.31	6.31	0.61800	5.20	5.20	0.67500	4.39	4.39
0.59500	8.52	8.52	0.65800	7.05	7.05	0.71900	6.02	6.02
0.64100	11.14	11.14	0.70900	9.33	9.33	0.77400	8.01	8.01
0.71000	14.81	14.81	0.78500	12.53	12.53	0.85700	10.88	10.88
0.80100	19.16	19.17	0.88700	16.44	16.46	0.96800	14.40	14.42
0.91600	23.92	24.18	1.01000	20.57	20.79	1.10000	18.07	18.28
1.05000	28.59	29.46	1.16000	24.81	25.60	1.27000	22.06	22.81
1.23000	33.64	35.84	1.36000	29.36	31.37	1.49000	26.19	28.08
1.46000	38.58	43.06	1.62000	33.86	37.99	1.77000	30.18	34.00
1.74000	42.97	50.75	1.92000	37.64	44.67	2.10000	33.59	40.11
2.06000	46.54	58.43	2.28000	40.86	51.68	2.49000	36.44	46.40
2.38000	49.09	65.19	2.63000	43.07	57.66	2.87000	38.40	51.79
2.74000	51.16	71.95	3.04000	44.92	63.87	3.32000	40.04	57.42
3.20000	52.99	79.56	3.54000	46.48	70.52	3.87000	41.42	63.46
3.89000	54.71	89.35	4.30000	47.96	79.18	4.70000	42.71	71.25
4.58000	55.74	97.70	5.06000	48.83	86.56	5.53000	43.46	77.86
6.87000	57.07	118.89	7.60000	49.95	105.34	8.30000	44.41	94.66
9.16000	57.35	134.23	10.10000	50.17	118.70	11.00000	44.59	106.48
13.70000	57.26	155.97	15.20000	50.07	138.11	16.60000	44.49	123.91
22.90000	56.79	183.98	25.30000	49.66	162.48	27.60000	44.12	145.57
45.80000	56.21	222.08	50.60000	49.17	195.87	55.30000	43.69	175.37
91.60000	55.91	260.42	101.00000	48.91	229.35	110.00000	43.47	204.99
137.00000	55.82	282.75	152.00000	48.83	249.19	166.00000	43.40	222.76

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
 Z=24 A= 52.010

TD=40.0 EV ET=0.597964 MEV			TD=44.0 EV ET=0.640812 MEV			TD=48.0 EV ET=0.682121 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.60300	0.13	0.13	0.64700	0.12	0.12	0.68800	0.09	0.09
0.60900	0.29	0.29	0.65300	0.25	0.25	0.69500	0.21	0.21
0.62100	0.61	0.61	0.66600	0.53	0.53	0.70900	0.45	0.45
0.63900	1.11	1.11	0.68500	0.95	0.95	0.72900	0.82	0.82
0.66300	1.79	1.79	0.71100	1.56	1.56	0.75700	1.36	1.36
0.69300	2.68	2.68	0.74300	2.34	2.34	0.79100	2.06	2.06
0.72900	3.77	3.77	0.78100	3.30	3.30	0.83200	2.94	2.94
0.77700	5.23	5.23	0.83300	4.63	4.63	0.88600	4.13	4.13
0.83700	7.04	7.04	0.89700	6.27	6.27	0.95400	5.63	5.63
0.92600	9.62	9.62	0.99300	8.65	8.65	1.05000	7.70	7.70
1.04000	12.67	12.69	1.12000	11.56	11.58	1.19000	10.50	10.52
1.19000	16.21	16.41	1.28000	14.79	14.99	1.36000	13.50	13.68
1.37000	19.79	20.49	1.47000	18.02	18.69	1.56000	16.48	17.09
1.61000	23.61	25.36	1.73000	21.56	23.23	1.84000	19.80	21.37
1.91000	27.21	30.75	2.05000	24.84	28.18	2.18000	22.83	25.96
2.27000	30.34	36.40	2.43000	27.66	33.31	2.59000	25.45	30.79
2.69000	32.90	42.14	2.88000	29.99	38.60	3.06000	27.55	35.60
3.10000	34.66	47.05	3.33000	31.62	43.22	3.54000	29.04	39.90
3.58000	36.11	52.12	3.84000	32.92	47.84	4.09000	30.24	44.23
4.18000	37.35	57.68	4.48000	34.02	52.91	4.77000	31.24	48.90
5.08000	38.49	64.78	5.44000	35.04	59.39	5.79000	32.16	54.87
5.97000	39.15	70.74	6.40000	35.63	64.88	6.82000	32.69	59.97
8.96000	39.98	85.95	9.61000	36.35	78.79	10.20000	33.33	72.65
11.90000	40.13	96.72	12.80000	36.48	88.72	13.60000	33.43	81.81
17.90000	40.02	112.32	19.20000	36.37	102.84	20.40000	33.33	94.78
29.80000	39.69	131.90	32.00000	36.07	120.70	34.10000	33.05	111.26
59.70000	39.31	158.74	64.00000	35.73	145.06	68.20000	32.75	133.61
119.00000	39.12	185.49	128.00000	35.56	169.51	136.00000	32.59	155.94
179.00000	39.06	201.36	192.00000	35.51	183.84	204.00000	32.54	169.07

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
 Z=24 A= 52.010

TD=52.0 EV ET=0.722047 MEV			TD=56.0 EV ET=0.760721 MEV			TD=60.0 EV ET=0.798252 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.72900	0.09	0.09	0.76800	0.08	0.08	0.80600	0.07	0.07
0.73600	0.19	0.19	0.77500	0.16	0.16	0.81400	0.15	0.15
0.75000	0.39	0.39	0.79100	0.35	0.35	0.83000	0.31	0.31
0.77200	0.72	0.72	0.81300	0.64	0.64	0.85400	0.58	0.58
0.80100	1.20	1.20	0.84400	1.08	1.08	0.88600	0.98	0.98
0.83700	1.84	1.84	0.88200	1.66	1.66	0.92500	1.50	1.50
0.88000	2.63	2.63	0.92800	2.40	2.40	0.97300	2.19	2.19
0.93800	3.74	3.74	0.98800	3.41	3.41	1.03000	3.04	3.04
1.01000	5.13	5.13	1.06000	4.64	4.64	1.11000	4.26	4.26
1.11000	7.02	7.02	1.17000	6.49	6.49	1.23000	6.06	6.06
1.26000	9.67	9.69	1.33000	8.99	9.01	1.39000	8.31	8.33
1.44000	12.46	12.64	1.52000	11.61	11.79	1.59000	10.79	10.96
1.66000	15.34	15.94	1.74000	14.17	14.74	1.83000	13.30	13.84
1.94000	18.26	19.72	2.05000	17.05	18.47	2.15000	15.95	17.30
2.31000	21.15	24.14	2.43000	19.68	22.50	2.55000	18.42	21.12
2.74000	23.56	28.60	2.89000	21.95	26.75	3.03000	20.54	25.10
3.24000	25.50	33.11	3.42000	23.76	30.99	3.59000	22.23	29.11
3.75000	26.88	37.12	3.95000	25.02	34.70	4.15000	23.40	32.61
4.33000	27.97	41.13	4.56000	26.02	38.44	4.78000	24.32	36.07
5.05000	28.89	45.48	5.32000	26.86	42.50	5.58000	25.10	39.90
6.13000	29.72	51.02	6.46000	27.62	47.69	6.78000	25.81	44.77
7.22000	30.20	55.74	7.60000	28.06	52.06	7.98000	26.20	48.88
10.80000	30.77	67.50	11.40000	28.58	63.08	11.90000	26.67	59.05
14.40000	30.86	75.97	15.20000	28.65	70.97	15.90000	26.74	66.48
21.60000	30.76	87.96	22.80000	28.55	82.12	23.90000	26.64	76.95
36.10000	30.50	103.19	38.00000	28.31	96.20	39.90000	26.42	90.14
72.20000	30.22	123.83	76.00000	28.06	115.37	79.80000	26.19	108.04
144.00000	30.09	144.45	152.00000	27.93	134.60	159.00000	26.07	125.90

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
 Z=24 A= 52.010

TD=64.0 EV ET=0.834738 MEV			TD=68.0 EV ET=0.870260 MEV			TD=72.0 EV ET=0.904891 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.84300	0.06	0.06	0.87800	0.05	0.05	0.91300	0.05	0.05
0.85100	0.13	0.13	0.88700	0.12	0.12	0.92200	0.10	0.10
0.86800	0.28	0.28	0.90500	0.25	0.25	0.94100	0.23	0.23
0.89300	0.53	0.53	0.93100	0.48	0.48	0.96800	0.44	0.44
0.92600	0.88	0.88	0.96500	0.80	0.80	1.00000	0.71	0.71
0.96800	1.38	1.38	1.00000	1.17	1.17	1.04000	1.09	1.09
1.01000	1.92	1.92	1.06000	1.86	1.86	1.10000	1.71	1.71
1.08000	2.85	2.85	1.13000	2.70	2.70	1.17000	2.48	2.48
1.16000	3.95	3.95	1.21000	3.70	3.70	1.26000	3.49	3.49
1.29000	5.71	5.71	1.34000	5.30	5.30	1.40000	5.07	5.07
1.46000	7.86	7.88	1.52000	7.37	7.39	1.58000	6.96	6.98
1.66000	10.10	10.26	1.74000	9.61	9.77	1.80000	9.01	9.16
1.91000	12.46	12.98	2.00000	11.83	12.34	2.08000	11.20	11.70
2.25000	15.01	16.31	2.34000	14.13	15.37	2.44000	13.42	14.63
2.67000	17.34	19.93	2.78000	16.35	18.82	2.89000	15.48	17.85
3.17000	19.31	23.67	3.30000	18.20	22.36	3.43000	17.23	21.21
3.75000	20.88	27.43	3.91000	19.70	25.95	4.07000	18.65	24.65
4.34000	21.98	30.75	4.52000	20.72	29.07	4.70000	19.60	27.59
5.00000	22.84	34.02	5.22000	21.53	32.21	5.42000	20.36	30.54
5.84000	23.56	37.63	6.09000	22.20	35.61	6.33000	20.99	33.78
7.09000	24.21	42.20	7.39000	22.81	39.91	7.69000	21.56	37.88
8.34000	24.58	46.05	8.70000	23.15	43.56	9.04000	21.87	41.31
12.50000	25.01	55.73	13.00000	23.54	52.62	13.50000	22.23	49.86
16.60000	25.07	62.55	17.40000	23.59	59.23	18.00000	22.28	56.03
25.00000	24.97	72.43	26.10000	23.50	68.44	27.10000	22.19	64.82
41.70000	24.76	84.78	43.50000	23.30	80.06	45.20000	22.00	75.81
83.40000	24.55	101.57	87.00000	23.10	95.87	90.40000	21.82	90.75
166.00000	24.44	118.29	174.00000	23.00	111.71	180.00000	21.72	105.62

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
Z=24 A= 52.010

TD=76.0 EV ET=0.938695 MEV			TD=80.0 EV ET=0.971728 MEV			TD=84.0 EV ET=1.004041 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.94800	0.05	0.05	0.98100	0.04	0.04	1.01000	0.02	0.02
0.95700	0.10	0.10	0.99100	0.09	0.09	1.02000	0.06	0.06
0.97600	0.21	0.21	1.01000	0.19	0.19	1.04000	0.16	0.16
1.00000	0.37	0.37	1.03000	0.31	0.31	1.07000	0.32	0.32
1.04000	0.68	0.68	1.07000	0.58	0.58	1.11000	0.57	0.57
1.08000	1.02	1.02	1.12000	0.97	0.97	1.16000	0.93	0.93
1.14000	1.59	1.59	1.18000	1.49	1.49	1.22000	1.41	1.41
1.22000	2.39	2.39	1.26000	2.23	2.23	1.30000	2.09	2.09
1.31000	3.33	3.33	1.36000	3.19	3.19	1.40000	2.98	2.98
1.45000	4.77	4.77	1.50000	4.52	4.52	1.55000	4.30	4.30
1.64000	6.61	6.63	1.70000	6.30	6.32	1.75000	5.96	5.98
1.87000	8.58	8.72	1.94000	8.19	8.34	2.00000	7.79	7.93
2.15000	10.59	11.06	2.23000	10.11	10.57	2.30000	9.63	10.07
2.53000	12.74	13.90	2.62000	12.14	13.27	2.71000	11.60	12.70
3.00000	14.71	17.00	3.10000	13.99	16.18	3.21000	13.37	15.51
3.56000	16.36	20.20	3.69000	15.59	19.30	3.81000	14.87	18.44
4.22000	17.70	23.45	4.37000	16.84	22.38	4.51000	16.06	21.38
4.88000	18.61	26.28	5.05000	17.70	25.07	5.22000	16.88	23.98
5.63000	19.32	29.09	5.83000	18.37	27.76	6.02000	17.52	26.53
6.57000	19.91	32.15	6.80000	18.93	30.67	7.02000	18.04	29.30
7.97000	20.43	36.02	8.25000	19.42	34.35	8.53000	18.51	32.85
9.38000	20.73	39.30	9.71000	19.70	37.47	10.00000	18.76	35.75
14.00000	21.06	47.41	14.50000	20.01	45.20	15.00000	19.06	43.20
18.70000	21.11	53.29	19.40000	20.05	50.83	20.00000	19.09	48.51
28.10000	21.02	61.58	29.10000	19.97	58.67	30.10000	19.01	56.04
46.90000	20.84	72.02	48.50000	19.80	68.56	50.20000	18.85	65.48
93.80000	20.67	86.17	97.10000	19.63	82.03	100.00000	18.69	78.22
187.00000	20.58	100.29	194.00000	19.55	95.49	200.00000	18.62	91.05

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CR
Z=24 A= 52.010

TD=88.0 EV ET=1.035680 MEV			TD=92.0 EV ET=1.066684 MEV			TD=96.0 EV ET=1.097090 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.04000	0.01	0.01	1.07000	0.01	0.01	1.10000	0.01	0.01
1.05000	0.05	0.05	1.08000	0.04	0.04	1.11000	0.04	0.04
1.07000	0.13	0.13	1.10000	0.12	0.12	1.14000	0.14	0.14
1.10000	0.28	0.28	1.14000	0.30	0.30	1.17000	0.27	0.27
1.14000	0.51	0.51	1.18000	0.51	0.51	1.21000	0.46	0.46
1.20000	0.90	0.90	1.23000	0.82	0.82	1.27000	0.80	0.80
1.26000	1.35	1.35	1.30000	1.29	1.29	1.33000	1.18	1.18
1.34000	1.98	1.98	1.38000	1.88	1.88	1.42000	1.80	1.80
1.44000	2.80	2.80	1.49000	2.73	2.73	1.53000	2.59	2.59
1.60000	4.11	4.11	1.65000	3.95	3.95	1.70000	3.80	3.80
1.81000	5.73	5.75	1.86000	5.46	5.48	1.91000	5.22	5.24
2.07000	7.49	7.63	2.13000	7.17	7.31	2.19000	6.88	7.01
2.38000	9.25	9.69	2.45000	8.86	9.29	2.52000	8.51	8.93
2.79000	11.08	12.13	2.88000	10.64	11.68	2.96000	10.22	11.22
3.31000	12.79	14.86	3.41000	12.26	14.27	3.51000	11.78	13.73
3.93000	14.22	17.67	4.05000	13.63	16.97	4.16000	13.08	16.30
4.66000	15.36	20.52	4.80000	14.72	19.70	4.93000	14.12	18.92
5.38000	16.13	22.96	5.54000	15.45	22.04	5.70000	14.82	21.19
6.21000	16.74	25.42	6.40000	16.03	24.41	6.58000	15.37	23.46
7.24000	17.23	28.07	7.46000	16.50	26.95	7.67000	15.82	25.90
8.80000	17.68	31.46	9.06000	16.92	30.19	9.32000	16.22	29.02
10.30000	17.92	34.21	10.60000	17.14	32.81	10.90000	16.43	31.53
15.50000	18.20	41.39	16.00000	17.41	39.74	16.40000	16.68	38.12
20.70000	18.22	46.49	21.30000	17.43	44.56	21.90000	16.70	42.80
31.00000	18.15	53.60	32.00000	17.36	51.42	32.90000	16.63	49.38
51.70000	17.99	62.61	53.30000	17.21	60.02	54.80000	16.49	57.62
103.00000	17.84	74.77	106.00000	17.07	71.63	109.00000	16.36	68.75
207.00000	17.77	87.11	213.00000	17.00	83.43	219.00000	16.29	80.06

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN PE
 Z=26 A= 55.850

TD= 4.0 EV ET=0.093269 MEV			TD= 8.0 EV ET=0.173953 MEV			TD=12.0 EV ET=0.246087 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.09420	12.31	12.31	0.17500	1.97	1.97	0.24800	1.18	1.18
0.09510	23.80	23.80	0.17700	5.64	5.64	0.25100	2.98	2.98
0.09690	45.65	45.65	0.18000	10.91	10.91	0.25500	5.30	5.30
0.09970	76.90	76.90	0.18600	20.70	20.70	0.26300	9.70	9.70
0.10300	109.91	109.91	0.19300	31.01	31.01	0.27300	14.78	14.78
0.10800	153.24	153.24	0.20100	41.53	41.53	0.28500	20.35	20.35
0.11300	189.88	189.88	0.21200	54.19	54.19	0.30000	26.64	26.64
0.12100	237.58	237.58	0.22600	67.85	67.85	0.31300	33.71	33.71
0.13000	279.08	279.08	0.24300	81.64	81.64	0.34400	41.82	41.82
0.14400	325.88	325.88	0.26900	98.43	98.43	0.38100	51.95	51.95
0.16300	367.42	367.42	0.30400	115.53	115.53	0.43000	62.89	62.89
0.18600	398.19	398.98	0.34700	131.12	131.71	0.49200	73.98	74.46
0.21400	420.12	426.82	0.40000	145.35	148.36	0.56500	88.47	86.48
0.25100	435.96	454.39	0.46900	158.94	166.62	0.66400	95.28	100.35
0.29300	446.08	481.18	0.55600	171.36	186.21	0.78700	105.51	115.50
0.35400	451.85	506.87	0.66100	182.17	206.61	0.93500	114.61	131.43
0.41900	455.05	532.26	0.78200	191.17	227.25	1.10000	122.02	147.09
0.48400	456.64	554.97	0.90400	197.85	245.85	1.27000	127.65	161.48
0.55900	457.62	579.12	1.04000	203.41	264.65	1.47000	132.52	176.67
0.65200	458.22	606.95	1.21000	208.48	285.91	1.72000	136.84	193.61
0.79200	458.51	645.64	1.47000	213.67	314.74	2.09000	140.93	215.46
0.93200	458.43	681.32	1.73000	216.94	340.13	2.46000	143.54	234.42
1.39000	456.97	782.17	2.60000	221.60	408.38	3.69000	147.02	283.93
1.86000	454.78	867.09	3.47000	222.56	460.23	4.92000	147.73	320.69
2.79000	450.48	999.17	5.21000	222.05	537.14	7.38000	147.43	374.21
4.66000	444.26	1184.31	8.69000	219.87	638.30	12.30000	146.01	443.41
9.32000	436.02	1454.33	17.30000	216.62	778.98	24.60000	144.02	539.21
18.60000	430.61	1736.35	34.70000	214.63	924.26	49.20000	142.91	636.34
27.90000	428.85	1905.08	52.10000	214.00	1009.85	73.80000	142.56	693.48
46.60000	427.51	2120.49	86.90000	213.50	1118.05	123.00000	142.26	765.66
65.20000	426.92	2262.23	121.00000	213.26	1188.16	172.00000	142.10	813.05
93.20000	426.40	2413.27	173.00000	213.02	1263.89	246.00000	141.94	863.62
186.00000	425.48	2705.73	347.00000	212.55	1411.40	492.00000	141.63	961.58

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN PE
 Z=26 A= 55.850

TD=16.0 EV ET=0.311922 MEV			TD=20.0 EV ET=0.372867 MEV			TD=24.0 EV ET=0.429873 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.31500	0.87	0.87	0.37600	0.49	0.49	0.43400	0.40	0.40
0.31900	1.70	1.70	0.38000	1.10	1.10	0.43800	0.78	0.78
0.32400	3.32	3.32	0.38700	2.16	2.16	0.44700	1.63	1.63
0.33300	5.66	5.66	0.39800	3.79	3.79	0.45900	2.76	2.76
0.34600	8.86	8.86	0.41300	5.93	5.93	0.47700	4.43	4.43
0.36100	12.31	12.31	0.43200	8.53	8.53	0.49800	6.33	6.33
0.38000	16.38	16.38	0.45400	11.39	11.39	0.52400	8.62	8.62
0.40500	21.27	21.27	0.48400	15.06	15.06	0.55300	11.49	11.49
0.43600	26.76	26.76	0.52200	19.37	19.37	0.60100	14.94	14.94
0.48300	34.08	34.08	0.57700	25.02	25.02	0.66500	19.76	19.76
0.54500	42.31	42.31	0.65200	31.78	31.79	0.75200	25.45	25.47
0.62300	50.93	51.33	0.74500	38.90	39.25	0.85900	31.55	31.86
0.71700	59.41	60.97	0.85700	46.01	47.31	0.98800	37.68	38.82
0.84200	68.34	72.29	1.00000	53.28	56.48	1.16300	44.22	47.11
0.99800	76.83	84.68	1.19000	60.66	67.22	1.37000	50.32	56.04
1.18000	84.17	97.38	1.41000	66.94	78.12	1.63000	55.85	65.74
1.40000	90.60	110.86	1.67000	72.27	89.41	1.93000	60.38	75.51
1.62000	95.23	122.79	1.93000	76.09	99.37	2.23000	63.60	84.11
1.87000	99.06	134.90	2.23000	79.27	109.60	2.57000	66.21	92.77
2.18000	102.40	148.23	2.61000	82.05	121.03	3.00000	68.49	102.41
2.65000	105.63	165.73	3.16000	84.58	135.28	3.65000	70.62	114.91
3.11000	107.55	180.49	3.72000	86.12	147.73	4.29000	71.86	125.41
4.67000	110.13	219.34	5.59000	88.08	179.67	6.44000	73.39	152.42
6.23000	110.61	247.83	7.45000	88.41	202.81	8.59000	73.63	171.99
9.35000	110.34	288.90	11.10000	88.15	235.47	12.80000	73.38	199.43
15.50000	109.27	340.91	18.60000	87.27	278.28	21.40000	72.65	235.13
31.10000	107.87	413.59	37.20000	86.21	336.40	42.90000	71.79	283.85
62.30000	107.11	486.84	74.50000	85.65	395.09	85.90000	71.35	332.82
93.50000	106.87	529.84	111.00000	85.47	428.91	128.00000	71.21	361.03
155.00000	106.66	583.45	186.00000	85.31	472.74	214.00000	71.08	397.40

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
 Z=26 A= 55.850

TD=28.0 EV			ET=0.483616 MEV			TD=32.0 EV			ET=0.534601 MEV			TD=36.0 EV			ET=0.583213 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.48800	0.28	0.28	0.53900	0.20	0.20	0.58900	0.19	0.19									
0.49300	0.60	0.60	0.54500	0.47	0.47	0.59400	0.36	0.36									
0.50200	1.18	1.18	0.55500	0.94	0.94	0.60500	0.78	0.78									
0.51700	2.15	2.15	0.57200	1.74	1.74	0.62400	1.43	1.43									
0.53600	3.39	3.39	0.59300	2.75	2.75	0.64700	2.28	2.28									
0.56000	4.94	4.94	0.62000	4.06	4.06	0.67500	3.39	3.39									
0.59000	6.86	6.86	0.65200	5.63	5.63	0.71100	4.75	4.75									
0.62800	9.24	9.24	0.69400	7.67	7.67	0.75800	6.59	6.59									
0.67700	12.19	12.19	0.74800	10.24	10.24	0.81500	8.83	8.83									
0.74900	16.27	16.27	0.82800	13.85	13.85	0.90300	12.05	12.05									
0.84600	21.24	21.26	0.93500	18.25	18.27	1.02300	16.03	16.05									
0.96700	26.62	26.92	1.06000	22.77	23.01	1.16900	20.21	20.45									
1.11000	31.95	32.97	1.22000	27.64	28.54	1.34300	24.73	25.60									
1.30000	37.64	40.18	1.44000	32.98	35.33	1.57300	29.33	31.50									
1.54000	43.11	48.23	1.71000	37.91	42.66	1.86300	33.72	38.06									
1.83000	47.91	56.74	2.03000	42.13	50.26	2.21300	37.53	44.98									
2.17000	51.89	65.44	2.40000	45.56	57.90	2.62300	40.64	52.02									
2.51000	54.68	73.07	2.77000	47.97	64.62	3.03300	42.81	58.17									
2.90000	56.95	80.81	3.20000	49.95	71.51	3.49300	44.52	64.26									
3.38000	58.86	89.17	3.74000	51.63	79.08	4.08300	45.99	71.09									
4.11000	60.65	100.06	4.54000	53.15	88.66	4.95300	47.31	79.67									
4.83000	61.67	109.20	5.34000	54.02	96.80	5.83000	48.07	87.63									
7.25000	62.91	132.63	8.01000	55.05	117.45	8.74000	48.94	105.49									
9.67000	63.09	149.54	10.60000	55.18	131.93	11.60300	49.04	118.57									
14.50000	62.84	173.57	16.00000	54.95	153.39	17.40300	48.82	137.41									
24.10000	62.22	203.92	26.70000	54.40	180.22	29.10300	48.33	161.41									
48.30000	61.50	245.75	53.40000	53.79	216.77	58.30300	47.80	194.02									
96.70000	61.14	287.75	106.00000	53.49	253.09	116.00300	47.54	226.43									
145.00000	61.03	312.33	160.00000	53.39	274.95	174.00000	47.46	245.58									

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
 Z=26 A= 55.850

TD=40.0 EV			ET=0.629755 MEV			TD=44.0 EV			ET=0.674471 MEV			TD=48.0 EV			ET=0.717561 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.63600	0.16	0.16	0.68100	0.13	0.13	0.72400	0.10	0.10									
0.64200	0.32	0.32	0.68700	0.25	0.25	0.73100	0.22	0.22									
0.65400	0.64	0.64	0.70100	0.55	0.55	0.74500	0.48	0.48									
0.67300	1.17	1.17	0.72100	1.01	1.01	0.76700	0.87	0.87									
0.69900	1.94	1.94	0.74800	1.66	1.66	0.79500	1.46	1.46									
0.73000	2.90	2.90	0.78200	2.53	2.53	0.83200	2.23	2.23									
0.76800	4.11	4.11	0.82200	3.59	3.59	0.87500	3.21	3.21									
0.81800	5.73	5.73	0.87600	5.07	5.07	0.93200	4.55	4.55									
0.88100	7.75	7.75	0.94400	6.93	6.93	1.00000	6.16	6.16									
0.97600	10.71	10.71	1.04000	9.49	9.49	1.11300	8.70	8.70									
1.10000	14.27	14.29	1.18000	12.94	12.97	1.25500	11.71	11.74									
1.25000	18.07	18.29	1.34000	16.42	16.64	1.43300	15.13	15.34									
1.44000	22.12	22.92	1.55000	20.26	21.04	1.65300	18.62	19.36									
1.70000	26.53	28.58	1.82000	24.17	26.09	1.93300	22.15	23.94									
2.01000	30.46	34.52	2.15000	27.75	31.55	2.29000	25.55	29.14									
2.39000	33.92	40.88	2.56000	30.94	37.45	2.72300	28.44	34.54									
2.83000	36.70	47.26	3.03000	33.46	43.31	3.22000	30.75	39.97									
3.27000	38.63	52.83	3.50000	35.21	48.43	3.73000	32.37	44.80									
3.77000	40.17	58.42	4.04000	36.60	53.60	4.30000	33.63	49.54									
4.40000	41.46	64.56	4.72000	37.77	59.27	5.02000	34.68	54.75									
5.35000	42.64	72.45	5.73000	38.81	66.43	6.09300	35.61	61.33									
6.29000	43.30	79.05	6.74000	39.39	72.49	7.17000	36.14	66.94									
9.44000	44.05	95.81	10.10000	40.05	87.74	10.70000	36.71	80.83									
12.50000	44.13	107.52	13.40000	40.11	98.49	14.30000	36.76	90.97									
18.80000	43.92	124.63	20.20000	39.91	114.17	21.50300	36.57	105.27									
31.40000	43.47	146.21	33.70000	39.50	133.77	35.80000	36.20	123.20									
62.90000	43.01	175.58	67.40000	39.09	160.43	71.70300	35.83	147.70									
125.00000	42.78	204.72	134.00000	38.89	186.94	143.00300	35.64	172.12									
188.00000	42.71	222.06	202.00000	38.82	202.80	215.00000	35.58	186.57									

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
 Z=26 A= 55.850

TD=52.0 EV ET=0.759189 MEV			TD=56.0 EV ET=0.799497 MEV			TD=50.0 EV ET=0.838600 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.76600	0.09	0.09	0.80700	0.08	0.08	0.84500	0.07	0.07
0.77400	0.20	0.20	0.81500	0.17	0.17	0.85500	0.15	0.15
0.78900	0.42	0.42	0.83100	0.37	0.37	0.87200	0.33	0.33
0.81200	0.78	0.78	0.85500	0.69	0.69	0.89700	0.62	0.62
0.84200	1.29	1.29	0.88700	1.16	1.16	0.93000	1.04	1.04
0.88000	1.99	1.99	0.92700	1.80	1.80	0.97200	1.64	1.64
0.92600	2.90	2.90	0.97500	2.63	2.63	1.02000	2.37	2.37
0.98600	4.12	4.12	1.03000	3.62	3.62	1.09000	3.49	3.49
1.06000	5.66	5.66	1.11000	5.09	5.09	1.17000	4.80	4.80
1.17000	7.89	7.89	1.23000	7.26	7.26	1.29000	6.74	6.74
1.32000	10.74	10.76	1.39000	9.96	9.98	1.46000	9.32	9.34
1.51000	13.92	14.13	1.59000	12.94	13.14	1.67000	12.12	12.31
1.74000	17.15	17.84	1.83000	15.94	16.59	1.92000	14.92	15.55
2.04000	20.49	22.18	2.15000	19.10	20.72	2.26000	17.92	19.48
2.42000	23.64	27.03	2.55000	22.03	25.26	2.68000	20.65	23.75
2.88000	26.34	32.12	3.03000	24.52	29.99	3.18000	22.95	28.17
3.41000	28.47	37.19	3.59000	26.50	34.75	3.77000	24.80	32.66
3.94000	29.94	41.60	4.15000	27.86	38.89	4.36000	26.06	36.56
4.55000	31.10	46.06	4.79000	28.92	43.04	5.03000	27.05	40.44
5.31000	32.06	50.89	5.59000	29.80	47.55	5.87000	27.85	44.67
6.45000	32.91	57.04	6.79000	30.58	53.29	7.12000	28.57	50.01
7.59000	33.38	62.23	7.99000	31.01	58.12	8.38000	28.96	54.54
11.30000	33.89	75.01	11.90000	31.47	70.04	12.50000	29.37	65.73
15.10000	33.92	84.39	15.90000	31.50	78.76	16.70000	29.39	73.88
22.70000	33.74	97.61	23.90000	31.33	91.04	25.10000	29.23	85.36
37.90000	33.40	114.25	39.90000	31.01	106.51	41.90000	28.93	99.80
75.90000	33.06	136.88	79.90000	30.70	127.53	83.80000	28.65	119.39
151.00000	32.90	159.35	159.00000	30.55	148.40	167.00000	28.51	138.92

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
 Z=26 A= 55.850

TD=64.0 EV ET=0.876603 MEV			TD=68.0 EV ET=0.913592 MEV			TD=72.0 EV ET=0.949644 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.88500	0.06	0.06	0.92200	0.06	0.06	0.95300	0.05	0.05
0.89400	0.14	0.14	0.93100	0.12	0.12	0.96300	0.11	0.11
0.91100	0.29	0.29	0.95000	0.27	0.27	0.98700	0.24	0.24
0.93700	0.55	0.55	0.97700	0.51	0.51	1.01000	0.42	0.42
0.97300	0.96	0.96	1.01000	0.84	0.84	1.05000	0.78	0.78
1.01000	1.42	1.42	1.05000	1.28	1.28	1.10000	1.28	1.28
1.06000	2.10	2.10	1.11000	2.01	2.01	1.15000	1.83	1.83
1.13000	3.10	3.10	1.18000	2.92	2.92	1.23000	2.78	2.78
1.22000	4.43	4.43	1.27000	4.12	4.12	1.32000	3.87	3.87
1.35000	6.33	6.33	1.41000	5.98	5.98	1.47000	5.69	5.69
1.53000	8.79	8.81	1.59000	8.22	8.24	1.66000	7.85	7.87
1.75000	11.43	11.62	1.82000	10.74	10.92	1.89000	10.15	10.32
2.01000	14.05	14.66	2.10000	13.30	13.90	2.18000	12.57	13.15
2.36000	16.83	18.33	2.46000	15.89	17.33	2.56000	15.06	16.46
2.80000	19.41	22.37	2.92000	18.33	21.17	3.03000	17.33	20.05
3.33000	21.59	26.60	3.47000	20.37	25.16	3.60000	19.26	23.83
3.94000	23.30	30.78	4.11000	21.98	29.14	4.27000	20.80	27.65
4.55000	24.47	34.42	4.75000	23.08	32.61	4.93000	21.82	30.91
5.25000	25.38	38.08	5.48000	23.93	36.06	5.69000	22.62	34.19
6.13000	26.14	42.08	6.39000	24.63	39.81	6.64000	23.28	37.76
7.45000	26.80	47.15	7.76000	25.24	44.58	8.07000	23.86	42.29
8.76000	27.16	51.39	9.13000	25.57	48.59	9.49000	24.16	46.08
13.10000	27.54	61.97	13.70000	25.92	58.65	14.20000	24.48	55.53
17.50000	27.55	69.62	18.20000	25.93	65.72	18.90000	24.49	62.27
26.20000	27.40	80.29	27.40000	25.78	75.91	28.40000	24.34	71.85
43.80000	27.12	93.87	45.60000	25.52	88.59	47.40000	24.10	83.90
87.60000	26.85	112.24	91.30000	25.27	105.91	94.90000	23.87	100.26
175.00000	26.73	130.62	182.00000	25.15	123.16	189.00000	23.75	116.53

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
 Z=26 A= 55.850

TD=76.0 EV ET=0.984828 MEV			TD=80.0 EV ET=1.019203 MEV			TD=34.0 EV ET=1.052823 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.99400	0.05	0.05	1.02000	0.00	0.00	1.06000	0.03	0.03
1.00000	0.08	0.08	1.03000	0.05	0.05	1.07000	0.07	0.07
1.02000	0.20	0.20	1.05000	0.15	0.15	1.09000	0.17	0.17
1.05000	0.41	0.41	1.09000	0.40	0.40	1.12000	0.33	0.33
1.09000	0.73	0.73	1.13000	0.69	0.69	1.16000	0.60	0.60
1.14000	1.19	1.19	1.18000	1.11	1.11	1.22000	1.06	1.06
1.20000	1.79	1.79	1.24000	1.67	1.67	1.28000	1.57	1.57
1.28000	2.66	2.66	1.32000	2.47	2.47	1.36000	2.30	2.30
1.37000	3.67	3.67	1.42000	3.50	3.50	1.47000	3.35	3.35
1.52000	5.34	5.34	1.57000	5.04	5.04	1.63000	4.87	4.87
1.72000	7.43	7.45	1.78000	7.06	7.09	1.84000	6.75	6.77
1.96000	9.63	9.80	2.03000	9.18	9.35	2.10000	8.79	8.95
2.26000	11.94	12.49	2.34000	11.38	11.91	2.42000	10.88	11.40
2.65000	14.28	15.62	2.75000	13.64	14.94	2.84000	13.02	14.28
3.15000	16.49	19.13	3.26000	15.70	18.25	3.36000	14.96	17.41
3.74000	18.31	22.71	3.87000	17.43	21.67	4.00000	16.63	20.73
4.43000	19.74	26.32	4.58000	18.78	25.09	4.73000	17.91	23.98
5.12000	20.71	29.44	5.29000	19.69	28.05	5.47000	18.79	26.84
5.90000	21.46	32.53	6.11000	20.41	31.05	6.31000	19.46	29.68
6.89000	22.08	35.94	7.13000	20.99	34.27	7.36000	20.00	32.75
8.37000	22.61	40.23	8.66000	21.49	38.36	8.94000	20.48	36.65
9.84000	22.90	43.82	10.10000	21.75	41.61	10.50000	20.73	39.89
14.70000	23.19	52.76	15.20000	22.03	50.26	15.70000	20.98	48.01
19.60000	23.19	59.18	20.30000	22.03	56.40	21.00000	20.98	53.90
29.50000	23.06	68.30	30.50000	21.90	65.04	31.50000	20.85	62.09
49.20000	22.83	79.70	50.90000	21.68	75.89	52.60000	20.65	72.44
98.40000	22.61	95.19	101.00000	21.48	90.44	105.00000	20.45	86.42
196.00000	22.50	110.60	203.00000	21.38	105.27	210.00000	20.36	100.45

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FE
 Z=26 A= 55.850

TD=98.0 EV ET=1.085735 MEV			TD=92.0 EV ET=1.117982 MEV			TD=36.0 EV ET=1.149603 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.09000	0.01	0.01	1.12000	0.01	0.01	1.16000	0.03	0.03
1.10000	0.05	0.05	1.14000	0.07	0.07	1.17000	0.06	0.06
1.12000	0.13	0.13	1.16000	0.15	0.15	1.19000	0.13	0.13
1.16000	0.34	0.34	1.19000	0.30	0.30	1.23000	0.31	0.31
1.20000	0.59	0.59	1.24000	0.58	0.58	1.27000	0.52	0.52
1.25000	0.94	0.94	1.29000	0.91	0.91	1.33000	0.88	0.88
1.32000	1.49	1.49	1.36000	1.42	1.42	1.40000	1.36	1.36
1.41000	2.25	2.25	1.45000	2.13	2.13	1.49000	2.03	2.03
1.52000	3.23	3.23	1.56000	3.04	3.04	1.60000	2.88	2.88
1.68000	4.65	4.65	1.73000	4.45	4.45	1.78000	4.27	4.27
1.90000	6.47	6.49	1.95000	6.15	6.17	2.01000	5.94	5.96
2.17000	8.44	8.60	2.23000	8.06	8.21	2.29000	7.72	7.87
2.49000	10.38	10.88	2.57000	9.98	10.48	2.64000	9.57	10.05
2.93000	12.46	13.69	3.01000	11.92	13.10	3.10000	11.47	12.62
3.47000	14.33	16.70	3.57000	13.73	16.02	3.67000	13.18	15.40
4.12000	15.90	19.84	4.24000	15.23	19.03	4.36000	14.62	18.30
4.88000	17.13	22.99	5.03000	16.41	22.08	5.17000	15.74	21.23
5.64000	17.95	25.71	5.81000	17.19	24.69	5.97000	16.49	23.72
6.51000	18.59	28.44	6.70000	17.80	27.28	6.89000	17.07	26.23
7.60000	19.11	31.39	7.82000	18.29	30.11	8.04000	17.54	28.94
9.22000	19.56	35.10	9.50000	18.71	33.69	9.77000	17.94	32.38
10.80000	19.79	38.14	11.10000	18.93	36.56	11.40000	18.15	35.11
16.20000	20.03	45.97	16.70000	19.16	44.11	17.20000	18.36	42.40
21.70000	20.03	51.62	22.30000	19.15	49.46	22.90000	18.35	47.48
32.50000	19.90	59.41	33.50000	19.03	56.97	34.40000	18.24	54.68
54.20000	19.70	69.27	55.80000	18.85	66.38	57.40000	18.06	63.74
108.00000	19.52	82.58	111.00000	18.67	79.09	114.00000	17.89	75.88
217.00000	19.43	96.07	223.00000	18.59	91.98	229.00000	17.81	88.24

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
 Z=28 A= 58.710

TD= 4.0 EV ET=0.097661 MEV			TD= 8.0 EV ET=0.181686 MEV			TD=12.0 EV ET=0.256568 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.09860	12.69	12.69	0.18300	2.53	2.53	0.25900	1.53	1.53
0.09960	25.74	25.74	0.18500	6.28	6.28	0.26100	2.77	2.77
0.10100	43.25	43.25	0.18800	11.68	11.68	0.26500	5.77	5.77
0.10400	78.01	78.01	0.19400	21.78	21.78	0.27400	10.32	10.32
0.10800	119.17	119.17	0.20100	32.49	32.49	0.28400	15.62	15.62
0.11300	163.57	163.57	0.21000	44.80	44.80	0.29700	21.94	21.94
0.11900	208.40	208.40	0.22100	58.01	58.01	0.31300	28.99	28.99
0.12600	251.44	251.44	0.23600	73.39	73.39	0.33300	36.86	36.86
0.13600	299.82	299.82	0.25400	88.79	88.79	0.35900	45.85	45.85
0.15100	352.16	352.16	0.28100	107.34	107.34	0.39700	57.04	57.04
0.17000	396.28	396.28	0.31700	126.32	126.32	0.44300	69.44	69.44
0.19500	432.51	433.46	0.36300	144.51	145.20	0.51300	82.17	82.72
0.22400	457.60	464.99	0.41700	160.47	163.79	0.59000	94.17	96.44
0.26300	476.82	497.16	0.49000	176.43	185.06	0.69200	106.55	112.29
0.31200	489.71	528.43	0.58100	190.86	207.60	0.82100	118.33	129.71
0.37100	497.83	558.93	0.69000	203.31	230.92	0.97400	128.58	147.75
0.43900	502.82	588.90	0.81700	213.72	254.71	1.15000	137.12	165.98
0.50700	505.64	615.66	0.94400	221.32	275.94	1.33000	143.45	182.53
0.58500	507.58	643.84	1.09000	227.74	297.96	1.53000	148.59	199.03
0.68300	508.97	676.57	1.27000	233.40	322.41	1.79000	153.31	218.14
0.83000	509.89	721.62	1.54000	238.96	354.83	2.18000	157.78	243.04
0.97600	510.08	762.60	1.81000	242.38	383.30	2.56000	160.39	264.03
1.46000	508.40	878.81	2.72000	246.93	460.05	3.84000	163.77	319.40
1.95000	505.54	974.39	3.63000	247.51	518.05	5.13000	164.22	360.63
2.92000	499.96	1122.23	5.45000	246.35	603.74	7.69000	163.50	420.00
4.88000	492.05	1329.11	9.08000	243.38	715.77	12.80000	161.57	496.45
9.76000	481.94	1628.81	18.10000	239.34	871.74	25.60000	159.11	602.37
19.50000	475.51	1941.39	36.30000	236.97	1032.26	51.30000	157.78	709.95
29.20000	473.45	2127.07	54.50000	236.23	1126.76	76.90000	157.35	772.94
48.80000	471.85	2365.23	90.80000	235.62	1245.93	128.00000	156.99	852.39
68.30000	471.13	2521.85	127.00000	235.30	1324.34	179.00000	156.78	904.67
97.60000	470.46	2688.35	181.00000	234.99	1407.13	256.00000	156.58	960.44
195.00000	469.24	3011.41	363.00000	234.37	1569.73	513.00000	156.16	1068.74

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
 Z=28 A= 58.710

TD=16.0 EV ET=0.324768 MEV			TD=20.0 EV ET=0.387807 MEV			TD=24.0 EV ET=0.446706 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.32800	0.94	0.94	0.39100	0.51	0.51	0.45100	0.43	0.43
0.33100	1.80	1.80	0.39500	1.15	1.15	0.45500	0.82	0.82
0.33700	3.47	3.47	0.40300	2.41	2.41	0.46400	1.71	1.71
0.34700	6.17	6.17	0.41400	4.10	4.10	0.47700	2.99	2.99
0.36000	9.52	9.52	0.43000	6.49	6.49	0.49500	4.75	4.75
0.37600	13.39	13.39	0.44900	9.24	9.24	0.51800	6.96	6.96
0.39600	17.92	17.92	0.47300	12.57	12.57	0.54400	9.41	9.41
0.42200	23.35	23.35	0.50400	16.63	16.63	0.58000	12.70	12.70
0.45400	29.44	29.44	0.54200	21.30	21.30	0.62500	16.62	16.62
0.50300	37.72	37.72	0.60100	27.91	27.91	0.69200	22.05	22.05
0.56800	47.13	47.14	0.67800	35.50	35.52	0.78100	28.51	28.53
0.64900	56.94	57.41	0.77500	43.66	44.06	0.89300	35.52	35.89
0.74600	66.56	68.32	0.89100	51.73	53.22	1.02000	42.17	43.43
0.87600	76.75	81.23	1.04000	60.02	63.70	1.20000	49.71	52.96
1.03000	85.96	94.68	1.24000	68.46	76.05	1.42000	56.69	63.22
1.23000	94.77	109.97	1.47000	75.52	88.46	1.69000	62.90	74.22
1.46000	101.95	125.30	1.74000	81.41	101.19	2.01000	68.05	85.54
1.68000	106.89	138.28	2.01000	85.60	112.41	2.32000	71.55	95.17
1.94000	111.11	151.97	2.32000	89.02	123.84	2.68000	74.41	105.06
2.27000	114.81	167.33	2.71000	91.96	136.52	3.12000	76.79	115.69
2.76000	118.22	187.00	3.29000	94.66	152.71	3.79000	79.00	129.56
3.28000	120.19	203.56	3.87000	96.22	166.55	4.46000	80.26	141.37
4.87000	122.64	247.03	5.81000	98.04	202.06	6.70000	81.68	171.49
6.49000	122.91	278.60	7.75000	98.21	227.84	8.93000	81.78	193.15
9.74000	122.32	324.16	11.60000	97.70	264.46	13.40000	81.31	224.09
16.20000	120.87	382.10	19.30000	96.54	311.17	22.30000	80.34	263.21
32.40000	119.15	462.06	38.70000	95.22	375.63	44.60000	79.30	316.87
64.90000	118.25	542.95	77.50000	94.55	440.44	89.30000	78.77	370.93
97.40000	117.96	590.41	116.00000	94.34	478.19	134.00000	78.59	402.61
162.00000	117.70	649.96	193.00000	94.14	525.88	223.00000	78.43	442.38

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
 Z=28 A= 58.710

TD=28.0 EV ET=0.502187 MEV			TD=32.0 EV ET=0.554784 MEV			TD=36.0 EV ET=0.604904 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.50700	0.32	0.32	0.56000	0.24	0.24	0.61000	0.18	0.18
0.51200	0.65	0.65	0.56500	0.48	0.48	0.61700	0.42	0.42
0.52200	1.32	1.32	0.57600	1.01	1.01	0.62300	0.85	0.85
0.53700	2.34	2.34	0.59300	1.86	1.86	0.64700	1.54	1.54
0.55700	3.72	3.72	0.61500	2.98	2.98	0.67100	2.49	2.49
0.58200	5.44	5.44	0.64300	4.44	4.44	0.70100	3.72	3.72
0.61200	7.51	7.51	0.67600	6.19	6.19	0.73700	5.24	5.24
0.65200	10.22	10.22	0.72100	8.57	8.57	0.78500	7.33	7.33
0.70300	13.58	13.58	0.77600	11.42	11.42	0.84500	9.87	9.87
0.77800	18.24	18.24	0.85900	15.53	15.53	0.93700	13.57	13.57
0.87800	23.86	23.89	0.97000	20.56	20.58	1.05000	17.81	17.83
1.00000	29.84	30.16	1.10000	25.71	26.00	1.20000	22.76	23.04
1.15000	35.99	37.15	1.27000	31.38	32.43	1.39000	28.00	29.01
1.35000	42.53	45.47	1.49000	37.20	39.87	1.63000	33.22	35.74
1.60000	48.70	54.63	1.77000	42.75	48.19	1.93000	38.12	43.15
1.90000	54.05	64.22	2.10000	47.45	56.74	2.29000	42.33	50.89
2.25000	58.40	73.94	2.49000	51.31	65.50	2.72000	45.79	58.90
2.61000	61.52	82.70	2.88000	53.98	73.16	3.14000	48.12	65.72
3.01000	63.94	91.27	3.32000	56.08	80.77	3.62000	49.97	72.59
3.51000	65.98	100.67	3.88000	57.86	89.25	4.23000	51.53	80.20
4.26000	67.82	112.72	4.71000	59.43	99.94	5.14000	52.91	89.86
5.02000	68.87	123.08	5.54000	60.31	109.01	6.04000	53.65	97.94
7.53000	70.00	149.10	8.32000	61.24	132.03	9.07000	54.43	118.54
10.00000	70.05	167.58	11.00000	61.27	148.04	12.00000	54.44	132.87
15.00000	69.63	194.21	16.60000	60.88	171.78	18.10000	54.08	154.01
25.10000	68.80	228.21	27.70000	60.15	201.45	30.20000	53.44	180.43
50.20000	67.93	274.29	55.40000	59.41	241.82	60.40000	52.79	216.35
100.00000	67.50	320.32	110.00000	59.05	281.93	120.00000	52.48	252.06
150.00000	67.36	347.47	166.00000	58.93	306.05	181.00000	52.37	273.47

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
 Z=28 A= 58.710

TD=40.0 EV ET=0.652868 MEV			TD=44.0 EV ET=0.698932 MEV			TD=48.0 EV ET=0.743305 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.65900	0.16	0.16	0.70500	0.13	0.13	0.75000	0.11	0.11
0.66500	0.32	0.32	0.71200	0.28	0.28	0.75800	0.25	0.25
0.67800	0.69	0.69	0.72600	0.59	0.59	0.77300	0.53	0.53
0.69800	1.29	1.29	0.74700	1.10	1.10	0.79500	0.96	0.96
0.72400	2.11	2.11	0.77500	1.82	1.82	0.82500	1.61	1.61
0.75700	3.20	3.20	0.81000	2.78	2.78	0.86200	2.48	2.48
0.79600	4.55	4.55	0.85200	4.00	4.00	0.90500	3.57	3.57
0.84800	6.39	6.39	0.90800	5.68	5.68	0.96500	5.11	5.11
0.91400	8.72	8.72	0.97800	7.78	7.78	1.04000	7.04	7.04
1.01000	12.01	12.01	1.08000	10.77	10.77	1.15000	9.84	9.84
1.14000	16.12	16.15	1.22000	14.58	14.60	1.30000	13.38	13.41
1.30000	20.56	20.83	1.39000	18.64	18.89	1.48000	17.12	17.37
1.50000	25.21	26.16	1.60000	22.85	23.72	1.70000	20.96	21.79
1.76000	29.99	32.34	1.88000	27.28	29.48	2.00000	25.09	27.17
2.08000	34.39	39.05	2.23000	31.40	35.80	2.37000	28.87	33.00
2.48000	38.30	46.33	2.65000	34.90	42.38	2.82000	32.10	39.15
2.93000	41.31	53.41	3.14000	37.69	49.01	3.34000	34.64	45.27
3.39000	43.43	59.73	3.63000	39.59	54.77	3.86000	36.38	50.60
3.91000	45.09	66.00	4.19000	41.08	60.56	4.45000	37.72	55.89
4.57000	46.47	72.93	4.89000	42.31	66.85	5.20000	38.84	61.75
5.54000	47.66	81.59	5.94000	43.38	74.87	6.31000	39.80	69.10
6.52000	48.32	88.99	6.98000	43.96	81.56	7.43000	40.32	75.35
9.79000	48.99	107.62	10.40000	44.53	98.25	11.10000	40.82	90.80
13.00000	48.98	120.73	13.90000	44.51	110.48	14.80000	40.79	101.95
19.50000	48.64	139.55	20.90000	44.20	127.72	22.20000	40.50	117.68
32.60000	48.07	163.45	34.90000	43.68	149.42	37.10000	40.02	137.63
65.20000	47.50	195.81	69.80000	43.17	178.86	74.30000	39.57	164.69
130.00000	47.23	228.12	139.00000	42.93	208.20	148.00000	39.35	191.60
195.00000	47.13	247.14	209.00000	42.84	225.59	222.00000	39.27	207.45

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
 Z=28 A= 58.710

TD=52.0 EV ET=0.786162 MEV			TD=56.0 EV ET=0.827647 MEV			TD=50.0 EV ET=0.867884 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.79400	0.11	0.11	0.83500	0.08	0.08	0.87500	0.08	0.08
0.80100	0.21	0.21	0.84400	0.19	0.19	0.88500	0.17	0.17
0.81700	0.45	0.45	0.86000	0.40	0.40	0.90200	0.35	0.35
0.84100	0.85	0.85	0.88500	0.75	0.75	0.92800	0.68	0.68
0.87200	1.42	1.42	0.91800	1.28	1.28	0.96300	1.16	1.16
0.91100	2.21	2.21	0.96000	2.01	2.01	1.00100	1.73	1.73
0.95900	3.23	3.23	1.00000	2.76	2.76	1.05300	2.55	2.55
1.02000	4.60	4.60	1.07000	4.14	4.14	1.12000	3.78	3.78
1.10000	6.43	6.43	1.15000	5.75	5.75	1.21000	5.41	5.41
1.21000	8.89	8.89	1.28000	8.34	8.34	1.34000	7.72	7.72
1.37000	12.24	12.26	1.44000	11.31	11.34	1.51000	10.56	10.58
1.57000	15.90	16.15	1.65000	14.75	14.98	1.73000	13.78	14.01
1.80000	19.42	20.22	1.90000	18.15	18.92	1.99000	16.96	17.69
2.12000	23.29	25.28	2.23000	21.67	23.57	2.34000	20.30	22.12
2.51000	26.76	30.69	2.64000	24.91	28.64	2.77000	23.33	26.89
2.98000	29.71	36.35	3.14000	27.68	33.99	3.29000	25.89	31.89
3.53000	32.05	42.06	3.72000	29.85	39.34	3.90000	27.92	36.93
4.08000	33.64	47.01	4.30000	31.31	43.97	4.51000	29.28	41.29
4.71000	34.89	51.98	4.96000	32.45	48.59	5.20000	30.33	45.61
5.50000	35.90	57.40	5.79000	33.37	53.63	6.07000	31.18	50.34
6.68000	36.77	64.25	7.03000	34.17	60.01	7.37000	31.91	56.31
7.86000	37.23	70.01	8.27000	34.59	65.37	8.67000	32.30	61.33
11.70000	37.67	84.19	12.40000	34.98	78.82	13.00000	32.65	73.91
15.70000	37.64	94.74	16.50000	34.95	88.34	17.30000	32.61	82.82
23.50000	37.37	109.20	24.80000	34.69	101.93	26.00000	32.36	95.51
39.30000	36.93	127.65	41.30000	34.28	118.94	43.30000	31.99	111.39
78.60000	36.52	152.59	82.70000	33.90	142.15	86.70000	31.64	133.06
157.00000	36.32	177.54	165.00000	33.72	165.28	173.00000	31.47	154.66

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NI
 Z=28 A= 58.710

TD=64.0 EV ET=0.906981 MEV			TD=68.0 EV ET=0.945027 MEV			TD=72.0 EV ET=0.982105 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.91600	0.07	0.07	0.95400	0.06	0.06	0.99100	0.05	0.05
0.92500	0.15	0.15	0.96300	0.13	0.13	1.00000	0.11	0.11
0.94300	0.32	0.32	0.98200	0.29	0.29	1.02000	0.26	0.26
0.97000	0.61	0.61	1.01000	0.55	0.55	1.05000	0.51	0.51
1.00000	0.98	0.98	1.04000	0.87	0.87	1.09000	0.90	0.90
1.05000	1.66	1.66	1.09000	1.48	1.48	1.13000	1.34	1.34
1.10000	2.40	2.40	1.15000	2.28	2.28	1.19000	2.07	2.07
1.17000	3.50	3.50	1.22000	3.28	3.28	1.27000	3.10	3.10
1.26000	4.96	4.96	1.32000	4.76	4.76	1.37000	4.45	4.45
1.40000	7.22	7.22	1.46000	6.80	6.80	1.52000	6.46	6.46
1.58000	9.93	9.96	1.65000	9.40	9.43	1.71000	8.83	8.86
1.81000	12.97	13.19	1.89000	12.28	12.50	1.96000	11.58	11.79
2.08000	15.94	16.65	2.17000	15.07	15.76	2.25000	14.23	14.89
2.44000	19.05	20.78	2.55000	18.04	19.72	2.65000	17.08	18.70
2.90000	21.96	25.39	3.02000	20.72	24.00	3.14000	19.62	22.78
3.44000	24.34	30.07	3.59000	22.98	28.49	3.73000	21.75	27.03
4.08000	26.24	34.84	4.25000	24.74	32.95	4.41000	23.40	31.23
4.71000	27.49	38.90	4.91000	25.92	36.81	5.10000	24.51	34.92
5.44000	28.48	43.02	5.67000	26.84	40.70	5.89000	25.37	38.60
6.34000	29.26	47.42	6.61000	27.56	44.86	6.87000	26.06	42.56
7.70000	29.94	53.05	8.03000	28.19	50.18	8.34000	26.64	47.58
9.06000	30.29	57.77	9.54000	28.52	54.65	9.82000	26.94	51.82
13.60000	30.61	69.63	14.10000	28.81	65.65	14.70000	27.20	62.32
18.10000	30.57	77.99	18.90000	28.76	73.73	19.60000	27.16	69.82
27.20000	30.33	89.89	28.30000	28.54	84.85	29.40000	26.95	80.37
45.30000	29.98	104.79	47.20000	28.21	98.92	49.10000	26.64	93.70
90.60000	29.66	125.08	94.50000	27.91	118.05	98.20000	26.36	111.74
181.00000	29.50	145.37	189.00000	27.76	137.17	196.00000	26.22	129.75

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN NI
Z=28 A= 58.710

TD=76.0 EV ET=1.018284 MEV			TD=80.0 EV ET=1.053626 MEV			TD=94.0 EV ET=1.088188 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.02000	0.01	0.01	1.06000	0.03	0.03	1.09000	0.01	0.01
1.03000	0.06	0.06	1.07000	0.08	0.08	1.10000	0.05	0.05
1.05000	0.18	0.18	1.09000	0.19	0.19	1.13000	0.20	0.20
1.08000	0.40	0.40	1.12000	0.39	0.39	1.16000	0.38	0.38
1.13000	0.84	0.84	1.16000	0.70	0.70	1.20000	0.67	0.67
1.18000	1.34	1.34	1.22000	1.25	1.25	1.26000	1.17	1.17
1.24000	2.01	2.01	1.28000	1.86	1.86	1.32000	1.74	1.74
1.32000	2.96	2.96	1.36000	2.73	2.73	1.41000	2.65	2.65
1.42000	4.20	4.20	1.47000	3.99	3.99	1.52000	3.81	3.81
1.57000	6.04	6.04	1.63000	5.80	5.80	1.68000	5.49	5.49
1.78000	8.46	8.48	1.84000	8.03	8.06	1.90000	7.65	7.68
2.03000	10.98	11.18	2.10000	10.45	10.64	2.17000	9.98	10.17
2.34000	13.57	14.22	2.42000	12.92	13.54	2.50000	12.34	12.95
2.74000	16.18	17.73	2.84000	15.44	16.94	2.93000	14.72	16.17
3.25000	18.61	21.64	3.37000	17.75	20.69	3.48000	16.94	19.77
3.86000	20.63	25.67	4.00000	19.65	24.52	4.13000	18.75	23.44
4.58000	22.21	29.75	4.74000	21.14	28.39	4.89000	20.15	27.12
5.29000	23.26	33.23	5.47000	22.12	31.68	5.65000	21.09	30.29
6.10000	24.06	36.70	6.32000	22.88	35.03	6.52000	21.81	33.46
7.12000	24.70	40.48	7.37000	23.49	38.61	7.61000	22.38	36.90
8.65000	25.25	45.26	8.95000	24.00	43.16	9.24000	22.85	41.23
10.10000	25.52	49.08	10.50000	24.26	46.90	10.80000	23.10	44.72
15.20000	25.77	59.17	15.80000	24.48	56.50	16.30000	23.32	53.94
20.30000	25.73	66.32	21.00000	24.44	63.18	21.70000	23.27	60.35
30.50000	25.53	76.36	31.60000	24.24	72.76	32.60000	23.09	69.44
50.90000	25.23	88.98	52.60000	23.97	84.69	54.40000	22.82	80.86
101.00000	24.97	105.88	105.00000	23.72	100.89	108.00000	22.59	96.17
203.00000	24.84	123.12	210.00000	23.60	117.16	217.00000	22.47	111.76

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN NI
Z=28 A= 58.710

TD=88.0 EV ET=1.122019 MEV			TD=92.0 EV ET=1.155162 MEV			TD=96.0 EV ET=1.187659 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.13000	0.03	0.03	1.16000	0.02	0.02	1.19000	0.01	0.01
1.14000	0.07	0.07	1.17000	0.05	0.05	1.21000	0.07	0.07
1.16000	0.16	0.16	1.20000	0.17	0.17	1.23000	0.15	0.15
1.20000	0.38	0.38	1.23000	0.33	0.33	1.27000	0.34	0.34
1.24000	0.65	0.65	1.28000	0.64	0.64	1.31000	0.56	0.56
1.30000	1.12	1.12	1.33000	0.99	0.99	1.37000	0.96	0.96
1.36000	1.64	1.64	1.40000	1.55	1.55	1.44000	1.49	1.49
1.45000	2.48	2.48	1.50000	2.43	2.43	1.54000	2.30	2.30
1.57000	3.66	3.66	1.61000	3.44	3.44	1.66000	3.33	3.33
1.73000	5.22	5.22	1.79000	5.08	5.08	1.84000	4.87	4.87
1.96000	7.33	7.35	2.02000	7.04	7.06	2.07000	6.70	6.73
2.24000	9.57	9.76	2.31000	9.20	9.39	2.37000	8.80	8.98
2.58000	11.82	12.41	2.65000	11.30	11.87	2.73000	10.88	11.44
3.02000	14.08	15.48	3.11000	13.50	14.86	3.20000	12.98	14.31
3.59000	16.21	18.95	3.69000	15.52	18.16	3.80000	14.92	17.49
4.26000	17.93	22.47	4.38000	17.17	21.54	4.51000	16.49	20.74
5.04000	19.26	25.97	5.19000	18.45	24.93	5.38000	17.71	23.98
5.83000	20.16	29.03	6.00000	19.30	27.86	6.17000	18.52	26.79
6.73000	20.84	32.07	6.93000	19.95	30.78	7.12000	19.13	29.58
7.85000	21.38	35.35	8.08000	20.46	33.91	8.31000	19.62	32.60
9.53000	21.83	39.49	9.81000	20.89	37.88	10.00000	20.01	36.24
11.20000	22.06	42.94	11.50000	21.10	41.14	11.80000	20.23	39.49
16.80000	22.26	51.62	17.30000	21.29	49.50	17.80000	20.40	47.57
22.40000	22.21	57.77	23.10000	21.24	55.42	23.70000	20.36	53.19
33.60000	22.03	66.42	34.60000	21.07	63.67	35.60000	20.19	61.15
56.10000	21.78	77.34	57.70000	20.83	74.09	59.30000	19.96	71.12
112.00000	21.56	92.08	115.00000	20.62	88.16	118.00000	19.76	84.57
224.00000	21.45	106.86	231.00000	20.52	102.39	237.00000	19.66	98.21

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN CU
 Z=29 A= 63.540

TD= 4.0 EV ET=0.105006 MEV			TD= 8.0 EV ET=0.194554 MEV			TD=12.0 EV ET=0.273951 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.10600	11.59	11.59	0.19600	2.42	2.42	0.27600	1.13	1.13
0.10700	22.88	22.88	0.19800	5.68	5.68	0.27900	2.75	2.75
0.10900	44.39	44.39	0.20200	11.94	11.94	0.28400	5.38	5.38
0.11200	74.19	74.19	0.20800	20.70	20.70	0.29300	9.88	9.88
0.11600	109.85	109.85	0.21500	30.09	30.09	0.30400	15.02	15.02
0.12100	148.79	148.79	0.22500	42.17	42.17	0.31700	20.65	20.65
0.12800	194.73	194.73	0.23700	54.92	54.92	0.33400	27.40	27.40
0.13600	237.53	237.53	0.25200	68.72	68.72	0.35500	35.27	35.27
0.14700	283.75	283.75	0.27200	84.24	84.24	0.38300	43.84	43.84
0.16200	330.17	330.17	0.30100	102.48	102.48	0.42400	55.08	55.08
0.18300	374.50	374.50	0.34000	121.58	121.58	0.47900	67.66	67.66
0.21000	410.73	411.77	0.38900	139.86	140.59	0.54700	80.33	80.89
0.24100	436.51	443.79	0.44700	156.29	159.64	0.63000	92.75	95.05
0.28300	457.48	477.32	0.52500	172.83	181.44	0.73900	105.48	111.29
0.33600	472.70	510.58	0.62200	187.88	204.63	0.87500	117.53	129.07
0.39900	483.13	542.98	0.73900	201.00	228.81	1.04000	128.09	147.64
0.47200	490.34	575.17	0.87500	211.92	253.42	1.23000	136.87	166.49
0.54600	494.96	604.27	1.01000	219.80	275.17	1.42000	143.20	183.20
0.63000	498.42	634.48	1.16000	226.24	296.99	1.64000	148.50	200.50
0.73500	501.20	669.22	1.36000	232.33	323.11	1.91000	153.04	219.37
0.89200	503.53	716.54	1.65000	237.98	356.36	2.32000	157.38	244.26
1.05000	504.61	759.83	1.94000	241.39	385.45	2.73000	159.94	265.74
1.57000	504.21	880.27	2.91000	245.70	462.87	4.10000	163.03	321.61
2.10000	501.65	978.74	3.89000	246.08	521.62	5.47000	163.30	362.73
3.15000	496.12	1129.57	5.83000	244.67	607.13	8.21000	162.37	422.19
5.25000	488.07	1336.64	9.72000	241.46	719.08	13.60000	160.30	497.58
10.50000	477.76	1636.00	19.40000	237.28	874.51	27.30000	157.76	603.36
21.00000	471.34	1947.44	38.90000	234.91	1033.86	54.70000	156.41	710.10
31.50000	469.29	2132.63	58.30000	234.17	1127.20	82.10000	155.98	772.76
52.50000	467.71	2367.72	97.20000	233.54	1245.54	136.00000	155.60	850.79
73.50000	466.96	2523.17	136.00000	233.21	1323.35	191.00000	155.38	903.27
105.00000	466.25	2688.09	194.00000	232.87	1405.60	273.00000	155.16	958.44
210.00000	464.93	3008.74	389.00000	232.20	1566.67	547.00000	154.71	1065.72

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN CU
 Z=29 A= 63.540

TD=16.0 EV ET=0.346025 MEV			TD=20.0 EV ET=0.412490 MEV			TD=24.0 EV ET=0.474483 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.34900	0.76	0.76	0.41600	0.49	0.49	0.47900	0.39	0.39
0.35200	1.51	1.51	0.42000	1.05	1.05	0.48300	0.74	0.74
0.35900	3.24	3.24	0.42800	2.17	2.17	0.49300	1.62	1.62
0.37000	5.87	5.87	0.44100	3.95	3.95	0.50700	2.85	2.85
0.38400	9.08	9.08	0.45700	6.10	6.10	0.52500	4.53	4.53
0.40100	12.79	12.79	0.47800	8.86	8.86	0.55000	6.64	6.64
0.42200	17.11	17.11	0.50300	12.04	12.04	0.57300	9.08	9.08
0.44900	22.30	22.30	0.53600	16.06	16.06	0.61500	12.32	12.32
0.48400	28.49	28.49	0.57700	20.77	20.77	0.66400	16.26	16.26
0.53600	36.73	36.73	0.63900	27.33	27.33	0.73500	21.72	21.72
0.60500	46.21	46.22	0.72100	35.02	35.05	0.83000	28.30	28.32
0.69200	56.26	56.75	0.82400	43.31	43.73	0.94300	35.36	35.74
0.79500	66.04	67.84	0.94800	51.57	53.11	1.09000	42.45	43.80
0.93400	76.48	81.07	1.11000	60.17	64.01	1.23000	50.00	53.41
1.10000	85.95	94.95	1.31000	68.24	75.86	1.51000	56.90	63.66
1.31000	94.74	110.31	1.56000	75.57	88.80	1.80000	63.18	74.92
1.55000	101.86	125.63	1.85000	81.54	101.86	2.13000	68.16	86.06
1.79000	106.93	139.16	2.14000	85.73	113.33	2.46000	71.63	95.82
2.07000	111.15	153.17	2.47000	89.09	124.89	2.84000	74.44	105.75
2.42000	114.75	168.63	2.88000	91.93	137.52	3.32000	76.81	116.74
2.94000	118.03	188.39	3.50000	94.53	153.89	4.03000	78.90	130.61
3.46000	119.92	205.32	4.12000	96.00	167.85	4.74000	80.07	142.42
5.19000	122.08	248.69	6.18000	97.59	203.32	7.11000	81.29	172.41
6.92000	122.21	280.30	8.24000	97.65	229.00	9.48000	81.30	194.03
10.30000	121.48	324.78	12.30000	97.01	265.22	14.20000	80.73	224.68
17.30000	119.90	383.51	20.60000	95.76	312.24	23.70000	79.70	263.77
34.60000	118.13	462.92	41.20000	94.41	375.99	47.40000	78.62	317.02
69.20000	117.22	542.99	82.40000	93.73	440.16	94.80000	78.09	370.55
103.00000	116.93	589.09	123.00000	93.51	477.34	142.00000	77.91	401.82
173.00000	116.66	649.26	206.00000	93.30	525.22	237.00000	77.73	441.46

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
Z=29 A= 63.540

TD=28.0 EV			ET=0.532800 MEV			TD=32.0 EV			ET=0.588028 MEV			TD=36.0 EV			ET=0.640609 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.53800	0.30	0.30	0.59300	0.21	0.21	0.64700	0.20	0.20									
0.54300	0.60	0.60	0.59900	0.46	0.46	0.65300	0.38	0.38									
0.55400	1.26	1.26	0.61100	0.98	0.98	0.65500	0.81	0.81									
0.57000	2.24	2.24	0.62900	1.78	1.78	0.68500	1.46	1.46									
0.59100	3.55	3.55	0.65200	2.86	2.86	0.71100	2.40	2.40									
0.61800	5.26	5.26	0.68200	4.30	4.30	0.74300	3.62	3.62									
0.65000	7.31	7.31	0.71700	6.03	6.03	0.78100	5.12	5.12									
0.69200	9.98	9.98	0.76400	8.37	8.37	0.83200	7.18	7.18									
0.74500	13.28	13.28	0.82300	11.28	11.28	0.89500	9.75	9.75									
0.82500	18.01	18.01	0.91100	15.43	15.43	0.99200	13.49	13.49									
0.93200	23.76	23.79	1.02000	20.17	20.20	1.12000	18.07	18.11									
1.06000	29.77	30.10	1.17000	25.89	26.20	1.28000	23.09	23.40									
1.22000	36.06	37.25	1.35000	31.60	32.72	1.47000	28.08	29.12									
1.43000	42.62	45.63	1.58000	37.38	40.15	1.72000	33.29	35.85									
1.70000	48.94	55.09	1.88000	43.02	48.68	2.04000	38.26	43.42									
2.02000	54.30	64.84	2.23000	47.69	57.31	2.43000	42.56	51.43									
2.39000	58.60	74.63	2.64000	51.47	66.08	2.88000	45.93	59.40									
2.77000	61.65	83.41	3.05000	54.08	73.73	3.33000	48.24	66.34									
3.19000	63.99	91.95	3.52000	56.14	81.45	3.84000	50.04	73.25									
3.72000	65.96	101.40	4.11000	57.84	89.90	4.48000	51.52	80.81									
4.52000	67.72	113.55	4.99000	59.34	100.62	5.44000	52.81	90.44									
5.32000	68.69	123.85	5.88000	60.15	109.79	6.40000	53.51	98.58									
7.99000	69.66	149.90	8.82000	60.94	132.70	9.60000	54.16	119.06									
10.60000	69.64	168.25	11.70000	60.90	148.83	12.80000	54.11	133.72									
15.90000	69.13	194.73	17.60000	60.44	172.25	19.20000	53.68	154.45									
26.60000	68.24	228.49	29.40000	59.67	201.77	32.00000	53.00	180.62									
53.20000	67.35	274.21	58.80000	58.91	241.82	64.00000	52.34	216.26									
106.00000	66.91	319.88	117.00000	58.54	281.73	128.00000	52.02	252.01									
159.00000	66.77	346.79	176.00000	58.41	305.45	192.00000	51.91	272.96									

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
Z=29 A= 63.540

TD=40.0 EV			ET=0.690893 MEV			TD=44.0 EV			ET=0.739156 MEV			TD=48.0 EV			ET=0.785623 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.69700	0.14	0.14	0.74600	0.13	0.13	0.79300	0.11	0.11									
0.70400	0.31	0.31	0.75300	0.26	0.26	0.80100	0.23	0.23									
0.71800	0.67	0.67	0.76800	0.56	0.56	0.81700	0.50	0.50									
0.73900	1.24	1.24	0.79000	1.05	1.05	0.84000	0.92	0.92									
0.76600	2.02	2.02	0.82000	1.76	1.76	0.87200	1.56	1.56									
0.80100	3.10	3.10	0.85700	2.72	2.72	0.91100	2.41	2.41									
0.84200	4.44	4.44	0.90100	3.92	3.92	0.95300	3.51	3.51									
0.89800	6.31	6.31	0.96000	5.59	5.59	1.02000	5.03	5.03									
0.96700	8.64	8.64	1.03000	7.61	7.61	1.09000	6.77	6.77									
1.07000	12.01	12.01	1.14000	10.70	10.70	1.21000	9.71	9.71									
1.20000	15.96	15.98	1.29000	14.61	14.64	1.37000	13.35	13.38									
1.38000	20.75	21.04	1.47000	18.74	19.00	1.57000	17.33	17.60									
1.58000	25.20	26.15	1.70000	23.13	24.06	1.80000	21.15	22.02									
1.86000	30.13	32.55	1.99000	27.48	29.76	2.12000	25.33	27.51									
2.21000	34.67	39.55	2.36000	31.59	36.14	2.51000	29.08	33.37									
2.62000	38.43	46.67	2.80000	35.04	42.72	2.98000	32.25	39.49									
3.10000	41.44	53.87	3.32000	37.80	49.42	3.53000	34.75	45.66									
3.59000	43.53	60.26	3.84000	39.67	55.24	4.08000	36.45	51.01									
4.14000	45.13	66.54	4.43000	41.11	61.01	4.71000	37.76	56.37									
4.83000	46.44	73.41	5.17000	42.29	67.32	5.49000	38.81	62.14									
5.87000	47.59	82.18	6.28000	43.30	75.33	6.67000	39.72	69.53									
6.90000	48.18	89.51	7.39000	43.83	82.07	7.85000	40.19	75.74									
10.30000	48.74	107.82	11.00000	44.30	98.66	11.70000	40.61	91.05									
13.80000	48.68	121.28	14.70000	44.24	110.82	15.70000	40.54	102.38									
20.70000	48.29	139.97	22.10000	43.88	127.94	23.50000	40.20	117.93									
34.50000	47.68	163.55	36.90000	43.32	149.48	39.20000	39.70	137.65									
69.00000	47.10	195.66	73.90000	42.80	178.74	78.50000	39.23	164.49									
138.00000	46.82	227.85	147.00000	42.56	207.78	157.00000	39.00	191.33									
207.00000	46.72	246.70	221.00000	42.47	225.02	235.00000	38.93	206.96									

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
 Z=29 A= 63.540

TD=52.0 EV ET=0.830482 MEV			TD=56.0 EV ET=0.873889 MEV			TD=50.0 EV ET=0.915976 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.83800	0.09	0.09	0.88200	0.08	0.08	0.92500	0.08	0.08
0.84700	0.20	0.20	0.89100	0.18	0.18	0.93400	0.16	0.16
0.86300	0.43	0.43	0.90800	0.37	0.37	0.95200	0.34	0.34
0.88800	0.81	0.81	0.93500	0.73	0.73	0.99000	0.66	0.66
0.92100	1.37	1.37	0.97000	1.25	1.25	1.01000	1.04	1.04
0.96300	2.17	2.17	1.01000	1.90	1.90	1.06000	1.76	1.76
1.01000	3.12	3.12	1.06000	2.79	2.79	1.11000	2.55	2.55
1.07000	4.40	4.40	1.13000	4.11	4.11	1.19000	3.89	3.89
1.16000	6.36	6.36	1.22000	5.85	5.85	1.28000	5.45	5.45
1.28000	8.94	8.94	1.35000	8.33	8.33	1.41000	7.68	7.68
1.45000	12.35	12.38	1.52000	11.37	11.40	1.60000	10.72	10.75
1.66000	16.03	16.29	1.74000	14.82	15.06	1.83000	13.94	14.18
1.91000	19.68	20.53	2.00000	18.21	19.00	2.10000	17.09	17.85
2.24000	23.45	25.52	2.35000	21.79	23.73	2.47000	20.45	22.34
2.65000	26.91	30.96	2.79000	25.07	28.93	2.93000	23.51	27.21
3.15000	29.86	36.70	3.32000	27.82	34.34	3.48000	26.04	32.24
3.73000	32.16	42.42	3.93000	29.95	39.68	4.12000	28.01	37.26
4.31000	33.71	47.39	4.54000	31.37	44.31	4.76000	29.33	41.61
4.98000	34.91	52.40	5.24000	32.47	48.96	5.49000	30.34	45.94
5.81000	35.87	57.78	6.11000	33.35	53.96	6.41000	31.16	50.67
7.05000	36.69	64.59	7.42000	34.10	60.34	7.78000	31.84	56.63
8.30000	37.12	70.36	8.73000	34.48	65.69	9.15000	32.19	61.62
12.40000	37.48	84.62	13.10000	34.80	79.11	13.70000	32.48	74.10
16.60000	37.41	95.01	17.40000	34.73	88.52	18.30000	32.40	83.07
24.90000	37.09	109.46	26.20000	34.43	102.07	27.40000	32.13	95.56
41.50000	36.63	127.65	43.60000	34.00	118.92	45.70000	31.73	111.37
83.00000	36.21	152.39	87.30000	33.61	141.94	91.50000	31.37	132.86
166.00000	36.00	177.17	174.00000	33.43	164.84	183.00000	31.20	154.34

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
 Z=29 A= 63.540

TD=64.0 EV ET=0.956856 MEV			TD=68.0 EV ET=0.996629 MEV			TD=72.0 EV ET=1.035379 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.96600	0.07	0.07	1.00000	0.02	0.02	1.04000	0.02	0.02
0.97500	0.14	0.14	1.01000	0.08	0.08	1.05000	0.08	0.08
0.99500	0.31	0.31	1.03000	0.23	0.23	1.07000	0.21	0.21
1.02000	0.56	0.56	1.06000	0.48	0.48	1.10000	0.43	0.43
1.06000	1.01	1.01	1.10000	0.88	0.88	1.14000	0.79	0.79
1.10000	1.52	1.52	1.15000	1.46	1.46	1.20000	1.41	1.41
1.16000	2.36	2.36	1.21000	2.22	2.22	1.26000	2.11	2.11
1.24000	3.57	3.57	1.29000	3.31	3.31	1.34000	3.11	3.11
1.33000	4.98	4.98	1.39000	4.73	4.73	1.44000	4.40	4.40
1.48000	7.30	7.30	1.54000	6.84	6.84	1.60000	6.46	6.46
1.67000	10.04	10.07	1.74000	9.47	9.50	1.81000	8.98	9.02
1.91000	13.08	13.31	1.99000	12.35	12.57	2.07000	11.72	11.94
2.20000	16.12	16.87	2.29000	15.21	15.93	2.38000	14.41	15.11
2.58000	19.23	21.04	2.69000	18.17	19.91	2.79000	17.18	18.85
3.06000	22.10	25.63	3.18000	20.82	24.18	3.31000	19.74	22.99
3.63000	24.45	30.34	3.78000	23.07	28.69	3.93000	21.84	27.24
4.30000	26.31	35.09	4.48000	24.81	33.20	4.65000	23.46	31.48
4.97000	27.54	39.20	5.18000	25.96	37.09	5.38000	24.55	35.19
5.74000	28.49	43.32	5.97000	26.84	40.93	6.21000	25.38	38.86
6.69000	29.23	47.72	6.97000	27.54	45.13	7.24000	26.03	42.80
8.13000	29.87	53.35	8.47000	28.13	50.45	8.80000	26.58	47.84
9.56000	30.19	58.05	9.96000	28.42	54.87	10.30000	26.84	51.91
14.30000	30.45	69.74	14.90000	28.65	65.90	15.50000	27.06	62.49
19.10000	30.37	78.16	19.90000	28.58	73.83	20.70000	26.99	69.99
28.70000	30.11	89.98	29.80000	28.33	84.87	31.00000	26.75	80.42
47.80000	29.74	104.76	49.80000	27.98	98.88	51.70000	26.42	93.61
95.60000	29.40	124.89	99.60000	27.67	117.83	103.00000	26.13	111.41
191.00000	29.24	145.00	199.00000	27.52	136.76	207.00000	25.99	129.44

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
Z=29 A= 63.540

TD=76.0 EV ET=1.073181 MEV			TD=80.0 EV ET=1.110102 MEV			TD=84.0 EV ET=1.146201 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.08000	0.03	0.03	1.12000	0.04	0.04	1.15000	0.01	0.01
1.09000	0.08	0.08	1.13000	0.09	0.09	1.16000	0.05	0.05
1.11000	0.20	0.20	1.15000	0.19	0.19	1.19000	0.19	0.19
1.14000	0.40	0.40	1.18000	0.38	0.38	1.22000	0.36	0.36
1.19000	0.81	0.81	1.23000	0.75	0.75	1.27000	0.70	0.70
1.24000	1.28	1.28	1.28000	1.18	1.18	1.32000	1.10	1.10
1.30000	1.92	1.92	1.35000	1.86	1.86	1.39000	1.72	1.72
1.39000	2.94	2.94	1.44000	2.81	2.81	1.49000	2.70	2.70
1.50000	4.25	4.25	1.55000	4.01	4.01	1.60000	3.81	3.81
1.66000	6.14	6.14	1.72000	5.87	5.87	1.77000	5.53	5.53
1.87000	8.46	8.49	1.94000	8.11	8.14	2.00000	7.71	7.74
2.14000	11.08	11.29	2.22000	10.60	10.81	2.29000	10.11	10.31
2.46000	13.64	14.30	2.55000	13.03	13.68	2.63000	12.42	13.05
2.89000	16.31	17.91	2.99000	15.54	17.09	3.09000	14.85	16.35
3.43000	18.74	21.87	3.55000	17.85	20.87	3.66000	17.02	19.92
4.07000	20.72	25.90	4.21000	19.73	24.71	4.35000	18.83	23.64
4.82000	22.26	29.95	4.99000	21.19	28.59	5.15000	20.21	27.32
5.58000	23.30	33.49	5.77000	22.16	31.93	5.96000	21.13	30.53
6.43000	24.06	36.94	6.66000	22.89	35.26	6.87000	21.81	33.68
7.51000	24.68	40.73	7.77000	23.46	38.84	8.02000	22.36	37.11
9.12000	25.19	45.49	9.43000	23.94	43.36	9.74000	22.81	41.44
10.70000	25.44	49.41	11.10000	24.18	47.17	11.40000	23.02	44.94
16.00000	25.63	59.30	16.60000	24.35	56.57	17.10000	23.19	53.98
21.40000	25.56	66.44	22.20000	24.28	63.36	22.90000	23.12	60.48
32.10000	25.34	76.37	33.30000	24.06	72.80	34.30000	22.92	69.44
53.60000	25.03	88.90	55.50000	23.77	84.66	57.30000	22.64	80.79
107.00000	24.75	105.81	111.00000	23.51	100.77	114.00000	22.39	96.02
214.00000	24.62	122.78	222.00000	23.39	116.90	229.00000	22.28	111.48

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CU
Z=29 A= 63.540

TD=88.0 EV ET=1.181530 MEV			TD=92.0 EV ET=1.216136 MEV			TD=96.0 EV ET=1.250063 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.19000	0.03	0.03	1.22000	0.01	0.01	1.26000	0.03	0.03
1.20000	0.06	0.06	1.24000	0.07	0.07	1.27000	0.06	0.06
1.22000	0.15	0.15	1.26000	0.15	0.15	1.30000	0.16	0.16
1.26000	0.35	0.35	1.30000	0.34	0.34	1.33000	0.29	0.29
1.31000	0.67	0.67	1.34000	0.58	0.58	1.38000	0.56	0.56
1.37000	1.11	1.11	1.41000	1.05	1.05	1.45000	1.01	1.01
1.44000	1.70	1.70	1.48000	1.60	1.60	1.52000	1.51	1.51
1.53000	2.51	2.51	1.58000	2.44	2.44	1.62000	2.30	2.30
1.65000	3.64	3.64	1.70000	3.50	3.50	1.75000	3.37	3.37
1.83000	5.34	5.34	1.88000	5.08	5.08	1.93000	4.85	4.85
2.06000	7.36	7.39	2.12000	7.05	7.08	2.18000	6.77	6.80
2.36000	9.66	9.86	2.43000	9.27	9.47	2.50000	8.92	9.11
2.71000	11.88	12.49	2.79000	11.40	11.99	2.87000	10.96	11.54
3.19000	14.23	15.69	3.28000	13.63	15.04	3.37000	13.08	14.45
3.78000	16.30	19.12	3.89000	15.62	18.35	4.00000	15.00	17.65
4.48000	17.99	22.63	4.62000	17.25	21.75	4.75000	16.56	20.92
5.31000	19.32	26.18	5.47000	18.50	25.14	5.62000	17.75	24.16
6.14000	20.19	29.23	6.32000	19.33	28.05	6.50000	18.54	26.98
7.08000	20.84	32.25	7.29000	19.95	30.95	7.50000	19.13	29.77
8.27000	21.35	35.55	8.51000	20.44	34.10	8.75000	19.60	32.78
10.00000	21.77	39.59	10.30000	20.83	37.99	10.60000	19.97	36.53
11.80000	21.98	43.11	12.10000	21.03	41.28	12.50000	20.16	39.76
17.70000	22.13	51.74	18.20000	21.17	49.59	18.70000	20.29	47.63
23.60000	22.07	57.86	24.30000	21.11	55.48	25.00000	20.22	53.29
35.40000	21.87	66.45	36.40000	20.92	63.66	37.50000	20.04	61.17
59.00000	21.60	77.24	60.80000	20.66	74.04	62.50000	19.80	71.07
118.00000	21.37	91.89	121.00000	20.44	87.95	125.00000	19.59	84.51
236.00000	21.26	106.55	243.00000	20.34	102.06	250.00000	19.49	97.95

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
 Z=30 A= 65.380

TD= 4.0 EV ET=0.107782 MEV			TD= 8.0 EV ET=0.199394 MEV			TD=12.0 EV ET=0.280473 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.10800	2.57	2.57	0.20100	2.67	2.67	0.28300	1.39	1.39
0.10900	14.10	14.10	0.20300	5.93	5.93	0.28500	3.01	3.01
0.11200	46.60	46.60	0.20700	12.17	12.17	0.29100	5.63	5.63
0.11500	76.21	76.21	0.21300	20.95	20.95	0.30300	10.14	10.14
0.11900	111.77	111.77	0.22100	31.67	31.67	0.31100	15.32	15.32
0.12500	157.96	157.96	0.23100	43.72	43.72	0.32500	21.44	21.44
0.13100	197.07	197.07	0.24300	56.53	56.53	0.34200	28.25	28.25
0.14000	245.32	245.32	0.25900	71.35	71.35	0.36400	36.27	36.27
0.15000	287.74	287.74	0.27900	87.03	87.03	0.39200	45.37	45.37
0.16700	341.00	341.00	0.30900	106.23	106.23	0.43400	57.19	57.19
0.18800	385.63	385.63	0.34800	125.82	125.82	0.49300	70.40	70.40
0.21500	422.89	423.92	0.39800	145.13	145.88	0.56300	83.90	84.50
0.24700	450.71	458.21	0.45800	162.78	166.29	0.64500	97.07	99.50
0.29100	473.90	494.71	0.53800	180.42	189.47	0.75700	110.61	116.77
0.34400	490.30	529.45	0.63800	196.54	214.23	0.89700	123.33	135.57
0.40900	502.21	564.51	0.75700	210.39	239.71	1.06300	134.19	154.68
0.48500	510.62	599.60	0.89700	222.01	265.93	1.26000	143.70	175.19
0.56000	515.92	630.46	1.03000	230.04	288.12	1.45000	150.17	192.43
0.64600	519.97	662.77	1.19000	237.10	312.18	1.68000	155.80	211.05
0.75400	523.23	700.01	1.39000	243.29	339.11	1.96000	160.52	231.15
0.91600	525.94	750.74	1.69000	249.19	374.55	2.38000	164.91	257.28
1.07000	527.12	794.52	1.99000	252.66	405.45	2.80000	167.45	279.79
1.61000	526.63	923.75	2.99000	256.79	487.07	4.20000	170.35	338.12
2.15000	523.70	1026.82	3.98000	256.91	587.69	5.60000	170.45	381.00
3.23000	517.45	1185.66	5.98000	255.13	637.61	8.41000	169.28	433.15
5.38000	508.53	1401.95	9.96000	251.50	754.12	14.00000	166.91	522.48
10.70000	497.38	1711.58	19.90000	246.93	916.27	28.00000	164.16	632.04
21.50000	490.41	2038.06	39.80000	244.40	1081.51	56.00000	162.72	742.82
32.30000	488.21	2231.55	59.80000	243.59	1179.24	84.10000	162.25	808.11
53.80000	486.50	2475.86	99.60000	242.91	1302.09	140.00000	161.84	890.05
75.40000	485.68	2638.07	139.00000	242.54	1382.39	196.00000	161.59	944.12
107.00000	484.91	2806.39	199.00000	242.16	1468.79	280.00000	161.34	1001.39
215.00000	483.41	3142.01	398.00000	241.41	1635.62	560.00000	160.83	1112.62

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
 Z=30 A= 65.380

TD=16.0 EV ET=0.353985 MEV			TD=20.0 EV ET=0.421721 MEV			TD=24.0 EV ET=0.484861 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.35700	0.77	0.77	0.42500	0.46	0.46	0.48900	0.36	0.36
0.36100	1.77	1.77	0.43000	1.16	1.16	0.49400	0.80	0.80
0.36800	3.50	3.50	0.43800	2.28	2.28	0.50400	1.68	1.68
0.37800	5.90	5.90	0.45100	4.08	4.08	0.51900	2.93	2.93
0.39200	9.15	9.15	0.46800	6.39	6.39	0.53300	4.72	4.72
0.41000	13.13	13.13	0.48900	9.19	9.19	0.56200	6.87	6.87
0.43100	17.54	17.54	0.51400	12.44	12.44	0.59100	9.46	9.46
0.46000	23.24	23.24	0.54800	16.68	16.68	0.63000	12.88	12.88
0.49500	29.58	29.58	0.59000	21.65	21.65	0.67800	16.94	16.94
0.54800	38.24	38.24	0.65300	28.53	28.53	0.75100	22.74	22.74
0.61900	48.32	48.33	0.73800	36.78	36.81	0.84300	29.70	29.73
0.70700	58.85	59.36	0.84300	45.52	45.97	0.96900	37.20	37.61
0.81400	69.37	71.29	0.96900	54.20	55.83	1.11000	44.50	45.91
0.95500	80.31	85.18	1.13000	63.06	67.06	1.30000	52.35	55.88
1.13000	90.58	100.28	1.34000	71.81	79.94	1.55000	60.07	67.39
1.34000	99.56	116.11	1.60000	79.60	93.81	1.84000	66.47	78.99
1.59000	107.12	132.55	1.89000	85.67	107.25	2.18000	71.68	90.79
1.84000	112.44	147.01	2.19000	90.06	119.45	2.52000	75.29	101.12
2.12000	161.66	161.39	2.53000	93.54	131.67	2.90000	78.10	111.31
2.47000	120.28	177.27	2.95000	96.42	144.93	3.39000	80.52	122.83
3.00000	123.61	197.97	3.58000	99.02	161.97	4.12000	82.64	137.45
3.53000	125.50	215.68	4.21000	100.46	176.49	4.84000	83.78	149.70
5.30000	127.54	261.13	6.32000	101.94	213.63	7.27000	84.90	181.13
7.07000	127.54	294.19	8.43000	101.89	240.46	9.69000	84.82	203.65
10.60000	126.61	341.42	12.60000	101.11	278.34	14.50000	84.14	235.52
17.60000	124.87	401.24	21.00000	99.71	326.85	24.20000	82.98	276.22
35.30000	122.93	484.22	42.10000	98.24	393.42	48.40000	81.81	331.63
70.70000	121.95	567.71	84.30000	97.51	460.30	96.90000	81.23	387.41
106.00000	121.63	616.55	126.00000	97.27	499.10	145.00000	81.04	419.86
176.00000	121.33	677.73	210.00000	97.04	548.43	242.00000	80.85	461.08

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
 Z=30 A= 65.380

TD=28.0 EV ET=0.544229 MEV			TD=32.0 EV ET=0.600430 MEV			TD=36.0 EV ET=0.653924 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.54900	0.28	0.28	0.60600	0.23	0.23	0.66300	0.19	0.19
0.55500	0.63	0.63	0.61200	0.48	0.48	0.66700	0.41	0.41
0.56500	1.24	1.24	0.62400	1.01	1.01	0.68300	0.84	0.84
0.58200	2.29	2.29	0.64200	1.83	1.83	0.69900	1.50	1.50
0.60400	3.69	3.69	0.66600	2.97	2.97	0.72500	2.46	2.46
0.63100	5.44	5.44	0.69600	4.45	4.45	0.75900	3.75	3.75
0.66300	7.54	7.54	0.73200	6.28	6.28	0.79700	5.33	5.33
0.70700	10.43	10.43	0.78000	8.74	8.74	0.85300	7.54	7.54
0.76100	13.90	13.90	0.84000	11.80	11.80	0.91500	10.25	10.25
0.84300	18.91	18.91	0.93000	16.20	16.20	1.01000	14.08	14.08
0.95200	24.98	25.02	1.05000	21.59	21.62	1.14000	18.92	18.95
1.08000	31.21	31.56	1.20000	27.46	27.82	1.30000	24.15	24.46
1.25000	38.12	39.42	1.38000	33.34	34.55	1.50000	29.59	30.70
1.46000	44.88	48.08	1.62000	39.54	42.56	1.76000	35.16	37.93
1.74000	51.61	58.20	1.92000	45.31	51.34	2.09000	40.40	45.97
2.06000	57.08	68.26	2.28000	50.22	60.50	2.48000	44.77	54.21
2.44000	61.59	78.61	2.70000	54.14	69.73	2.94000	48.28	62.60
2.82000	64.68	87.65	3.12000	56.82	77.77	3.40000	50.66	69.89
3.26000	67.15	96.86	3.60000	58.92	85.85	3.92000	52.50	77.12
3.80000	69.15	106.73	4.20000	60.64	94.66	4.57000	53.99	85.00
4.62000	70.92	119.49	5.10000	62.14	105.89	5.55000	55.29	95.08
5.44000	71.87	130.28	6.00000	62.93	115.38	6.53000	55.97	103.59
8.16000	72.75	157.40	9.00000	63.64	139.29	9.80000	56.55	124.99
10.80000	72.65	176.37	12.00000	63.52	156.41	13.00000	56.44	140.00
16.30000	72.04	204.39	18.00000	62.98	180.64	19.60000	55.94	161.86
27.20000	71.05	239.36	30.00000	62.12	211.23	32.60000	55.18	188.99
54.40000	70.08	286.94	60.00000	61.30	252.91	65.30000	54.47	226.17
108.00000	69.61	334.20	120.00000	60.90	294.74	130.00000	54.12	263.11
163.00000	69.45	362.62	180.00000	60.76	319.24	196.00000	54.00	285.17

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
 Z=30 A= 65.380

TD=40.0 EV ET=0.705066 MEV			TD=44.0 EV ET=0.754143 MEV			TD=48.0 EV ET=0.801385 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.71200	0.16	0.16	0.76100	0.13	0.13	0.80900	0.11	0.11
0.71900	0.33	0.33	0.76900	0.28	0.28	0.81700	0.24	0.24
0.73300	0.69	0.69	0.78400	0.59	0.59	0.83300	0.51	0.51
0.75400	1.27	1.27	0.80600	1.08	1.08	0.85700	0.95	0.95
0.78200	2.10	2.10	0.83700	1.84	1.84	0.88900	1.61	1.61
0.81700	3.22	3.22	0.87400	2.82	2.82	0.92900	2.51	2.51
0.86000	4.66	4.66	0.92000	4.12	4.12	0.97700	3.67	3.67
0.91600	6.60	6.60	0.98000	5.88	5.88	1.04000	5.26	5.26
0.98700	9.07	9.07	1.05000	7.97	7.97	1.12000	7.33	7.33
1.09000	12.57	12.57	1.16000	11.18	11.18	1.24000	10.37	10.37
1.23000	16.98	17.01	1.31000	15.25	15.28	1.40000	14.14	14.17
1.41000	21.93	22.25	1.50000	19.77	20.06	1.60000	18.26	18.55
1.62000	26.74	27.79	1.73000	24.32	25.30	1.84000	22.38	23.32
1.90000	31.79	34.39	2.03000	28.97	31.40	2.16000	26.68	29.00
2.25000	36.46	41.62	2.41000	33.30	38.16	2.56000	30.63	35.20
2.67000	40.41	49.15	2.86000	36.89	45.09	3.04000	33.93	41.64
3.17000	43.59	56.86	3.39000	39.74	52.11	3.60000	36.52	48.10
3.66000	45.70	63.42	3.92000	41.66	58.20	4.16000	38.26	53.70
4.23000	47.36	70.11	4.52000	43.13	64.23	4.80000	39.60	59.29
4.93000	48.67	77.25	5.27000	44.31	70.78	5.60000	40.67	65.37
5.99000	49.81	86.41	6.41000	45.33	79.21	6.81000	41.58	73.13
7.05000	50.40	94.13	7.54000	45.84	86.24	8.01000	42.04	79.59
10.50000	50.89	113.12	11.30000	46.25	103.84	12.00000	42.39	95.77
14.10000	50.77	127.26	15.00000	46.14	116.23	16.00000	42.28	107.32
21.10000	50.31	146.62	22.60000	45.71	134.15	24.00000	41.89	123.59
35.20000	49.64	171.21	37.70000	45.10	156.53	40.00000	41.33	144.09
70.50000	49.00	204.68	75.40000	44.54	186.92	80.10000	40.82	172.01
141.00000	48.70	238.17	150.00000	44.27	217.14	160.00000	40.58	199.88
211.00000	48.59	257.66	226.00000	44.17	235.16	240.00000	40.49	216.23

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
 Z=30 A= 65.380

TD=52.0 EV			ET=0.846986 MEV			TD=56.0 EV			ET=0.891104 MEV			TD=50.0 EV			ET=0.933875 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.85500	0.10	0.10	0.90000	0.09	0.09	0.94300	0.09	0.08	0.94300	0.09	0.08						
0.86300	0.20	0.20	0.90800	0.18	0.18	0.95200	0.16	0.16	0.95200	0.16	0.16						
0.88000	0.44	0.44	0.92600	0.39	0.39	0.97100	0.35	0.35	0.97100	0.35	0.35						
0.90600	0.84	0.84	0.95300	0.75	0.75	0.99900	0.68	0.68	0.99900	0.68	0.68						
0.94000	1.44	1.44	0.98900	1.30	1.30	1.03000	1.09	1.09	1.03000	1.09	1.09						
0.98200	2.26	2.26	1.03000	1.99	1.99	1.08000	1.83	1.83	1.08000	1.83	1.83						
1.03000	3.26	3.26	1.08000	2.91	2.91	1.13000	2.64	2.64	1.13000	2.64	2.64						
1.10000	4.81	4.81	1.15000	4.27	4.27	1.21000	4.03	4.03	1.21000	4.03	4.03						
1.18000	6.62	6.62	1.24000	6.08	6.08	1.30000	5.65	5.65	1.30000	5.65	5.65						
1.31000	9.52	9.52	1.38000	8.86	8.86	1.44000	8.14	8.14	1.44000	8.14	8.14						
1.48000	13.05	13.09	1.55000	12.00	12.03	1.63000	11.30	11.33	1.63000	11.30	11.33						
1.69000	16.87	17.14	1.78000	15.73	16.00	1.86000	14.64	14.89	1.86000	14.64	14.89						
1.94000	20.65	21.54	2.04000	19.22	20.07	2.14000	18.02	18.83	2.14000	18.02	18.83						
2.28000	24.68	26.87	2.40000	23.01	25.10	2.52000	21.58	23.60	2.52000	21.58	23.60						
2.71000	28.40	32.75	2.85000	26.44	30.58	2.98000	24.72	28.63	2.98000	24.72	28.63						
3.21000	31.40	38.66	3.38000	29.25	36.15	3.54000	27.36	33.91	3.54000	27.36	33.91						
3.81000	33.81	44.75	4.00000	31.45	41.75	4.20000	29.43	39.25	4.20000	29.43	39.25						
4.40000	35.40	49.94	4.63000	32.93	46.67	4.85000	30.79	43.79	4.85000	30.79	43.79						
5.08000	36.62	55.15	5.34000	34.05	51.50	5.60000	31.82	48.36	5.60000	31.82	48.36						
5.92000	37.59	60.75	6.23000	34.94	56.76	6.53000	32.64	53.27	6.53000	32.64	53.27						
7.19000	38.41	67.90	7.57000	35.69	63.44	7.93000	33.32	59.50	7.93000	33.32	59.50						
8.46000	38.81	73.90	8.91000	36.06	69.04	9.33000	33.66	64.73	9.33000	33.66	64.73						
12.70000	39.13	88.95	13.30000	36.33	82.85	14.00000	33.90	77.82	14.00000	33.90	77.82						
16.90000	39.01	99.56	17.80000	36.22	92.92	18.60000	33.79	86.99	18.60000	33.79	86.99						
25.40000	38.65	114.67	26.70000	35.87	106.89	28.00000	33.47	100.16	28.00000	33.47	100.16						
42.30000	38.13	133.57	44.50000	35.40	124.49	46.60000	33.03	116.55	46.60000	33.03	116.55						
84.60000	37.67	159.32	89.10000	34.97	148.44	93.30000	32.64	138.91	93.30000	32.64	138.91						
169.00000	37.45	185.05	178.00000	34.77	172.34	186.00000	32.45	161.15	186.00000	32.45	161.15						

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
 Z=30 A= 65.380

TD=64.0 EV			ET=0.975416 MEV			TD=68.0 EV			ET=1.015828 MEV			TD=72.0 EV			ET=1.055197 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.98500	0.07	0.07	1.02000	0.03	0.03	1.06000	0.02	0.02	1.06000	0.02	0.02						
0.99400	0.14	0.14	1.03000	0.09	0.09	1.07000	0.08	0.08	1.07000	0.08	0.08						
1.01000	0.28	0.28	1.05000	0.24	0.24	1.09000	0.21	0.21	1.09000	0.21	0.21						
1.04000	0.58	0.58	1.08000	0.50	0.50	1.12000	0.44	0.44	1.12000	0.44	0.44						
1.08000	1.04	1.04	1.12000	0.91	0.91	1.17000	0.91	0.91	1.17000	0.91	0.91						
1.13000	1.71	1.71	1.17000	1.50	1.50	1.22000	1.45	1.45	1.22000	1.45	1.45						
1.19000	2.59	2.59	1.23000	2.29	2.29	1.28000	2.17	2.17	1.28000	2.17	2.17						
1.26000	3.69	3.69	1.32000	3.56	3.56	1.37000	3.33	3.33	1.37000	3.33	3.33						
1.36000	5.31	5.31	1.42000	5.04	5.04	1.47000	4.68	4.68	1.47000	4.68	4.68						
1.51000	7.72	7.72	1.57000	7.23	7.23	1.53000	6.82	6.82	1.53000	6.82	6.82						
1.70000	10.57	10.60	1.77000	9.96	9.99	1.84000	9.44	9.47	1.84000	9.44	9.47						
1.95000	13.85	14.10	2.03000	13.06	13.30	2.11000	12.38	12.62	2.11000	12.38	12.62						
2.24000	16.99	17.79	2.33000	16.01	16.78	2.42000	15.17	15.90	2.42000	15.17	15.90						
2.63000	20.28	22.20	2.74000	19.15	21.00	2.84000	18.10	19.87	2.84000	18.10	19.87						
3.12000	23.28	27.05	3.25000	21.97	25.58	3.37000	20.78	24.23	3.37000	20.78	24.23						
3.70000	25.72	31.98	3.86000	24.29	30.30	4.00000	22.95	28.68	4.00000	22.95	28.68						
4.38000	27.63	36.94	4.57000	26.07	34.99	4.74000	24.65	33.16	4.74000	24.65	33.16						
5.07000	28.91	41.29	5.28000	27.25	39.05	5.48000	25.77	37.02	5.48000	25.77	37.02						
5.85000	29.87	45.57	6.09000	28.14	43.08	6.33000	26.61	40.89	6.33000	26.61	40.89						
6.82000	30.63	50.18	7.11000	28.85	47.48	7.38000	27.27	45.01	7.38000	27.27	45.01						
8.29000	31.26	56.08	8.63000	29.43	53.00	8.95000	27.81	50.24	8.95000	27.81	50.24						
9.75000	31.57	60.98	10.10000	29.71	57.48	10.50000	28.07	54.52	10.50000	28.07	54.52						
14.60000	31.78	73.21	15.20000	29.91	69.15	15.80000	28.24	65.56	15.80000	28.24	65.56						
19.50000	31.67	81.98	20.30000	29.80	77.41	21.10000	28.14	73.36	21.10000	28.14	73.36						
29.20000	31.37	94.18	30.40000	29.52	88.90	31.50000	27.87	84.22	31.50000	27.87	84.22						
48.70000	30.96	109.61	50.70000	29.13	103.43	52.70000	27.50	97.95	52.70000	27.50	97.95						
97.50000	30.59	130.58	101.00000	28.79	123.03	105.00000	27.19	116.47	105.00000	27.19	116.47						
195.00000	30.42	151.53	203.00000	28.63	142.90	211.00000	27.04	135.23	211.00000	27.04	135.23						

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
Z=30 A= 65.380

TD=76.0 EV ET=1.093600 MEV			TD=80.0 EV ET=1.131106 MEV			TD=84.0 EV ET=1.167774 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.10000	0.03	0.03	1.14000	0.04	0.04	1.17000	0.01	0.01
1.11000	0.08	0.08	1.15000	0.08	0.08	1.19000	0.09	0.09
1.13000	0.20	0.20	1.17000	0.19	0.19	1.21000	0.18	0.18
1.17000	0.48	0.48	1.21000	0.44	0.44	1.24000	0.35	0.35
1.21000	0.82	0.82	1.25000	0.75	0.75	1.29000	0.70	0.70
1.26000	1.31	1.31	1.31000	1.29	1.29	1.35000	1.20	1.20
1.33000	2.07	2.07	1.37000	1.90	1.90	1.42000	1.85	1.85
1.42000	3.14	3.14	1.47000	2.99	2.99	1.51000	2.76	2.76
1.53000	4.50	4.50	1.58000	4.24	4.24	1.63000	4.02	4.02
1.69000	6.47	6.47	1.75000	6.17	6.17	1.81000	5.91	5.91
1.91000	8.99	9.02	1.97000	8.50	8.53	2.04000	8.17	8.20
2.18000	11.69	11.92	2.26000	11.18	11.41	2.33000	10.65	10.87
2.51000	14.42	15.14	2.60000	13.76	14.46	2.68000	13.12	13.79
2.95000	17.23	18.95	3.05000	16.40	18.06	3.15000	15.67	17.27
3.49000	19.72	23.03	3.61000	18.78	21.97	3.73000	17.93	21.02
4.15000	21.81	27.32	4.29000	20.75	26.04	4.43000	19.80	24.90
4.92000	23.40	31.59	5.08000	22.25	30.09	5.25000	21.23	28.79
5.68000	24.44	35.23	5.88000	23.25	33.62	6.07000	22.17	32.13
6.56000	25.23	38.89	6.78000	23.99	37.07	7.00000	22.87	35.43
7.65000	25.85	42.81	7.91000	24.57	40.81	8.17000	23.42	39.01
9.29000	26.36	47.79	9.61000	25.05	45.56	9.92000	23.86	43.53
10.90000	26.60	51.88	11.30000	25.27	49.50	11.60000	24.07	47.16
16.40000	26.75	62.34	16.90000	25.41	59.31	17.50000	24.20	56.71
21.80000	26.66	69.63	22.60000	25.32	66.38	23.30000	24.11	63.35
32.80000	26.39	80.04	33.90000	25.07	76.21	35.00000	23.87	72.74
54.60000	26.05	93.00	56.50000	24.75	88.55	58.30000	23.56	84.49
109.00000	25.76	110.60	113.00000	24.47	105.32	116.00000	23.30	100.34
218.00000	25.61	128.25	226.00000	24.33	122.09	233.00000	23.17	116.42

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZN
Z=30 A= 65.380

TD=88.0 EV ET=1.203658 MEV			TD=92.0 EV ET=1.238806 MEV			TD=96.0 EV ET=1.273262 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.21000	0.02	0.02	1.25000	0.03	0.03	1.28000	0.02	0.02
1.22000	0.06	0.06	1.26000	0.07	0.07	1.29000	0.05	0.05
1.25000	0.18	0.18	1.28000	0.14	0.14	1.32000	0.15	0.15
1.28000	0.34	0.34	1.32000	0.34	0.34	1.36000	0.33	0.33
1.33000	0.66	0.66	1.37000	0.63	0.63	1.41000	0.61	0.61
1.39000	1.12	1.12	1.43000	1.06	1.06	1.47000	1.01	1.01
1.46000	1.72	1.72	1.51000	1.70	1.70	1.55000	1.61	1.61
1.56000	2.66	2.66	1.61000	2.58	2.58	1.65000	2.43	2.43
1.68000	3.84	3.84	1.73000	3.68	3.68	1.78000	3.54	3.54
1.86000	5.60	5.60	1.92000	5.41	5.41	1.97000	5.16	5.16
2.10000	7.79	7.82	2.16000	7.45	7.48	2.22000	7.16	7.19
2.40000	10.18	10.39	2.47000	9.76	9.96	2.54000	9.38	9.58
2.76000	12.54	13.19	2.84000	12.02	12.65	2.92000	11.55	12.16
3.24000	14.96	16.50	3.34000	14.36	15.87	3.43000	13.78	15.24
3.85000	17.17	20.17	3.96000	16.45	19.34	4.07000	15.79	18.60
4.57000	18.94	23.87	4.70000	18.14	22.90	4.83000	17.40	22.01
5.41000	20.29	27.57	5.57000	19.43	26.46	5.72000	18.64	25.42
6.25000	21.18	30.75	6.44000	20.28	29.53	6.62000	19.46	28.39
7.22000	21.85	33.94	7.43000	20.91	32.57	7.63000	20.05	31.28
8.42000	22.36	37.36	8.67000	21.40	35.85	8.91000	20.52	34.45
10.20000	22.78	41.62	10.50000	21.80	39.93	10.80000	20.90	38.38
12.00000	22.98	45.23	12.30000	21.98	43.29	12.70000	21.07	41.68
18.00000	23.10	54.22	18.50000	22.09	51.96	19.00000	21.17	49.89
24.00000	23.01	60.60	24.70000	22.01	58.09	25.40000	21.09	55.79
36.10000	22.78	69.60	37.10000	21.79	66.67	38.10000	20.88	63.99
60.10000	22.49	80.80	61.90000	21.51	77.44	63.60000	20.61	74.33
120.00000	22.24	96.01	123.00000	21.27	91.89	127.00000	20.38	88.27
240.00000	22.12	111.26	247.00000	21.16	106.56	254.00000	20.27	102.25

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN GE
 Z=32 A= 72.600

TD= 4.0 EV ET=0.118554 MEV			TD= 8.0 EV ET=0.218078 MEV			TD=12.0 EV ET=0.305561 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.11900	4.50	4.50	0.22000	2.78	2.78	0.30300	1.17	1.17
0.12000	14.39	14.39	0.22200	5.60	5.60	0.31100	2.59	2.59
0.12300	42.43	42.43	0.22600	11.06	11.06	0.31700	5.37	5.37
0.12600	68.26	68.26	0.23300	20.05	20.05	0.32500	9.37	9.37
0.13100	106.99	106.99	0.24200	30.68	30.68	0.33300	14.85	14.85
0.13700	147.37	147.37	0.25200	41.42	41.42	0.35400	20.79	20.79
0.14400	187.59	187.59	0.26600	54.88	54.88	0.37200	27.42	27.42
0.15400	234.91	234.91	0.28300	69.19	69.19	0.39700	35.88	35.88
0.16500	276.46	276.46	0.30500	85.13	85.13	0.42700	45.06	45.06
0.18300	327.77	327.77	0.33800	104.96	104.96	0.47300	57.45	57.45
0.20700	375.20	375.20	0.38100	125.61	125.61	0.53400	71.42	71.42
0.23700	444.56	444.56	0.43600	146.26	147.11	0.61100	85.98	86.65
0.27200	444.70	452.43	0.50100	165.16	168.85	0.70200	99.91	102.49
0.32000	471.14	492.17	0.58800	184.35	193.81	0.82500	114.63	121.24
0.37900	491.41	531.39	0.69700	202.02	220.64	0.97700	128.25	141.40
0.45000	506.74	570.61	0.82800	217.32	248.51	1.16300	140.13	162.52
0.53300	518.20	610.04	0.98100	229.96	276.92	1.37000	149.77	183.68
0.61600	525.81	645.09	1.13000	238.77	301.46	1.58300	156.61	202.36
0.71100	531.75	681.56	1.30000	246.04	326.62	1.83000	162.36	222.13
0.82900	536.59	722.87	1.52000	252.55	355.68	2.13300	167.04	243.10
1.00000	540.65	776.88	1.85000	258.55	393.69	2.59000	171.36	270.85
1.18000	542.71	827.99	2.18000	261.94	426.64	3.05300	173.75	294.64
1.77000	542.80	966.81	3.27000	265.44	512.26	4.58000	176.10	355.74
2.37000	539.48	1077.74	4.36000	265.02	575.99	6.11300	175.80	400.37
3.55000	532.40	1244.03	6.54000	262.56	669.04	9.16300	174.16	464.37
5.92000	522.29	1470.09	10.90000	258.25	789.57	15.20000	171.38	545.59
11.80000	510.01	1791.31	21.80000	253.20	956.68	30.50300	168.33	658.71
23.70000	502.66	2127.14	43.60000	250.51	1126.36	61.10300	166.79	772.66
35.50000	500.38	2324.40	65.40000	249.65	1226.20	91.60000	166.29	839.32
59.20000	498.53	2575.65	109.00000	248.89	1352.31	152.00300	165.81	922.77
82.90000	497.60	2741.53	152.00000	248.46	1434.37	213.00300	165.53	978.30
118.00000	496.69	2915.45	218.00000	248.00	1523.28	305.00300	165.22	1037.33
237.00000	494.89	3258.89	436.00000	247.10	1694.05	611.00300	164.61	1151.43

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN GE
 Z=32 A= 72.600

TD=16.0 EV ET=0.384538 MEV			TD=20.0 EV ET=0.457093 MEV			TD=24.0 EV ET=0.524578 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.38800	0.77	0.77	0.46100	0.48	0.48	0.52900	0.34	0.34
0.39200	1.66	1.66	0.46600	1.10	1.10	0.53500	0.81	0.81
0.39900	3.19	3.19	0.47500	2.22	2.22	0.54500	1.60	1.60
0.41100	5.77	5.77	0.48900	3.97	3.97	0.56100	2.89	2.89
0.42600	8.92	8.92	0.50700	6.21	6.21	0.58200	4.63	4.63
0.44600	12.97	12.97	0.53000	9.06	9.06	0.60300	6.81	6.81
0.46900	17.46	17.46	0.55700	12.36	12.36	0.63900	9.44	9.44
0.49900	23.02	23.02	0.59400	16.77	16.77	0.68100	12.98	12.98
0.53800	29.78	29.78	0.63900	21.91	21.91	0.73400	17.34	17.34
0.59600	38.95	38.95	0.70800	29.26	29.26	0.81300	23.50	23.50
0.67200	49.50	49.53	0.79900	37.95	37.98	0.91300	30.92	30.95
0.76900	60.94	61.50	0.91400	47.39	47.89	1.04000	38.43	38.84
0.88400	72.08	74.16	1.05000	56.64	58.41	1.20000	46.64	48.17
1.03000	83.31	88.40	1.23000	66.33	70.78	1.41000	55.13	59.04
1.23000	94.84	105.45	1.46000	75.59	84.62	1.67000	62.95	70.83
1.46000	104.33	122.47	1.73000	83.37	98.73	1.99300	69.76	83.40
1.73000	112.10	139.83	2.05000	89.75	113.25	2.36300	75.13	95.94
1.99000	117.34	154.52	2.37000	94.14	125.94	2.72000	78.70	106.59
2.30000	121.71	170.05	2.74000	97.63	138.86	3.14300	81.56	117.52
2.69000	125.36	187.19	3.19000	100.43	152.64	3.67000	83.90	129.57
3.26000	128.51	208.67	3.88000	102.93	170.66	4.45300	85.87	144.64
3.84000	130.24	227.31	4.57000	104.24	185.94	5.24000	86.90	157.57
5.76000	131.80	274.49	6.85000	105.32	224.34	7.86000	87.70	190.03
7.69000	131.51	308.82	9.14000	105.03	252.12	10.40300	87.43	212.70
11.50000	130.24	357.26	13.70000	103.97	291.43	15.70300	86.52	246.22
19.20000	128.17	419.48	22.80000	102.34	341.17	26.20300	85.17	288.04
38.40000	126.05	504.36	45.70000	100.73	409.50	52.40000	83.88	344.92
76.90000	125.00	589.99	91.40000	99.95	477.97	104.00300	83.27	401.40
115.00000	124.65	639.74	137.00000	99.68	518.03	157.00300	83.05	435.39
192.00000	124.30	703.11	228.00000	99.41	568.42	262.00000	82.82	477.60

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN GE
 Z=32 A= 72.600

TD=28.0 EV			ET=0.587926 MEV			TD=32.0 EV			ET=0.647816 MEV			TD=36.0 EV			ET=0.704760 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.59300	0.26	0.26	0.65400	0.23	0.23	0.71100	0.17	0.17									
0.59900	0.58	0.58	0.66000	0.45	0.45	0.71300	0.37	0.37									
0.61100	1.23	1.23	0.67300	0.97	0.97	0.73200	0.78	0.78									
0.62900	2.25	2.25	0.69300	1.80	1.80	0.75400	1.49	1.49									
0.65200	3.61	3.61	0.71900	2.96	2.96	0.78200	2.47	2.47									
0.68100	5.38	5.38	0.75100	4.46	4.46	0.81700	3.77	3.77									
0.71700	7.64	7.64	0.79000	6.37	5.37	0.85900	5.43	5.43									
0.76400	10.63	10.63	0.84200	8.97	8.97	0.91500	7.74	7.74									
0.82300	14.33	14.33	0.90600	12.17	12.17	0.98500	10.62	10.62									
0.91100	19.63	19.63	1.00000	16.71	16.71	1.09000	14.76	14.76									
1.02000	25.65	25.68	1.13000	22.50	22.54	1.23000	19.92	19.96									
1.17000	32.89	33.29	1.29000	28.72	29.09	1.40000	25.41	25.75									
1.35000	40.08	41.51	1.48000	34.87	36.14	1.62000	31.29	32.54									
1.58000	47.31	50.85	1.74000	41.49	44.74	1.90000	37.14	40.20									
1.88000	54.29	61.51	2.07000	47.66	54.25	2.25000	42.51	48.58									
2.23000	60.02	72.27	2.46000	52.76	63.96	2.67000	47.02	57.28									
2.64000	64.59	83.16	2.91000	56.73	73.61	3.17000	50.62	66.17									
3.05000	67.69	92.64	3.36000	59.40	82.01	3.66000	52.97	73.72									
3.52000	70.10	102.17	3.88000	61.49	90.50	4.22000	54.78	81.28									
4.11000	72.05	112.59	4.53000	63.16	99.73	4.93000	56.23	89.60									
4.99000	73.69	125.79	5.50000	64.55	111.41	5.99000	57.43	100.10									
5.87000	74.52	136.93	6.47000	65.24	121.24	7.04000	58.01	108.86									
8.81000	75.13	165.04	9.71000	65.70	146.00	10.50000	58.38	130.64									
11.70000	74.87	184.85	12.90000	65.46	163.44	14.00000	58.15	146.39									
17.60000	74.07	213.45	19.40000	64.75	188.52	21.10000	57.51	168.85									
29.30000	72.93	249.22	32.30000	63.76	219.88	35.20000	56.63	196.88									
58.70000	71.86	298.17	64.70000	62.85	262.75	70.40000	55.85	234.93									
117.00000	71.35	346.91	129.00000	62.42	305.44	140.00000	55.47	272.75									
176.00000	71.17	375.80	194.00000	62.26	330.71	211.00000	55.34	295.34									

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN GE
 Z=32 A= 72.600

TD=40.0 EV			ET=0.759153 MEV			TD=44.0 EV			ET=0.811310 MEV			TD=48.0 EV			ET=0.861487 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.76600	0.14	0.14	0.81900	0.13	0.13	0.87300	0.11	0.11									
0.77400	0.32	0.32	0.82700	0.26	0.26	0.87900	0.22	0.22									
0.78900	0.67	0.67	0.84300	0.56	0.56	0.89500	0.49	0.49									
0.81200	1.26	1.26	0.86800	1.09	1.09	0.92100	0.94	0.94									
0.84200	2.10	2.10	0.90000	1.83	1.83	0.95500	1.62	1.62									
0.88000	3.26	3.26	0.94100	2.88	2.88	0.99900	2.56	2.56									
0.92600	4.76	4.76	0.98900	4.20	4.20	1.05000	3.76	3.76									
0.98600	6.79	6.79	1.05000	5.96	5.96	1.11000	5.26	5.26									
1.06000	9.34	9.34	1.13000	8.31	8.31	1.20000	7.56	7.56									
1.17000	13.05	13.05	1.25000	11.78	11.78	1.33000	10.83	10.83									
1.32000	17.74	17.77	1.41000	16.09	16.12	1.50000	14.81	14.85									
1.51000	22.93	23.27	1.62000	21.02	21.35	1.72000	19.31	19.62									
1.74000	28.14	29.29	1.86000	25.67	26.76	1.98000	23.69	24.73									
2.04000	33.45	36.27	2.19000	30.65	33.36	2.32000	28.14	30.68									
2.42000	38.37	44.00	2.59000	35.05	40.35	2.75000	32.25	37.24									
2.88000	42.50	52.06	3.08000	38.78	47.73	3.27000	35.66	44.06									
3.41000	45.67	60.03	3.65000	41.66	55.08	3.87000	38.27	50.80									
3.94000	47.79	66.93	4.21000	43.54	61.34	4.47000	39.99	56.64									
4.55000	49.41	73.87	4.86000	44.99	67.68	5.16000	41.30	62.48									
5.31000	50.68	81.37	5.67000	46.12	74.52	6.03000	42.34	68.86									
6.45000	51.73	90.87	6.89000	47.06	83.23	7.32000	43.16	76.84									
7.59000	52.23	98.85	8.11000	47.50	90.53	8.61000	43.55	83.53									
11.30000	52.53	118.45	12.10000	47.74	108.51	12.90000	43.75	100.23									
15.10000	52.30	132.78	16.20000	47.52	121.65	17.20000	43.54	112.12									
22.70000	51.72	152.91	24.30000	46.99	139.87	25.80000	43.05	128.85									
37.90000	50.94	178.20	40.50000	46.29	162.80	43.00000	42.41	149.89									
75.90000	50.25	212.53	81.10000	45.67	194.04	86.10000	41.85	178.53									
151.00000	49.92	246.60	162.00000	45.37	225.20	172.00000	41.59	207.10									
227.00000	49.80	266.81	243.00000	45.27	243.47	258.00000	41.49	223.85									

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN GE
 Z=32 A= 72.600

TD=52.0 EV ET=0.909894 MEV			TD=56.0 EV ET=0.956704 MEV			TD=50.0 EV ET=1.002067 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.91800	0.09	0.09	0.96600	0.08	0.08	1.01000	0.06	0.06
0.92800	0.20	0.20	0.97500	0.17	0.17	1.02000	0.14	0.14
0.94600	0.44	0.44	0.99400	0.38	0.38	1.04000	0.33	0.33
0.97300	0.83	0.83	1.02000	0.70	0.70	1.07000	0.65	0.65
1.00000	1.28	1.28	1.06000	1.28	1.28	1.11000	1.16	1.16
1.05000	2.20	2.20	1.10000	1.93	1.93	1.16000	1.89	1.89
1.11000	3.44	3.44	1.16000	3.01	3.01	1.22000	2.86	2.86
1.18000	4.97	4.97	1.24000	4.55	4.55	1.30000	4.24	4.24
1.27000	6.99	6.99	1.33000	6.35	6.35	1.40000	6.03	6.03
1.41000	10.09	10.09	1.48000	9.31	9.31	1.55000	8.68	8.68
1.59000	13.79	13.83	1.67000	12.79	12.83	1.75000	11.97	12.01
1.81000	17.76	18.05	1.91000	16.63	16.93	2.00000	15.56	15.85
2.09000	21.92	22.92	2.20000	20.45	21.41	2.30000	19.11	20.02
2.45000	26.07	28.47	2.58000	24.33	26.63	2.70000	22.75	24.96
2.91000	29.91	34.66	3.06000	27.86	32.37	3.20000	26.05	30.33
3.45000	33.00	40.90	3.63000	30.73	38.23	3.80000	28.75	35.86
4.09000	35.42	47.23	4.30000	32.96	44.12	4.50000	30.81	41.38
4.73000	37.01	52.70	4.97000	34.42	49.20	5.21000	32.18	46.20
5.45000	38.18	58.05	5.74000	35.51	54.28	6.01000	33.18	50.93
6.36000	39.11	63.92	6.69000	36.35	59.71	7.01000	33.96	56.03
7.73000	39.86	71.35	8.13000	37.04	66.63	8.51000	34.58	62.48
9.09000	40.21	77.54	9.56000	37.34	72.39	10.00000	34.86	67.84
13.60000	40.38	92.94	14.30000	37.48	86.71	15.00000	34.98	81.32
18.10000	40.18	103.87	19.10000	37.30	97.00	20.00000	34.80	90.88
27.20000	39.72	119.39	28.70000	36.87	111.43	30.00000	34.40	104.30
45.40000	39.14	138.88	47.80000	36.33	129.46	50.10000	33.89	121.23
90.90000	38.63	165.33	95.60000	35.86	153.98	100.00000	33.47	144.06
181.00000	38.39	191.59	191.00000	35.64	178.49	200.00000	33.26	166.97

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN GE
 Z=32 A= 72.600

TD=64.0 EV ET=1.046109 MEV			TD=68.0 EV ET=1.088939 MEV			TD=72.0 EV ET=1.130652 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.05000	0.02	0.02	1.09000	0.01	0.01	1.14000	0.04	0.04
1.06000	0.09	0.09	1.11000	0.12	0.12	1.15000	0.10	0.10
1.08000	0.25	0.25	1.13000	0.27	0.27	1.17000	0.22	0.22
1.11000	0.52	0.52	1.16000	0.52	0.52	1.20000	0.44	0.44
1.16000	1.08	1.08	1.20000	0.92	0.92	1.25000	0.89	0.89
1.21000	1.73	1.73	1.26000	1.61	1.61	1.31000	1.52	1.52
1.27000	2.60	2.60	1.32000	2.39	2.39	1.37000	2.23	2.23
1.35000	3.84	3.84	1.41000	3.66	3.66	1.46000	3.39	3.39
1.46000	5.61	5.61	1.52000	5.27	5.27	1.58000	4.99	4.99
1.62000	8.17	8.17	1.68000	7.60	7.60	1.75000	7.26	7.26
1.83000	11.29	11.33	1.90000	10.58	10.62	1.97000	9.98	10.02
2.09000	14.66	14.93	2.17000	13.77	14.04	2.26000	13.11	13.38
2.40000	17.96	18.83	2.50000	16.97	17.82	2.60000	16.11	16.93
2.82000	21.41	23.52	2.94000	20.24	22.28	3.05000	19.16	21.11
3.34000	24.49	28.57	3.48000	23.12	27.04	3.61000	21.89	25.63
3.97000	27.02	33.82	4.13000	25.48	31.96	4.29000	24.12	30.34
4.70000	28.94	39.01	4.90000	27.30	36.93	5.08000	25.81	34.99
5.43000	30.20	43.48	5.66000	28.47	41.15	5.87000	26.91	39.00
6.27000	31.14	47.96	6.53000	29.34	45.35	6.78000	27.73	43.01
7.32000	31.86	52.79	7.62000	30.01	49.90	7.91000	28.36	47.31
8.89000	32.43	58.86	9.25000	30.53	55.61	9.61000	28.85	52.74
10.40000	32.68	63.76	10.80000	30.76	60.18	11.30000	29.06	57.26
15.60000	32.79	76.42	16.30000	30.85	72.29	16.90000	29.14	68.46
20.90000	32.62	85.54	21.70000	30.69	80.70	22.60000	28.98	76.53
31.30000	32.24	98.08	32.60000	30.33	92.60	33.90000	28.64	87.73
52.30000	31.77	113.97	54.40000	29.89	107.52	56.50000	28.22	101.80
104.00000	31.37	135.27	108.00000	29.52	127.52	113.00000	27.88	120.89
209.00000	31.18	156.90	217.00000	29.35	147.88	226.00000	27.71	139.99

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN GE
 Z=32 A= 72.600

TD=76.0 EV ET=1.171331 MEV			TD=80.0 EV ET=1.211050 MEV			TD=84.0 EV ET=1.249873 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.18000	0.04	0.04	1.22300	0.03	0.03	1.26300	0.03	0.03
1.19000	0.08	0.08	1.23300	0.07	0.07	1.27000	0.07	0.07
1.21000	0.19	0.19	1.25000	0.17	0.17	1.29000	0.16	0.16
1.25000	0.46	0.46	1.29000	0.41	0.41	1.33000	0.37	0.37
1.30000	0.87	0.87	1.34000	0.78	0.78	1.38000	0.71	0.71
1.35000	1.35	1.35	1.40000	1.31	1.31	1.44000	1.20	1.20
1.42000	2.11	2.11	1.47000	2.01	2.01	1.52000	1.93	1.93
1.52000	3.29	3.29	1.57000	3.10	3.10	1.62000	2.94	2.94
1.63000	4.64	4.64	1.69000	4.46	4.46	1.74000	4.20	4.20
1.81000	6.85	6.85	1.87000	6.50	6.50	1.93000	6.19	6.19
2.04000	9.47	9.50	2.11000	9.02	9.06	2.18000	8.63	8.67
2.34000	12.44	12.70	2.42000	11.86	12.11	2.49000	11.26	11.50
2.69000	15.28	16.07	2.78000	14.55	15.31	2.87000	13.90	14.64
3.16000	18.20	20.08	3.26000	17.30	19.10	3.37000	16.54	18.29
3.74000	20.78	24.38	3.87000	19.79	23.28	3.99000	18.87	22.23
4.45000	22.91	28.89	4.60000	21.80	27.55	4.74000	20.78	26.30
5.27000	24.50	33.32	5.44000	23.30	31.74	5.62000	22.22	30.36
6.09000	25.54	37.14	6.29000	24.28	35.38	6.49000	23.14	33.81
7.02000	26.29	40.89	7.26000	25.00	38.99	7.49000	23.83	37.25
8.19000	26.88	44.97	8.47000	25.55	42.88	8.74000	24.34	40.96
9.95000	27.34	50.13	10.20000	25.96	47.56	10.60000	24.74	45.60
11.70000	27.54	54.41	12.10000	26.16	51.86	12.40000	24.91	49.36
17.50000	27.60	65.04	18.10000	26.22	61.97	18.70000	24.96	59.19
23.40000	27.45	72.69	24.20000	26.07	69.24	24.90000	24.82	66.02
35.10000	27.13	83.30	36.30000	25.76	79.32	37.40000	24.53	75.67
58.50000	26.73	96.63	60.50000	25.39	91.99	62.40000	24.18	87.76
117.00000	26.41	114.73	121.00000	25.09	109.19	124.00000	23.89	103.99
234.00000	26.25	132.82	242.00000	24.94	126.38	249.00000	23.75	120.46

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN GE
 Z=32 A= 72.600

TD=88.0 EV ET=1.287858 MEV			TD=92.0 EV ET=1.325057 MEV			TD=96.0 EV ET=1.361518 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.30000	0.04	0.04	1.33000	0.01	0.01	1.37000	0.02	0.02
1.31000	0.07	0.07	1.35000	0.07	0.07	1.38000	0.05	0.05
1.33000	0.15	0.15	1.37000	0.15	0.15	1.41000	0.14	0.14
1.37000	0.35	0.35	1.41000	0.33	0.33	1.45000	0.32	0.32
1.42000	0.66	0.66	1.47000	0.68	0.68	1.51000	0.64	0.64
1.49000	1.18	1.18	1.53000	1.10	1.10	1.57000	1.03	1.03
1.57000	1.87	1.87	1.61000	1.74	1.74	1.66000	1.70	1.70
1.67000	2.81	2.81	1.72000	2.70	2.70	1.76000	2.52	2.52
1.80000	4.08	4.08	1.85000	3.89	3.89	1.90000	3.72	3.72
1.99000	5.93	5.93	2.05000	5.71	5.71	2.11000	5.51	5.51
2.25000	8.29	8.33	2.31000	7.91	7.94	2.38000	7.64	7.68
2.57000	10.81	11.04	2.65000	10.40	10.64	2.72000	9.98	10.20
2.96000	13.31	14.04	3.04000	12.74	13.43	3.13000	12.27	12.95
3.47000	15.81	17.51	3.57000	15.16	16.80	3.67000	14.56	16.16
4.12000	18.08	21.34	4.24000	17.33	20.48	4.35000	16.62	19.66
4.89000	19.88	25.22	5.03000	19.04	24.19	5.17000	18.27	23.26
5.79000	21.24	29.07	5.96000	20.34	27.91	6.12000	19.51	26.81
6.69000	22.11	32.39	6.89000	21.18	31.10	7.07000	20.30	28.86
7.72000	22.76	35.68	7.95000	21.79	34.25	8.16000	20.89	32.89
9.01000	23.25	39.23	9.27000	22.25	37.63	9.53000	21.33	36.17
10.90000	23.62	43.61	11.20000	22.60	41.79	11.50000	21.66	40.14
12.80000	23.79	47.29	13.20000	22.75	45.40	13.60000	21.81	43.67
19.30000	23.83	56.68	19.80000	22.79	54.27	20.40000	21.84	52.18
25.70000	23.69	63.20	26.50000	22.66	60.63	27.20000	21.71	58.19
38.60000	23.41	72.41	39.70000	22.39	69.38	40.80000	21.45	66.61
64.30000	23.08	83.92	66.20000	22.07	80.42	68.00000	21.15	77.18
128.00000	22.80	99.45	132.00000	21.81	95.31	136.00000	20.90	91.51
257.00000	22.67	115.17	265.00000	21.68	110.34	272.00000	20.78	105.84

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN RB
 Z=37 A= 85.480

TD= 4.0 EV ET=0.137326 MEV			TD= 8.0 EV ET=0.250270 MEV			TD=12.0 EV ET=0.348499 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.13800	6.03	6.03	0.25200	2.25	2.25	0.35100	1.09	1.09
0.14000	23.36	23.36	0.25500	6.09	6.09	0.35500	2.82	2.82
0.14200	39.91	39.91	0.26000	12.26	12.26	0.36200	5.80	5.80
0.14600	70.87	70.87	0.26700	20.50	20.50	0.37200	9.95	9.95
0.15200	112.54	112.54	0.27700	31.52	31.52	0.38500	15.58	15.58
0.15900	155.02	155.02	0.29000	44.69	44.69	0.40400	22.52	22.52
0.16700	196.94	196.94	0.30500	58.52	58.52	0.42500	30.20	30.20
0.17800	245.36	245.36	0.32500	75.05	75.05	0.45300	39.83	39.83
0.19200	295.21	295.21	0.35000	93.24	93.24	0.48700	50.65	50.65
0.21200	350.11	350.11	0.38700	116.23	116.23	0.54000	65.82	65.82
0.24000	405.73	405.73	0.43700	141.75	141.75	0.60300	82.91	82.93
0.27400	452.80	454.32	0.50000	167.45	168.52	0.69500	100.94	101.79
0.31500	492.05	501.07	0.57500	191.46	195.99	0.80100	118.58	121.85
0.37000	527.60	551.71	0.67500	215.86	227.50	0.94300	136.72	145.06
0.43900	556.88	603.53	0.80000	238.17	261.29	1.11300	153.17	169.71
0.52100	579.59	655.08	0.95100	257.26	296.44	1.32300	167.59	196.04
0.61700	596.95	706.98	1.12000	272.10	330.62	1.56300	178.88	222.08
0.71400	608.58	753.33	1.30000	283.05	362.67	1.81000	186.88	245.79
0.82300	617.32	800.27	1.50000	291.40	394.29	2.09000	192.93	269.19
0.96100	624.30	853.90	1.75000	298.27	429.29	2.43000	197.68	294.19
1.16000	629.67	922.76	2.12000	304.06	474.17	2.96000	201.76	327.53
1.37000	631.87	987.15	2.50000	307.00	513.85	3.49000	203.66	355.39
2.05000	629.69	1156.59	3.75000	308.36	615.21	5.22000	204.36	426.71
2.74000	623.45	1289.03	5.00000	306.18	689.75	6.96300	202.87	478.37
4.11000	612.04	1486.31	7.50000	301.48	797.61	10.40000	199.80	551.48
6.86000	597.15	1749.82	12.50000	294.92	936.09	17.40000	195.57	645.97
13.70000	580.56	2120.23	25.00000	288.13	1127.03	34.80000	191.52	774.39
27.40000	571.43	2501.64	50.00000	284.73	1320.31	69.60000	189.56	903.75
41.10000	568.56	2727.10	75.00000	283.61	1433.84	104.00000	188.89	978.88
68.60000	566.09	3013.30	125.00000	282.52	1577.02	174.00000	188.17	1075.11
96.10000	564.70	3201.79	175.00000	281.84	1671.15	243.00000	187.72	1137.39
137.00000	563.27	3399.81	250.00000	281.12	1770.76	348.00000	187.23	1204.26

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN RB
 Z=37 A= 85.480

TD=16.0 EV ET=0.436599 MEV			TD=20.0 EV ET=0.517177 MEV			TD=24.0 EV ET=0.591885 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.44000	0.69	0.69	0.52200	0.55	0.55	0.59700	0.36	0.36
0.44500	1.71	1.71	0.52700	1.12	1.12	0.60300	0.80	0.80
0.45400	3.55	3.55	0.53700	2.30	2.30	0.61500	1.70	1.70
0.46700	6.21	6.21	0.55300	4.22	4.22	0.63300	3.12	3.12
0.48400	9.67	9.67	0.57400	6.81	6.81	0.65500	5.03	5.03
0.50600	14.12	14.12	0.59900	9.95	9.95	0.68500	7.63	7.63
0.53200	19.29	19.29	0.63000	13.89	13.89	0.72200	10.85	10.85
0.56700	26.06	26.06	0.67200	19.20	19.20	0.76300	15.10	15.10
0.61100	34.17	34.17	0.72400	25.60	25.60	0.82300	20.39	20.39
0.67600	45.28	45.28	0.80100	34.57	34.57	0.91700	28.03	28.03
0.76400	58.65	58.70	0.90500	45.49	45.55	1.03000	36.87	36.92
0.87300	72.75	73.50	1.03000	56.81	57.44	1.18000	47.04	47.62
1.00000	86.26	88.87	1.18000	68.04	70.24	1.36000	57.04	59.11
1.17000	100.46	107.03	1.39000	80.31	86.06	1.59000	66.99	72.09
1.39000	114.00	127.46	1.65000	91.38	103.04	1.89000	76.45	86.80
1.65000	125.22	148.28	1.96000	100.55	120.47	2.24000	84.06	101.56
1.96000	134.24	169.67	2.32000	107.68	137.88	2.66000	90.11	116.75
2.27000	140.26	188.25	2.68000	112.41	153.00	3.07000	93.98	129.58
2.61000	144.69	206.18	3.10000	116.06	168.45	3.55000	96.95	142.70
3.05000	148.32	226.47	3.62000	118.84	185.06	4.14000	99.17	156.69
3.71000	151.23	252.32	4.39000	121.00	205.93	5.03000	100.89	174.54
4.36000	152.53	273.90	5.17000	121.96	223.78	5.91000	101.60	189.40
6.54000	152.80	328.80	7.75000	122.00	268.32	8.87000	101.52	227.01
8.73000	151.62	368.44	10.30000	121.03	299.88	11.80000	100.68	253.59
13.00000	149.32	423.47	15.50000	119.12	345.38	17.70000	99.09	291.38
21.80000	146.21	495.18	25.80000	116.73	402.18	29.50000	97.13	338.96
43.60000	143.40	591.91	51.70000	114.59	479.98	59.10000	95.42	403.89
87.30000	142.05	689.28	103.00000	113.58	557.40	118.00000	94.61	468.66
130.00000	141.58	745.20	155.00000	113.21	603.34	177.00000	94.31	506.65
218.00000	141.05	817.70	258.00000	112.79	660.50	295.00000	93.97	554.40

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN RB
 Z=37 A= 85.480

TD=28.0 EV ET=0.661843 MEV			TD=32.0 EV ET=0.727857 MEV			TD=36.0 EV ET=0.790527 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.66800	0.29	0.29	0.73500	0.24	0.24	0.79800	0.19	0.19
0.67500	0.64	0.64	0.74200	0.49	0.49	0.80500	0.40	0.40
0.68800	1.32	1.32	0.75600	1.03	1.03	0.82200	0.87	0.87
0.70800	2.44	2.44	0.77800	1.94	1.94	0.84500	1.61	1.61
0.73400	4.00	4.00	0.80700	3.26	3.26	0.87700	2.77	2.77
0.76700	6.11	6.11	0.84400	5.10	5.10	0.91700	4.36	4.36
0.80700	8.79	8.79	0.88700	7.36	7.36	0.96400	6.36	6.36
0.85000	12.44	12.44	0.94600	10.58	10.58	1.02000	8.86	8.86
0.92600	16.99	16.99	1.01000	14.11	14.11	1.10000	12.50	12.50
1.02000	23.26	23.26	1.12000	20.03	20.03	1.22000	17.83	17.83
1.15000	31.22	31.27	1.27000	27.45	27.50	1.38000	24.38	24.44
1.32000	40.24	40.78	1.45000	35.15	35.65	1.58000	31.46	31.96
1.52000	48.92	50.81	1.67000	42.87	44.61	1.81000	38.15	39.74
1.78000	57.67	62.33	1.96000	50.73	55.03	2.13000	45.31	49.31
2.11000	65.74	75.03	2.32000	57.77	66.26	2.52000	51.57	59.41
2.51000	72.43	88.24	2.76000	63.63	78.02	3.00000	56.79	70.06
2.97000	77.48	101.24	3.27000	68.04	89.66	3.55000	60.66	80.45
3.44000	80.83	112.71	3.78000	70.90	99.69	4.11000	63.19	89.56
3.97000	83.27	123.98	4.36000	72.99	109.63	4.74000	65.00	98.47
4.63000	85.11	136.14	5.09000	74.56	120.45	5.53000	66.35	108.13
5.62000	86.51	151.54	6.18000	75.73	134.07	6.71000	67.34	120.28
6.61000	87.07	164.48	7.27000	76.18	145.49	7.90000	67.71	130.53
9.92000	86.92	196.95	10.90000	75.99	173.99	11.80000	67.51	155.74
13.20000	86.18	219.87	14.50000	75.33	194.09	15.80000	66.89	174.07
19.80000	84.81	252.36	21.80000	74.12	222.75	23.70000	65.82	199.44
33.00000	83.15	293.23	36.30000	72.69	258.50	39.50000	64.56	231.32
66.10000	81.74	348.94	72.70000	71.49	307.28	79.00000	63.52	274.63
132.00000	81.07	404.49	145.00000	70.92	355.82	158.00000	63.03	317.96
198.00000	80.82	437.07	218.00000	70.70	384.49	237.00000	62.83	343.30

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN RB
 Z=37 A= 85.480

TD=40.0 EV ET=0.850314 MEV			TD=44.0 EV ET=0.907585 MEV			TD=48.0 EV ET=0.962631 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.85800	0.15	0.15	0.91600	0.13	0.13	0.97200	0.12	0.12
0.86700	0.34	0.34	0.92500	0.28	0.28	0.98100	0.24	0.24
0.88400	0.73	0.73	0.94300	0.61	0.61	1.00000	0.53	0.53
0.90900	1.37	1.37	0.97100	1.21	1.21	1.03000	1.06	1.06
0.94300	2.37	2.37	1.00000	1.91	1.91	1.06000	1.68	1.68
0.98600	3.78	3.78	1.05000	3.27	3.27	1.11000	2.84	2.84
1.03000	5.33	5.33	1.10000	4.77	4.77	1.17000	4.39	4.39
1.10000	7.95	7.95	1.17000	7.00	7.00	1.25000	6.60	6.60
1.19000	11.39	11.39	1.27000	10.28	10.28	1.34000	9.18	9.18
1.31000	15.90	15.90	1.40000	14.47	14.47	1.49000	13.39	13.39
1.48000	21.80	21.86	1.58000	19.85	19.90	1.68000	18.33	18.39
1.70000	28.41	28.88	1.81000	25.80	26.24	1.92000	23.73	24.15
1.95000	34.53	36.05	2.08000	31.49	32.92	2.21000	29.04	30.42
2.29000	40.94	44.67	2.45000	37.45	41.00	2.59000	34.36	37.66
2.72000	46.71	54.09	2.90000	42.59	49.48	3.08000	39.21	45.72
3.23000	51.31	63.64	3.44000	46.75	58.18	3.65000	42.98	53.72
3.82000	54.75	73.06	4.08000	49.90	66.96	4.33000	45.86	61.84
4.42000	56.98	81.29	4.71000	51.88	74.39	5.00000	47.65	68.70
5.10000	58.59	89.40	5.44000	53.33	81.86	5.77000	48.94	75.54
5.95000	59.77	98.15	6.35000	54.38	89.88	6.73000	49.88	82.89
7.22000	60.63	109.15	7.71000	55.13	99.95	8.18000	50.55	92.21
8.50000	60.94	118.42	9.07000	55.39	108.37	9.62000	50.77	99.94
12.70000	60.72	141.20	13.60000	55.16	129.32	14.40000	50.54	119.11
17.00000	60.15	157.72	18.10000	54.65	144.07	19.20000	50.07	132.74
25.50000	59.18	180.58	27.20000	53.77	164.98	28.80000	49.26	151.83
42.50000	58.07	209.30	45.30000	52.76	191.07	48.10000	48.34	175.89
85.00000	57.15	248.30	90.70000	51.94	226.59	96.20000	47.60	208.42
170.00000	56.72	287.31	181.00000	51.55	261.95	192.00000	47.25	240.85

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARN) BY FAST ELECTRONS IN RB
 Z=37 A= 85.480

TD=52.0 EV ET=1.015694 MEV			TD=56.0 EV ET=1.066973 MEV			TD=60.0 EV ET=1.116638 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.02000	0.04	0.04	1.07000	0.02	0.02	1.12000	0.02	0.02
1.03000	0.15	0.15	1.08000	0.11	0.11	1.13000	0.10	0.10
1.05000	0.39	0.39	1.10000	0.31	0.31	1.15000	0.37	0.37
1.08000	0.83	0.83	1.14000	0.82	0.82	1.19000	0.71	0.71
1.12000	1.53	1.53	1.18000	1.44	1.44	1.23000	1.25	1.25
1.17000	2.54	2.54	1.23000	2.33	2.33	1.29000	2.19	2.19
1.23000	3.89	3.89	1.30000	3.73	3.73	1.36000	3.44	3.44
1.32000	6.08	6.08	1.38000	5.46	5.46	1.45000	5.19	5.19
1.42000	8.59	8.59	1.49000	7.92	7.92	1.56000	7.39	7.39
1.57000	12.31	12.31	1.65000	11.45	11.45	1.73000	10.76	10.76
1.77000	16.90	16.95	1.86000	15.75	15.80	1.95000	14.79	14.85
2.03000	22.05	22.47	2.13000	20.51	20.90	2.23000	19.22	19.60
2.33000	26.88	28.19	2.45000	25.08	26.34	2.56000	23.45	24.64
2.74000	31.91	35.08	2.88000	29.75	32.77	3.01000	27.82	30.69
3.25000	36.31	42.47	3.41000	33.79	39.61	3.57000	31.64	37.18
3.85000	39.77	49.89	4.05000	37.05	46.65	4.24000	34.66	43.78
4.57000	42.42	57.45	4.80000	39.46	53.64	5.02000	36.88	50.30
5.28000	44.06	63.84	5.54000	40.96	59.56	5.80000	38.28	55.89
6.09000	45.23	70.16	6.40000	42.04	65.52	6.69000	39.26	61.41
7.10000	46.07	76.95	7.46000	42.81	71.84	7.81000	39.98	67.38
8.33000	46.67	85.59	9.06000	43.35	79.85	9.49000	40.47	74.89
10.10000	46.86	92.52	10.60000	43.51	86.29	11.10000	40.61	80.91
15.20000	46.64	110.49	16.00000	43.29	103.12	16.70000	40.39	96.52
20.30000	46.19	123.16	21.30000	42.87	114.77	22.30000	40.00	107.51
30.40000	45.44	140.73	32.00000	42.17	131.22	33.40000	39.35	122.76
50.70000	44.61	162.89	53.30000	41.40	151.76	55.80000	38.63	142.05
101.00000	43.94	192.76	106.00000	40.79	179.43	111.00000	38.07	167.90
203.00000	43.61	222.99	213.00000	40.49	207.51	223.00000	37.79	194.10

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARN) BY FAST ELECTRONS IN RB
 Z=37 A= 85.480

TD=64.0 EV ET=1.164831 MEV			TD=68.0 EV ET=1.211677 MEV			TD=72.0 EV ET=1.257282 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.17000	0.03	0.03	1.22000	0.04	0.04	1.25000	0.01	0.01
1.18000	0.09	0.09	1.23000	0.10	0.10	1.28000	0.11	0.11
1.21000	0.33	0.33	1.26000	0.31	0.31	1.30000	0.24	0.24
1.24000	0.63	0.63	1.29000	0.58	0.58	1.34000	0.55	0.55
1.29000	1.24	1.24	1.34000	1.12	1.12	1.39000	1.04	1.04
1.35000	2.10	2.10	1.40000	1.89	1.89	1.45000	1.74	1.74
1.42000	3.23	3.23	1.47000	2.91	2.91	1.53000	2.80	2.80
1.51000	4.80	4.80	1.57000	4.49	4.49	1.63000	4.24	4.24
1.63000	6.97	6.97	1.69000	6.47	6.47	1.76000	6.21	6.21
1.80000	10.02	10.02	1.87000	9.41	9.41	1.94000	8.89	8.89
2.03000	13.84	13.89	2.12000	13.18	13.23	2.20000	12.48	12.54
2.32000	17.99	18.35	2.42000	17.07	17.43	2.51000	16.15	16.50
2.67000	22.05	23.19	2.78000	20.84	21.95	2.89000	19.79	20.87
3.14000	26.16	28.91	3.27000	24.72	27.37	3.39000	23.39	25.93
3.72000	29.72	34.98	3.87000	28.04	33.08	4.02000	26.56	31.41
4.42000	32.55	41.22	4.60000	30.70	38.99	4.77000	29.04	36.95
5.24000	34.64	47.40	5.45000	32.65	44.81	5.65000	30.86	42.46
6.05000	35.93	52.64	6.30000	33.86	49.79	6.53000	32.00	47.17
6.98000	36.84	57.83	7.27000	34.70	54.70	7.54000	32.80	51.84
8.15000	37.50	63.46	8.48000	35.31	59.97	8.80000	33.36	56.85
9.90000	37.94	70.50	10.20000	35.70	66.28	10.60000	33.73	62.86
11.60000	38.07	76.21	12.10000	35.83	72.08	12.50000	33.84	68.16
17.40000	37.85	90.76	18.10000	35.62	85.70	18.80000	33.63	81.21
23.20000	37.49	101.03	24.20000	35.27	95.46	25.10000	33.30	90.38
34.90000	36.87	115.49	36.30000	34.69	108.98	37.70000	32.75	103.20
58.20000	36.21	133.51	60.50000	34.07	125.93	62.80000	32.17	119.20
116.00000	35.68	157.82	121.00000	33.58	148.92	125.00000	31.71	140.77
232.00000	35.43	182.22	242.00000	33.34	171.89	251.00000	31.48	162.59

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN RB
Z=37 A= 85.480

TD=76.0 EV ET=1.301740 MEV			TD=80.0 EV ET=1.345134 MEV			TD=84.0 EV ET=1.387536 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.31000	0.03	0.03	1.35000	0.02	0.02	1.40000	0.04	0.04
1.32000	0.08	0.08	1.37000	0.10	0.10	1.41000	0.08	0.08
1.35000	0.24	0.24	1.39000	0.20	0.20	1.44000	0.21	0.21
1.39000	0.53	0.53	1.43000	0.45	0.45	1.48000	0.45	0.45
1.44000	0.98	0.98	1.49000	0.94	0.94	1.54000	0.91	0.91
1.51000	1.73	1.73	1.56000	1.63	1.63	1.60000	1.45	1.45
1.58000	2.58	2.58	1.64000	2.53	2.53	1.69000	2.38	2.38
1.69000	4.05	4.05	1.74000	3.76	3.76	1.80000	3.64	3.64
1.82000	5.85	5.85	1.88000	5.55	5.55	1.94000	5.30	5.30
2.01000	8.46	8.46	2.08000	8.09	8.09	2.15000	7.77	7.77
2.27000	11.76	11.81	2.35000	11.25	11.30	2.42000	10.70	10.75
2.60000	15.36	15.70	2.69000	14.66	15.00	2.77000	13.96	14.29
2.99000	18.78	19.83	3.09000	17.89	18.91	3.19000	17.10	18.09
3.51000	22.22	24.66	3.63000	21.17	23.54	3.74000	20.19	22.46
4.16000	25.20	29.86	4.30000	24.00	28.48	4.44000	22.91	27.24
4.94000	27.56	35.15	5.11000	26.23	33.55	5.27000	25.02	32.05
5.85000	29.28	40.38	6.05000	27.85	38.52	6.24000	26.55	36.80
6.76000	30.34	44.85	6.99000	28.85	42.77	7.21000	27.50	40.86
7.81000	31.09	49.30	8.07000	29.55	46.99	8.32000	28.16	44.87
9.11000	31.61	54.04	9.41000	30.04	51.49	9.71000	28.62	49.19
11.00000	31.96	59.82	11.40000	30.37	57.08	11.70000	28.92	54.37
13.00000	32.05	64.91	13.40000	30.45	61.76	13.80000	29.00	58.93
19.50000	31.85	77.19	20.10000	30.25	73.45	20.80000	28.80	70.20
26.00000	31.53	85.85	26.90000	29.95	81.79	27.70000	28.52	78.01
39.00000	31.02	97.96	40.30000	29.46	93.25	41.60000	28.05	89.00
65.00000	30.47	113.14	67.20000	28.94	107.69	69.30000	27.55	102.73
130.00000	30.04	133.72	134.00000	28.53	127.16	138.00000	27.17	121.24
260.00000	29.83	154.27	269.00000	28.33	146.79	277.00000	26.98	139.93

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN RB
Z=37 A= 85.480

TD=88.0 EV ET=1.429011 MEV			TD=92.0 EV ET=1.469618 MEV			TD=96.0 EV ET=1.509410 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.44000	0.03	0.03	1.48000	0.03	0.03	1.52000	0.02	0.02
1.45000	0.06	0.06	1.49000	0.05	0.05	1.53000	0.05	0.05
1.48000	0.18	0.18	1.52000	0.16	0.16	1.56000	0.15	0.15
1.52000	0.40	0.40	1.57000	0.41	0.41	1.61000	0.38	0.38
1.58000	0.81	0.81	1.63000	0.81	0.81	1.67000	0.74	0.74
1.65000	1.40	1.40	1.70000	1.36	1.36	1.75000	1.32	1.32
1.74000	2.26	2.26	1.79000	2.17	2.17	1.84000	2.09	2.09
1.85000	3.43	3.43	1.91000	3.35	3.35	1.96000	3.20	3.20
2.00000	5.09	5.09	2.05000	4.80	4.80	2.11000	4.65	4.65
2.21000	7.39	7.39	2.27000	7.05	7.05	2.33000	6.76	6.76
2.50000	10.31	10.36	2.57000	9.88	9.93	2.64000	9.49	9.54
2.85000	13.34	13.65	2.93000	12.79	13.09	3.01000	12.29	12.58
3.28000	16.33	17.28	3.38000	15.70	16.63	3.47000	15.07	15.97
3.85000	19.30	21.50	3.96000	18.50	20.63	4.07000	17.78	19.85
4.57000	21.90	26.07	4.70000	20.98	25.02	4.83000	20.15	24.06
5.43000	23.92	30.71	5.58000	22.90	29.44	5.73000	21.97	28.29
6.43000	25.37	35.25	6.61000	24.29	33.81	6.79000	23.30	32.49
7.43000	26.27	39.14	7.64000	25.15	37.53	7.84000	24.11	36.04
8.57000	26.89	42.96	8.81000	25.73	41.19	9.05000	24.67	39.58
10.00000	27.33	47.08	10.20000	26.13	44.94	10.50000	25.05	43.22
12.10000	27.61	52.14	12.40000	26.41	49.91	12.80000	25.31	48.06
14.20000	27.68	56.37	14.60000	26.48	54.03	15.00000	25.37	51.90
21.40000	27.49	67.13	22.00000	26.29	64.33	22.60000	25.19	61.77
28.50000	27.21	74.59	29.30000	26.03	71.47	30.10000	24.94	68.62
42.80000	26.77	85.08	44.00000	25.60	81.51	45.20000	24.53	78.24
71.40000	26.30	98.22	73.40000	25.15	94.08	75.40000	24.10	90.29
142.00000	25.93	115.86	146.00000	24.81	110.96	150.00000	23.77	106.47

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN ZR
 Z=40 A= 91.220

TD= 4.0 EV ET=0.145519 MEV			TD= 8.0 EV ET=0.264186 MEV			TD=12.0 EV ET=0.366958 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.14600	4.35	4.35	0.26600	2.40	2.40	0.37000	1.35	1.35
0.14800	21.96	21.96	0.26900	6.29	6.29	0.37400	3.11	3.11
0.15100	47.01	47.01	0.27400	12.60	12.60	0.38100	6.17	6.17
0.15500	78.09	78.09	0.28200	22.25	22.25	0.39200	10.89	10.89
0.16100	120.30	120.30	0.29300	34.70	34.70	0.40700	17.17	17.17
0.16800	163.82	163.82	0.30600	48.36	48.36	0.42500	24.46	24.46
0.17700	212.30	212.30	0.32200	63.80	63.80	0.44700	33.03	33.03
0.18900	266.53	266.53	0.34300	82.14	82.14	0.47700	44.10	44.10
0.20300	318.31	318.31	0.36900	102.33	102.33	0.51300	56.48	56.48
0.22500	381.75	381.75	0.40900	129.08	129.08	0.56300	73.64	73.64
0.25400	443.02	443.02	0.46200	158.41	158.41	0.64200	93.71	93.71
0.29100	498.34	500.21	0.52800	187.79	189.06	0.73300	114.36	115.37
0.33400	543.36	553.60	0.60700	215.48	220.71	0.84400	134.73	138.57
0.39200	585.03	612.17	0.71300	243.71	257.21	0.99000	155.42	165.19
0.46500	619.81	672.52	0.84500	269.22	296.11	1.17000	174.11	193.56
0.55200	646.89	732.74	1.00000	290.28	335.38	1.39000	190.08	223.41
0.65400	667.41	793.30	1.18000	307.02	374.88	1.65000	202.71	253.76
0.75600	680.79	846.66	1.37000	318.97	411.40	1.90000	210.81	279.19
0.87300	690.78	901.58	1.58000	327.81	447.10	2.20000	217.24	306.05
1.01000	697.92	959.50	1.84000	334.78	486.15	2.56000	222.01	334.24
1.23000	703.48	1041.85	2.24000	340.45	537.88	3.11000	225.75	371.01
1.45000	704.96	1114.25	2.64000	342.85	582.16	3.66000	227.27	402.24
2.18000	699.55	1307.67	3.96000	342.35	695.05	5.50000	226.67	481.68
2.91000	690.48	1455.24	5.28000	338.75	777.65	7.33000	224.25	538.66
4.36000	675.38	1674.00	7.92000	332.31	896.72	11.00000	220.05	620.05
7.27000	656.69	1964.63	13.20000	324.04	1049.06	18.30000	214.80	722.71
14.50000	636.80	2371.36	26.40000	315.93	1258.67	36.60000	209.98	863.60
29.10000	626.19	2792.11	52.80000	311.98	1470.59	73.30000	207.68	1005.66
43.60000	622.86	3038.57	79.20000	310.65	1594.95	110.00000	206.86	1088.82
72.70000	619.86	3351.44	132.00000	309.27	1751.67	183.00000	205.96	1192.95
101.00000	618.12	3552.60	184.00000	308.39	1853.27	256.00000	205.37	1261.39
145.00000	616.21	3773.40	264.00000	307.43	1963.47	366.00000	204.73	1334.11

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN ZR
 Z=40 A= 91.220

TD=16.0 EV ET=0.458900 MEV			TD=20.0 EV ET=0.542851 MEV			TD=24.0 EV ET=0.620591 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.46300	0.85	0.85	0.54800	0.60	0.60	0.62500	0.39	0.39
0.46800	1.90	1.90	0.55300	1.19	1.19	0.63300	0.92	0.92
0.47700	3.79	3.79	0.56400	2.53	2.53	0.64500	1.86	1.86
0.49100	6.77	6.77	0.58000	4.54	4.54	0.66400	3.44	3.44
0.50900	10.63	10.63	0.60200	7.42	7.42	0.68800	5.57	5.57
0.53200	15.58	15.58	0.62900	11.06	11.06	0.71900	8.46	8.46
0.55900	21.35	21.35	0.66200	15.59	15.59	0.75700	12.16	12.16
0.59600	29.09	29.09	0.70500	21.51	21.51	0.80500	17.02	17.02
0.64200	38.34	38.34	0.75900	28.82	28.82	0.86900	23.14	23.14
0.71100	51.27	51.27	0.84100	39.33	39.33	0.96100	31.94	31.94
0.80300	66.63	66.69	0.94900	51.82	51.89	1.08000	42.22	42.28
0.91700	82.82	83.69	1.08000	64.85	65.59	1.24000	54.10	54.81
1.05000	98.28	101.33	1.24000	77.92	80.55	1.42000	65.02	67.40
1.23000	114.57	122.32	1.46000	91.79	98.60	1.67000	76.71	82.80
1.46000	129.73	145.52	1.73000	104.06	117.74	1.98000	87.11	99.27
1.74000	142.41	169.73	2.06000	114.30	137.77	2.35000	95.53	116.11
2.06000	151.98	193.45	2.44000	121.99	157.49	2.79000	102.01	133.18
2.38000	158.26	214.02	2.82000	126.96	174.53	3.22000	106.05	147.56
2.75000	162.97	234.85	3.25000	130.58	191.39	3.72000	109.04	162.14
3.21000	166.50	257.37	3.79000	133.28	209.76	4.34000	111.19	177.76
3.90000	169.12	286.02	4.61000	135.24	233.34	5.27000	112.70	197.54
4.58000	170.09	309.89	5.42000	135.92	252.93	6.20000	113.18	214.13
6.88000	169.36	370.86	8.14000	135.15	302.39	9.30000	112.43	255.61
9.17000	167.51	414.35	10.80000	133.67	336.96	12.40000	111.15	285.12
13.70000	164.40	475.39	16.20000	131.15	386.59	18.60000	109.04	326.64
22.90000	160.56	553.63	27.10000	128.16	449.53	31.00000	106.62	378.85
45.80000	157.21	659.73	54.20000	125.63	534.62	62.00000	104.60	449.87
91.70000	155.63	766.41	108.00000	124.44	619.46	124.00000	103.65	520.99
137.00000	155.04	828.15	162.00000	123.97	669.36	186.00000	103.27	562.59
229.00000	154.37	906.96	271.00000	123.43	732.50	310.00000	102.82	614.81

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
 Z=40 A= 91.220

TD=28.0 EV ET=0.693323 MEV			TD=32.0 EV ET=0.761907 MEV			TD=36.0 EV ET=0.826979 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.70000	0.33	0.33	0.76900	0.25	0.25	0.83500	0.21	0.21
0.70700	0.69	0.69	0.77700	0.54	0.54	0.84300	0.43	0.43
0.72100	1.45	1.45	0.79200	1.14	1.14	0.85000	0.95	0.95
0.74100	2.63	2.63	0.81500	2.16	2.16	0.88400	1.78	1.78
0.76900	4.43	4.43	0.84500	3.64	3.64	0.91700	3.07	3.07
0.80400	6.86	6.86	0.88300	5.69	5.69	0.95900	4.89	4.89
0.84500	9.87	9.87	0.92900	8.34	8.34	1.00300	6.81	6.81
0.90100	14.11	14.11	0.99000	12.02	12.02	1.07000	10.25	10.25
0.97000	19.36	19.36	1.06000	16.29	16.29	1.15000	14.28	14.28
1.07000	26.73	26.73	1.18000	23.42	23.42	1.28000	20.67	20.67
1.21000	36.16	36.23	1.33000	31.57	31.64	1.44000	27.90	27.97
1.38000	46.04	46.68	1.52000	40.48	41.10	1.65000	36.08	36.67
1.59000	56.00	58.22	1.75000	49.26	51.34	1.90000	43.97	45.92
1.87000	66.14	71.72	2.05000	58.01	63.08	2.23000	51.89	56.64
2.21000	74.95	85.89	2.43000	65.89	75.91	2.64000	58.85	68.13
2.63000	82.28	100.85	2.89000	72.27	89.16	3.14000	64.50	80.07
3.11000	87.66	115.41	3.42000	76.96	102.14	3.72000	68.64	91.81
3.60000	91.15	128.19	3.96000	79.96	113.49	4.30000	71.22	101.88
4.15000	93.60	140.68	4.57000	82.05	124.62	4.96000	73.04	111.83
4.85000	95.39	154.39	5.33000	83.54	136.58	5.78000	74.31	122.48
5.89000	96.61	171.53	6.47000	84.54	151.67	7.02000	75.15	136.01
6.93000	96.96	185.89	7.61000	84.80	164.29	8.26000	75.35	147.31
10.30000	96.26	220.87	11.40000	84.11	195.66	12.40000	74.69	175.45
13.80000	95.13	246.71	15.20000	83.13	217.96	16.50000	73.81	195.19
20.70000	93.33	282.39	22.80000	81.55	249.25	24.80000	72.40	223.19
34.60000	91.28	327.49	38.00000	79.79	288.54	41.30000	70.86	258.09
69.30000	89.61	388.56	76.10000	78.37	342.02	82.60000	69.63	305.57
138.00000	88.82	449.17	152.00000	77.69	395.30	165.00000	69.04	352.95
207.00000	88.50	484.83	228.00000	77.41	426.50	248.00000	68.80	380.83

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
 Z=40 A= 91.220

TD=40.0 EV ET=0.889030 MEV			TD=44.0 EV ET=0.948445 MEV			TD=48.0 EV ET=1.005534 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.89700	0.16	0.16	0.95700	0.13	0.13	1.01000	0.05	0.05
0.90600	0.35	0.35	0.96700	0.31	0.31	1.02000	0.19	0.19
0.92400	0.79	0.79	0.98600	0.68	0.68	1.04000	0.50	0.50
0.95100	1.54	1.54	1.01000	1.22	1.22	1.07000	1.06	1.06
0.98600	2.65	2.65	1.05000	2.27	2.27	1.11000	1.95	1.95
1.03000	4.23	4.23	1.10000	3.79	3.79	1.16000	3.23	3.23
1.08000	6.18	6.18	1.15000	5.44	5.44	1.22000	4.94	4.94
1.15000	9.08	9.08	1.23000	8.28	8.28	1.30000	7.40	7.40
1.24000	12.90	12.90	1.32000	11.56	11.56	1.40000	10.57	10.57
1.37000	18.31	18.31	1.47000	16.92	16.92	1.55000	15.25	15.25
1.55000	25.21	25.28	1.65000	22.85	22.91	1.75000	21.01	21.07
1.77000	32.46	33.01	1.89000	29.66	30.18	2.01000	27.42	27.94
2.04000	39.68	41.49	2.18000	36.29	38.03	2.31000	33.38	35.03
2.40000	46.95	51.41	2.56000	42.85	47.04	2.71000	39.38	43.31
2.84000	53.20	61.85	3.03000	48.54	56.63	3.21000	44.62	52.22
3.37000	58.20	72.56	3.60000	53.09	66.53	3.82000	48.82	61.44
4.00000	61.93	83.34	4.26000	56.40	76.23	4.52000	51.81	70.39
4.62000	64.21	92.43	4.93000	58.47	84.66	5.22000	53.66	78.05
5.33000	65.81	101.45	5.69000	59.89	92.94	6.03000	54.95	85.72
6.22000	66.92	111.18	6.63000	60.87	101.74	7.03000	55.83	93.85
7.55000	67.64	123.39	8.06000	61.49	112.97	8.54000	56.37	104.15
8.89000	67.79	133.64	9.48000	61.61	122.26	10.00000	56.46	112.45
13.30000	67.17	158.84	14.20000	61.02	145.29	15.00000	55.91	133.68
17.70000	66.38	176.65	18.90000	60.29	161.52	20.10000	55.22	148.93
26.60000	65.11	201.87	28.40000	59.14	184.46	30.10000	54.18	169.80
44.40000	63.73	233.45	47.40000	57.91	213.19	50.20000	53.06	196.11
88.90000	62.65	276.27	94.80000	56.94	252.07	100.00000	52.19	231.56
177.00000	62.13	318.73	189.00000	56.47	290.75	201.00000	51.76	267.44

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
 Z=40 A= 91.220

TD=52.0 EV ET=1.060551 MEV			TD=56.0 EV ET=1.113706 MEV			TD=50.0 EV ET=1.165176 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.07000	0.10	0.10	1.12000	0.05	0.05	1.17000	0.03	0.03
1.08000	0.21	0.21	1.13000	0.15	0.15	1.18000	0.11	0.11
1.10000	0.48	0.48	1.15000	0.37	0.37	1.21000	0.40	0.40
1.13000	0.97	0.97	1.19000	0.92	0.92	1.24000	0.77	0.77
1.17000	1.73	1.73	1.23000	1.60	1.60	1.29000	1.51	1.51
1.23000	3.08	3.08	1.29000	2.78	2.78	1.35000	2.57	2.57
1.29000	4.59	4.59	1.35000	4.11	4.11	1.42000	3.97	3.97
1.37000	6.75	6.75	1.44000	6.27	6.27	1.51000	5.90	5.90
1.48000	9.82	9.82	1.55000	9.00	9.00	1.63000	8.58	8.58
1.64000	14.23	14.23	1.72000	13.17	13.17	1.80000	12.32	12.32
1.85000	19.55	19.61	1.94000	18.14	18.21	2.03000	16.99	17.05
2.12000	25.41	25.91	2.22000	23.57	24.03	2.33000	22.19	22.65
2.43000	30.83	32.37	2.56000	28.85	30.35	2.67000	26.92	28.33
2.86000	36.50	40.24	3.00000	33.98	37.52	3.14000	31.82	35.21
3.39000	41.35	48.56	3.56000	38.51	45.34	3.72000	36.01	42.48
4.03000	45.18	57.07	4.23000	42.04	53.27	4.42000	39.29	49.92
4.77000	47.92	65.40	5.01000	44.57	61.07	5.24000	41.66	57.27
5.51000	49.61	72.52	5.79000	46.12	67.73	6.05000	43.08	63.67
6.36000	50.77	79.58	6.68000	47.18	74.29	6.99000	44.07	69.67
7.42000	51.56	87.15	7.79000	47.89	81.32	8.15000	44.72	76.25
9.01000	52.04	96.66	9.46000	48.32	90.18	9.90000	45.10	84.54
10.60000	52.11	104.57	11.10000	48.38	97.42	11.60000	45.14	91.25
15.90000	51.57	124.21	16.70000	47.87	115.82	17.40000	44.66	108.32
21.20000	50.94	138.06	22.20000	47.29	129.55	23.30000	44.10	120.52
31.80000	49.98	157.41	33.40000	46.38	146.68	34.90000	43.27	137.26
53.00000	48.95	181.68	55.60000	45.44	169.17	58.20000	42.39	158.34
106.00000	48.16	214.61	111.00000	44.71	199.67	116.00000	41.72	186.75
212.00000	47.77	247.49	222.00000	44.35	230.21	233.00000	41.39	215.43

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
 Z=40 A= 91.220

TD=64.0 EV ET=1.215112 MEV			TD=68.0 EV ET=1.263643 MEV			TD=72.0 EV ET=1.310882 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.22000	0.03	0.03	1.27000	0.03	0.03	1.32000	0.04	0.04
1.23000	0.10	0.10	1.28000	0.09	0.09	1.33000	0.09	0.09
1.26000	0.35	0.35	1.31000	0.31	0.31	1.36000	0.29	0.29
1.30000	0.78	0.78	1.35000	0.70	0.70	1.40000	0.64	0.64
1.34000	1.32	1.32	1.40000	1.30	1.30	1.45000	1.19	1.19
1.40000	2.25	2.25	1.46000	2.16	2.16	1.52000	2.10	2.10
1.48000	3.68	3.68	1.54000	3.46	3.46	1.59000	3.13	3.13
1.57000	5.43	5.43	1.64000	5.23	5.23	1.70000	4.91	4.91
1.70000	8.05	8.05	1.76000	7.43	7.43	1.83000	7.09	7.09
1.88000	11.63	11.63	1.95000	10.88	10.88	2.03000	10.41	10.41
2.12000	16.02	16.09	2.21000	15.21	15.27	2.29000	14.37	14.43
2.43000	20.87	21.32	2.52000	19.61	20.04	2.62000	18.65	19.07
2.79000	25.38	26.76	2.90000	23.95	25.27	3.01000	22.70	23.98
3.28000	29.97	33.23	3.41000	28.27	31.40	3.53000	26.72	29.70
3.88000	33.84	40.02	4.04000	31.95	37.88	4.19000	30.24	35.91
4.61000	36.91	47.02	4.80000	34.82	44.50	4.98000	32.94	42.20
5.46000	39.10	53.90	5.68000	36.85	50.96	5.89000	34.84	48.30
6.31000	40.43	59.77	6.57000	38.10	56.53	6.81000	36.00	53.56
7.29000	41.34	65.60	7.58000	38.93	61.98	7.85000	36.78	58.73
8.50000	41.94	71.78	8.84000	39.48	67.82	9.17000	37.30	64.27
10.30000	42.28	79.47	10.70000	39.79	75.03	11.10000	37.58	71.09
12.10000	42.31	85.88	12.60000	39.82	81.16	13.10000	37.60	76.97
18.20000	41.85	102.01	18.90000	39.38	96.25	19.60000	37.18	91.14
24.30000	41.33	113.34	25.20000	38.89	106.87	26.20000	36.71	101.27
36.40000	40.55	129.04	37.90000	38.15	121.80	39.30000	36.01	115.29
60.70000	39.73	148.81	63.10000	37.38	140.35	65.50000	35.30	132.85
121.00000	39.11	175.45	126.00000	36.80	165.50	131.00000	34.75	156.65
243.00000	38.80	202.34	252.00000	36.52	190.65	262.00000	34.49	180.41

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
Z=40 A= 91.220

TD=76.0 EV ET=1.356927 MEV			TD=80.0 EV ET=1.401863 MEV			TD=84.0 EV ET=1.445768 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.37000	0.05	0.05	1.41000	0.03	0.03	1.46000	0.05	0.05
1.38000	0.10	0.10	1.42000	0.07	0.07	1.47000	0.09	0.09
1.41000	0.29	0.29	1.45000	0.22	0.22	1.50000	0.23	0.23
1.45000	0.60	0.60	1.49000	0.50	0.50	1.54000	0.49	0.49
1.50000	1.10	1.10	1.55000	1.04	1.04	1.60000	0.99	0.99
1.57000	1.93	1.93	1.62000	1.80	1.80	1.67000	1.70	1.70
1.65000	3.02	3.02	1.71000	2.93	2.93	1.76000	2.74	2.74
1.76000	4.65	4.65	1.82000	4.44	4.44	1.87000	4.13	4.13
1.89000	6.66	6.66	1.96000	6.44	6.44	2.02000	6.12	6.12
2.10000	9.86	9.86	2.17000	9.39	9.39	2.24000	8.99	8.99
2.37000	13.64	13.70	2.45000	13.01	13.08	2.53000	12.46	12.53
2.71000	17.70	18.11	2.80000	16.86	17.26	2.89000	16.13	16.52
3.12000	21.60	22.84	3.22000	20.55	21.75	3.32000	19.61	20.77
3.66000	25.42	28.30	3.78000	24.19	26.97	3.90000	23.10	25.79
4.34000	28.71	34.18	4.48000	27.31	32.56	4.62000	26.05	31.11
5.15000	31.24	40.09	5.32000	29.72	38.22	5.49000	28.35	36.54
6.10000	33.05	45.94	6.30000	31.43	43.78	6.50000	29.96	41.84
7.05000	34.14	50.92	7.28000	32.45	48.52	7.51000	30.93	46.36
8.14000	34.87	55.85	8.41000	33.14	53.22	8.67000	31.57	50.82
9.49000	35.34	61.08	9.81000	33.58	58.22	10.10000	31.99	55.55
11.50000	35.61	67.59	11.90000	33.83	64.44	12.20000	32.21	61.35
13.50000	35.62	72.98	14.00000	33.83	69.64	14.40000	32.22	66.40
20.30000	35.21	86.59	21.00000	33.44	82.50	21.60000	31.84	78.66
27.10000	34.77	96.15	28.00000	33.02	91.54	28.90000	31.44	87.38
40.70000	34.11	109.47	42.00000	32.39	104.16	43.30000	30.84	99.38
67.80000	33.43	126.09	70.00000	31.75	119.98	72.20000	30.24	114.45
135.00000	32.92	148.50	140.00000	31.27	141.41	144.00000	29.78	134.78
271.00000	32.67	171.13	280.00000	31.03	162.79	289.00000	29.55	155.25

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ZR
Z=40 A= 91.220

TD=88.0 EV ET=1.488710 MEV			TD=92.0 EV ET=1.530748 MEV			TD=96.0 EV ET=1.571938 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.50000	0.03	0.03	1.54000	0.02	0.02	1.58000	0.02	0.02
1.51000	0.07	0.07	1.56000	0.09	0.09	1.60000	0.07	0.07
1.54000	0.20	0.20	1.59000	0.21	0.21	1.63000	0.19	0.19
1.59000	0.49	0.49	1.63000	0.43	0.43	1.68000	0.45	0.45
1.65000	0.96	0.96	1.69000	0.86	0.86	1.74000	0.85	0.85
1.72000	1.61	1.61	1.77000	1.55	1.55	1.82000	1.50	1.50
1.81000	2.58	2.58	1.86000	2.45	2.45	1.91000	2.35	2.35
1.93000	4.00	4.00	1.98000	3.77	3.77	2.04000	3.69	3.69
2.08000	5.85	5.85	2.14000	5.61	5.61	2.20000	5.41	5.41
2.30000	8.52	8.52	2.37000	8.23	8.23	2.43000	7.86	7.86
2.60000	11.87	11.93	2.67000	11.35	11.41	2.75000	10.98	11.04
2.97000	15.38	15.75	3.06000	14.80	15.17	3.14000	14.20	14.56
3.42000	18.78	19.90	3.52000	18.02	19.12	3.61000	17.28	18.34
4.01000	22.07	24.65	4.13000	21.18	23.70	4.24000	20.33	22.77
4.76000	24.92	29.81	4.89000	23.86	28.57	5.03000	22.93	27.50
5.65000	27.09	34.97	5.81000	25.94	33.55	5.97000	24.89	32.25
6.69000	28.62	40.04	6.88000	27.40	38.41	7.07000	26.28	36.93
7.74000	29.54	44.40	7.95000	28.27	42.55	8.17000	27.11	40.90
8.93000	30.15	48.65	9.18000	28.85	46.65	9.43000	27.65	44.82
10.40000	30.54	53.16	10.70000	29.22	50.99	11.00000	28.01	49.01
12.60000	30.75	58.79	13.00000	29.41	56.46	13.30000	28.19	54.12
14.80000	30.75	63.48	15.30000	29.41	61.00	15.70000	28.18	58.56
22.30000	30.38	75.32	22.90000	29.06	72.15	23.50000	27.84	69.25
29.70000	30.00	83.51	30.60000	28.69	80.08	31.40000	27.49	76.85
44.60000	29.43	95.03	45.90000	28.14	91.07	47.10000	26.97	87.38
74.40000	28.86	109.43	76.50000	27.60	104.82	78.50000	26.44	100.57
148.00000	28.43	128.77	153.00000	27.19	123.46	157.00000	26.05	118.43

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NB
 Z=41 A= 92.910

TD= 4.0 EV ET=0.147912 MEV			TD= 8.0 EV ET=0.268236 MEV			TD=12.0 EV ET=0.372319 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.14900	9.88	9.88	0.27000	2.36	2.36	0.37500	1.65	1.65
0.15000	18.76	18.76	0.27300	6.31	6.31	0.37900	3.00	3.00
0.15300	44.34	44.34	0.27800	12.71	12.71	0.38700	6.54	6.54
0.15800	83.66	83.66	0.28700	23.71	23.71	0.39300	11.34	11.34
0.16400	126.06	126.06	0.29700	35.22	35.22	0.41300	17.75	17.75
0.17100	169.94	169.94	0.31100	50.22	50.22	0.43100	25.21	25.21
0.18000	219.01	219.01	0.32700	65.98	65.98	0.45100	34.40	34.40
0.19200	274.16	274.16	0.34800	84.77	84.77	0.48100	45.78	45.78
0.20700	330.48	330.48	0.37500	106.30	106.30	0.52100	58.91	58.91
0.22900	394.92	394.92	0.41500	133.84	133.84	0.57700	76.93	76.93
0.25800	457.73	457.73	0.46900	164.71	164.71	0.65100	97.68	97.68
0.29500	514.97	516.84	0.53600	195.54	195.87	0.74100	119.51	120.58
0.34000	563.77	574.59	0.61600	224.54	230.01	0.85500	140.75	144.79
0.39900	607.57	636.06	0.72400	254.23	268.43	1.00000	161.86	171.95
0.47300	644.07	699.26	0.85800	280.88	309.16	1.19000	182.15	202.84
0.56200	672.69	762.88	1.01000	302.15	348.94	1.41000	198.41	233.55
0.66500	694.01	825.99	1.20000	320.21	391.91	1.67000	211.27	264.77
0.76900	707.96	882.09	1.39000	332.26	429.42	1.93000	219.75	291.93
0.88700	718.16	939.16	1.60000	341.15	466.11	2.23000	226.15	319.46
1.03000	725.53	1001.30	1.87000	348.30	507.70	2.60000	230.95	349.13
1.25000	730.77	1085.81	2.28000	353.84	561.90	3.16000	234.56	387.38
1.47000	731.89	1160.14	2.68000	355.96	607.13	3.72000	235.90	419.82
2.21000	725.20	1361.16	4.02000	354.73	724.13	5.58000	234.78	501.69
2.95000	715.04	1514.18	5.36000	350.59	809.61	7.44000	232.02	560.71
4.43000	698.43	1742.00	8.04000	343.50	932.71	11.10000	227.47	643.59
7.39000	678.29	2042.77	13.40000	334.59	1090.04	18.60000	221.75	751.07
14.70000	657.23	2461.17	26.80000	326.01	1306.40	37.20000	216.66	896.47
29.50000	646.07	2895.39	53.60000	321.86	1525.06	74.40000	214.25	1042.74
44.30000	642.54	3151.11	80.40000	320.44	1653.34	111.00000	213.38	1127.28
73.90000	639.33	3474.10	134.00000	318.95	1814.95	186.00000	212.39	1236.17
103.00000	637.42	3683.55	187.00000	317.99	1920.05	260.00000	211.75	1306.56
147.00000	635.37	3907.45	268.00000	316.94	2033.28	372.00000	211.05	1381.68

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NB
 Z=41 A= 92.910

TD=16.0 EV ET=0.465369 MEV			TD=20.0 EV ET=0.550292 MEV			TD=24.0 EV ET=0.628905 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.47000	0.98	0.98	0.55500	0.55	0.55	0.63500	0.45	0.45
0.47400	1.82	1.82	0.56100	1.28	1.28	0.64100	0.91	0.91
0.48300	3.75	3.75	0.57200	2.64	2.64	0.65400	1.95	1.95
0.49700	6.79	6.79	0.58800	4.70	4.70	0.67200	3.48	3.48
0.51600	10.96	10.96	0.61000	7.65	7.65	0.69800	5.85	5.85
0.53900	16.04	16.04	0.63800	11.53	11.53	0.72900	8.83	8.83
0.56700	22.19	22.19	0.67100	16.21	16.21	0.76700	12.65	12.65
0.60400	30.18	30.18	0.71500	22.48	22.48	0.81700	17.79	17.79
0.65100	39.96	39.96	0.77000	30.17	30.17	0.88300	24.23	24.23
0.72100	53.54	53.54	0.85200	41.06	41.06	0.97400	33.46	33.46
0.81400	69.61	69.67	0.96300	54.36	54.43	1.10300	44.70	44.77
0.93000	86.66	87.58	1.10000	68.40	69.23	1.25300	56.22	56.94
1.07000	103.40	106.73	1.26000	81.82	84.64	1.44000	68.16	70.70
1.25000	120.06	128.33	1.48000	96.05	103.25	1.69000	80.20	86.59
1.48000	135.57	152.22	1.76000	109.04	123.66	2.01000	91.18	104.10
1.76000	148.54	177.16	2.09000	119.40	144.23	2.38000	99.73	121.41
2.09000	158.55	202.30	2.47000	127.18	164.48	2.83000	106.42	139.33
2.41000	164.86	223.42	2.86000	132.30	182.43	3.27000	110.54	154.39
2.79000	169.68	245.35	3.30000	135.95	200.07	3.77000	113.48	169.30
3.25000	173.13	268.42	3.85000	138.60	219.19	4.40000	115.59	185.55
3.95000	175.65	298.17	4.67000	140.44	243.28	5.34000	117.01	205.97
4.65000	176.50	323.27	5.50000	141.01	263.78	6.28000	117.40	223.11
6.98000	175.38	386.24	8.25000	139.94	314.78	9.43000	116.39	266.11
9.30000	173.28	431.13	11.00000	138.23	351.13	12.50000	114.98	295.98
13.90000	169.87	494.24	16.50000	135.47	402.37	18.80000	112.67	339.13
23.20000	165.76	574.77	27.50000	132.29	466.87	31.40000	110.06	393.24
46.50000	162.21	684.59	55.00000	129.62	554.66	62.80000	107.93	466.52
93.00000	160.55	794.48	110.00000	128.36	642.66	125.00000	106.93	539.38
139.00000	159.92	858.22	165.00000	127.87	694.12	188.00000	106.52	582.56
232.00000	159.18	939.25	275.00000	127.28	758.75	314.00000	106.03	636.63

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN Nb
 Z=41 A= 92.910

TD=28.0 EV ET=0.702437 MEV			TD=32.0 EV ET=0.771760 MEV			TD=36.0 EV ET=0.837524 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.70900	0.33	0.33	0.77900	0.26	0.26	0.84500	0.20	0.20
0.71600	0.69	0.69	0.78700	0.56	0.56	0.85400	0.45	0.45
0.73000	1.47	1.47	0.80200	1.17	1.17	0.87100	0.99	0.99
0.75100	2.74	2.74	0.82500	2.22	2.22	0.89500	1.87	1.87
0.77900	4.60	4.60	0.85600	3.79	3.79	0.92900	3.21	3.21
0.81400	7.10	7.10	0.89500	5.96	5.96	0.97100	5.09	5.09
0.85600	10.28	10.28	0.94100	8.71	8.71	1.02000	7.47	7.47
0.91300	14.76	14.76	1.00000	12.40	12.40	1.08000	10.54	10.54
0.98300	20.29	20.29	1.08000	17.46	17.46	1.17000	15.25	15.25
1.08000	27.70	27.70	1.19000	24.24	24.24	1.29000	21.37	21.37
1.22000	37.53	37.59	1.35000	33.27	33.34	1.46000	29.35	29.42
1.40000	48.37	49.05	1.54000	42.47	43.12	1.67000	37.81	38.42
1.61000	58.64	60.98	1.77000	51.53	53.71	1.92000	45.96	47.99
1.89000	69.09	74.93	2.08000	60.81	66.22	2.26000	54.36	59.40
2.24000	78.39	89.96	2.46000	68.87	79.43	2.68000	61.62	71.50
2.66000	85.85	105.35	2.93000	75.49	93.35	3.18000	67.34	83.75
3.16000	91.50	120.90	3.47000	80.28	106.90	3.76000	71.52	95.81
3.65000	94.96	133.99	4.01000	83.27	118.53	4.35000	74.16	106.33
4.21000	97.42	146.99	4.63000	85.37	130.11	5.02000	75.97	116.68
4.91000	99.15	161.02	5.40000	86.82	142.50	5.86000	77.22	127.84
5.97000	100.29	178.88	6.55000	87.75	158.06	7.11000	77.99	141.78
7.02000	100.55	193.69	7.71000	87.94	171.18	8.37000	78.13	153.50
10.50000	99.62	230.43	11.50000	87.08	203.26	12.50000	77.32	182.22
14.00000	98.38	256.68	15.40000	85.96	226.65	16.70000	76.32	202.89
21.00000	96.41	293.52	23.10000	84.24	258.96	25.10000	74.79	231.79
35.10000	94.22	340.05	38.50000	82.36	299.50	41.80000	73.15	267.81
70.20000	92.45	402.93	77.10000	80.86	354.67	83.70000	71.85	316.88
140.00000	91.62	465.59	154.00000	80.14	409.64	167.00000	71.22	365.67
210.00000	91.27	502.36	231.00000	79.84	441.82	251.00000	70.96	394.42

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN Nb
 Z=41 A= 92.910

TD=40.0 EV ET=0.900226 MEV			TD=44.0 EV ET=0.960259 MEV			TD=48.0 EV ET=1.017937 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.90900	0.18	0.18	0.96900	0.14	0.14	1.02000	0.03	0.03
0.91800	0.38	0.38	0.97900	0.32	0.32	1.03000	0.16	0.16
0.93600	0.82	0.82	0.99800	0.70	0.70	1.05000	0.47	0.47
0.96300	1.60	1.60	1.02000	1.21	1.21	1.08000	1.03	1.03
0.99900	2.78	2.78	1.06000	2.28	2.28	1.12000	1.94	1.94
1.04000	4.30	4.30	1.11000	3.83	3.83	1.18000	3.53	3.53
1.09000	6.32	6.32	1.17000	5.90	5.90	1.24000	5.33	5.33
1.17000	9.75	9.75	1.24000	8.48	8.48	1.32000	7.89	7.89
1.26000	13.72	13.72	1.34000	12.26	12.26	1.42000	11.18	11.18
1.39000	19.33	19.33	1.48000	17.46	17.46	1.57000	16.04	16.04
1.57000	26.47	26.55	1.68000	24.29	24.36	1.79000	22.29	22.37
1.80000	34.29	34.90	1.92000	31.29	31.86	2.03000	28.66	29.20
2.07000	41.69	43.64	2.20000	37.89	39.69	2.34000	35.02	36.77
2.43000	49.15	53.86	2.59000	44.83	49.25	2.74000	41.18	45.31
2.88000	55.67	64.84	3.07000	50.77	59.33	3.25000	46.65	54.67
3.42000	60.81	76.04	3.64000	55.39	69.50	3.86000	50.92	64.16
4.05000	64.56	87.09	4.32000	58.82	79.76	4.58000	54.02	73.60
4.68000	66.87	96.56	4.99000	60.88	88.40	5.29000	55.88	81.56
5.40000	68.46	105.92	5.76000	62.29	96.98	6.10000	57.15	89.41
6.30000	69.54	115.99	6.72000	63.25	106.18	7.12000	58.00	97.90
7.65000	70.20	128.64	8.16000	63.81	117.73	8.65000	58.49	108.56
9.00000	70.29	139.20	9.60000	63.87	127.35	10.10000	58.54	116.99
13.50000	69.51	165.40	14.40000	63.15	151.24	15.20000	57.86	139.11
18.00000	68.62	183.92	19.20000	62.33	168.10	20.30000	57.10	154.68
27.00000	67.25	209.83	28.80000	61.09	191.68	30.50000	55.96	176.40
45.00000	65.78	242.33	48.00000	59.77	221.24	50.80000	54.76	203.48
90.00000	64.64	286.44	96.00000	58.75	261.36	101.00000	53.85	239.95
180.00000	64.09	330.51	192.00000	58.25	301.43	203.00000	53.39	276.96

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN Nb
 Z=41 A= 92.910

TD=52.0 EV ET=1.073516 MEV			TD=56.0 EV ET=1.127211 MEV			TD=50.0 EV ET=1.179201 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.08000	0.07	0.07	1.13000	0.02	0.02	1.19000	0.08	0.08
1.09000	0.18	0.18	1.14000	0.11	0.11	1.20000	0.17	0.17
1.11000	0.45	0.45	1.17000	0.46	0.46	1.22000	0.37	0.37
1.14000	0.94	0.94	1.20000	0.89	0.89	1.25000	0.87	0.87
1.19000	1.93	1.93	1.25000	1.76	1.76	1.30000	1.49	1.49
1.24000	3.10	3.10	1.30000	2.79	2.79	1.36000	2.57	2.57
1.30000	4.65	4.65	1.37000	4.40	4.40	1.43000	4.01	4.01
1.39000	7.18	7.18	1.46000	6.64	6.64	1.53000	6.24	6.24
1.50000	10.37	10.37	1.57000	9.49	9.49	1.65000	9.03	9.03
1.66000	14.94	14.94	1.74000	13.82	13.82	1.82000	12.91	12.91
1.87000	20.46	20.53	1.97000	19.19	19.27	2.06000	17.95	18.02
2.14000	26.54	27.05	2.25000	24.78	25.29	2.35000	23.15	23.63
2.46000	32.32	33.96	2.59000	30.22	31.81	2.71000	28.31	29.84
2.89000	38.15	42.08	3.04000	35.60	39.36	3.18000	33.33	36.92
3.43000	43.21	50.81	3.60000	40.23	47.42	3.77000	37.67	44.53
4.07000	47.11	59.57	4.28000	43.87	55.69	4.48000	41.03	52.27
4.83000	49.95	68.35	5.07000	46.45	63.80	5.30000	43.41	59.80
5.58000	51.65	75.74	5.86000	48.01	70.71	6.13000	44.86	66.31
6.44000	52.80	83.06	6.76000	49.06	77.51	7.07000	45.82	72.66
7.51000	53.56	90.88	7.89000	49.75	84.83	8.25000	46.45	79.51
9.12000	53.99	100.72	9.58000	50.13	93.98	10.00000	46.79	87.99
10.70000	54.02	108.76	11.20000	50.15	101.30	11.70000	46.80	94.87
16.10000	53.37	129.21	16.90000	49.53	120.45	17.60000	46.22	112.63
21.40000	52.68	143.35	22.50000	48.88	133.67	23.50000	45.60	125.11
32.20000	51.62	163.49	33.80000	47.91	152.31	35.30000	44.69	142.51
53.60000	50.53	188.47	56.30000	46.90	175.54	58.90000	43.76	164.28
107.00000	49.69	222.35	112.00000	46.13	206.85	117.00000	43.05	193.44
214.00000	49.28	256.27	225.00000	45.75	238.55	235.00000	42.70	223.03

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN Nb
 Z=41 A= 92.910

TD=64.0 EV ET=1.229639 MEV			TD=68.0 EV ET=1.278656 MEV			TD=72.0 EV ET=1.326365 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.24000	0.07	0.07	1.29000	0.06	0.06	1.33000	0.02	0.02
1.25000	0.14	0.14	1.30000	0.13	0.13	1.35000	0.12	0.12
1.27000	0.31	0.31	1.32000	0.28	0.28	1.37000	0.26	0.26
1.31000	0.75	0.75	1.36000	0.66	0.66	1.41000	0.60	0.60
1.36000	1.43	1.43	1.41000	1.27	1.27	1.47000	1.28	1.28
1.42000	2.42	2.42	1.48000	2.31	2.31	1.53000	2.08	2.08
1.50000	3.90	3.90	1.55000	3.48	3.48	1.61000	3.31	3.31
1.59000	5.72	5.72	1.66000	5.50	5.50	1.72000	5.15	5.15
1.72000	8.45	8.45	1.79000	7.98	7.98	1.85000	7.43	7.43
1.90000	12.17	12.17	1.98000	11.55	11.55	2.05000	10.87	10.87
2.15000	16.91	16.98	2.23000	15.87	15.94	2.32000	15.13	15.20
2.45000	21.77	22.23	2.55000	20.58	21.04	2.65000	19.56	20.01
2.82000	26.56	28.01	2.94000	25.16	26.57	3.05000	23.83	25.20
3.32000	31.37	34.82	3.45000	29.59	32.89	3.58000	28.03	31.20
3.93000	35.39	41.93	4.09000	33.40	39.66	4.24000	31.60	37.59
4.67000	38.53	49.21	4.85000	36.31	46.47	5.04000	34.37	44.13
5.53000	40.76	56.35	5.75000	38.41	53.25	5.96000	36.31	50.46
6.39000	42.09	62.42	6.64000	39.64	58.96	6.89000	37.47	55.91
7.37000	42.98	68.40	7.67000	40.47	64.66	7.95000	38.24	61.26
8.60000	43.56	74.83	8.95000	41.01	70.72	9.28000	38.74	67.01
10.40000	43.86	82.70	10.80000	41.28	78.06	11.20000	38.99	73.96
12.20000	43.86	89.27	12.70000	41.27	84.34	13.20000	38.97	79.98
18.40000	43.30	106.04	19.10000	40.74	100.04	19.80000	38.47	94.72
24.50000	42.73	117.64	25.50000	40.20	111.06	26.50000	37.95	105.22
36.80000	41.88	133.95	38.30000	39.40	126.42	39.70000	37.20	119.64
61.40000	41.01	154.37	63.90000	38.59	145.64	66.30000	36.43	137.83
122.00000	40.36	181.73	127.00000	37.98	171.40	132.00000	35.86	162.23
245.00000	40.03	209.46	255.00000	37.67	197.50	265.00000	35.57	186.87

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NB
Z=41 A= 92.910

TD=76.0 EV ET=1.372867 MEV			TD=80.0 EV ET=1.418248 MEV			TD=84.0 EV ET=1.462586 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.38000	0.03	0.03	1.43000	0.04	0.04	1.47000	0.02	0.02
1.40000	0.13	0.13	1.44000	0.09	0.09	1.49000	0.10	0.10
1.42000	0.25	0.25	1.47000	0.25	0.25	1.52000	0.26	0.26
1.46000	0.57	0.57	1.51000	0.54	0.54	1.56000	0.53	0.53
1.52000	1.18	1.18	1.57000	1.10	1.10	1.62000	1.05	1.05
1.59000	2.05	2.05	1.64000	1.90	1.90	1.69000	1.79	1.79
1.67000	3.18	3.18	1.73000	3.07	3.07	1.78000	2.87	2.87
1.78000	4.87	4.87	1.84000	4.64	4.64	1.90000	4.46	4.46
1.92000	7.12	7.12	1.98000	6.72	6.72	2.04000	6.38	6.38
2.12000	10.29	10.29	2.19000	9.80	9.80	2.26000	9.37	9.37
2.40000	14.36	14.43	2.48000	13.69	13.75	2.55000	12.98	13.04
2.74000	18.55	18.98	2.83000	17.67	18.09	2.92000	16.89	17.29
3.15000	22.58	23.88	3.26000	21.56	22.83	3.36000	20.57	21.79
3.70000	26.58	29.62	3.82000	25.30	28.22	3.94000	24.15	26.97
4.39000	30.00	35.76	4.53000	28.53	34.05	4.69000	27.25	32.60
5.21000	32.59	41.91	5.38000	31.00	39.94	5.55000	29.57	38.17
6.17000	34.43	47.98	6.39000	32.75	45.76	6.58000	31.22	43.72
7.13000	35.52	53.14	7.37000	33.77	50.66	7.60000	32.18	48.39
8.23000	36.24	58.23	8.50000	34.45	55.48	8.77000	32.82	53.01
9.61000	36.71	63.70	9.92000	34.88	60.67	10.20000	33.22	57.84
11.60000	36.93	70.30	12.00000	35.09	67.01	12.40000	33.41	64.05
13.70000	36.91	76.08	14.10000	35.06	72.34	14.60000	33.39	69.20
20.50000	36.43	89.97	21.20000	34.60	85.71	21.90000	32.94	81.86
27.40000	35.94	99.88	28.30000	34.13	95.09	29.20000	32.50	90.76
41.10000	35.23	113.59	42.50000	33.45	108.15	43.80000	31.85	103.17
68.60000	34.51	130.81	70.90000	32.77	124.50	73.10000	31.21	118.75
137.00000	33.97	154.03	141.00000	32.27	146.43	146.00000	30.73	139.77
274.00000	33.70	177.25	283.00000	32.01	168.60	292.00000	30.49	160.78

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN NB
Z=41 A= 92.910

TD=88.0 EV ET=1.505950 MEV			TD=92.0 EV ET=1.548400 MEV			TD=96.0 EV ET=1.589994 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.52000	0.04	0.04	1.56000	0.03	0.03	1.60000	0.02	0.02
1.53000	0.08	0.08	1.57000	0.06	0.06	1.62000	0.08	0.08
1.56000	0.21	0.21	1.61000	0.23	0.23	1.65000	0.20	0.20
1.61000	0.53	0.53	1.65000	0.46	0.46	1.70000	0.47	0.47
1.67000	1.01	1.01	1.71000	0.90	0.90	1.76000	0.89	0.89
1.74000	1.70	1.70	1.79000	1.62	1.62	1.84000	1.57	1.57
1.83000	2.70	2.70	1.88000	2.56	2.56	1.93000	2.45	2.45
1.95000	4.17	4.17	2.01000	4.05	4.05	2.06000	3.84	3.84
2.10000	6.10	6.10	2.16000	5.85	5.85	2.22000	5.63	5.63
2.33000	9.00	9.00	2.40000	8.68	8.68	2.46000	8.29	8.29
2.63000	12.47	12.53	2.70000	11.92	11.98	2.78000	11.52	11.58
3.01000	16.19	16.59	3.09000	15.48	15.87	3.17000	14.85	15.23
3.46000	19.68	20.87	3.56000	18.88	20.05	3.65000	18.10	19.22
4.06000	23.11	25.85	4.18000	22.17	24.84	4.29000	21.28	23.86
4.81000	26.03	31.16	4.95000	24.94	29.92	5.08000	23.93	28.73
5.72000	28.27	36.58	5.88000	27.07	35.08	6.04000	25.97	33.72
6.77000	29.82	41.83	6.96000	28.55	40.12	7.15000	27.38	38.56
7.83000	30.74	46.34	8.05000	29.42	44.44	8.26000	28.21	42.67
9.03000	31.34	50.73	9.29000	29.99	48.67	9.53000	28.74	46.72
10.50000	31.71	55.35	10.80000	30.34	53.08	11.10000	29.08	51.01
12.80000	31.90	61.36	13.10000	30.51	58.69	13.50000	29.24	56.47
15.00000	31.87	66.14	15.40000	30.48	63.35	15.80000	29.20	60.81
22.50000	31.44	78.23	23.20000	30.06	75.05	23.80000	28.80	72.03
30.10000	31.01	86.83	30.90000	29.65	83.15	31.70000	28.41	79.79
45.10000	30.40	98.64	46.40000	29.07	94.52	47.60000	27.85	90.69
75.20000	29.78	113.49	77.40000	28.48	108.74	79.40000	27.29	104.32
150.00000	29.33	133.52	154.00000	28.05	127.83	158.00000	26.88	122.61

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
 Z=42 A= 95.950

TD= 4.0 EV ET=0.152194 MEV			TD= 8.0 EV ET=0.275468 MEV			TD=12.0 EV ET=0.381682 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.15300	7.13	7.13	0.27800	3.29	3.29	0.38500	1.37	1.37
0.15500	24.33	24.33	0.28000	5.85	5.85	0.38900	3.12	3.12
0.15800	48.89	48.89	0.28600	13.35	13.35	0.39700	6.59	6.59
0.16200	79.50	79.50	0.29400	22.93	22.93	0.40300	11.31	11.31
0.16800	121.33	121.33	0.30500	35.38	35.38	0.42300	17.64	17.64
0.17600	170.60	170.60	0.31900	50.17	50.17	0.44200	25.45	25.45
0.18500	218.68	218.68	0.33600	66.74	66.74	0.46500	34.61	34.61
0.19700	273.13	273.13	0.35800	86.26	86.26	0.49500	46.38	46.38
0.21300	332.57	332.57	0.38500	107.70	107.70	0.53400	59.92	59.92
0.23500	396.62	396.62	0.42600	136.01	136.01	0.59100	78.42	78.42
0.26600	463.61	463.61	0.48200	168.19	168.20	0.66800	100.22	100.27
0.30400	522.37	524.38	0.55000	199.76	201.14	0.76300	122.75	123.86
0.35000	572.66	583.81	0.63300	230.14	235.85	0.87300	144.75	148.96
0.41000	618.00	647.04	0.74300	260.66	275.35	1.00300	167.09	177.83
0.48700	656.81	713.65	0.88100	288.29	317.68	1.22300	187.35	208.91
0.57800	686.73	779.55	1.04000	310.51	359.56	1.45300	204.25	241.17
0.68400	709.15	845.33	1.23000	328.47	402.77	1.71300	216.95	272.52
0.79100	723.74	903.72	1.43000	340.98	442.44	1.98300	225.60	300.82
0.91300	734.35	963.29	1.65000	349.98	480.89	2.29300	231.99	329.28
1.06000	741.86	1027.66	1.92000	356.81	522.48	2.67000	236.66	359.72
1.29000	747.04	1116.40	2.34000	362.09	578.01	3.24300	240.02	398.58
1.52000	747.82	1194.14	2.75000	363.95	624.32	3.81300	241.15	431.53
2.28000	739.92	1399.98	4.13000	361.94	744.35	5.72000	239.50	515.30
3.04000	728.83	1556.30	5.50000	357.32	831.24	7.63000	236.41	575.55
4.56000	711.11	1788.65	8.26000	349.65	957.09	11.40300	231.49	660.25
7.60000	689.90	2094.85	13.70000	340.32	1115.70	19.00300	225.52	768.45
15.20000	667.88	2524.21	27.50000	331.34	1336.90	38.10300	220.21	916.85
30.40000	656.52	2963.73	55.00000	327.07	1559.18	76.30300	217.71	1065.80
45.60000	652.90	3222.94	82.60000	325.58	1689.93	114.00300	216.80	1152.01
76.00000	649.52	3550.55	137.00000	324.02	1852.53	190.00300	215.76	1261.45
106.00000	647.48	3763.74	192.00000	322.98	1960.62	267.00300	215.05	1334.06
152.00000	645.25	3994.12	275.00000	321.86	2075.39	381.00300	214.31	1409.75

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
 Z=42 A= 95.950

TD=16.0 EV ET=0.476899 MEV			TD=20.0 EV ET=0.563547 MEV			TD=24.0 EV ET=0.643710 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.48100	0.84	0.84	0.56900	0.63	0.63	0.65000	0.45	0.45
0.48600	1.88	1.88	0.57400	1.22	1.22	0.65500	0.90	0.90
0.49500	3.77	3.77	0.58600	2.68	2.68	0.66300	1.93	1.93
0.51000	6.99	6.99	0.60200	4.72	4.72	0.68300	3.53	3.53
0.52900	11.12	11.12	0.62500	7.79	7.79	0.71400	5.89	5.89
0.55300	16.40	16.40	0.65300	11.67	11.67	0.74500	8.99	8.99
0.58100	22.56	22.56	0.68700	16.51	16.51	0.78500	12.93	12.93
0.61900	30.80	30.80	0.73200	22.97	22.97	0.83500	18.22	18.22
0.66700	40.86	40.86	0.78800	30.88	30.88	0.90100	24.95	24.95
0.73900	54.97	54.97	0.87300	42.30	42.30	0.99700	34.48	34.48
0.83400	71.57	71.63	0.98600	56.07	56.07	1.12300	45.62	45.69
0.95300	89.24	90.20	1.12000	69.94	70.75	1.28300	58.09	58.84
1.09000	105.84	109.19	1.29000	84.38	87.33	1.48300	70.70	73.45
1.28000	123.63	132.25	1.52000	99.29	105.93	1.73300	82.74	89.44
1.52000	139.80	157.34	1.80000	112.24	127.46	2.05300	93.74	107.09
1.81000	153.07	183.24	2.14000	122.86	148.77	2.44000	102.71	125.43
2.14000	162.90	208.44	2.53000	130.72	169.62	2.89000	109.29	143.41
2.47000	169.26	230.26	2.93000	135.82	188.04	3.34000	113.41	158.87
2.86000	174.02	252.78	3.38000	139.41	206.09	3.86000	116.35	174.39
3.33000	177.35	276.33	3.94000	141.96	225.55	4.50000	118.37	190.88
4.05000	179.70	306.87	4.79000	143.66	250.45	5.47000	119.67	211.92
4.76000	180.39	332.25	5.63000	144.09	271.12	6.43300	119.94	229.35
7.15000	178.86	396.60	8.45000	142.69	323.19	9.65300	118.67	273.12
9.53000	176.53	442.39	11.20000	140.84	359.45	12.80300	117.11	303.60
14.30000	172.82	507.25	16.90000	137.85	412.35	19.30300	114.62	347.76
23.80000	168.53	588.70	28.10000	134.52	477.63	32.10300	111.91	402.33
47.60000	164.87	700.01	56.30000	131.74	567.11	64.30300	109.69	476.99
95.30000	163.14	811.85	112.00000	130.44	655.84	128.00300	108.65	551.05
143.00000	162.47	877.24	169.00000	129.91	708.89	193.00300	108.22	595.18
238.00000	161.69	959.08	281.00000	129.29	774.22	321.00300	107.70	649.64

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
 Z=42 A= 95.950

TD=28.0 EV ET=0.718659 MEV			TD=32.0 EV ET=0.789295 MEV			TD=36.0 EV ET=0.856287 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.72500	0.31	0.31	0.79700	0.27	0.27	0.86400	0.20	0.20
0.73300	0.72	0.72	0.80500	0.57	0.57	0.87300	0.45	0.45
0.74700	1.49	1.49	0.82000	1.17	1.17	0.89300	0.98	0.98
0.76800	2.75	2.75	0.84400	2.26	2.26	0.91500	1.90	1.90
0.79700	4.67	4.67	0.87600	3.89	3.89	0.95000	3.28	3.28
0.83300	7.26	7.26	0.91500	6.08	6.08	0.99300	5.22	5.22
0.87600	10.55	10.55	0.96200	8.91	8.91	1.04300	7.53	7.53
0.93400	15.16	15.16	1.02000	12.58	12.58	1.11000	11.16	11.16
1.00000	20.44	20.44	1.10000	17.72	17.72	1.19000	15.41	15.41
1.11000	28.96	28.96	1.22000	25.21	25.21	1.32000	22.14	22.14
1.25000	38.88	38.95	1.38000	34.35	34.43	1.49000	30.23	30.30
1.43000	49.84	50.55	1.57000	43.67	44.34	1.71000	39.18	39.84
1.65000	60.68	63.16	1.81000	53.22	55.50	1.96000	47.40	49.51
1.94000	71.49	77.70	2.13000	62.82	68.52	2.31000	56.08	61.35
2.29000	80.74	92.81	2.52000	71.04	82.14	2.74000	63.50	73.82
2.73000	88.47	108.98	2.99000	77.61	96.12	3.25000	69.28	86.37
3.23000	94.00	124.56	3.55000	82.50	110.23	3.85000	73.51	98.87
3.73000	97.44	137.95	4.10000	85.45	122.09	4.45000	76.10	109.57
4.31000	99.87	151.42	4.73000	87.49	133.86	5.13000	77.86	120.07
5.03000	101.53	165.82	5.52000	88.89	146.57	5.99000	79.05	131.49
6.10000	102.55	183.81	6.70000	89.72	162.51	7.27000	79.74	145.73
7.18000	102.72	199.00	7.89000	89.82	175.92	8.56000	79.79	157.70
10.70000	101.58	236.10	11.80000	88.76	208.82	12.80000	78.81	187.04
14.30000	100.20	263.03	15.70000	87.56	232.10	17.10000	77.72	208.08
21.50000	98.09	300.72	23.60000	85.71	265.13	25.60000	76.10	237.18
35.90000	95.79	347.94	39.40000	83.74	306.48	42.80000	74.37	274.09
71.80000	93.97	411.86	78.90000	82.18	362.56	85.60000	73.02	323.88
143.00000	93.10	475.41	157.00000	81.44	418.11	171.00000	72.37	373.55
215.00000	92.73	512.98	236.00000	81.12	450.97	256.00000	72.09	402.46

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
 Z=42 A= 95.950

TD=40.0 EV ET=0.920146 MEV			TD=44.0 EV ET=0.981275 MEV			TD=48.0 EV ET=1.039997 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.92900	0.18	0.18	0.99100	0.15	0.15	1.05000	0.13	0.13
0.93800	0.37	0.37	1.00000	0.31	0.31	1.06000	0.27	0.27
0.95600	0.81	0.81	1.02000	0.71	0.71	1.08000	0.60	0.60
0.98400	1.61	1.61	1.04000	1.17	1.17	1.11000	1.19	1.19
1.02000	2.80	2.80	1.08000	2.24	2.24	1.15000	2.12	2.12
1.06000	4.29	4.29	1.13000	3.79	3.79	1.20000	3.47	3.47
1.12000	6.74	6.74	1.19000	5.87	5.87	1.26000	5.27	5.27
1.19000	9.79	9.79	1.27000	8.85	8.85	1.35000	8.19	8.19
1.28000	13.82	13.82	1.37000	12.70	12.70	1.45000	11.54	11.54
1.42000	19.96	19.96	1.52000	18.34	18.34	1.61000	16.79	16.79
1.61000	27.58	27.67	1.71000	24.91	24.99	1.81000	22.83	22.90
1.84000	35.47	36.10	1.96000	32.30	32.91	2.07000	29.55	30.11
2.11000	42.94	44.95	2.25000	39.20	41.10	2.39000	36.17	38.00
2.48000	50.65	55.56	2.64000	46.16	50.74	2.80000	42.50	46.84
2.94000	57.32	66.86	3.14000	52.34	61.31	3.32000	48.06	56.43
3.49000	62.52	78.33	3.72000	56.99	71.70	3.95000	52.41	66.26
4.14000	66.32	89.77	4.41000	60.40	82.13	4.67000	55.45	75.74
4.78000	68.60	99.40	5.10000	62.46	91.04	5.40000	57.31	83.94
5.52000	70.16	109.02	5.88000	63.83	99.74	6.23000	58.55	91.99
6.44000	71.18	119.30	6.86000	64.73	109.13	7.27000	59.36	100.64
7.82000	71.76	132.22	8.34000	65.23	120.99	8.83000	59.79	111.49
9.20000	71.78	142.97	9.81000	65.23	130.79	10.30000	59.78	120.03
13.80000	70.86	169.66	14.70000	64.37	155.05	15.50000	58.98	142.55
18.40000	69.88	188.50	19.60000	63.47	172.20	20.70000	58.15	158.39
27.60000	68.42	214.85	29.40000	62.15	196.18	31.10000	56.93	180.47
46.00000	66.88	247.89	49.00000	60.77	226.23	51.90000	55.68	208.11
92.00000	65.70	292.72	98.10000	59.71	267.07	103.00000	54.73	245.08
184.00000	65.12	337.51	196.00000	59.19	307.73	207.00000	54.25	282.68

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
 Z=42 A= 95.950

TD=52.0 EV ET=1.096575 MEV			TD=56.0 EV ET=1.151228 MEV			TD=50.0 EV ET=1.204141 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.10000	0.03	0.03	1.16000	0.07	0.07	1.21300	0.04	0.04
1.11000	0.14	0.14	1.17000	0.17	0.17	1.22300	0.12	0.12
1.14000	0.55	0.55	1.19000	0.40	0.40	1.25300	0.42	0.42
1.17000	1.05	1.05	1.23000	0.97	0.97	1.28300	0.79	0.79
1.21000	1.86	1.86	1.27000	1.68	1.68	1.33300	1.56	1.56
1.27000	3.27	3.27	1.33000	2.92	2.92	1.39300	2.67	2.67
1.33000	4.85	4.85	1.40000	4.56	4.56	1.46000	4.13	4.13
1.42000	7.42	7.42	1.49000	6.84	6.84	1.56300	6.40	6.40
1.53000	10.66	10.66	1.61000	9.99	9.99	1.68000	9.23	9.23
1.69000	15.31	15.31	1.78000	14.38	14.38	1.86300	13.41	13.41
1.91000	21.17	21.25	2.01000	19.83	19.90	2.10300	18.51	18.59
2.19000	27.53	28.09	2.30000	25.68	26.21	2.40300	23.95	24.46
2.52000	33.52	35.26	2.64000	31.16	32.80	2.76000	29.17	30.74
2.96000	39.46	43.62	3.10000	36.69	40.60	3.25300	34.42	38.18
3.50000	44.49	52.39	3.68000	41.47	48.99	3.85300	38.81	45.96
4.16000	48.47	61.47	4.37000	45.11	57.42	4.57000	42.18	53.85
4.93000	51.29	70.38	5.18000	47.71	65.75	5.41300	44.57	61.59
5.70000	52.98	77.98	5.98000	49.24	72.76	6.26300	46.01	68.26
6.57000	54.09	85.39	6.90000	50.26	79.71	7.22000	46.94	74.75
7.67000	54.81	93.43	8.05000	50.91	87.16	8.42000	47.53	81.71
9.32000	55.18	103.50	9.78000	51.24	96.53	10.20300	47.82	90.34
10.90000	55.16	111.53	11.50000	51.20	104.26	12.00300	47.78	97.59
16.40000	54.40	132.35	17.20000	50.49	123.33	18.00000	47.10	115.54
21.90000	53.63	146.97	23.00000	49.77	136.99	24.00300	46.43	128.17
32.80000	52.52	167.22	34.50000	48.74	155.87	36.10300	45.46	145.92
54.80000	51.37	192.79	57.50000	47.68	179.52	60.20300	44.48	168.03
109.00000	50.50	227.05	115.00000	46.88	211.58	120.00300	43.75	197.82
219.00000	50.07	261.74	230.00000	46.49	243.59	240.00300	43.39	227.70

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN MO
 Z=42 A= 95.950

TD=64.0 EV ET=1.255470 MEV			TD=68.0 EV ET=1.305348 MEV			TD=72.0 EV ET=1.353893 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.26000	0.03	0.03	1.31000	0.02	0.02	1.36300	0.03	0.03
1.28000	0.17	0.17	1.33000	0.15	0.15	1.38300	0.14	0.14
1.30000	0.35	0.35	1.35000	0.30	0.30	1.40300	0.27	0.27
1.34000	0.79	0.79	1.39000	0.69	0.69	1.44300	0.63	0.63
1.39000	1.49	1.49	1.44000	1.31	1.31	1.50300	1.30	1.30
1.45000	2.49	2.49	1.51000	2.36	2.36	1.57000	2.27	2.27
1.53000	4.00	4.00	1.59000	3.74	3.74	1.65000	3.53	3.53
1.63000	6.06	6.06	1.69000	5.60	5.60	1.76000	5.41	5.41
1.75000	8.62	8.62	1.82000	8.12	8.12	1.89300	7.72	7.72
1.94000	12.61	12.61	2.02000	11.95	11.95	2.09300	11.22	11.22
2.19000	17.42	17.49	2.28000	16.49	16.57	2.36300	15.55	15.62
2.51000	22.65	23.15	2.61000	21.39	21.88	2.70300	20.17	20.64
2.88000	27.46	28.98	3.00000	25.98	27.46	3.11300	24.60	26.02
3.38000	32.29	35.85	3.52000	30.51	33.96	3.65000	28.89	32.19
4.01000	36.44	43.25	4.17000	34.38	40.88	4.33300	32.56	38.81
4.77000	39.63	50.76	4.96000	37.37	47.98	5.14000	35.33	45.46
5.64000	41.84	58.00	5.87000	39.43	54.85	6.09300	37.29	52.01
6.52000	43.16	64.23	6.78000	40.65	60.70	7.04000	38.43	57.58
7.53000	44.03	70.39	7.83000	41.46	66.50	8.12300	39.17	63.02
8.78000	44.57	76.92	9.13000	41.95	72.66	9.47000	39.63	68.86
10.60000	44.82	84.87	11.00000	42.18	80.08	11.50300	39.84	76.17
12.50000	44.78	91.78	13.00000	42.14	86.68	13.50300	39.78	82.16
18.80000	44.13	108.74	19.50000	41.52	102.55	20.30300	39.20	97.25
25.10000	43.50	120.65	26.10000	40.93	113.86	27.00000	38.64	107.71
37.60000	42.60	137.13	39.10000	40.08	129.38	40.60300	37.84	122.51
62.70000	41.69	157.85	65.20000	39.23	148.89	67.60300	37.04	140.89
125.00000	41.01	185.80	130.00000	38.59	175.20	135.00300	36.45	165.79
251.00000	40.67	213.97	261.00000	38.27	201.71	270.00300	36.15	190.70

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN MO
 Z=42 A= 95.950

TD=76.0 EV ET=1.401206 MEV			TD=80.0 EV ET=1.447376 MEV			TD=84.0 EV ET=1.492483 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.41000	0.04	0.04	1.46000	0.05	0.05	1.50000	0.02	0.02
1.42000	0.08	0.08	1.47000	0.09	0.09	1.52000	0.10	0.10
1.45000	0.26	0.26	1.50000	0.25	0.25	1.55000	0.26	0.26
1.49000	0.58	0.58	1.54000	0.55	0.55	1.59000	0.53	0.53
1.55000	1.19	1.19	1.60000	1.11	1.11	1.65000	1.05	1.05
1.62000	2.07	2.07	1.67000	1.92	1.92	1.73000	1.91	1.91
1.70000	3.22	3.22	1.76000	3.10	3.10	1.82000	3.02	3.02
1.82000	5.10	5.10	1.88000	4.84	4.84	1.94000	4.63	4.63
1.96000	7.39	7.39	2.02000	6.96	6.96	2.08000	6.59	6.59
2.17000	10.76	10.76	2.24000	10.23	10.23	2.31000	9.76	9.76
2.45000	14.88	14.95	2.53000	14.16	14.23	2.61000	13.54	13.61
2.80000	19.23	19.69	2.89000	18.30	18.74	2.98000	17.47	17.90
3.22000	23.38	24.75	3.32000	22.22	23.53	3.43000	21.26	22.55
3.78000	27.45	30.63	3.90000	26.11	29.16	4.02000	24.91	27.85
4.48000	30.90	36.89	4.63000	29.41	35.19	4.77000	28.04	33.59
5.32000	33.52	43.23	5.50000	31.90	41.23	5.67000	30.41	39.39
6.30000	35.35	49.43	6.51000	33.62	47.12	6.71000	32.04	45.00
7.28000	36.43	54.70	7.52000	34.63	52.13	7.76000	33.00	49.82
8.40000	37.12	59.88	8.68000	35.28	57.08	8.95000	33.61	54.51
9.80000	37.55	65.43	10.10000	35.67	62.26	10.40000	33.98	59.41
11.90000	37.74	72.37	12.30000	35.85	68.96	12.60000	34.14	65.63
14.00000	37.68	78.12	14.40000	35.79	74.27	14.90000	34.08	71.01
21.00000	37.12	92.35	21.70000	35.25	87.95	22.30000	33.57	83.83
28.00000	36.59	102.34	28.90000	34.75	97.41	29.80000	33.09	92.95
42.00000	35.83	116.28	43.40000	34.03	110.69	44.70000	32.40	105.57
70.00000	35.08	133.73	72.30000	33.32	127.26	74.60000	31.73	121.40
140.00000	34.52	157.38	144.00000	32.79	149.59	149.00000	31.23	142.77
280.00000	34.24	180.98	289.00000	32.53	172.12	298.00000	30.98	164.11

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN MO
 Z=42 A= 95.950

TD=88.0 EV ET=1.536596 MEV			TD=92.0 EV ET=1.579779 MEV			TD=96.0 EV ET=1.622087 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.55000	0.04	0.04	1.59000	0.03	0.03	1.63000	0.02	0.02
1.56000	0.07	0.07	1.61000	0.09	0.09	1.65000	0.07	0.07
1.59000	0.21	0.21	1.64000	0.22	0.22	1.68000	0.19	0.19
1.64000	0.52	0.52	1.69000	0.52	0.52	1.73000	0.46	0.46
1.70000	1.01	1.01	1.75000	0.97	0.97	1.80000	0.95	0.95
1.78000	1.80	1.80	1.83000	1.71	1.71	1.88000	1.65	1.65
1.87000	2.83	2.83	1.92000	2.67	2.67	1.97000	2.54	2.54
1.99000	4.33	4.33	2.05000	4.19	4.19	2.10000	3.96	3.96
2.15000	6.41	6.41	2.21000	6.14	6.14	2.27000	5.90	5.90
2.38000	9.36	9.36	2.44000	8.89	8.89	2.51000	8.59	8.59
2.68000	12.88	12.94	2.76000	12.40	12.46	2.83000	11.87	11.94
3.07000	16.74	17.16	3.15000	16.00	16.40	3.24000	15.41	15.81
3.53000	20.33	21.58	3.63000	19.50	20.71	3.73000	18.74	19.92
4.14000	23.83	26.68	4.26000	22.85	25.62	4.37000	21.92	24.60
4.91000	26.81	32.16	5.05000	25.69	30.86	5.19000	24.66	29.69
5.83000	29.05	37.67	6.00000	27.83	36.16	6.16000	26.70	34.74
6.91000	30.61	43.09	7.10000	29.30	41.31	7.29000	28.10	39.68
7.99000	31.52	47.69	8.21000	30.16	45.71	8.43000	28.92	43.91
9.21000	32.09	52.15	9.47000	30.71	50.01	9.73000	29.44	48.06
10.70000	32.44	56.83	11.00000	31.03	54.49	11.30000	29.74	52.35
13.00000	32.59	62.86	13.40000	31.17	60.34	13.70000	29.87	57.82
15.30000	32.53	67.85	15.70000	31.11	64.98	16.20000	29.81	62.54
23.00000	32.03	80.23	23.60000	30.63	76.83	24.30000	29.35	73.83
30.70000	31.57	88.91	31.50000	30.19	85.13	32.40000	28.93	81.76
46.00000	30.92	100.92	47.30000	29.57	96.68	48.60000	28.33	92.81
76.80000	30.28	116.05	78.90000	28.96	111.14	81.10000	27.75	106.67
153.00000	29.81	136.37	157.00000	28.51	130.54	162.00000	27.32	125.37

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AG
 Z=47 A=107.880

TD= 4.0 EV ET=0.168740 MEV			TD= 8.0 EV ET=0.303231 MEV			TD=12.0 EV ET=0.418461 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.17000	10.77	10.77	0.30600	3.53	3.53	0.42200	1.53	1.53
0.17200	27.38	27.38	0.30900	7.30	7.30	0.42500	3.26	3.26
0.17500	51.27	51.27	0.31500	14.69	14.69	0.43500	7.17	7.17
0.18000	88.55	88.55	0.32400	25.43	25.43	0.44700	12.41	12.41
0.18700	136.03	136.03	0.33600	39.14	39.14	0.46400	19.81	19.81
0.19500	184.52	184.52	0.35100	55.38	55.38	0.48500	28.90	28.90
0.20500	237.93	237.93	0.36900	73.67	73.67	0.51000	39.52	39.52
0.21900	301.87	301.87	0.39400	97.16	97.16	0.54300	53.12	53.12
0.23600	366.38	366.38	0.42400	122.73	122.73	0.58500	69.57	69.57
0.26100	442.19	442.19	0.47000	157.23	157.23	0.64300	92.24	92.24
0.29500	520.32	520.32	0.53000	195.20	195.20	0.73200	118.74	118.82
0.33700	591.09	593.64	0.60600	234.29	236.07	0.83500	146.17	147.61
0.38800	653.04	666.32	0.69700	271.11	278.21	0.96200	172.77	178.11
0.45500	709.90	744.59	0.81800	307.90	326.17	1.12000	198.21	211.30
0.53900	757.69	825.40	0.97000	340.65	377.34	1.33000	222.31	249.08
0.64100	795.20	907.42	1.15000	366.85	428.90	1.59000	242.07	288.68
0.75900	822.29	988.25	1.36000	386.63	480.36	1.89000	255.96	326.19
0.87700	839.03	1058.89	1.57000	399.21	525.03	2.17000	264.60	358.57
1.01000	850.33	1129.71	1.81000	408.13	569.90	2.51000	270.71	391.67
1.18000	857.75	1210.18	2.12000	414.49	620.49	2.92000	274.63	426.30
1.43000	860.79	1313.45	2.57000	417.99	683.06	3.55000	276.75	471.33
1.68000	858.98	1403.33	3.03000	418.16	737.42	4.18000	276.65	509.25
2.53000	842.54	1645.07	4.54000	411.45	873.56	6.27000	271.80	604.00
3.37000	825.26	1824.00	6.06000	403.77	972.74	8.36000	266.81	671.81
5.06000	800.12	2089.11	9.09000	392.75	1114.02	12.50000	259.78	767.03
8.43000	772.04	2434.12	15.10000	380.41	1292.26	20.90000	251.94	888.77
16.80000	744.86	2912.84	30.30000	369.41	1539.29	41.80000	245.49	1053.81
33.70000	731.45	3405.97	60.60000	364.33	1787.16	83.60000	242.49	1219.49
50.60000	727.03	3695.60	90.90000	362.43	1932.29	125.00000	241.29	1315.59
84.30000	722.53	4059.86	151.00000	360.24	2113.54	209.00000	239.81	1437.90
118.00000	719.61	4299.16	212.00000	358.75	2234.09	292.00000	238.82	1517.04
168.00000	716.48	4549.60	303.00000	357.17	2360.56	418.00000	237.77	1601.69

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AG
 Z=47 A=107.880

TD=16.0 EV ET=0.520902 MEV			TD=20.0 EV ET=0.614055 MEV			TD=24.0 EV ET=0.700063 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.52600	1.04	1.04	0.62000	0.68	0.68	0.70700	0.50	0.50*
0.53100	2.08	2.08	0.62600	1.39	1.39	0.71400	1.03	1.03
0.54100	4.21	4.21	0.63800	2.89	2.89	0.72300	2.17	2.17
0.55700	7.74	7.74	0.65700	5.41	5.41	0.74300	4.04	4.04
0.57800	12.55	12.55	0.68100	8.83	8.83	0.77700	6.79	6.79
0.60400	18.67	18.67	0.71200	13.50	13.50	0.81200	10.51	10.51
0.63500	26.10	26.10	0.74900	19.31	19.31	0.85400	15.24	15.24
0.67700	36.14	36.14	0.79800	27.15	27.15	0.91300	21.76	21.76
0.72900	48.27	48.27	0.85900	36.83	36.83	0.98000	29.94	29.94
0.80700	65.38	65.38	0.95100	50.75	50.75	1.08000	41.18	41.18
0.91100	85.74	85.83	1.07000	66.99	67.08	1.22000	55.46	55.56
1.04000	107.08	108.32	1.22000	84.42	85.48	1.40000	71.00	72.05
1.19000	127.12	131.39	1.41000	102.11	106.01	1.61000	85.46	89.01
1.40000	148.37	159.44	1.65000	118.89	128.50	1.89000	99.87	108.64
1.66000	166.81	189.07	1.96000	134.01	153.31	2.24000	112.32	129.55
1.97000	181.33	219.05	2.33000	145.73	178.35	2.66000	121.96	150.77
2.34000	192.12	249.36	2.76000	154.09	202.93	3.15000	128.79	171.65
2.70000	198.48	274.67	3.19000	159.09	223.98	3.64000	132.82	189.49
3.12000	202.87	300.32	3.68000	162.38	244.75	4.20000	135.43	207.11
3.64000	205.63	327.73	4.29000	164.40	267.04	4.90000	136.98	226.03
4.42000	206.94	362.34	5.21000	165.25	295.25	5.95000	137.54	249.82
5.20000	206.67	391.37	6.14000	164.90	319.08	7.00000	137.15	269.65
7.81000	202.77	464.05	9.21000	161.64	377.71	10.50000	134.35	318.88
10.40000	199.07	515.39	12.20000	158.74	418.34	14.00000	131.88	353.71
15.60000	193.85	587.97	18.40000	154.56	477.48	21.00000	128.47	402.48
26.00000	188.26	679.22	30.70000	150.22	550.86	35.00000	124.96	463.64
52.00000	183.79	803.42	61.40000	146.86	650.43	70.00000	122.28	546.72
104.00000	181.69	927.83	122.00000	145.26	749.08	140.00000	120.98	629.75
156.00000	180.80	1000.50	184.00000	144.55	808.01	210.00000	120.40	678.21

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AG
 Z=47 A=107.880

TD=28.0 EV ET=0.780355 MEV			TD=32.0 EV ET=0.855940 MEV			TD=36.0 EV ET=0.927558 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.78800	0.37	0.37	0.86400	0.28	0.28	0.93500	0.22	0.22
0.79500	0.74	0.74	0.87300	0.62	0.62	0.94500	0.51	0.51
0.81100	1.65	1.65	0.89000	1.34	1.34	0.96500	1.09	1.09
0.83400	3.12	3.12	0.91500	2.56	2.56	0.99200	2.16	2.16
0.86600	5.43	5.43	0.95000	4.51	4.51	1.02000	3.39	3.39
0.90500	8.54	8.54	0.99200	7.13	7.13	1.07000	5.88	5.88
0.95200	12.57	12.57	1.04000	10.39	10.39	1.13000	9.21	9.21
1.01000	17.76	17.76	1.11000	15.41	15.41	1.20000	13.34	13.34
1.09000	25.02	25.02	1.19000	21.25	21.25	1.29000	18.78	18.78
1.20000	34.68	34.68	1.32000	30.47	30.47	1.43000	27.02	27.02
1.36000	47.46	47.56	1.49000	41.45	41.55	1.62000	37.19	37.30
1.56000	60.95	61.93	1.71000	53.46	54.38	1.85000	47.59	48.44
1.79000	73.33	76.52	1.96000	64.33	67.26	2.13000	57.64	60.42
2.10000	85.78	93.62	2.31000	75.59	82.89	2.50000	67.43	74.15
2.49000	96.55	111.93	2.73000	84.81	98.84	2.96000	75.70	88.65
2.96000	104.84	130.55	3.25000	92.07	115.48	3.52000	82.07	103.51
3.51000	110.66	148.86	3.85000	97.05	131.59	4.17000	86.43	117.97
4.05000	113.99	164.19	4.45000	99.91	145.31	4.82000	88.92	130.26
4.68000	116.16	179.63	5.13000	101.70	158.71	5.56000	90.45	142.31
5.46000	117.39	196.02	5.99000	102.71	173.24	6.49000	91.29	155.28
6.63000	117.78	216.58	7.27000	102.98	191.31	7.88000	91.48	171.45
7.80000	117.39	233.70	8.55000	102.59	206.33	9.27000	91.10	184.88
11.70000	114.92	276.13	12.80000	100.41	243.42	13.90000	89.12	218.08
15.60000	112.81	306.09	17.10000	98.55	269.88	18.50000	87.49	241.34
23.40000	109.91	347.98	25.60000	96.04	306.42	27.80000	85.25	274.16
39.00000	106.97	400.48	42.70000	93.50	352.48	46.30000	83.04	315.02
78.00000	104.75	471.76	85.50000	91.61	415.01	92.70000	81.40	370.63
156.00000	103.66	542.95	171.00000	90.68	477.31	185.00000	80.58	425.84

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AG
 Z=47 A=107.880

TD=40.0 EV ET=0.995776 MEV			TD=44.0 EV ET=1.061037 MEV			TD=48.0 EV ET=1.123694 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.00000	0.08	0.08	1.07000	0.14	0.14	1.13000	0.08	0.08
1.01000	0.29	0.29	1.08000	0.32	0.32	1.14000	0.22	0.22
1.03000	0.79	0.79	1.10000	0.73	0.73	1.16000	0.55	0.55
1.06000	1.69	1.69	1.13000	1.49	1.49	1.20000	1.39	1.39
1.10000	3.13	3.13	1.17000	2.69	2.69	1.24000	2.43	2.43
1.15000	5.22	5.22	1.23000	4.82	4.82	1.30000	4.26	4.26
1.21000	8.00	8.00	1.29000	7.21	7.21	1.37000	6.68	6.68
1.29000	11.98	11.98	1.37000	10.62	10.62	1.46000	10.03	10.03
1.39000	17.09	17.09	1.48000	15.45	15.45	1.57000	14.25	14.25
1.54000	24.56	24.56	1.64000	22.31	22.31	1.74000	20.60	20.60
1.74000	33.60	33.71	1.85000	30.50	30.60	1.96000	28.08	28.18
1.99000	43.14	43.97	2.12000	39.37	40.16	2.24000	36.11	36.85
2.29000	52.20	54.84	2.44000	47.65	50.16	2.58000	43.78	46.13
2.68000	60.87	67.10	2.86000	55.62	61.51	3.03000	51.19	56.75
3.18000	68.40	80.45	3.39000	62.40	73.68	3.59000	57.37	67.95
3.78000	74.07	93.91	4.03000	67.51	86.00	4.27000	62.03	79.36
4.48000	77.94	107.05	4.77000	70.95	97.93	5.05000	65.13	90.30
5.17000	80.10	118.07	5.51000	72.89	108.07	5.84000	66.89	99.71
5.97000	81.45	129.05	6.36000	74.07	118.07	6.74000	67.93	108.90
6.97000	82.16	140.79	7.42000	74.69	128.74	7.86000	68.47	118.69
8.46000	82.29	155.38	9.01000	74.77	142.07	9.55000	68.51	130.98
9.95000	81.92	167.48	10.60000	74.42	153.13	11.20000	68.18	140.94
14.90000	80.12	197.35	15.90000	72.76	180.44	16.80000	66.65	166.02
19.90000	78.64	218.57	21.20000	71.42	199.65	22.40000	65.42	183.65
29.80000	76.65	247.88	31.80000	69.61	226.43	33.70000	63.75	208.39
49.70000	74.68	284.79	53.00000	67.85	259.95	56.10000	62.16	239.07
99.50000	73.23	334.85	106.00000	66.56	305.41	112.00000	61.00	280.64
199.00000	72.51	384.71	212.00000	65.90	350.75	224.00000	60.40	322.20

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN Ag
 Z=47 A=107.880

TD=52.0 EV ET=1.184037 MEV			TD=56.0 EV ET=1.242304 MEV			TD=50.0 EV ET=1.298696 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.19000	0.06	0.06	1.25000	0.07	0.07	1.31000	0.08	0.08
1.20000	0.17	0.17	1.26000	0.16	0.16	1.32000	0.17	0.17
1.23000	0.61	0.61	1.29000	0.53	0.53	1.35000	0.50	0.50
1.26000	1.15	1.15	1.32000	1.01	1.01	1.38000	0.92	0.92
1.31000	2.28	2.28	1.37000	1.98	1.98	1.44000	1.97	1.97
1.37000	3.89	3.89	1.44000	3.64	3.64	1.50000	3.24	3.24
1.44000	6.01	6.01	1.51000	5.52	5.52	1.58000	5.16	5.16
1.53000	8.95	8.95	1.61000	8.43	8.43	1.68000	7.77	7.77
1.65000	13.00	13.00	1.73000	12.04	12.04	1.81000	11.29	11.29
1.83000	18.95	18.95	1.92000	17.64	17.64	2.01000	16.57	16.57
2.07000	26.14	26.25	2.17000	24.31	24.41	2.27000	22.80	22.90
2.36000	33.45	34.16	2.48000	31.26	31.95	2.59000	29.23	29.90
2.72000	40.59	42.84	2.85000	37.77	39.90	2.98000	35.38	37.42
3.19000	47.38	52.63	3.35000	44.16	49.17	3.50000	41.32	46.08
3.78000	53.08	63.04	3.97000	49.43	58.90	4.15000	46.24	55.23
4.49000	57.33	73.54	4.72000	53.36	68.74	4.93000	49.87	64.41
5.32000	60.19	83.80	5.59000	55.98	78.28	5.84000	52.29	73.36
6.15000	61.78	92.49	6.45000	57.41	86.28	6.75000	53.62	80.93
7.10000	62.73	101.03	7.45000	58.26	94.25	7.79000	54.40	88.35
8.28000	63.20	110.09	8.69000	58.68	102.70	9.09000	54.77	96.27
10.00000	63.23	121.11	10.50000	58.69	112.98	11.00000	54.76	105.96
11.80000	62.90	130.68	12.40000	58.37	121.92	12.90000	54.46	113.96
17.70000	61.47	153.87	18.60000	57.04	143.48	19.40000	53.21	134.23
23.60000	60.34	170.15	24.80000	55.99	158.61	25.90000	52.22	148.43
35.50000	58.81	192.99	37.20000	54.58	179.68	38.90000	50.91	168.17
59.20000	57.35	221.42	62.10000	53.23	206.14	64.90000	49.66	192.85
118.00000	56.29	259.72	124.00000	52.26	241.81	129.00000	48.77	225.92
236.00000	55.75	298.08	248.00000	51.76	277.43	259.00000	48.30	259.36

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN Ag
 Z=47 A=107.880

TD=64.0 EV ET=1.353384 MEV			TD=68.0 EV ET=1.406512 MEV			TD=72.0 EV ET=1.458207 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.36000	0.04	0.04	1.42000	0.07	0.07	1.47000	0.06	0.06
1.38000	0.19	0.19	1.43000	0.14	0.14	1.48000	0.11	0.11
1.40000	0.38	0.38	1.46000	0.39	0.39	1.51000	0.33	0.33
1.44000	0.87	0.87	1.50000	0.84	0.84	1.56000	0.84	0.84
1.50000	1.81	1.81	1.56000	1.70	1.70	1.61000	1.49	1.49
1.56000	2.95	2.95	1.63000	2.92	2.92	1.69000	2.74	2.74
1.65000	4.90	4.90	1.71000	4.50	4.50	1.77000	4.19	4.19
1.75000	7.26	7.26	1.82000	6.86	6.86	1.89000	6.54	6.54
1.89000	10.69	10.69	1.96000	9.98	9.98	2.04000	9.60	9.60
2.09000	15.47	15.47	2.18000	14.77	14.77	2.26000	13.98	13.98
2.36000	21.33	21.43	2.46000	20.28	20.38	2.55000	19.20	19.30
2.70000	27.51	28.16	2.81000	26.04	26.67	2.91000	24.62	25.23
3.11000	33.33	35.31	3.23000	31.44	33.33	3.35000	29.79	31.62
3.65000	38.86	43.43	3.79000	36.64	41.00	3.93000	34.69	38.88
4.33000	43.47	52.06	4.50000	40.99	49.20	4.66000	38.76	46.59
5.14000	46.83	60.67	5.34000	44.13	57.31	5.54000	41.74	54.35
6.09000	49.08	69.09	6.32000	46.22	65.21	6.56000	43.70	61.85
7.03000	50.30	76.15	7.31000	47.37	71.95	7.58000	44.76	68.19
8.12000	51.01	83.16	8.43000	48.02	78.49	8.74000	45.36	74.37
9.47000	51.35	90.57	9.84000	48.32	85.52	10.20000	45.64	81.01
11.50000	51.32	99.83	11.90000	48.29	94.06	12.30000	45.60	88.97
13.50000	51.03	107.39	14.00000	48.01	101.28	14.50000	45.33	95.88
20.30000	49.84	126.41	21.00000	46.90	119.09	21.80000	44.27	112.81
27.00000	48.93	139.55	28.10000	46.03	131.73	29.10000	43.45	124.65
40.60000	47.08	158.12	42.10000	44.88	149.05	43.70000	42.37	141.11
67.60000	46.54	181.16	70.30000	43.79	170.87	72.90000	41.35	161.68
135.00000	45.71	212.39	140.00000	43.02	200.15	145.00000	40.63	189.28
270.00000	45.28	243.57	281.00000	42.61	229.64	291.00000	40.24	217.14

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN Ag
 Z=47 A=107.880

TD=76.0 EV ET=1.508580 MEV			TD=80.0 EV ET=1.557726 MEV			TD=84.0 EV ET=1.605732 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.52000	0.05	0.05	1.57000	0.05	0.05	1.62000	0.05	0.05
1.53000	0.10	0.10	1.58000	0.09	0.09	1.63000	0.09	0.09
1.56000	0.29	0.29	1.62000	0.33	0.33	1.66000	0.25	0.25
1.61000	0.74	0.74	1.66000	0.67	0.67	1.71000	0.62	0.62
1.67000	1.45	1.45	1.72000	1.32	1.32	1.78000	1.32	1.32
1.74000	2.46	2.46	1.80000	2.37	2.37	1.86000	2.31	2.31
1.84000	4.11	4.11	1.90000	3.90	3.90	1.95000	3.58	3.58
1.96000	6.29	6.29	2.02000	5.91	5.91	2.08000	5.60	5.60
2.11000	9.10	9.10	2.18000	8.68	8.68	2.24000	8.17	8.17
2.33000	13.14	13.14	2.41000	12.58	12.58	2.48000	11.95	11.95
2.64000	18.28	18.37	2.72000	17.33	17.42	2.81000	16.63	16.72
3.01000	23.39	23.98	3.11000	22.30	22.88	3.21000	21.34	21.91
3.46000	28.24	29.99	3.58000	26.96	28.67	3.69000	25.73	27.39
4.07000	32.97	37.01	4.20000	31.37	35.25	4.33000	29.93	33.68
4.82000	36.78	44.28	4.98000	35.00	42.23	5.13000	33.37	40.32
5.73000	39.59	51.66	5.91000	37.64	49.18	6.10000	35.90	47.03
6.78000	41.42	58.75	7.00000	39.38	55.97	7.22000	37.53	53.48
7.84000	42.42	64.79	8.10000	40.32	61.76	8.34000	38.41	58.93
9.05000	42.98	70.70	9.34000	40.84	67.34	9.63000	38.90	64.30
10.50000	43.23	76.76	10.90000	41.07	73.33	11.20000	39.11	69.89
12.80000	43.18	84.75	13.20000	41.02	80.66	13.60000	39.06	76.98
15.00000	42.93	91.06	15.50000	40.77	86.74	16.00000	38.81	82.85
22.60000	41.92	107.20	23.30000	39.81	101.99	24.00000	37.90	97.30
30.10000	41.15	118.33	31.10000	39.07	112.65	32.10000	37.19	107.53
45.20000	40.12	133.93	46.70000	38.10	127.47	48.10000	36.28	121.57
75.40000	39.16	153.42	77.80000	37.20	145.95	80.20000	35.42	139.20
150.00000	38.48	179.58	155.00000	36.55	170.85	160.00000	34.81	162.97

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN Ag
 Z=47 A=107.880

TD=88.0 EV ET=1.652672 MEV			TD=92.0 EV ET=1.698616 MEV			TD=96.0 EV ET=1.743624 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.66000	0.02	0.02	1.71000	0.03	0.03	1.76000	0.04	0.04
1.68000	0.09	0.09	1.73000	0.10	0.10	1.77000	0.07	0.07
1.71000	0.24	0.24	1.76000	0.24	0.24	1.81000	0.24	0.24
1.76000	0.59	0.59	1.81000	0.56	0.56	1.86000	0.55	0.55
1.83000	1.23	1.23	1.88000	1.16	1.16	1.93000	1.11	1.11
1.91000	2.14	2.14	1.97000	2.13	2.13	2.02000	2.01	2.01
2.01000	3.46	3.46	2.07000	3.36	3.36	2.12000	3.16	3.16
2.14000	5.33	5.33	2.20000	5.11	5.11	2.25000	4.93	4.93
2.31000	7.88	7.88	2.37000	7.49	7.49	2.44000	7.29	7.29
2.56000	11.54	11.54	2.63000	11.04	11.05	2.70000	10.61	10.61
2.89000	15.89	15.98	2.97000	15.23	15.32	3.05000	14.64	14.74
3.30000	20.38	20.93	3.39000	19.53	20.06	3.48000	18.76	19.28
3.80000	24.63	26.24	3.90000	23.57	25.12	4.01000	22.68	24.20
4.46000	28.64	32.27	4.58000	27.43	30.93	4.70000	26.32	29.71
5.28000	31.90	38.60	5.43000	30.56	37.04	5.57000	29.32	35.56
6.28000	34.30	45.02	6.45000	32.83	43.15	6.62000	31.49	41.45
7.43000	35.85	51.18	7.64000	34.31	49.09	7.84000	32.90	47.14
8.59000	36.68	56.42	8.83000	35.09	54.10	9.06000	33.64	51.95
9.91000	37.14	61.52	10.10000	35.51	58.69	10.40000	34.04	56.47
11.50000	37.33	66.78	11.80000	35.71	63.96	12.20000	34.22	61.65
14.00000	37.27	73.65	14.40000	35.65	70.61	14.80000	34.15	67.84
16.50000	37.04	79.31	16.90000	35.42	75.89	17.40000	33.93	72.96
24.70000	36.17	93.04	25.40000	34.58	89.17	26.10000	33.13	85.62
33.00000	35.49	102.77	33.90000	33.94	98.44	34.80000	32.52	94.48
49.50000	34.62	116.22	50.90000	33.10	111.34	52.30000	31.71	106.87
82.60000	33.80	133.07	84.90000	32.32	127.45	87.10000	30.97	122.26
165.00000	33.22	155.80	169.00000	31.78	149.08	174.00000	30.45	143.11

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SN
 Z=50 A=118.700

TD= 4.0 EV ET=0.183405 MEV			TD= 8.0 EV ET=0.327616 MEV			TD=12.0 EV ET=0.450433 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.18500	12.37	12.37	0.33000	2.79	2.79	0.45400	1.42	1.42
0.18700	27.47	27.47	0.33400	7.42	7.42	0.45900	3.43	3.43
0.19000	49.29	49.29	0.34000	14.27	14.27	0.46300	7.09	7.09
0.19600	90.22	90.22	0.35000	25.41	25.41	0.48100	12.46	12.46
0.20300	133.89	133.89	0.36300	39.43	39.43	0.49900	19.99	19.99
0.21200	184.50	184.50	0.38000	56.97	56.97	0.52200	29.67	29.67
0.22300	239.28	239.28	0.39900	75.59	75.59	0.54900	40.99	40.99
0.23800	303.83	303.83	0.42500	99.46	99.46	0.58500	55.76	55.76
0.25600	369.18	369.18	0.45800	127.30	127.30	0.63000	73.47	73.47
0.28400	451.44	451.44	0.50700	164.05	164.05	0.69300	98.22	98.22
0.32000	532.89	532.89	0.57300	206.12	206.12	0.78800	127.01	127.11
0.36600	610.56	613.41	0.65500	248.68	250.71	0.90300	156.91	158.55
0.42100	678.33	692.49	0.75300	288.64	296.55	1.03000	184.65	190.45
0.49500	742.39	779.93	0.88400	328.51	348.88	1.21000	213.53	228.55
0.58600	795.13	868.53	1.04000	362.00	401.81	1.44000	239.09	269.79
0.69600	836.14	958.08	1.24000	390.52	459.31	1.71000	258.57	310.64
0.82500	865.64	1047.23	1.47000	410.95	515.38	2.02000	272.36	350.39
0.95300	883.16	1124.21	1.70000	423.37	563.72	2.34000	280.82	385.58
1.10000	894.58	1202.41	1.96000	431.59	611.49	2.70000	286.19	419.95
1.28000	901.03	1287.18	2.29000	436.80	664.26	3.15000	289.35	457.07
1.55000	902.33	1397.66	2.78000	438.77	730.73	3.82000	290.30	503.65
1.83000	898.43	1496.61	3.27000	437.57	787.02	4.50000	289.23	543.36
2.75000	876.42	1751.32	4.91000	427.62	929.92	6.75000	282.27	641.86
3.66000	855.56	1938.61	6.55000	418.19	1032.78	9.00000	276.18	712.11
5.50000	826.51	2215.82	9.82000	405.42	1178.90	13.50000	267.99	811.25
9.17000	795.15	2574.08	16.30000	391.71	1362.59	22.50000	259.38	935.98
18.30000	766.01	3069.56	32.70000	379.99	1617.12	45.00000	252.53	1105.97
36.60000	752.17	3575.62	65.50000	374.63	1872.79	90.00000	249.33	1276.41
55.00000	747.40	3874.21	98.20000	372.52	2021.78	135.00000	247.96	1375.95
91.70000	742.24	4249.04	163.00000	369.96	2207.56	225.00000	246.23	1500.68
128.00000	738.83	4492.54	229.00000	368.20	2331.43	315.00000	245.07	1582.32
183.00000	735.13	4752.37	327.00000	366.38	2460.76	450.00000	243.87	1668.61

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN SN
 Z=50 A=118.700

TD=16.0 EV ET=0.559248 MEV			TD=20.0 EV ET=0.657978 MEV			TD=24.0 EV ET=0.748994 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.56400	0.89	0.89	0.66400	0.64	0.64	0.75500	0.47	0.47
0.57000	2.06	2.06	0.67100	1.42	1.42	0.76300	0.97	0.97
0.58100	4.27	4.27	0.68400	2.96	2.96	0.77300	2.13	2.13
0.59800	7.86	7.86	0.70400	5.54	5.54	0.80100	4.13	4.13
0.62000	12.76	12.76	0.73000	9.18	9.18	0.83100	7.04	7.04
0.64800	19.28	19.28	0.76300	14.14	14.14	0.86800	10.99	10.99
0.68200	27.41	27.41	0.80200	20.31	20.31	0.91300	16.13	16.13
0.72700	38.26	38.26	0.85500	28.93	28.93	0.97300	23.26	23.26
0.78200	51.28	51.28	0.92100	39.62	39.62	1.04000	31.29	31.29
0.86600	70.05	70.05	1.01000	53.43	53.43	1.16000	45.13	45.13
0.97800	92.38	92.50	1.15000	72.97	73.10	1.31000	60.68	60.82
1.11000	114.61	115.94	1.31000	91.75	93.00	1.49000	76.45	77.60
1.28000	137.51	142.43	1.51000	110.41	114.83	1.72000	92.42	96.43
1.50000	159.59	171.99	1.77000	128.38	139.32	2.02000	107.71	117.59
1.78000	179.00	203.95	2.10000	143.97	165.70	2.39000	120.50	139.71
2.12000	194.10	236.62	2.50000	155.93	192.55	2.84000	130.30	162.32
2.51000	204.50	268.17	2.96000	164.05	218.49	3.37000	137.03	184.63
2.90000	210.55	295.14	3.42000	168.68	240.60	3.89000	140.72	203.24
3.35000	214.39	322.07	3.94000	171.49	262.19	4.49000	142.95	221.74
3.91000	216.49	350.87	4.60000	172.97	285.72	5.24000	144.03	241.54
4.75000	216.90	387.10	5.59000	173.11	315.23	6.36000	144.01	266.24
5.59000	215.90	417.39	6.57000	172.18	339.58	7.48000	143.15	286.79
8.38000	210.48	492.43	9.86000	167.72	400.40	11.20000	139.39	337.53
11.10000	206.09	544.55	13.10000	164.20	442.83	14.90000	136.46	373.22
16.70000	200.02	620.01	19.70000	159.43	503.38	22.40000	132.53	423.77
27.90000	193.82	714.46	32.80000	154.68	578.66	37.40000	128.65	486.97
55.90000	189.06	842.68	65.70000	151.08	681.39	74.80000	125.80	572.50
111.00000	186.83	969.31	131.00000	149.35	783.36	149.00000	124.39	657.38
167.00000	185.80	1044.53	197.00000	148.53	843.46	224.00000	123.71	707.42

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN SN
Z=50 A=118.700

TD=28.0 EV ET=0.833866 MEV			TD=32.0 EV ET=0.913690 MEV			TD=36.0 EV ET=0.989273 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.84200	0.37	0.37	0.92200	0.27	0.27	0.99900	0.24	0.24
0.85000	0.77	0.77	0.93100	0.59	0.59	1.00000	0.26	0.26
0.86700	1.70	1.70	0.95000	1.37	1.37	1.02000	0.85	0.85
0.89200	3.28	3.28	0.97700	2.67	2.67	1.05000	1.93	1.93
0.92500	5.65	5.65	1.01000	4.50	4.50	1.09000	3.67	3.67
0.96700	9.04	9.04	1.05000	7.00	7.00	1.14000	6.21	6.21
1.01000	12.78	12.78	1.11000	11.14	11.14	1.20000	9.61	9.61
1.08000	19.20	19.20	1.18000	16.29	16.29	1.28000	14.47	14.47
1.16000	26.65	26.65	1.27000	23.05	23.05	1.38000	20.70	20.70
1.29000	38.36	38.36	1.41000	33.26	33.26	1.53000	29.76	29.76
1.45000	51.39	51.51	1.59000	45.13	45.26	1.73000	40.67	40.81
1.66000	65.82	66.90	1.82000	57.89	58.92	1.97000	51.67	52.64
1.91000	79.37	82.98	2.10000	70.06	73.49	2.27000	62.47	65.63
2.25000	92.82	101.80	2.46000	81.47	89.63	2.67000	72.88	80.52
2.66000	103.72	121.00	2.92000	91.22	107.06	3.16000	81.35	95.92
3.16000	112.03	140.65	3.47000	98.40	124.49	3.75000	87.64	111.44
3.75000	117.69	160.04	4.11000	103.18	141.45	4.45000	91.87	126.80
4.33000	120.75	176.22	4.75000	105.78	155.82	5.14000	94.11	139.62
5.00000	122.56	192.29	5.48000	107.26	169.90	5.93000	95.36	152.21
5.83000	123.39	209.31	6.39000	107.92	184.90	6.92000	95.89	165.69
7.08000	123.27	230.71	7.76000	107.74	203.73	8.40000	95.69	182.46
8.33000	122.47	248.47	9.13000	107.00	219.34	9.89000	94.99	196.44
12.50000	119.18	292.40	13.70000	104.10	257.92	14.80000	92.40	230.60
16.60000	116.70	322.90	18.20000	101.93	284.70	19.70000	90.47	254.61
25.00000	113.36	366.50	27.40000	99.03	322.86	29.60000	87.92	288.41
41.60000	110.13	420.39	45.60000	96.26	370.08	49.40000	85.49	330.64
83.30000	107.76	493.89	91.30000	94.24	434.42	98.90000	83.74	387.85
166.00000	106.58	566.70	182.00000	93.23	498.18	197.00000	82.84	444.47

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN SN
Z=50 A=118.700

TD=40.0 EV ET=1.061226 MEV			TD=44.0 EV ET=1.130028 MEV			TD=48.0 EV ET=1.196059 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.07000	0.16	0.16	1.14000	0.15	0.15	1.20000	0.04	0.04
1.08000	0.37	0.37	1.15000	0.32	0.32	1.21000	0.17	0.17
1.10000	0.87	0.87	1.17000	0.72	0.72	1.24000	0.66	0.66
1.13000	1.77	1.77	1.20000	1.46	1.46	1.27000	1.29	1.29
1.17000	3.22	3.22	1.25000	2.99	2.99	1.32000	2.59	2.59
1.23000	5.79	5.79	1.31000	5.19	5.19	1.38000	4.47	4.47
1.29000	8.67	8.67	1.37000	7.64	7.64	1.45000	6.95	6.95
1.37000	12.77	12.77	1.46000	11.60	11.60	1.55000	10.78	10.78
1.48000	18.56	18.56	1.58000	17.04	17.04	1.67000	15.53	15.53
1.64000	26.76	26.76	1.75000	24.54	24.54	1.85000	22.47	22.47
1.85000	36.49	36.61	1.97000	33.30	33.42	2.09000	30.80	30.93
2.12000	46.95	47.90	2.26000	42.95	43.87	2.39000	39.48	40.36
2.44000	56.61	59.62	2.59000	51.50	54.29	2.75000	47.57	50.27
2.86000	65.79	72.87	3.05000	60.11	66.79	3.22000	55.18	61.41
3.39000	73.47	86.97	3.61000	66.99	79.60	3.82000	61.57	73.39
4.03000	79.11	101.19	4.29000	72.06	92.59	4.54000	66.18	85.37
4.77000	82.79	114.90	5.08000	75.36	105.15	5.38000	69.17	96.99
5.51000	84.76	126.51	5.87000	77.11	115.78	6.21000	70.72	106.70
6.36000	85.84	137.94	6.78000	78.06	126.26	7.17000	71.56	116.31
7.42000	86.28	150.10	7.91000	78.41	137.35	8.37000	71.86	126.55
9.02000	86.05	165.36	9.60000	78.17	151.15	10.10000	71.63	138.85
10.60000	85.40	177.84	11.30000	77.56	162.63	11.90000	71.06	149.46
15.90000	83.05	208.83	16.90000	75.43	190.65	17.90000	69.07	175.56
21.20000	81.30	230.59	22.60000	73.83	210.66	23.90000	67.62	193.82
31.80000	79.03	260.91	33.90000	71.78	238.24	35.80000	65.75	219.03
53.00000	76.88	298.85	56.50000	69.84	272.75	59.80000	63.99	250.81
106.00000	75.34	350.29	113.00000	68.47	319.53	119.00000	62.75	293.40
212.00000	74.54	401.54	226.00000	67.75	366.13	239.00000	62.09	336.37

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN Sn
 Z=50 A=118.700

TD=52.0 EV ET=1.259629 MEV			TD=56.0 EV ET=1.320995 MEV			TD=50.0 EV ET=1.380371 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.27000	0.10	0.10	1.33000	0.07	0.07	1.39000	0.07	0.07
1.28000	0.22	0.22	1.34000	0.17	0.17	1.40000	0.15	0.15
1.31000	0.65	0.65	1.37000	0.53	0.53	1.43000	0.46	0.46
1.34000	1.20	1.20	1.41000	1.17	1.17	1.47000	1.02	1.02
1.39000	2.34	2.34	1.46000	2.19	2.19	1.53000	2.10	2.10
1.46000	4.27	4.27	1.53000	3.90	3.90	1.60000	3.64	3.64
1.53000	6.47	6.47	1.61000	6.14	6.14	1.68000	5.65	5.65
1.63000	9.85	9.85	1.71000	9.15	9.15	1.79000	8.63	8.63
1.76000	14.39	14.39	1.84000	13.20	13.20	1.93000	12.55	12.55
1.95000	20.85	20.85	2.04000	19.27	19.27	2.13000	18.00	18.00
2.20000	28.51	28.63	2.31000	26.64	26.77	2.41000	24.87	24.99
2.51000	36.43	37.25	2.64000	34.11	34.92	2.76000	31.98	32.76
2.89000	43.98	46.51	3.03000	40.97	43.38	3.17000	38.41	40.74
3.40000	51.21	57.16	3.56000	47.63	53.25	3.72000	44.58	49.93
4.03000	57.02	68.22	4.22000	53.03	63.58	4.41000	49.60	59.61
4.78000	61.19	79.20	5.01000	56.90	73.87	5.24000	53.20	69.30
5.66000	63.90	89.93	5.94000	59.40	83.94	6.21000	55.50	78.70
6.55000	65.33	99.08	6.86000	60.69	92.34	7.17000	56.67	86.55
7.55000	66.07	107.88	7.92000	61.35	100.62	8.28000	57.27	94.31
8.81000	66.32	117.33	9.24000	61.57	109.41	9.65000	57.46	102.53
10.70000	66.07	129.10	11.20000	61.32	120.25	11.70000	57.21	112.62
12.50000	65.56	138.40	13.20000	60.81	129.38	13.80000	56.72	121.19
18.80000	63.72	162.51	19.80000	59.10	151.65	20.70000	55.12	141.99
25.10000	62.38	179.38	26.40000	57.86	167.24	27.60000	53.97	156.56
37.70000	60.65	202.81	39.60000	56.27	188.94	41.40000	52.49	176.82
62.90000	59.04	232.10	66.00000	54.80	216.09	69.00000	51.13	202.16
125.00000	57.92	271.34	132.00000	53.76	252.87	138.00000	50.17	236.50
251.00000	57.31	311.00	264.00000	53.21	289.49	276.00000	49.65	270.68

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN Sn
 Z=50 A=118.700

TD=64.0 EV ET=1.437938 MEV			TD=68.0 EV ET=1.493854 MEV			TD=72.0 EV ET=1.548251 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.45000	0.07	0.07	1.50000	0.03	0.03	1.56000	0.05	0.05
1.46000	0.14	0.14	1.52000	0.15	0.15	1.57000	0.11	0.11
1.49000	0.42	0.42	1.55000	0.41	0.41	1.51000	0.41	0.41
1.53000	0.92	0.92	1.59000	0.85	0.85	1.65000	0.82	0.82
1.59000	1.88	1.88	1.65000	1.72	1.72	1.71000	1.61	1.61
1.66000	3.25	3.25	1.73000	3.15	3.15	1.79000	2.91	2.91
1.75000	5.28	5.28	1.82000	5.00	5.00	1.88000	4.59	4.59
1.86000	7.97	7.97	1.94000	7.68	7.68	2.01000	7.24	7.24
2.01000	11.77	11.77	2.09000	11.14	11.14	2.16000	10.41	10.41
2.22000	16.95	16.95	2.31000	16.08	16.08	2.39000	15.15	15.15
2.51000	23.38	23.50	2.61000	22.13	22.24	2.70000	20.88	20.99
2.87000	30.00	30.74	2.98000	28.30	29.02	3.09000	26.83	27.53
3.30000	36.10	38.32	3.43000	34.09	36.23	3.56000	32.33	34.41
3.88000	41.94	47.07	4.03000	39.56	44.47	4.18000	37.46	42.19
4.60000	46.62	56.19	4.78000	43.96	53.10	4.95000	41.57	50.29
5.46000	49.94	65.25	5.67000	47.05	61.62	5.88000	44.50	58.42
6.47000	52.07	74.08	6.72000	49.04	69.96	6.96000	46.34	66.26
7.47000	53.15	81.45	7.76000	50.04	76.92	8.05000	47.28	72.92
8.62000	53.70	88.71	8.96000	50.54	83.79	9.28000	47.74	79.34
10.00000	53.86	96.14	10.40000	50.68	90.82	10.80000	47.86	86.11
12.20000	53.61	105.97	12.60000	50.45	99.76	13.10000	47.63	94.61
14.30000	53.17	113.71	14.90000	50.01	107.46	15.40000	47.21	101.64
21.50000	51.66	133.35	22.40000	48.58	125.95	23.20000	45.86	119.20
28.70000	50.57	147.06	29.80000	47.57	138.71	30.90000	44.91	131.31
43.10000	49.19	166.12	44.80000	46.27	156.70	46.40000	43.68	148.25
71.80000	47.92	189.87	74.60000	45.08	179.03	77.40000	42.57	169.42
143.00000	47.03	221.87	149.00000	44.26	209.28	154.00000	41.79	197.83
287.00000	46.55	254.07	298.00000	43.80	239.44	309.00000	41.37	226.45

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN Sn
 Z=50 A=118.700

TD=76.0 EV ET=1.601248 MEV			TD=80.0 EV ET=1.652948 MEV			TD=84.0 EV ET=1.703441 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.61000	0.03	0.03	1.66000	0.02	0.02	1.72000	0.05	0.05
1.63000	0.13	0.13	1.68000	0.11	0.11	1.73000	0.09	0.09
1.66000	0.33	0.33	1.71000	0.29	0.29	1.77000	0.32	0.32
1.71000	0.80	0.80	1.76000	0.70	0.70	1.82000	0.72	0.72
1.77000	1.53	1.53	1.83000	1.48	1.48	1.89000	1.45	1.45
1.85000	2.72	2.72	1.91000	2.58	2.58	1.97000	2.48	2.48
1.95000	4.45	4.45	2.01000	4.17	4.17	2.07000	3.95	3.95
2.08000	6.89	6.89	2.14000	6.43	6.43	2.21000	6.20	6.20
2.24000	10.00	10.00	2.31000	9.48	9.48	2.38000	9.04	9.04
2.48000	14.54	14.54	2.56000	13.85	13.85	2.64000	13.25	13.25
2.80000	19.95	20.07	2.89000	19.01	19.12	2.98000	18.17	18.29
3.20000	25.54	26.23	3.30000	24.29	24.95	3.40000	23.19	23.83
3.68000	30.69	32.69	3.80000	29.24	31.17	3.91000	27.86	29.71
4.32000	35.54	40.07	4.46000	33.83	38.20	4.59000	32.25	36.43
5.12000	39.44	47.81	5.28000	37.50	45.52	5.45000	35.79	43.54
6.08000	42.20	55.52	6.28000	40.13	52.92	6.47000	38.25	50.53
7.20000	43.93	62.98	7.43000	41.76	59.98	7.66000	39.79	57.29
8.32000	44.80	69.26	8.59000	42.57	65.98	8.85000	40.56	62.99
9.60000	45.23	75.39	9.91000	42.97	71.80	10.20000	40.92	68.50
11.20000	45.33	81.91	11.50000	43.06	77.80	11.90000	41.01	74.42
13.60000	45.10	90.02	14.00000	42.84	85.60	14.40000	40.79	81.63
16.00000	44.70	96.71	16.50000	42.45	92.04	17.00000	40.41	87.82
24.00000	43.43	113.17	24.70000	41.25	107.61	25.50000	39.25	102.74
32.00000	42.52	124.69	33.00000	40.38	118.63	34.00000	38.44	113.17
48.00000	41.36	140.71	49.50000	39.28	133.85	51.10000	37.40	127.73
80.00000	40.32	160.73	82.60000	38.29	152.93	85.10000	36.46	145.83
160.00000	39.59	187.86	165.00000	37.60	178.65	170.00000	35.81	170.33

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN Sn
 Z=50 A=118.700

TD=88.0 EV ET=1.752808 MEV			TD=92.0 EV ET=1.801121 MEV			TD=96.0 EV ET=1.848445 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.77000	0.05	0.05	1.81000	0.02	0.02	1.86000	0.03	0.03
1.78000	0.09	0.09	1.83000	0.08	0.08	1.88000	0.09	0.09
1.82000	0.29	0.29	1.87000	0.27	0.27	1.92000	0.26	0.26
1.87000	0.65	0.65	1.92000	0.61	0.61	1.97000	0.57	0.57
1.94000	1.33	1.33	1.99000	1.23	1.23	2.05000	1.24	1.24
2.03000	2.40	2.40	2.08000	2.22	2.22	2.14000	2.18	2.18
2.13000	3.77	3.77	2.19000	3.62	3.62	2.25000	3.50	3.50
2.27000	5.87	5.87	2.34000	5.72	5.72	2.40000	5.47	5.47
2.45000	8.66	8.66	2.52000	8.34	8.34	2.58000	7.92	7.92
2.71000	12.58	12.59	2.79000	12.14	12.14	2.86000	11.62	11.62
3.06000	17.31	17.42	3.15000	16.67	16.78	3.23000	15.98	16.09
3.50000	22.20	22.83	3.60000	21.32	21.93	3.69000	20.44	21.03
4.03000	26.70	28.51	4.14000	25.58	27.34	4.25000	24.57	26.28
4.73000	30.87	34.93	4.86000	29.57	33.50	4.99000	28.39	32.20
5.60000	34.18	41.62	5.76000	32.75	39.95	5.91000	31.42	38.37
6.66000	36.55	48.38	6.84000	34.98	46.37	7.02000	33.55	44.54
7.88000	38.00	54.82	8.10000	36.37	52.57	8.31000	34.86	50.47
9.11000	38.72	60.28	9.36000	37.05	57.78	9.61000	35.51	55.50
10.50000	39.07	65.55	10.80000	37.37	62.87	11.00000	35.81	60.11
12.20000	39.14	71.05	12.60000	37.43	68.28	12.90000	35.87	65.48
14.80000	38.93	78.04	15.30000	37.21	74.99	15.70000	35.66	71.99
17.50000	38.56	84.01	18.00000	36.87	80.53	18.40000	35.33	77.18
26.20000	37.47	98.19	27.00000	35.82	94.16	27.70000	34.31	90.36
35.00000	36.68	108.21	36.00000	35.07	103.69	36.90000	33.60	99.46
52.50000	35.69	122.05	54.00000	34.13	116.93	55.40000	32.70	112.18
87.60000	34.80	139.39	90.00000	33.28	133.48	92.40000	31.88	128.07
175.00000	34.18	162.78	180.00000	32.69	155.89	184.00000	31.33	149.42

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN CS
 Z=55 A=132.910

TD= 4.0 EV ET=0.202207 MEV			TD= 8.0 EV ET=0.358602 MEV			TD=12.0 EV ET=0.490874 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.20400	13.41	13.41	0.36200	3.87	3.87	0.49500	1.61	1.61
0.20600	28.00	28.00	0.36500	7.27	7.27	0.50300	3.60	3.60
0.21000	56.14	56.14	0.37200	15.16	15.16	0.51300	7.67	7.67
0.21600	95.88	95.88	0.38300	27.41	27.41	0.52500	13.98	13.98
0.22400	144.78	144.78	0.39800	43.78	43.78	0.54400	22.23	22.23
0.23400	200.24	200.24	0.41500	61.82	61.82	0.56900	33.32	33.32
0.24600	259.79	259.79	0.43700	84.32	84.32	0.59300	46.32	46.32
0.26200	329.43	329.43	0.46600	112.44	112.44	0.63300	64.08	64.08
0.28300	407.41	407.41	0.50200	144.86	144.86	0.68700	85.10	85.10
0.31300	498.83	498.83	0.55500	187.74	187.74	0.76300	114.21	114.21
0.35300	594.43	594.43	0.62700	237.53	237.61	0.85900	148.85	149.00
0.40400	686.39	690.02	0.71700	288.11	290.66	0.98100	184.16	186.26
0.46500	767.05	784.14	0.82400	334.92	344.67	1.12300	215.94	223.11
0.54500	841.44	885.74	0.96800	381.12	406.29	1.32300	249.57	268.41
0.64700	904.14	992.20	1.14000	418.93	468.23	1.57300	277.67	315.84
0.76800	950.50	1097.13	1.36000	449.73	534.70	1.86300	297.99	361.85
0.90900	982.11	1200.34	1.61000	470.30	598.22	2.20300	311.80	407.19
1.05000	999.61	1289.58	1.86000	481.82	652.61	2.55300	319.46	446.88
1.21000	1009.36	1378.60	2.15000	488.62	707.38	2.94300	323.57	485.04
1.41000	1012.92	1476.43	2.51000	491.52	766.13	3.43300	325.08	526.24
1.71000	1009.06	1602.77	3.04000	490.27	839.15	4.17000	323.75	578.34
2.02000	999.99	1714.60	3.58000	486.24	901.86	4.90000	320.81	621.32
3.03000	965.28	1997.24	5.37000	469.81	1058.40	7.36300	309.61	729.35
4.04000	936.39	2205.31	7.17000	456.80	1171.12	9.81000	301.36	805.75
6.06000	899.29	2508.00	10.70000	440.64	1328.26	14.70000	290.99	913.05
10.10000	861.13	2897.90	17.90000	423.83	1530.50	24.50000	280.66	1048.12
20.20000	827.61	3437.25	35.80000	410.61	1804.90	49.00300	272.90	1232.08
40.40000	812.37	3985.08	71.70000	404.55	2081.16	98.10300	269.21	1416.43
60.60000	806.73	4306.07	107.00000	401.94	2240.02	147.00300	267.46	1523.46
101.00000	800.06	4709.69	179.00000	398.51	2443.04	245.00300	265.17	1657.63
141.00000	795.53	4971.62	251.00000	396.21	2575.39	343.00300	263.66	1745.35
202.00000	790.70	5252.39	358.00000	393.93	2713.87	490.00300	262.18	1838.05

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN CS
 Z=55 A=132.910

TD=16.0 EV ET=0.607613 MEV			TD=20.0 EV ET=0.713271 MEV			TD=24.0 EV ET=0.810507 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.61300	1.00	1.00	0.72000	0.71	0.71	0.81900	0.50	0.50
0.61900	2.16	2.16	0.72700	1.49	1.49	0.82500	1.07	1.07
0.63100	4.60	4.60	0.74100	3.19	3.19	0.84200	2.36	2.36
0.65000	8.75	8.75	0.76300	6.15	6.15	0.86700	4.65	4.65
0.67400	14.40	14.40	0.79100	10.33	10.33	0.89900	8.01	8.01
0.70400	21.88	21.88	0.82700	16.21	16.21	0.94000	12.80	12.80
0.74100	31.50	31.50	0.87000	23.69	23.69	0.98900	18.87	18.87
0.78900	44.19	44.19	0.92700	33.94	33.94	1.05300	27.07	27.07
0.85000	60.11	60.11	0.99800	46.69	46.69	1.13300	37.75	37.75
0.94100	82.54	82.54	1.10000	64.19	64.19	1.25000	53.11	53.11
1.06000	108.61	108.76	1.24000	85.69	85.84	1.41000	71.46	71.62
1.21000	136.00	137.77	1.42000	108.69	110.30	1.62000	91.41	92.96
1.39000	161.79	167.99	1.64000	130.51	136.18	1.86000	109.05	114.11
1.64000	187.76	203.77	1.92000	150.53	164.28	2.18300	125.99	138.21
1.94000	208.44	239.77	2.28000	167.50	194.61	2.59300	140.15	164.07
2.30000	223.74	275.92	2.71000	179.71	224.73	3.07300	150.05	189.24
2.73000	234.03	311.98	3.20000	187.41	253.38	3.64300	156.44	214.09
3.15000	239.28	341.85	3.70000	191.44	278.14	4.21300	159.60	235.06
3.64000	242.09	371.84	4.27000	193.42	302.36	4.86300	161.07	255.53
4.25000	242.87	403.75	4.99000	193.83	328.46	5.67000	161.25	277.28
5.16000	241.56	443.49	6.06000	192.57	360.74	6.88300	160.07	304.32
6.07000	239.14	476.59	7.13000	190.50	387.54	8.10300	158.26	326.90
9.11000	230.65	558.66	10.60000	183.83	452.24	12.10300	152.61	381.79
12.10000	224.68	615.87	14.20000	178.99	499.67	16.20300	148.64	421.39
18.20000	217.04	697.60	21.30000	173.03	564.85	24.30300	143.76	475.81
30.30000	209.70	799.13	35.60000	167.33	646.91	40.50300	139.18	543.94
60.70000	204.32	937.81	71.30000	163.27	758.00	81.00300	135.95	636.43
121.00000	201.69	1075.30	142.00000	161.23	867.88	162.00300	134.27	728.57
182.00000	200.37	1156.30	213.00000	160.17	932.22	243.00300	133.39	782.18

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
 Z=55 A=132.910

TD=28.0 EV ET=0.901064 MEV			TD=32.0 EV ET=0.986154 MEV			TD=36.0 EV ET=1.066660 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.91000	0.41	0.41	0.99600	0.32	0.32	1.07000	0.08	0.08
0.91900	0.86	0.86	1.00000	0.46	0.46	1.08000	0.33	0.33
0.93700	1.89	1.89	1.02000	1.28	1.28	1.10000	0.95	0.95
0.96400	3.71	3.71	1.05000	2.78	2.78	1.14000	2.54	2.54
1.00000	6.53	6.53	1.09000	5.19	5.19	1.18000	4.51	4.51
1.04000	10.07	10.07	1.14000	8.68	8.68	1.23000	7.35	7.35
1.09000	14.89	14.89	1.20000	13.33	13.33	1.30000	11.82	11.82
1.17000	23.08	23.08	1.28000	19.94	19.94	1.38000	17.29	17.29
1.26000	32.44	32.44	1.38000	28.34	28.34	1.49000	24.96	24.96
1.39000	45.45	45.45	1.52000	39.69	39.69	1.65000	35.73	35.73
1.57000	61.59	61.76	1.72000	54.20	54.37	1.86000	48.35	48.52
1.80000	78.64	80.09	1.97000	69.15	70.52	2.13000	61.74	63.02
2.07000	94.07	98.74	2.26000	82.52	86.78	2.45000	73.89	77.92
2.43000	108.74	119.95	2.66000	95.60	105.88	2.87000	85.19	94.59
2.88000	120.61	142.13	3.15000	105.88	125.43	3.41000	94.46	112.47
3.42000	129.04	164.23	3.74000	113.15	144.94	4.05000	100.82	129.99
4.05000	134.29	185.62	4.43000	117.64	163.86	4.79000	104.67	146.78
4.68000	136.85	203.67	5.12000	119.78	179.80	5.54000	106.50	161.10
5.40000	137.98	221.32	5.91000	120.68	195.38	6.39000	107.24	174.95
6.30000	138.03	240.10	6.90000	120.65	212.00	7.46000	107.15	189.78
7.65000	136.92	263.51	8.38000	119.61	232.59	9.06000	106.17	208.16
9.01000	135.32	283.02	9.86000	118.17	249.62	10.60000	104.92	222.81
13.50000	130.43	330.61	14.70000	113.94	290.88	15.90000	101.10	260.15
18.00000	127.10	364.16	19.70000	110.99	320.82	21.30000	98.50	286.76
27.00000	122.97	410.88	29.50000	107.43	361.58	31.90000	95.36	323.03
45.00000	119.13	469.35	49.30000	104.12	413.06	53.30000	92.47	368.81
90.10000	116.45	548.82	98.60000	101.84	482.52	106.00000	90.50	430.07
180.00000	115.04	627.68	197.00000	100.62	551.54	213.00000	89.41	491.94

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
 Z=55 A=132.910

TD=40.0 EV ET=1.143254 MEV			TD=44.0 EV ET=1.216454 MEV			TD=48.0 EV ET=1.286677 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.15000	0.12	0.12	1.22000	0.05	0.05	1.29000	0.04	0.04
1.16000	0.33	0.33	1.24000	0.39	0.39	1.31000	0.31	0.31
1.18000	0.83	0.83	1.26000	0.82	0.82	1.33000	0.66	0.66
1.22000	2.12	2.12	1.30000	1.92	1.92	1.37000	1.58	1.58
1.26000	3.73	3.73	1.35000	3.67	3.67	1.42000	3.04	3.04
1.32000	6.58	6.58	1.41000	6.14	6.14	1.49000	5.52	5.52
1.39000	10.34	10.34	1.48000	9.38	9.38	1.56000	8.32	8.32
1.48000	15.54	15.54	1.58000	14.35	14.35	1.67000	13.09	13.09
1.60000	22.64	22.64	1.70000	20.47	20.47	1.80000	18.87	18.87
1.77000	32.32	32.32	1.88000	29.32	29.32	1.99000	27.03	27.03
2.00000	44.01	44.19	2.12000	39.86	40.02	2.25000	36.95	37.13
2.28000	55.72	56.93	2.43000	51.02	52.19	2.57000	46.96	48.08
2.62000	66.65	70.37	2.79000	60.90	64.43	2.95000	56.02	59.36
3.08000	77.03	85.84	3.28000	70.32	78.60	3.47000	64.67	72.48
3.65000	85.20	101.81	3.89000	77.72	93.28	4.11000	71.37	85.90
4.34000	90.90	117.80	4.62000	82.79	107.79	4.88000	75.97	92.25
5.14000	94.31	133.11	5.47000	85.81	121.76	5.79000	78.73	112.27
5.94000	95.88	145.99	6.32000	87.19	133.50	6.69000	79.94	123.06
6.85000	96.48	158.49	7.29000	87.69	144.92	7.72000	80.37	133.59
8.00000	96.36	171.92	8.51000	87.54	157.13	9.00000	80.20	144.72
9.71000	95.44	188.46	10.30000	86.69	171.98	10.90000	79.40	158.40
11.40000	94.27	201.97	12.10000	85.61	184.33	12.80000	78.39	169.72
17.10000	90.83	235.63	18.20000	82.47	215.19	19.30000	75.49	198.21
22.80000	89.54	259.22	24.30000	80.39	236.76	25.70000	73.61	217.81
34.20000	85.72	292.02	36.40000	77.85	266.49	38.60000	71.29	245.26
57.10000	83.17	333.18	60.80000	75.56	303.96	64.30000	69.22	279.44
114.00000	81.42	388.65	121.00000	74.00	354.17	128.00000	67.82	325.50
228.00000	80.45	443.96	243.00000	73.12	404.75	257.00000	67.01	371.84

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
 Z=55 A=132.910

TD=52.0 EV ET=1.354258 MEV			TD=56.0 EV ET=1.419474 MEV			TD=50.0 EV ET=1.482558 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.36000	0.05	0.05	1.43000	0.09	0.09	1.49000	0.05	0.05
1.38000	0.29	0.29	1.44000	0.18	0.18	1.51000	0.22	0.22
1.40000	0.59	0.59	1.47000	0.57	0.57	1.54000	0.58	0.58
1.44000	1.38	1.38	1.51000	1.26	1.26	1.58000	1.21	1.21
1.50000	2.92	2.92	1.57000	2.62	2.62	1.64000	2.42	2.42
1.57000	5.11	5.11	1.64000	4.54	4.54	1.71000	4.14	4.14
1.65000	7.95	7.95	1.73000	7.38	7.38	1.80000	6.67	6.67
1.76000	12.16	12.16	1.84000	11.13	11.13	1.92000	10.34	10.34
1.89000	17.27	17.27	1.98000	16.04	16.04	2.07000	15.06	15.06
2.09000	24.87	24.87	2.20000	23.47	23.47	2.29000	21.75	21.75
2.36000	34.00	34.15	2.48000	31.87	32.03	2.59000	29.85	30.00
2.70000	43.40	44.45	2.83000	40.45	41.46	2.96000	37.97	38.96
3.11000	51.99	55.19	3.26000	48.44	51.50	3.40000	45.23	48.18
3.65000	59.85	67.20	3.83000	55.76	62.77	4.00000	52.17	58.84
4.33000	66.05	79.77	4.54000	61.46	74.44	4.74000	57.45	69.75
5.14000	70.23	92.12	5.39000	65.30	85.96	5.63000	61.02	80.56
6.09000	72.71	104.08	6.38000	67.56	97.03	6.67000	63.09	90.98
7.04000	73.80	114.11	7.38000	68.54	106.41	7.70000	63.98	99.63
8.12000	74.17	123.82	8.51000	68.86	115.43	8.89000	64.25	108.13
9.47000	73.99	134.14	9.93000	68.68	125.06	10.30000	64.09	116.73
11.50000	73.22	146.97	12.00000	67.96	136.69	12.60000	63.36	128.30
13.50000	72.28	157.40	14.10000	67.08	146.45	14.80000	62.54	137.39
20.30000	69.62	183.56	21.20000	64.61	170.76	22.20000	60.25	159.97
27.00000	67.90	201.59	28.30000	63.00	187.73	29.60000	58.75	175.74
40.60000	65.75	227.01	42.50000	61.02	211.27	44.40000	56.92	197.66
67.70000	63.87	258.64	70.90000	59.28	240.67	74.10000	55.31	225.13
135.00000	62.58	301.26	141.00000	58.11	280.10	148.00000	54.22	262.17
270.00000	61.85	343.81	283.00000	57.42	319.81	296.00000	53.58	299.04

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
 Z=55 A=132.910

TD=64.0 EV ET=1.543706 MEV			TD=68.0 EV ET=1.603086 MEV			TD=72.0 EV ET=1.660843 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.55000	0.04	0.04	1.61000	0.03	0.03	1.67000	0.04	0.04
1.57000	0.18	0.18	1.63000	0.16	0.16	1.69000	0.16	0.16
1.60000	0.48	0.48	1.66000	0.43	0.43	1.72000	0.40	0.40
1.65000	1.19	1.19	1.71000	1.05	1.05	1.77000	0.96	0.96
1.71000	2.29	2.29	1.77000	2.04	2.04	1.84000	2.01	2.01
1.79000	4.09	4.09	1.85000	3.64	3.64	1.92000	3.49	3.49
1.88000	6.40	6.40	1.95000	5.96	5.96	2.02000	5.62	5.62
2.00000	9.73	9.73	2.08000	9.24	9.24	2.15000	8.62	8.62
2.16000	14.29	14.29	2.24000	13.40	13.40	2.32000	12.67	12.67
2.39000	20.60	20.61	2.48000	19.41	19.41	2.57000	18.40	18.40
2.70000	28.15	28.31	2.80000	26.50	26.66	2.90000	25.09	25.24
3.08000	35.68	36.62	3.20000	33.71	34.63	3.32000	32.00	32.90
3.55000	42.70	45.52	3.68000	40.22	42.90	3.81000	38.05	40.62
4.16000	48.98	55.31	4.32000	46.20	52.25	4.48000	43.75	49.57
4.93000	53.92	65.58	5.12000	50.83	61.95	5.31000	48.09	58.75
5.86000	57.26	75.79	6.09000	53.95	71.62	6.31000	51.00	67.86
6.94000	59.17	85.55	7.21000	55.72	80.81	7.47000	52.65	76.55
8.02000	59.99	93.74	8.33000	56.47	88.51	8.63000	53.34	83.83
9.26000	60.23	101.73	9.61000	56.68	96.00	9.96000	53.52	90.94
10.80000	60.04	110.16	11.20000	56.49	103.90	11.60000	53.34	98.38
13.10000	59.37	120.56	13.60000	55.85	113.76	14.10000	52.72	107.74
15.40000	58.59	129.13	16.00000	55.11	121.88	16.60000	52.01	115.44
23.10000	56.44	150.32	24.00000	53.09	141.82	24.90000	50.10	134.29
30.80000	55.04	165.11	32.00000	51.77	155.75	33.20000	48.86	147.45
46.30000	53.33	185.77	48.00000	50.17	175.10	49.80000	47.36	165.73
77.10000	51.83	211.42	80.10000	48.77	199.34	83.00000	46.05	188.57
154.00000	50.82	246.15	160.00000	47.82	232.04	166.00000	45.16	219.51
308.00000	50.23	280.72	320.00000	47.27	264.57	332.00000	44.64	250.23

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
 Z=55 A=132.910

TD=76.0 EV ET=1.717104 MEV			TD=80.0 EV ET=1.771978 MEV			TD=84.0 EV ET=1.825564 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.73000	0.05	0.05	1.78000	0.03	0.03	1.84000	0.05	0.05
1.75000	0.16	0.16	1.80000	0.12	0.12	1.86000	0.13	0.13
1.78000	0.38	0.38	1.84000	0.38	0.38	1.89000	0.32	0.32
1.83000	0.90	0.90	1.89000	0.86	0.86	1.95000	0.84	0.84
1.90000	1.86	1.86	1.96000	1.75	1.75	2.02000	1.66	1.66
1.99000	3.39	3.39	2.05000	3.16	3.16	2.11000	2.97	2.97
2.09000	5.35	5.35	2.16000	5.15	5.15	2.22000	4.81	4.81
2.23000	8.34	8.34	2.30000	7.91	7.91	2.37000	7.55	7.55
2.40000	12.06	12.06	2.48000	11.55	11.55	2.55000	10.93	10.93
2.66000	17.54	17.54	2.74000	16.62	16.62	2.82000	15.82	15.82
3.00000	23.87	24.02	3.10000	22.81	22.96	3.19000	21.73	21.87
3.43000	30.36	31.23	3.54000	28.92	29.77	3.65000	27.65	28.47
3.94000	36.14	38.62	4.07000	34.45	36.86	4.19000	32.85	35.17
4.63000	41.51	47.09	4.78000	39.51	44.89	4.92000	37.67	42.83
5.49000	45.62	55.84	5.67000	43.40	53.24	5.84000	41.38	50.83
6.52000	48.34	64.45	6.73000	45.96	61.40	6.93000	43.80	58.61
7.72000	49.89	72.71	7.97000	47.42	69.27	8.21000	45.17	66.13
8.92000	50.53	79.62	9.21000	48.01	75.85	9.49000	45.73	72.41
10.30000	50.70	86.38	10.60000	48.16	82.14	10.90000	45.86	78.32
12.00000	50.51	93.45	12.40000	47.97	89.04	12.70000	45.69	84.73
14.50000	49.94	102.06	15.00000	47.42	97.27	15.50000	45.13	92.94
17.10000	49.26	109.44	17.70000	46.76	104.31	18.20000	44.52	99.45
25.70000	47.45	127.40	26.50000	45.06	121.21	27.30000	42.89	115.63
34.30000	46.27	139.91	35.40000	43.94	133.14	36.50000	41.82	127.03
51.50000	44.84	157.27	53.10000	42.59	149.59	54.70000	40.55	142.66
85.80000	43.61	178.90	88.50000	41.42	170.16	91.20000	39.44	162.27
171.00000	42.78	208.07	177.00000	40.64	195.01	182.00000	38.70	188.71

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN CS
 Z=55 A=132.910

TD=88.0 EV ET=1.877949 MEV			TD=92.0 EV ET=1.929209 MEV			TD=96.0 EV ET=1.979414 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.89000	0.03	0.03	1.94000	0.03	0.03	1.99000	0.02	0.02
1.91000	0.11	0.11	1.96000	0.09	0.09	2.01000	0.08	0.08
1.95000	0.34	0.34	2.00000	0.30	0.30	2.05000	0.27	0.27
2.00000	0.74	0.74	2.06000	0.75	0.75	2.11000	0.68	0.68
2.08000	1.61	1.61	2.14000	1.57	1.57	2.19000	1.44	1.44
2.17000	2.82	2.82	2.23000	2.71	2.71	2.29000	2.62	2.62
2.29000	4.70	4.70	2.35000	4.46	4.46	2.41000	4.26	4.26
2.44000	7.25	7.25	2.50000	6.84	6.84	2.57000	6.64	6.64
2.62000	10.41	10.41	2.70000	10.11	10.11	2.77000	9.71	9.71
2.91000	15.29	15.29	2.99000	14.67	14.67	3.06000	13.98	13.98
3.28000	20.77	20.91	3.37000	19.92	20.06	3.46000	19.17	19.30
3.75000	26.40	27.19	3.85000	25.29	26.05	3.95000	24.28	25.03
4.31000	31.42	33.66	4.43000	30.12	32.30	4.55000	28.95	31.08
5.07000	36.05	41.07	5.20000	34.49	39.31	5.34000	33.12	37.80
6.00000	39.52	48.58	6.17000	37.85	46.62	6.33000	36.31	44.78
7.13000	41.84	56.08	7.33000	40.05	53.80	7.52000	38.40	51.66
8.45000	43.14	63.29	8.68000	41.27	60.66	8.90000	39.56	58.22
9.76000	43.65	69.26	10.00000	41.75	66.28	10.20000	40.00	63.42
11.20000	43.77	74.87	11.50000	41.86	71.73	11.80000	40.12	68.87
13.10000	43.60	81.15	13.50000	41.68	77.88	13.80000	39.95	74.63
15.90000	43.07	88.77	16.30000	41.19	84.98	16.80000	39.45	81.73
18.70000	42.49	95.05	19.20000	40.62	91.05	19.70000	38.92	87.39
28.10000	40.92	110.57	28.90000	39.12	105.96	29.60000	37.48	101.62
37.50000	39.91	121.38	38.50000	38.16	116.24	39.50000	36.56	111.53
56.30000	38.69	136.38	57.80000	37.00	130.58	59.30000	35.45	125.28
93.80000	37.64	155.07	96.40000	36.00	148.50	98.90000	34.49	142.25
187.00000	36.94	180.27	192.00000	35.33	172.58	197.00000	33.85	165.53

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN ND
 Z=60 A=144.270

TD= 4.0 EV ET=0.216889 MEV			TD= 8.0 EV ET=0.382502 MEV			TD=12.0 EV ET=0.522066 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.21900	16.47	16.47	0.38600	4.08	4.08	0.52700	2.04	2.04
0.22100	31.72	31.72	0.39000	8.88	8.88	0.53200	4.17	4.17
0.22500	61.25	61.25	0.39700	17.28	17.28	0.54200	8.55	8.55
0.23200	110.04	110.04	0.40900	31.64	31.64	0.55300	15.90	15.90
0.24000	161.76	161.76	0.42400	49.43	49.43	0.57900	25.99	25.99
0.25100	226.80	226.80	0.44300	71.61	71.61	0.60500	38.93	38.93
0.26400	295.95	295.95	0.46600	97.73	97.73	0.63500	54.66	54.66
0.28100	375.93	375.93	0.49700	131.42	131.42	0.67300	75.91	75.91
0.30300	465.26	465.26	0.53500	170.05	170.05	0.73000	101.44	101.44
0.33600	576.13	576.13	0.59300	223.15	223.15	0.80900	137.44	137.44
0.37900	689.97	689.97	0.66900	282.49	282.62	0.91300	178.77	178.97
0.43300	798.34	802.86	0.76500	343.01	346.26	1.04000	220.17	222.76
0.49800	893.98	914.61	0.87900	398.18	410.42	1.20000	260.32	269.94
0.58500	982.76	1037.00	1.03000	450.76	481.90	1.40000	296.28	319.77
0.69400	1054.31	1162.08	1.22000	494.43	556.69	1.67000	327.80	375.67
0.82400	1105.26	1285.10	1.45000	526.36	631.81	1.98000	349.02	428.69
0.97600	1137.53	1405.50	1.72000	546.76	705.35	2.34000	362.14	479.98
1.12000	1152.48	1503.71	1.98000	556.42	765.59	2.71000	368.40	524.51
1.30000	1158.99	1610.88	2.29000	560.84	827.67	3.13000	370.72	567.88
1.51000	1157.25	1720.01	2.67000	560.60	893.08	3.65000	369.94	613.74
1.84000	1145.08	1866.52	3.25000	554.87	976.79	4.33000	365.65	671.19
2.16000	1129.27	1987.67	3.82000	547.23	1045.73	5.22000	360.20	719.61
3.25000	1077.17	2305.79	5.73000	522.67	1218.97	7.83000	343.89	838.40
4.33000	1038.49	2536.13	7.65000	505.40	1343.29	10.40000	333.18	921.50
6.50000	991.44	2871.51	11.40000	485.19	1515.55	15.60000	320.22	1039.67
10.80000	945.59	3298.18	19.10000	465.01	1738.27	26.10000	307.85	1188.98
21.60000	907.03	3890.83	38.20000	450.01	2039.43	52.20000	299.09	1390.80
43.30000	889.94	4493.83	76.50000	443.05	2342.07	104.00000	294.79	1591.26
65.00000	883.05	4845.79	114.00000	439.74	2515.12	156.00000	292.53	1708.50
108.00000	874.41	5283.91	191.00000	435.22	2737.23	261.00000	289.50	1855.89
151.00000	868.45	5570.69	267.00000	432.30	2880.11	365.00000	287.60	1951.15
216.00000	862.39	5875.30	382.00000	429.51	3032.33	522.00000	285.84	2052.50

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN ND
 Z=60 A=144.270

TD=16.0 EV ET=0.644823 MEV			TD=20.0 EV ET=0.755739 MEV			TD=24.0 EV ET=0.857696 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.65100	1.22	1.22	0.76300	0.82	0.82	0.86500	0.59	0.59
0.65700	2.47	2.47	0.77000	1.66	1.66	0.87400	1.22	1.22
0.67000	5.35	5.35	0.78500	3.65	3.65	0.89200	2.81	2.81
0.68900	9.93	9.93	0.80800	7.10	7.10	0.91700	5.40	5.40
0.71500	16.79	16.79	0.83800	12.18	12.18	0.95200	9.59	9.59
0.74700	25.85	25.85	0.87600	19.29	19.29	0.99400	15.27	15.27
0.78600	37.46	37.46	0.92200	28.52	28.52	1.04000	21.99	21.99
0.83800	53.28	53.28	0.98200	41.00	41.00	1.11000	32.73	32.73
0.90200	72.51	72.51	1.05000	55.15	55.15	1.20000	46.64	46.64
0.99900	99.95	99.95	1.17000	78.86	78.86	1.32000	64.35	64.35
1.12000	130.21	130.40	1.32000	104.95	105.19	1.50000	87.81	88.06
1.28000	163.20	165.41	1.51000	131.98	134.15	1.71000	110.11	112.06
1.48000	194.72	202.82	1.73000	155.94	162.97	1.97000	131.07	137.57
1.74000	223.49	243.71	2.04000	179.60	197.22	2.31000	150.15	165.68
2.06000	246.13	285.49	2.41000	197.42	231.09	2.74000	165.24	195.11
2.45000	262.08	327.55	2.87000	210.03	265.80	3.25000	175.28	223.85
2.90000	271.47	367.72	3.40000	217.22	298.78	3.85000	181.05	251.72
3.35000	275.61	401.57	3.92000	220.19	326.01	4.46000	183.38	275.48
3.86000	276.91	434.45	4.53000	220.97	353.30	5.14000	183.81	298.02
4.51000	275.93	470.15	5.29000	219.93	382.17	6.00000	182.79	322.26
5.48000	272.35	514.41	6.42000	216.89	417.80	7.29000	180.11	352.36
6.44000	268.16	550.76	7.55000	213.42	447.30	8.57000	177.16	377.05
9.67000	255.96	641.30	11.30000	203.77	519.74	12.80000	169.20	437.42
12.80000	248.27	703.46	15.10000	197.56	571.42	17.10000	164.10	480.60
19.30000	238.73	793.72	22.60000	190.25	642.53	25.70000	158.06	540.59
32.20000	230.01	905.54	37.70000	183.54	732.18	42.80000	152.67	615.18
64.40000	223.94	1057.30	75.50000	178.95	854.00	85.70000	149.00	716.78
128.00000	220.83	1207.17	151.00000	176.49	975.00	171.00000	146.98	817.27
193.00000	219.10	1296.18	226.00000	175.12	1044.88	257.00000	145.82	876.08

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
 Z=60 A=144.270

TD=28.0 EV ET=0.952568 MEV			TD=32.0 EV ET=1.041653 MEV			TD=36.0 EV ET=1.125897 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.96200	0.46	0.46	1.05000	0.29	0.29	1.13000	0.10	0.10
0.97100	0.95	0.95	1.06000	0.68	0.68	1.14000	0.38	0.38
0.99000	2.16	2.16	1.08000	1.62	1.62	1.17000	1.46	1.46
1.01000	3.64	3.64	1.11000	3.34	3.34	1.20000	2.85	2.85
1.05000	7.12	7.12	1.15000	6.12	6.12	1.24000	5.08	5.08
1.10000	12.20	12.20	1.20000	10.15	10.15	1.30000	9.05	9.05
1.16000	18.97	18.97	1.27000	16.48	16.48	1.37000	14.28	14.28
1.23000	27.33	27.33	1.35000	24.20	24.20	1.45000	21.47	21.47
1.33000	39.42	39.42	1.45000	33.98	33.98	1.57000	30.41	30.41
1.47000	55.58	55.58	1.61000	48.95	48.95	1.74000	43.62	43.62
1.66000	74.98	75.21	1.82000	66.26	66.49	1.97000	59.34	59.59
1.90000	94.92	96.76	2.08000	83.63	85.38	2.25000	74.80	76.47
2.19000	113.06	119.04	2.39000	99.22	104.69	2.58000	88.50	93.55
2.57000	129.45	143.61	2.81000	113.74	126.70	3.03000	101.32	113.17
3.04000	142.04	168.77	3.33000	124.75	149.18	3.60000	111.20	133.63
3.61000	150.53	193.87	3.95000	131.96	171.19	4.27000	117.48	153.33
4.28000	155.29	218.12	4.68000	135.94	192.50	5.06000	120.90	172.41
4.95000	157.10	238.43	5.41000	137.40	210.34	5.85000	122.10	188.36
5.71000	157.33	258.04	6.24000	137.51	227.57	6.75000	122.12	203.79
6.66000	156.36	278.84	7.29000	136.57	246.07	7.88000	121.23	220.22
8.09000	153.98	304.77	8.85000	134.43	268.77	9.57000	119.27	240.51
9.52000	151.39	326.15	10.40000	132.15	287.39	11.20000	117.28	256.67
14.20000	144.62	377.93	15.60000	126.17	333.46	16.80000	111.98	297.72
19.00000	140.28	415.22	20.80000	122.47	365.75	22.50000	108.66	326.91
28.50000	135.20	466.47	31.20000	118.08	410.64	33.70000	104.81	366.69
47.60000	130.67	530.84	52.00000	114.21	466.78	56.20000	101.43	416.69
95.20000	127.64	617.84	104.00000	111.63	542.94	112.00000	99.19	484.07
190.00000	125.92	704.00	208.00000	110.13	618.56	225.00000	97.86	551.72

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
 Z=60 A=144.270

TD=40.0 EV ET=1.206013 MEV			TD=44.0 EV ET=1.292554 MEV			TD=48.0 EV ET=1.355959 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.21000	0.08	0.08	1.29000	0.12	0.12	1.36000	0.05	0.05
1.23000	0.54	0.54	1.30000	0.30	0.30	1.38000	0.35	0.35
1.25000	1.14	1.14	1.33000	1.00	1.00	1.41000	0.98	0.98
1.29000	2.66	2.66	1.37000	2.28	2.28	1.45000	2.09	2.09
1.33000	4.55	4.55	1.42000	4.30	4.30	1.50000	3.83	3.83
1.39000	7.88	7.88	1.48000	7.17	7.17	1.57000	6.75	6.75
1.47000	12.92	12.92	1.56000	11.49	11.49	1.65000	10.53	10.53
1.56000	19.01	19.01	1.66000	17.31	17.31	1.76000	16.13	16.13
1.68000	27.28	27.28	1.79000	25.04	25.04	1.89000	22.87	22.87
1.86000	39.16	39.16	1.98000	35.83	35.83	2.10000	33.28	33.28
2.11000	53.65	53.89	2.24000	48.81	49.04	2.37000	45.01	45.24
2.41000	67.64	69.23	2.56000	61.66	63.16	2.71000	56.87	58.32
2.77000	80.19	85.00	2.94000	73.04	77.52	3.11000	67.24	71.49
3.25000	91.59	102.68	3.46000	83.58	94.01	3.66000	76.86	86.69
3.85000	100.25	120.90	4.10000	91.38	110.70	4.33000	83.89	101.92
4.58000	105.90	139.05	4.87000	96.38	127.13	5.15000	88.45	117.15
5.42000	108.85	156.16	5.77000	99.00	142.86	6.10000	90.78	131.60
6.27000	109.86	170.64	6.66000	99.85	155.86	7.05000	91.51	143.66
7.23000	109.82	184.51	7.69000	99.77	168.63	8.13000	91.40	155.29
8.44000	108.97	199.34	8.97000	98.97	182.08	9.49000	90.63	167.70
10.20000	107.22	217.19	10.90000	97.30	198.80	11.50000	89.10	182.84
12.00000	105.36	232.26	12.80000	95.61	212.37	13.50000	87.55	195.27
18.00000	100.61	269.27	19.20000	91.31	246.06	20.30000	83.59	226.38
24.10000	97.65	295.53	25.60000	88.67	269.61	27.10000	81.18	248.08
36.10000	94.21	331.37	38.40000	85.55	302.32	40.60000	78.35	277.98
60.30000	91.21	376.54	64.10000	82.87	343.35	67.70000	75.93	315.53
120.00000	89.24	437.07	128.00000	81.10	398.67	135.00000	74.33	366.14
241.00000	88.05	497.93	256.00000	80.02	453.66	271.00000	73.33	416.82

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
 Z=60 A=144.270

TD=52.0 EV ET=1.426586 MEV			TD=56.0 EV ET=1.494727 MEV			TD=50.0 EV ET=1.560628 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.44000	0.15	0.15	1.50000	0.04	0.04	1.57000	0.07	0.07
1.45000	0.28	0.28	1.52000	0.26	0.26	1.59000	0.26	0.26
1.48000	0.80	0.80	1.55000	0.71	0.71	1.62000	0.67	0.67
1.52000	1.73	1.73	1.59000	1.52	1.52	1.66000	1.39	1.39
1.58000	3.55	3.55	1.65000	3.10	3.10	1.73000	3.05	3.05
1.65000	6.12	6.12	1.73000	5.69	5.69	1.81000	5.40	5.40
1.74000	9.87	9.87	1.82000	9.03	9.03	1.90000	8.41	8.41
1.85000	14.82	14.82	1.94000	13.84	13.84	2.02000	12.73	12.73
1.99000	21.23	21.23	2.09000	19.97	19.97	2.18000	18.61	18.61
2.21000	30.86	30.86	2.31000	28.56	28.56	2.41000	26.68	26.68
2.49000	41.60	41.61	2.61000	38.81	39.02	2.73000	36.49	36.71
2.85000	52.67	54.05	2.98000	48.94	50.24	3.12000	46.01	47.30
3.28000	62.43	66.53	3.43000	58.04	61.90	3.58000	54.30	57.98
3.85000	71.13	80.40	4.03000	66.16	74.91	4.21000	61.91	70.25
4.56000	77.60	94.61	4.78000	72.19	88.27	4.99000	67.47	82.70
5.42000	81.73	108.67	5.67000	75.93	101.21	5.93000	70.95	94.94
6.41000	83.81	121.92	6.72000	77.85	113.71	7.02000	72.68	106.55
7.41000	84.46	133.10	7.77000	78.41	124.12	8.11000	73.17	116.23
8.55000	84.32	143.91	8.96000	78.26	134.13	9.36000	73.01	125.64
9.98000	83.59	155.38	10.40000	77.60	144.42	10.90000	72.35	135.47
12.10000	82.16	169.41	12.70000	76.20	157.96	13.20000	71.10	147.59
14.20000	80.72	180.88	14.90000	74.87	168.59	15.60000	69.79	157.97
21.30000	77.10	209.45	22.40000	71.50	195.29	23.40000	66.67	182.78
28.50000	74.86	229.65	29.80000	69.47	213.68	31.20000	64.77	200.08
42.70000	72.27	257.27	44.80000	67.05	239.55	46.80000	62.54	224.10
71.30000	70.05	292.03	74.70000	65.02	271.76	78.00000	60.66	254.14
142.00000	68.59	338.68	149.00000	63.68	315.17	156.00000	59.42	294.82
285.00000	67.68	385.44	298.00000	62.84	358.38	312.00000	58.64	335.14

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
 Z=60 A=144.270

TD=64.0 EV ET=1.624496 MEV			TD=68.0 EV ET=1.686509 MEV			TD=72.0 EV ET=1.746819 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.64000	0.10	0.10	1.70000	0.08	0.08	1.76000	0.06	0.06
1.65000	0.19	0.19	1.72000	0.23	0.23	1.78000	0.20	0.20
1.68000	0.53	0.53	1.75000	0.55	0.55	1.81000	0.48	0.48
1.73000	1.32	1.32	1.80000	1.29	1.29	1.86000	1.14	1.14
1.80000	2.82	2.82	1.87000	2.67	2.67	1.93000	2.37	2.37
1.88000	4.93	4.93	1.95000	4.59	4.59	2.02000	4.33	4.33
1.98000	7.95	7.95	2.05000	7.32	7.32	2.13000	7.10	7.10
2.11000	12.20	12.20	2.19000	11.48	11.48	2.27000	10.91	10.91
2.27000	17.52	17.52	2.36000	16.63	16.63	2.44000	15.63	15.63
2.51000	25.14	25.14	2.61000	23.86	23.86	2.70000	22.52	22.52
2.84000	34.29	34.50	2.95000	32.41	32.62	3.05000	30.59	30.79
3.24000	43.13	44.34	3.37000	40.82	42.01	3.49000	38.65	39.80
3.73000	51.09	54.64	3.87000	48.18	51.57	4.01000	45.62	48.89
4.38000	58.13	66.07	4.55000	54.84	62.44	4.71000	51.86	59.12
5.19000	63.31	77.76	5.39000	59.67	73.45	5.58000	56.41	69.55
6.17000	66.55	89.29	6.40000	62.67	84.25	6.63000	59.23	79.81
7.31000	68.15	100.24	7.58000	64.15	94.56	7.86000	60.60	89.62
8.44000	68.59	109.30	8.76000	64.55	103.15	9.08000	60.95	97.72
9.74000	68.42	118.13	10.10000	64.37	111.42	10.40000	60.79	105.18
11.30000	67.81	127.13	11.80000	63.76	120.29	12.20000	60.20	113.79
13.80000	66.57	139.00	14.30000	62.62	131.04	14.80000	59.11	124.01
16.20000	65.39	148.35	16.80000	61.50	139.90	17.40000	58.05	132.41
24.30000	62.47	171.62	25.20000	58.76	161.81	26.20000	55.44	153.31
32.40000	60.69	187.85	33.70000	57.07	177.25	34.90000	53.87	167.70
48.70000	58.60	210.49	50.50000	55.13	198.40	52.40000	52.03	187.78
81.20000	56.85	238.68	84.30000	53.49	225.00	87.30000	50.50	212.80
162.00000	55.70	276.69	168.00000	52.42	260.72	174.00000	49.50	246.55
324.00000	54.96	314.49	337.00000	51.72	296.45	349.00000	48.84	280.29

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
 Z=60 A=144.270

TD=76.0 EV ET=1.805559 MEV			TD=80.0 EV ET=1.862847 MEV			TD=84.0 EV ET=1.918784 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.82000	0.06	0.06	1.88000	0.07	0.07	1.93000	0.04	0.04
1.84000	0.19	0.19	1.90000	0.18	0.18	1.95000	0.13	0.13
1.87000	0.44	0.44	1.93000	0.42	0.42	1.99000	0.41	0.41
1.93000	1.17	1.17	1.99000	1.09	1.09	2.05000	1.03	1.03
2.00000	2.32	2.32	2.06000	2.14	2.14	2.12000	2.00	2.00
2.09000	4.14	4.14	2.16000	4.00	4.00	2.22000	3.72	3.72
2.20000	6.69	6.69	2.27000	6.36	6.36	2.34000	6.10	6.10
2.34000	10.19	10.19	2.42000	9.84	9.84	2.49000	9.33	9.33
2.52000	14.80	14.80	2.60000	14.09	14.09	2.68000	13.50	13.50
2.79000	21.38	21.38	2.88000	20.40	20.40	2.97000	19.55	19.55
3.15000	29.02	29.21	3.25000	27.65	27.83	3.35000	26.44	26.62
3.61000	36.75	37.87	3.72000	34.94	36.01	3.83000	33.33	34.37
4.15000	43.37	46.54	4.28000	41.27	44.32	4.41000	39.39	42.34
4.87000	49.22	56.20	5.02000	46.80	53.49	5.19000	44.68	51.17
5.77000	53.50	66.11	5.96000	50.90	63.03	6.14000	48.52	60.19
6.86000	56.15	75.88	7.07000	53.36	72.21	7.29000	50.85	68.98
8.12000	57.42	85.10	8.38000	54.56	81.05	8.63000	51.96	77.35
9.38000	57.74	92.78	9.68000	54.85	88.35	9.97000	52.23	84.32
10.80000	57.56	100.12	11.10000	54.68	95.13	11.50000	52.05	91.06
12.60000	57.00	108.00	13.00000	54.13	102.82	13.40000	51.53	98.14
15.30000	55.96	117.74	15.80000	53.13	112.11	16.30000	50.57	107.04
18.00000	54.95	125.73	18.60000	52.16	119.74	19.10000	49.67	114.10
27.00000	52.50	145.36	27.90000	49.84	138.40	28.70000	47.45	131.95
36.10000	51.00	159.17	37.20000	48.43	151.39	38.30000	46.11	144.37
54.10000	49.28	178.11	55.80000	46.80	169.43	57.50000	44.55	161.59
90.20000	47.83	201.86	93.10000	45.43	192.02	95.90000	43.26	183.09
180.00000	46.89	233.89	186.00000	44.54	222.50	191.00000	42.41	211.99

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ND
 Z=60 A=144.270

TD=88.0 EV ET=1.973462 MEV			TD=92.0 EV ET=2.026962 MEV			TD=96.0 EV ET=2.079358 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.99000	0.05	0.05	2.04000	0.04	0.04	2.10000	0.06	0.06
2.01000	0.14	0.14	2.06000	0.11	0.11	2.12000	0.14	0.14
2.05000	0.41	0.41	2.10000	0.35	0.35	2.16000	0.37	0.37
2.11000	1.00	1.00	2.16000	0.87	0.87	2.22000	0.87	0.87
2.19000	2.04	2.04	2.24000	1.82	1.82	2.30000	1.77	1.77
2.28000	3.49	3.49	2.35000	3.47	3.47	2.41000	3.31	3.31
2.40000	5.70	5.70	2.47000	5.55	5.55	2.53000	5.26	5.26
2.56000	8.90	8.90	2.63000	8.54	8.54	2.70000	8.24	8.24
2.76000	12.99	12.99	2.83000	12.36	12.36	2.91000	11.99	11.99
3.05000	18.62	18.63	3.14000	17.98	17.98	3.22000	17.26	17.26
3.45000	25.37	25.55	3.54000	24.27	24.45	3.63000	23.29	23.47
3.94000	31.89	32.91	4.05000	30.61	31.60	4.15000	29.34	30.30
4.53000	37.62	40.45	4.66000	36.10	38.87	4.78000	34.65	37.33
4.53000	37.62	40.45	5.47000	40.89	46.93	5.61000	39.23	45.06
5.32000	42.67	48.90	6.48000	44.36	55.16	6.65000	42.55	52.99
6.31000	46.34	57.55	7.70000	46.47	63.25	7.90000	44.55	60.74
7.49000	48.55	65.95	9.12000	47.46	70.93	9.35000	45.48	68.07
8.88000	49.61	74.01	10.50000	47.68	77.15	10.80000	45.69	74.18
10.20000	49.85	80.41	12.10000	47.51	83.28	12.40000	45.52	79.90
11.80000	49.67	86.98	14.10000	47.03	89.76	14.50000	45.04	86.25
13.80000	49.16	93.91	17.20000	46.13	98.00	17.60000	44.20	93.96
16.70000	48.26	102.18	20.20000	45.30	104.55	20.70000	43.40	100.30
19.70000	47.37	109.21	30.40000	43.27	120.92	31.10000	41.46	115.93
29.60000	45.26	126.25	40.50000	42.06	132.19	41.50000	40.30	126.79
39.40000	43.99	138.00	60.80000	40.65	147.92	62.30000	38.94	141.86
59.20000	42.51	154.47	101.00000	39.49	167.41	103.00000	37.84	160.37
98.60000	41.28	174.95	202.00000	38.72	193.95	207.00000	37.10	185.99

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN TB
 Z=65 A=158.930

TD= 4.0 EV ET=0.235409 MEV			TD= 8.0 EV ET=0.412551 MEV			TD=12.0 EV ET=0.560978 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.23700	12.45	12.45	0.41600	4.06	4.06	0.56500	2.11	2.11
0.24000	35.41	35.41	0.42000	8.93	8.93	0.57200	4.73	4.73
0.24400	65.07	65.07	0.42900	19.99	19.99	0.58300	9.75	9.75
0.25100	114.53	114.53	0.44100	34.86	34.86	0.60000	18.00	18.00
0.26100	180.33	180.33	0.45800	56.04	56.04	0.62200	29.34	29.34
0.27300	252.70	252.70	0.47800	80.86	80.86	0.65000	44.49	44.49
0.28700	329.38	329.38	0.50300	111.37	111.37	0.68400	63.42	63.42
0.30600	422.20	422.20	0.53600	150.27	150.27	0.72900	88.58	88.58
0.32900	520.24	520.24	0.57700	195.79	195.79	0.78500	119.01	119.01
0.36400	645.53	645.53	0.63900	257.96	257.96	0.86900	161.31	161.31
0.41100	779.21	779.21	0.72200	328.68	328.68	0.98100	210.12	210.40
0.47000	906.31	911.95	0.82500	398.75	402.84	1.12000	258.95	262.34
0.54100	1017.54	1042.57	0.94900	462.33	477.65	1.29000	303.89	315.99
0.63500	1117.99	1183.20	1.11000	520.18	558.48	1.51000	344.17	373.87
0.75300	1196.62	1326.18	1.32000	567.76	645.05	1.79000	376.03	434.45
0.89400	1249.59	1465.89	1.56000	598.55	726.32	2.13000	397.17	494.60
1.05000	1278.61	1594.75	1.85000	616.76	807.70	2.52000	408.32	551.37
1.22000	1290.55	1714.49	2.14000	623.58	876.20	2.91000	412.05	599.04
1.41000	1290.65	1830.09	2.47000	624.10	943.10	3.36000	411.65	646.04
1.64000	1281.37	1951.69	2.88000	619.46	1014.20	3.92000	407.85	695.77
2.00000	1258.46	2113.01	3.50000	608.23	1104.04	4.76000	399.87	757.78
2.35000	1233.93	2246.03	4.12000	596.20	1179.01	5.60000	391.69	809.24
3.53000	1163.10	2589.34	6.18000	562.94	1364.91	8.41000	369.93	936.72
4.70000	1114.80	2836.95	8.25000	541.61	1497.98	11.20000	356.71	1026.35
7.06000	1058.87	3197.68	12.30000	517.78	1682.18	16.80000	341.54	1152.36
11.70000	1006.86	3651.63	20.60000	495.01	1919.54	28.00000	327.77	1310.30
23.50000	964.91	4288.38	41.20000	478.94	2240.71	56.00000	318.36	1525.43
47.00000	946.77	4928.82	82.50000	471.21	2562.67	112.00000	313.45	1739.78
70.60000	938.54	5303.37	123.00000	467.11	2746.54	168.00000	310.63	1864.12
117.00000	927.72	5765.39	206.00000	461.45	2981.55	280.00000	306.88	2018.98
164.00000	920.33	6071.16	288.00000	457.96	3132.79	392.00000	304.64	2120.13
235.00000	913.24	6395.11	412.00000	454.88	3293.99	560.00000	302.78	2227.21

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN TB
 Z=65 A=158.930

TD=16.0 EV ET=0.691141 MEV			TD=20.0 EV ET=0.808526 MEV			TD=24.0 EV ET=0.916289 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.69800	1.39	1.39	0.81600	0.86	0.86	0.92500	0.64	0.64
0.70400	2.68	2.68	0.82400	1.87	1.87	0.93400	1.38	1.38
0.71800	5.93	5.93	0.84000	4.12	4.12	0.95200	3.08	3.08
0.73900	11.36	11.36	0.86500	8.18	8.18	0.98000	6.24	6.24
0.76700	19.41	19.41	0.89700	14.16	14.16	1.01000	10.17	10.17
0.80100	30.04	30.04	0.93700	22.49	22.49	1.06000	17.65	17.65
0.84300	43.93	43.93	0.98600	33.50	33.50	1.11000	25.86	25.86
0.89800	62.60	62.60	1.05000	48.44	48.44	1.19000	39.69	39.69
0.96700	85.73	85.73	1.13000	67.07	67.07	1.28000	55.33	55.33
1.07000	118.09	118.09	1.25000	93.41	93.41	1.42000	78.28	78.28
1.20000	153.81	154.07	1.41000	124.05	124.35	1.60000	103.97	104.29
1.38000	193.68	196.70	1.61000	154.86	157.53	1.83000	130.25	132.80
1.58000	226.83	236.74	1.85000	182.45	191.27	2.10000	153.10	161.14
1.86000	258.65	283.48	2.18000	208.05	229.81	2.47000	174.12	193.45
2.21000	282.68	331.21	2.58000	226.59	267.99	2.93000	189.51	226.21
2.62000	297.68	376.87	3.07000	238.44	306.10	3.49000	198.92	258.08
3.11000	305.55	421.62	3.63000	244.13	341.73	4.12000	203.35	288.36
3.59000	307.76	458.28	4.20000	245.58	372.03	4.76000	204.28	313.63
4.14000	306.97	494.06	4.85000	244.62	401.33	5.49000	203.29	338.07
4.83000	303.71	532.17	5.65000	241.79	431.92	6.41000	200.75	364.16
5.87000	297.41	579.76	6.87000	236.56	470.50	7.78000	196.32	396.23
6.91000	291.13	619.10	8.08000	231.50	502.08	9.16000	192.04	422.87
10.30000	275.35	714.11	12.10000	218.91	579.53	13.70000	181.69	487.53
13.80000	265.59	783.33	16.10000	211.49	633.85	18.30000	175.55	533.54
20.70000	254.63	878.29	24.20000	202.90	710.42	27.40000	168.60	596.85
34.50000	244.88	997.20	40.40000	195.40	806.08	45.80000	162.54	676.88
69.10000	238.37	1159.26	80.80000	190.49	935.63	91.60000	158.61	784.93
138.00000	238.76	1319.68	161.00000	187.64	1063.53	183.00000	156.24	891.90
207.00000	232.62	1412.85	242.00000	185.90	1138.39	274.00000	154.79	953.66

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
 Z=65 A=158.930

TD=28.0 EV ET=1.016468 MEV			TD=32.0 EV ET=1.110470 MEV			TD=36.0 EV ET=1.199313 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.02000	0.17	0.17	1.12000	0.34	0.34	1.21300	0.29	0.29
1.03000	0.70	0.70	1.13000	0.76	0.76	1.22300	0.61	0.61
1.05000	1.98	1.98	1.15000	1.76	1.76	1.24300	1.39	1.39
1.08000	4.37	4.37	1.18000	3.63	3.63	1.28300	3.41	3.41
1.12000	8.27	8.27	1.23000	7.52	7.52	1.33300	6.63	6.63
1.17000	13.96	13.96	1.28000	12.12	12.12	1.39300	11.21	11.21
1.24000	22.88	22.88	1.35000	19.28	19.28	1.46300	17.17	17.17
1.32000	33.69	33.69	1.44000	29.10	29.10	1.55300	25.32	25.32
1.42000	47.28	47.28	1.55000	41.21	41.21	1.67000	36.32	36.32
1.57000	66.58	66.58	1.72000	58.92	58.92	1.85300	51.96	51.96
1.77000	89.03	89.32	1.94000	78.81	79.12	2.09300	70.05	70.34
2.03000	112.25	114.63	2.22000	98.89	101.15	2.39300	87.96	90.03
2.33000	131.94	139.31	2.55000	116.21	123.10	2.75000	103.61	109.97
2.74000	149.86	167.33	2.99000	131.53	147.42	3.23000	117.33	132.00
3.25000	162.86	195.72	3.55000	142.83	172.64	3.83000	127.18	154.41
3.86000	170.68	223.32	4.21000	149.44	196.76	4.55000	132.97	176.21
4.57000	174.24	249.51	4.99000	152.42	219.99	5.39000	135.46	196.90
5.28000	174.86	271.34	5.77000	152.83	239.32	6.23000	135.73	214.10
6.09000	173.87	292.44	6.66000	151.85	257.96	7.19300	134.78	230.73
7.11000	171.59	314.92	7.77000	149.79	277.63	8.39300	132.89	248.30
8.63000	167.72	342.56	9.43000	146.35	301.89	10.10300	129.94	269.02
10.10000	164.16	364.64	11.10000	143.11	321.97	11.90300	127.03	287.02
15.20000	155.23	421.12	16.60000	135.48	370.75	17.90000	120.20	331.11
20.30000	150.05	460.62	22.20000	130.98	405.52	23.90300	116.25	361.88
30.40000	144.18	514.97	33.30000	125.90	453.32	35.90000	111.76	404.55
50.80000	139.13	583.61	55.50000	121.61	513.12	59.90300	108.00	457.86
101.00000	135.89	675.49	111.00000	118.83	594.24	119.00300	105.60	529.29
203.00000	133.84	767.97	222.00000	117.05	674.57	239.00300	104.01	601.13

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
 Z=65 A=158.930

TD=40.0 EV ET=1.283763 MEV			TD=44.0 EV ET=1.364415 MEV			TD=48.0 EV ET=1.441738 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.29000	0.12	0.12	1.37000	0.09	0.09	1.45300	0.11	0.11
1.30000	0.36	0.36	1.39000	0.49	0.49	1.47300	0.45	0.45
1.33000	1.28	1.28	1.41000	1.01	1.01	1.49300	0.89	0.89
1.37000	2.96	2.96	1.45000	2.38	2.38	1.54300	2.39	2.39
1.42000	5.63	5.63	1.51000	5.07	5.07	1.60300	4.78	4.78
1.48000	9.43	9.43	1.58000	8.91	8.91	1.67300	8.13	8.13
1.56000	15.16	15.16	1.66000	13.86	13.86	1.75000	12.45	12.45
1.66000	22.83	22.83	1.77000	21.14	21.14	1.87300	19.38	19.38
1.79000	32.94	32.94	1.91000	30.52	30.52	2.01300	27.58	27.58
1.98000	46.93	46.93	2.11000	43.18	43.18	2.23300	39.77	39.77
2.24000	63.52	63.81	2.38000	57.98	58.26	2.52300	53.60	53.89
2.56000	79.61	81.59	2.72000	72.66	74.54	2.88300	67.07	68.89
2.95000	93.82	99.85	3.13000	85.47	91.09	3.31300	78.67	84.01
3.46000	105.96	119.64	3.68000	96.63	109.45	3.89300	88.82	100.88
4.10000	114.68	139.84	4.36000	104.44	127.89	4.61000	95.90	117.87
4.87000	119.76	159.54	5.18000	108.96	145.90	5.47000	99.93	134.31
5.77000	121.90	178.26	6.13000	110.80	162.85	6.48300	101.56	150.00
6.67000	122.06	193.81	7.09000	110.88	177.08	7.49300	101.58	163.01
7.70000	121.14	208.85	8.18000	110.01	190.73	8.65000	100.74	175.64
8.98000	119.41	224.65	9.55000	108.39	205.22	10.00300	99.33	188.11
10.90000	116.59	244.16	11.50000	105.92	222.27	12.20300	96.90	204.87
12.80000	114.02	260.06	13.60000	103.48	237.38	14.40300	94.68	218.57
19.20000	107.95	299.52	20.40000	97.99	273.31	21.60000	89.69	251.54
25.60000	104.45	327.10	27.20000	94.83	298.40	28.80300	86.81	274.55
38.50000	100.44	365.64	40.90000	91.22	333.44	43.20300	83.54	306.48
64.10000	97.13	413.44	68.20000	88.24	377.05	72.00300	80.85	346.44
128.00000	94.99	478.23	136.00000	86.33	435.84	144.00000	79.12	400.57
256.00000	93.58	542.49	272.00000	85.05	494.25	288.00000	77.93	454.10

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
 Z=65 A=158.930

TD=52.0 EV ET=1.516114 MEV			TD=56.0 EV ET=1.587856 MEV			TD=60.0 EV ET=1.657226 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.53000	0.16	0.16	1.60000	0.11	0.11	1.67000	0.10	0.10
1.54000	0.30	0.30	1.61000	0.23	0.23	1.69000	0.32	0.32
1.57000	0.86	0.86	1.65000	0.89	0.89	1.72000	0.77	0.77
1.62000	2.18	2.18	1.69000	1.82	1.82	1.77000	1.82	1.82
1.68000	4.27	4.27	1.76000	3.95	3.95	1.83000	3.45	3.45
1.75000	7.20	7.20	1.84000	6.94	6.94	1.92000	6.45	6.45
1.84000	11.46	11.46	1.93000	10.76	10.76	2.02000	10.27	10.27
1.97000	18.10	18.10	2.06000	16.68	16.68	2.15000	15.60	15.60
2.12000	25.86	25.86	2.22000	24.07	24.07	2.32000	22.66	22.66
2.34000	36.62	36.62	2.46000	34.51	34.52	2.56000	32.05	32.06
2.65000	49.68	49.97	2.77000	46.13	46.40	2.90000	43.48	43.76
3.03000	62.18	63.94	3.17000	57.85	59.52	3.31000	54.20	55.81
3.48000	72.83	77.89	3.65000	67.91	72.77	3.81000	63.56	68.19
4.09000	82.16	93.53	4.28000	76.41	87.13	4.47000	71.47	81.69
4.85000	88.66	109.33	5.08000	82.43	101.94	5.30000	77.01	95.46
5.76000	92.31	124.62	6.03000	85.76	116.13	6.29000	80.07	108.73
6.82000	93.74	139.09	7.14000	87.03	129.60	7.45000	81.22	121.34
7.88000	93.72	151.10	8.25000	86.98	140.77	8.61000	81.15	131.80
9.09000	92.92	162.68	9.52000	86.21	151.57	9.94000	80.40	141.93
10.60000	91.51	174.90	11.10000	84.89	162.92	11.60000	79.15	152.59
12.80000	89.36	189.58	13.40000	82.89	176.54	14.00000	77.27	165.30
15.10000	87.32	202.20	15.80000	80.99	188.24	16.50000	75.51	176.20
22.70000	82.70	232.83	23.80000	76.70	216.85	24.80000	71.53	202.77
30.30000	80.05	254.16	31.70000	74.27	236.51	33.10000	69.26	221.26
45.40000	77.06	283.57	47.60000	71.49	263.98	49.70000	66.68	246.90
75.80000	74.59	320.59	79.30000	69.24	298.21	82.80000	64.60	278.86
151.00000	73.02	370.28	158.00000	67.79	344.37	165.00000	63.26	321.96
303.00000	71.92	419.93	317.00000	66.77	390.46	331.00000	62.31	364.96

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
 Z=65 A=158.930

TD=64.0 EV ET=1.724444 MEV			TD=68.0 EV ET=1.789698 MEV			TD=72.0 EV ET=1.853153 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.74000	0.11	0.11	1.80000	0.06	0.06	1.87000	0.09	0.09
1.75000	0.20	0.20	1.82000	0.22	0.22	1.89000	0.24	0.24
1.79000	0.71	0.71	1.86000	0.69	0.69	1.92000	0.56	0.56
1.84000	1.64	1.64	1.91000	1.54	1.54	1.98000	1.48	1.48
1.91000	3.37	3.37	1.98000	3.10	3.10	2.05000	2.91	2.91
2.00000	6.10	6.10	2.07000	5.56	5.56	2.14000	5.16	5.16
2.10000	9.56	9.56	2.18000	9.02	9.02	2.25000	8.61	8.61
2.24000	14.76	14.76	2.32000	13.76	13.76	2.40000	12.95	12.95
2.41000	21.16	21.16	2.50000	19.93	19.93	2.59000	18.92	18.92
2.67000	30.36	30.36	2.77000	28.64	28.64	2.87000	27.18	27.19
3.01000	40.69	40.96	3.13000	38.57	38.84	3.24000	36.52	36.78
3.44000	50.88	52.41	3.57000	48.02	49.50	3.70000	45.53	46.97
3.96000	59.66	64.07	4.11000	56.28	60.51	4.26000	53.31	57.40
4.65000	67.11	76.83	4.83000	63.29	72.61	5.00000	59.85	68.76
5.51000	72.25	89.72	5.72000	68.06	84.73	5.93000	64.36	80.33
6.55000	75.10	102.31	6.80000	70.71	96.59	7.04000	66.81	91.46
7.75000	76.14	114.08	8.05000	71.66	107.72	8.33000	67.67	101.96
8.96000	76.04	123.92	9.30000	71.54	116.95	9.63000	67.55	110.72
10.30000	75.36	133.15	10.70000	70.88	125.69	11.10000	66.89	119.10
12.00000	74.19	143.05	12.50000	69.75	135.19	12.90000	65.85	127.77
14.60000	72.35	155.49	15.20000	68.01	146.87	15.70000	64.20	138.86
17.20000	70.70	165.69	17.80000	66.51	156.12	18.50000	62.73	147.94
25.80000	67.01	190.49	26.80000	63.01	179.69	27.00000	59.48	169.91
34.40000	64.89	207.77	35.70000	61.03	195.91	37.00000	57.60	185.38
51.70000	62.48	231.87	53.60000	58.78	218.53	55.50000	55.49	206.70
86.20000	60.54	261.89	89.40000	56.96	246.81	92.60000	53.78	233.44
172.00000	59.29	302.37	178.00000	55.80	284.80	185.00000	52.69	269.49
344.00000	58.41	342.51	357.00000	54.96	322.73	370.00000	51.90	305.16

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
 Z=65 A=158.930

TD=76.0 EV ET=1.914948 MEV			TD=80.0 EV ET=1.975208 MEV			TD=84.0 EV ET=2.034041 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.93000	0.07	0.07	1.99000	0.06	0.06	2.05000	0.06	0.06
1.95000	0.20	0.20	2.01000	0.18	0.18	2.07000	0.17	0.17
1.99000	0.59	0.59	2.05000	0.53	0.53	2.11000	0.49	0.49
2.04000	1.29	1.29	2.11000	1.30	1.30	2.17000	1.19	1.19
2.12000	2.78	2.78	2.19000	2.69	2.69	2.25000	2.46	2.46
2.22000	5.10	5.10	2.29000	4.84	4.84	2.35000	4.44	4.44
2.33000	8.02	8.02	2.40000	7.54	7.54	2.48000	7.39	7.39
2.48000	12.30	12.30	2.56000	11.76	11.76	2.64000	11.32	11.32
2.68000	18.08	18.08	2.76000	17.10	17.10	2.84000	16.28	16.28
2.96000	25.68	25.68	3.06000	24.63	24.63	3.15000	23.50	23.50
3.35000	34.73	34.99	3.45000	32.98	33.23	3.55000	31.44	31.68
3.82000	43.18	44.57	3.95000	41.26	42.63	4.05000	39.28	40.58
4.40000	50.58	54.50	4.54000	48.16	51.94	4.67000	45.89	49.52
5.17000	56.80	65.37	5.33000	54.01	62.23	5.49000	51.51	59.42
6.12000	61.00	76.22	6.32000	58.01	72.66	6.50000	55.27	69.28
7.27000	63.30	86.82	7.50000	60.16	82.68	7.72000	57.30	78.89
8.61000	64.10	96.84	8.88000	60.89	92.19	9.15000	57.99	88.01
9.95000	63.97	105.12	10.20000	60.77	99.74	10.50000	57.86	95.16
11.40000	63.38	112.73	11.80000	60.16	107.49	12.20000	57.25	102.76
13.40000	62.31	121.57	13.80000	59.17	115.63	14.20000	56.33	110.28
16.20000	60.79	131.73	16.70000	57.71	125.33	17.20000	54.93	119.57
19.10000	59.39	140.37	19.70000	56.38	133.57	20.30000	53.66	127.44
28.70000	56.30	161.37	29.60000	53.45	153.54	30.50000	50.87	146.46
38.20000	54.54	175.85	39.50000	51.77	167.41	40.60000	49.29	159.56
57.40000	52.54	196.14	59.20000	49.89	186.57	61.00000	47.50	177.92
95.70000	50.94	221.43	98.70000	48.38	210.60	101.00000	46.08	200.51
191.00000	49.91	255.54	197.00000	47.41	243.01	203.00000	45.15	231.68

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TB
 Z=65 A=158.930

TD=88.0 EV ET=2.091545 MEV			TD=92.0 EV ET=2.147805 MEV			TD=96.0 EV ET=2.202900 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.11000	0.06	0.06	2.16000	0.03	0.03	2.22000	0.05	0.05
2.13000	0.16	0.16	2.19000	0.17	0.17	2.24000	0.13	0.13
2.17000	0.46	0.46	2.23000	0.45	0.45	2.29000	0.45	0.45
2.23000	1.11	1.11	2.29000	1.06	1.06	2.35000	1.02	1.02
2.32000	2.45	2.45	2.38000	2.30	2.30	2.44000	2.19	2.19
2.42000	4.31	4.31	2.49000	4.21	4.21	2.55000	3.97	3.97
2.55000	7.06	7.06	2.62000	6.79	6.79	2.68000	6.38	6.38
2.71000	10.72	10.72	2.79000	10.43	10.43	2.86000	9.98	9.98
2.92000	15.57	15.57	3.00000	14.96	14.96	3.08000	14.43	14.43
3.24000	22.51	22.51	3.32000	21.44	21.45	3.41000	20.69	20.69
3.66000	30.24	30.49	3.75000	28.86	29.09	3.85000	27.78	28.01
4.18000	37.63	38.91	4.29000	36.04	37.28	4.40000	34.60	35.80
4.81000	43.94	47.49	4.93000	42.03	45.42	5.06000	40.36	43.66
5.64000	49.20	56.80	5.79000	47.10	54.43	5.94000	45.19	52.28
6.69000	52.80	66.33	6.87000	50.54	63.57	7.04000	48.45	61.00
7.94000	54.71	75.47	8.16000	52.35	72.36	8.37000	50.18	69.48
9.41000	55.35	84.18	9.66000	52.94	80.64	9.91000	50.73	77.42
10.80000	55.22	91.01	11.10000	52.80	87.24	11.40000	50.59	83.80
12.50000	54.64	98.09	12.80000	52.26	93.85	13.20000	50.04	90.31
14.60000	53.74	105.44	15.00000	51.38	101.03	15.40000	49.21	97.00
17.70000	52.40	114.35	18.20000	50.08	109.59	18.70000	47.96	105.24
20.90000	51.18	121.89	21.40000	48.95	116.62	22.00000	46.87	112.00
31.30000	48.55	139.90	32.20000	46.40	134.06	33.00000	44.45	128.59
41.80000	47.03	152.55	42.90000	44.96	146.06	44.00000	43.07	140.13
62.70000	45.32	170.01	64.40000	43.34	162.80	66.00000	41.52	156.13
104.00000	43.98	191.64	107.00000	42.05	183.56	110.00000	40.29	176.16
209.00000	43.09	221.40	214.00000	41.21	211.83	220.00000	39.49	203.24

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
 Z=70 A=173.040

TD= 4.0 EV ET=0.252810 MEV			TD= 8.0 EV ET=0.440678 MEV			TD=12.0 EV ET=0.597141 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.25500	17.60	17.60	0.44500	5.45	5.45	0.60300	2.59	2.59
0.25700	33.40	33.40	0.44900	10.56	10.56	0.60900	5.36	5.36
0.26200	71.88	71.88	0.45800	22.22	22.22	0.62100	11.22	11.22
0.27000	130.54	130.54	0.47100	39.41	39.41	0.63800	20.17	20.17
0.28000	199.33	199.33	0.48900	63.61	63.61	0.66200	33.77	33.77
0.29300	282.11	282.11	0.51100	93.40	93.40	0.69200	51.83	51.83
0.30800	369.48	369.48	0.53700	128.33	128.33	0.72800	74.29	74.29
0.32800	474.33	474.33	0.57200	174.06	174.06	0.77600	104.48	104.48
0.35300	589.53	589.53	0.61600	228.38	228.38	0.83500	140.54	140.54
0.39100	737.11	737.11	0.68300	302.95	302.95	0.92500	191.26	191.26
0.44200	894.45	894.44	0.77100	385.55	385.84	1.04000	246.88	247.22
0.50500	1040.95	1048.06	0.88100	466.87	472.05	1.19000	304.44	308.66
0.58100	1168.05	1198.54	1.01000	537.42	556.09	1.37000	355.01	369.97
0.68200	1280.52	1359.70	1.18000	600.87	647.34	1.61000	399.77	437.01
0.80800	1364.27	1520.97	1.41000	651.95	747.13	1.91000	432.27	504.79
0.96000	1416.69	1678.45	1.67000	681.35	838.31	2.26000	451.09	568.87
1.13000	1440.61	1823.72	1.98000	695.25	927.45	2.68000	459.30	631.65
1.31000	1444.66	1953.91	2.29000	697.26	1001.91	3.10000	459.70	683.88
1.51000	1435.98	2078.37	2.64000	692.60	1073.77	3.58000	455.68	734.57
1.76000	1416.18	2212.93	3.08000	682.24	1150.69	4.17000	448.15	787.39
2.14000	1380.19	2385.37	3.74000	664.26	1246.80	5.07000	435.69	854.20
2.52000	1344.72	2531.16	4.40000	647.21	1326.79	5.97000	424.23	909.44
3.79000	1251.86	2901.61	6.61000	604.20	1526.14	8.95000	396.71	1044.78
5.05000	1193.09	3167.86	8.81000	578.88	1667.48	11.90000	381.13	1139.83
7.58000	1128.58	3553.31	13.20000	551.29	1866.30	17.90000	363.73	1274.97
12.60000	1070.35	4040.88	22.00000	526.43	2116.83	29.80000	348.63	1442.82
25.20000	1026.11	4716.13	44.00000	509.49	2459.14	59.70000	338.70	1672.57
50.50000	1006.70	5399.92	88.10000	500.85	2801.38	119.00000	333.10	1899.20
75.80000	996.81	5796.67	132.00000	495.72	2998.67	179.00000	329.57	2031.83
126.00000	983.29	6288.74	220.00000	488.85	3244.94	298.00000	325.05	2195.29
176.00000	974.56	6608.76	308.00000	484.84	3405.63	417.00000	322.56	2302.20

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
 Z=70 A=173.040

TD=16.0 EV ET=0.734095 MEV			TD=20.0 EV ET=0.857410 MEV			TD=24.0 EV ET=0.970497 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.74100	1.47	1.47	0.86500	0.92	0.92	0.98000	0.74	0.74
0.74800	3.07	3.07	0.87400	2.13	2.13	0.98900	1.53	1.53
0.76300	6.84	6.84	0.89100	4.74	4.74	1.00000	2.63	2.63
0.78500	13.10	13.10	0.91700	9.44	9.44	1.03000	6.20	6.20
0.81400	22.39	22.39	0.95100	16.58	16.58	1.07000	12.04	12.04
0.85100	35.41	35.41	0.99400	26.75	26.75	1.12000	20.55	20.55
0.89500	51.89	51.89	1.04000	38.49	38.49	1.18000	31.83	31.83
0.95400	74.59	74.59	1.11000	57.08	57.08	1.26000	47.66	47.66
1.02000	99.66	99.66	1.20000	80.85	80.85	1.35000	65.44	65.44
1.13000	138.70	138.70	1.32000	110.52	110.52	1.50000	93.21	93.21
1.28000	184.38	184.78	1.50000	148.70	149.14	1.69000	123.35	123.75
1.46000	227.64	231.32	1.71000	183.59	187.05	1.94000	154.30	157.59
1.68000	266.21	278.78	1.97000	214.76	226.18	2.23000	179.91	190.20
1.98000	300.56	331.75	2.31000	241.20	268.13	2.62000	202.00	226.12
2.34000	324.04	383.09	2.74000	259.93	310.95	3.10000	217.01	261.77
2.78000	337.80	433.83	3.25000	270.19	351.89	3.68000	225.18	296.48
3.30000	343.10	482.46	3.85000	273.81	390.95	4.36000	227.80	329.40
3.81000	342.72	522.10	4.45000	273.10	423.38	5.04000	226.92	356.70
4.40000	339.20	560.93	5.14000	269.96	454.87	5.82000	224.09	383.11
5.13000	333.13	601.59	6.00000	264.84	488.03	6.79000	219.71	410.86
6.23000	323.63	652.23	7.28000	257.14	528.74	8.24000	213.22	445.03
7.34000	314.97	694.39	8.57000	250.25	562.58	9.70000	207.47	473.37
11.00000	294.88	796.98	12.80000	234.60	644.52	14.50000	194.61	542.12
14.60000	283.77	868.37	17.10000	225.78	703.19	19.40000	187.39	591.38
22.00000	271.16	970.61	25.70000	216.04	784.66	29.10000	179.50	659.05
36.70000	260.47	1097.45	42.80000	207.88	886.03	48.50000	172.92	743.79
73.40000	253.61	1269.71	85.70000	202.67	1024.22	97.00000	168.76	858.84
146.00000	249.45	1439.10	171.00000	199.33	1160.30	194.00000	165.96	972.58

B

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
 Z=70 A=173.040

TD=28.0 EV ET=1.075542 MEV			TD=32.0 EV ET=1.174053 MEV			TD=36.0 EV ET=1.267113 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.08000	0.23	0.23	1.18000	0.22	0.22	1.27000	0.08	0.08
1.09000	0.80	0.80	1.19000	0.64	0.64	1.29000	0.73	0.73
1.11000	2.19	2.19	1.22000	2.30	2.30	1.31000	1.60	1.60
1.15000	5.85	5.85	1.25000	4.46	4.46	1.35000	3.88	3.88
1.19000	10.40	10.40	1.30000	8.93	8.93	1.40000	7.52	7.52
1.24000	16.99	16.99	1.36000	15.31	15.31	1.46000	12.71	12.71
1.31000	27.22	27.22	1.43000	23.60	23.60	1.54000	20.51	20.51
1.39000	39.59	39.59	1.52000	34.86	34.86	1.64000	30.91	30.91
1.50000	56.62	56.62	1.64000	49.92	49.92	1.77000	44.48	44.48
1.66000	79.83	79.83	1.81000	69.91	69.91	1.96000	63.02	63.02
1.88000	107.07	107.50	2.05000	94.00	94.41	2.21000	83.81	84.20
2.15000	133.00	136.07	2.34000	116.54	119.33	2.53000	104.35	107.04
2.47000	154.89	164.26	2.70000	136.31	145.03	2.91000	121.51	129.55
2.90000	173.64	195.28	3.16000	152.27	171.87	3.42000	135.94	154.21
3.44000	186.42	226.61	3.75000	163.32	199.58	4.05000	145.41	178.67
4.08000	193.05	256.46	4.46000	168.98	226.31	4.81000	150.22	202.36
4.83000	195.01	284.77	5.28000	170.46	251.22	5.70000	151.39	224.73
5.59000	194.05	308.52	6.10000	169.49	271.84	6.58000	150.43	243.03
6.45000	191.50	331.16	7.04000	167.15	291.77	7.60000	148.27	260.91
7.52000	187.67	354.97	8.21000	163.73	312.72	8.86000	145.19	279.55
9.14000	182.01	384.62	9.97000	158.77	338.64	10.70000	140.89	301.99
10.70000	177.25	408.17	11.70000	154.55	359.62	12.60000	137.05	321.08
16.10000	166.20	468.26	17.60000	145.00	412.29	19.00000	128.59	368.28
21.50000	160.16	510.29	23.40000	139.86	448.55	25.30000	124.06	400.71
32.20000	153.53	568.14	35.20000	134.07	499.77	38.00000	118.99	446.10
53.70000	148.03	640.94	58.70000	129.39	563.51	63.30000	114.92	502.68
107.00000	144.58	739.08	117.00000	126.44	649.45	126.00000	112.35	578.94
215.00000	142.16	837.20	234.00000	124.33	734.72	253.00000	110.46	655.15

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
 Z=70 A=173.040

TD=40.0 EV ET=1.355540 MEV			TD=44.0 EV ET=1.439963 MEV			TD=48.0 EV ET=1.520882 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.36000	0.09	0.09	1.45000	0.17	0.17	1.53000	0.13	0.13
1.38000	0.62	0.62	1.46000	0.39	0.39	1.55000	0.50	0.50
1.40000	1.32	1.32	1.49000	1.24	1.24	1.58000	1.28	1.28
1.45000	3.70	3.70	1.54000	3.27	3.27	1.62000	2.68	2.68
1.50000	6.80	6.80	1.59000	5.89	5.89	1.68000	5.37	5.37
1.57000	11.97	11.97	1.67000	10.96	10.96	1.76000	9.77	9.77
1.65000	18.61	18.61	1.75000	16.68	16.68	1.85000	15.38	15.38
1.76000	28.32	28.32	1.87000	25.81	25.81	1.97000	23.36	23.36
1.89000	39.85	39.85	2.01000	36.52	36.52	2.12000	33.39	33.39
2.10000	57.23	57.23	2.23000	52.21	52.21	2.35000	47.75	47.75
2.37000	76.17	76.57	2.51000	69.15	69.53	2.66000	64.09	64.48
2.71000	94.50	97.08	2.87000	85.92	88.30	3.04000	79.36	81.69
3.11000	109.67	117.14	3.31000	100.20	107.30	3.49000	91.99	98.63
3.65000	122.50	139.28	3.88000	111.65	127.37	4.10000	102.58	117.36
4.33000	131.02	161.65	4.60000	119.25	147.71	4.86000	109.43	136.05
5.15000	135.24	183.24	5.47000	122.96	167.38	5.77000	112.72	153.97
6.09000	136.16	203.20	6.47000	123.70	185.61	6.84000	113.33	170.94
7.04000	135.21	219.88	7.48000	122.78	200.82	7.90000	112.43	184.82
8.13000	133.21	236.00	8.63000	120.93	215.41	9.12000	110.69	198.28
9.48000	130.40	252.84	10.00000	118.46	230.13	10.60000	108.36	212.06
11.50000	126.42	273.55	12.20000	114.72	249.56	12.90000	104.97	229.67
13.50000	123.03	290.43	14.30000	111.68	264.78	15.20000	102.09	244.09
20.30000	115.53	332.68	21.50000	104.90	303.23	22.80000	95.97	279.16
27.10000	111.45	362.15	28.70000	101.22	330.03	30.40000	92.64	303.64
40.60000	106.97	402.76	43.10000	97.15	367.19	45.60000	88.96	337.62
67.70000	103.35	453.81	71.90000	93.90	413.66	76.00000	86.03	380.16
135.00000	101.08	522.64	143.00000	91.87	476.01	152.00000	84.18	437.78
271.00000	99.37	591.19	287.00000	90.32	538.30	304.00000	82.76	494.58

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
 Z=70 A=173.040

TD=52.0 EV ET=1.598699 MEV			TD=56.0 EV ET=1.673746 MEV			TD=60.0 EV ET=1.746299 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.61000	0.13	0.13	1.69000	0.17	0.17	1.76000	0.12	0.12
1.63000	0.45	0.45	1.70000	0.30	0.30	1.78000	0.36	0.36
1.66000	1.13	1.13	1.74000	1.07	1.07	1.81000	0.86	0.86
1.71000	2.67	2.67	1.79000	2.44	2.44	1.86000	2.04	2.04
1.77000	5.09	5.09	1.85000	4.57	4.57	1.93000	4.23	4.23
1.85000	8.98	8.98	1.94000	8.47	8.47	2.02000	7.72	7.72
1.95000	14.50	14.50	2.04000	13.39	13.39	2.13000	12.58	12.58
2.07000	21.56	21.56	2.17000	20.22	20.22	2.27000	19.20	19.20
2.23000	31.02	31.02	2.34000	29.18	29.18	2.44000	27.26	27.26
2.47000	44.25	44.25	2.59000	41.43	41.43	2.70000	38.72	38.72
2.79000	59.14	59.51	2.92000	55.09	55.45	3.05000	51.71	52.07
3.19000	73.35	75.54	3.34000	68.34	70.44	3.49000	64.10	66.14
3.67000	85.18	91.48	3.84000	79.25	85.23	4.01000	74.20	79.92
4.31000	94.87	108.80	4.51000	88.22	101.37	4.71000	82.50	95.03
5.11000	101.11	126.13	5.35000	93.97	117.55	5.58000	87.77	110.05
6.07000	104.07	142.75	6.36000	96.65	133.09	6.63000	90.21	124.54
7.19000	104.56	158.38	7.53000	97.05	147.59	7.85000	90.54	138.10
8.31000	103.68	171.27	8.70000	96.20	159.55	9.08000	89.72	149.36
9.59000	102.05	183.68	10.00000	94.71	170.77	10.40000	88.35	159.59
11.10000	99.95	196.08	11.70000	92.60	183.14	12.20000	86.33	171.34
13.50000	96.82	212.30	14.20000	89.71	198.04	14.80000	83.64	185.23
15.90000	94.17	225.60	16.70000	87.28	210.28	17.40000	81.38	196.64
23.90000	88.51	258.18	25.10000	82.07	240.55	26.10000	76.55	224.77
31.90000	85.44	280.86	33.40000	79.26	261.40	34.90000	73.90	244.57
47.90000	82.05	312.32	50.20000	76.13	290.69	52.30000	71.02	271.71
79.90000	79.38	351.66	83.60000	73.68	327.11	87.30000	68.74	305.88
159.00000	77.69	404.47	167.00000	72.12	376.43	174.00000	67.30	351.76

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
 Z=70 A=173.040

TD=64.0 EV ET=1.816592 MEV			TD=68.0 EV ET=1.884823 MEV			TD=72.0 EV ET=1.951164 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.83000	0.10	0.10	1.90000	0.10	0.10	1.97000	0.11	0.11
1.85000	0.30	0.30	1.92000	0.28	0.28	1.99000	0.29	0.29
1.88000	0.74	0.74	1.96000	0.84	0.84	2.02000	0.65	0.65
1.94000	2.02	2.02	2.01000	1.82	1.82	2.08000	1.69	1.69
2.01000	4.02	4.02	2.09000	3.90	3.90	2.16000	3.58	3.58
2.10000	7.18	7.18	2.18000	6.79	6.79	2.26000	6.51	6.51
2.21000	11.57	11.57	2.29000	10.79	10.79	2.38000	10.53	10.53
2.36000	17.99	17.99	2.45000	17.02	17.02	2.53000	15.89	15.89
2.54000	25.71	25.71	2.63000	24.07	24.07	2.73000	23.06	23.06
2.81000	36.48	36.48	2.92000	34.59	34.60	3.02000	32.69	32.69
3.17000	48.56	48.90	3.29000	45.87	46.20	3.41000	43.55	43.88
3.63000	60.25	62.21	3.76000	56.73	58.59	3.90000	53.84	55.67
4.17000	69.69	75.15	4.33000	65.76	71.02	4.48000	62.20	67.23
4.90000	77.46	89.39	5.08000	72.97	84.32	5.26000	69.00	79.87
5.81000	82.36	103.57	6.03000	77.57	97.77	6.24000	73.29	92.56
6.90000	84.58	117.13	7.16000	79.61	110.55	7.41000	75.20	104.64
8.17000	84.85	129.86	8.48000	79.83	122.56	8.78000	75.37	116.03
9.44000	84.06	140.36	9.80000	79.06	132.45	10.10000	74.66	125.09
10.80000	82.77	149.87	11.30000	77.76	141.93	11.70000	73.38	134.34
12.70000	80.85	161.07	13.10000	76.09	151.55	13.60000	71.77	143.59
15.40000	78.33	174.07	16.00000	73.63	164.26	16.50000	69.52	155.20
18.10000	76.21	184.75	18.80000	71.64	174.30	19.50000	67.58	165.03
27.20000	71.69	211.26	28.20000	67.42	199.15	29.20000	63.63	188.41
36.30000	69.23	229.70	37.60000	65.13	216.46	39.00000	61.45	204.86
54.40000	66.54	255.16	56.50000	62.59	240.58	58.50000	59.08	227.54
90.80000	64.42	287.19	94.20000	60.62	270.66	97.50000	57.24	255.94
181.00000	63.09	330.21	188.00000	59.37	311.23	195.00000	56.06	294.37

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
 Z=70 A=173.040

TD=76.0 EV ET=2.015764 MEV			TD=80.0 EV ET=2.078754 MEV			TD=84.0 EV ET=2.140247 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.03000	0.07	0.07	2.09000	0.05	0.05	2.16000	0.08	0.08
2.05000	0.21	0.21	2.12000	0.24	0.24	2.18000	0.21	0.21
2.09000	0.64	0.64	2.16000	0.66	0.66	2.22000	0.58	0.58
2.15000	1.61	1.61	2.22000	1.56	1.56	2.29000	1.55	1.55
2.23000	3.34	3.34	2.30000	3.17	3.17	2.37000	3.06	3.06
2.33000	6.03	6.03	2.41000	5.92	5.92	2.48000	5.61	5.61
2.45000	9.71	9.71	2.53000	9.34	9.34	2.61000	9.05	9.05
2.62000	15.30	15.30	2.70000	14.51	14.51	2.78000	13.86	13.86
2.82000	21.89	21.89	2.91000	20.91	20.91	2.99000	19.80	19.80
3.12000	31.06	31.06	3.22000	29.66	29.66	3.31000	28.19	28.20
3.52000	41.30	41.62	3.63000	39.34	39.65	3.74000	37.61	37.92
4.03000	51.14	52.91	4.15000	48.59	50.29	4.28000	46.47	48.14
4.63000	59.04	63.89	4.78000	56.23	60.93	4.92000	53.62	58.15
5.44000	65.48	75.94	5.61000	62.27	72.31	5.77000	59.33	68.96
6.45000	69.48	87.93	6.65000	66.04	83.71	6.84000	62.91	79.83
7.65000	71.24	99.31	7.89000	67.68	94.55	8.13000	64.47	90.28
9.07000	71.38	110.15	9.35000	67.80	104.83	9.63000	64.55	100.05
10.40000	70.72	118.55	10.80000	67.10	113.24	11.10000	63.89	107.94
12.00000	69.54	127.10	12.40000	66.00	121.07	12.80000	62.80	115.64
14.10000	67.90	136.49	14.50000	64.49	129.74	14.90000	61.40	123.66
17.10000	65.77	147.47	17.60000	62.45	140.22	18.10000	59.45	133.69
20.10000	63.99	156.49	20.70000	60.76	148.82	21.40000	57.79	142.15
30.20000	60.23	178.83	31.10000	57.19	170.06	32.10000	54.42	162.29
40.30000	58.19	194.36	41.50000	55.25	184.81	42.80000	52.59	176.31
60.40000	55.95	215.81	62.30000	53.13	205.28	64.20000	50.58	195.76
100.00000	54.23	242.38	103.00000	51.51	230.45	107.00000	49.03	220.12
201.00000	53.10	279.04	207.00000	50.44	265.28	214.00000	48.03	253.06

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN YB
 Z=70 A=173.040

TD=88.0 EV ET=2.200345 MEV			TD=92.0 EV ET=2.259141 MEV			TD=96.0 EV ET=2.316714 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.22000	0.07	0.07	2.28000	0.07	0.07	2.33000	0.04	0.04
2.24000	0.19	0.19	2.30000	0.18	0.18	2.36000	0.17	0.17
2.28000	0.52	0.52	2.34000	0.49	0.49	2.40000	0.46	0.46
2.35000	1.41	1.41	2.41000	1.30	1.30	2.47000	1.23	1.23
2.44000	2.98	2.98	2.50000	2.75	2.75	2.57000	2.74	2.74
2.55000	5.36	5.36	2.62000	5.17	5.17	2.68000	4.82	4.82
2.68000	8.57	8.57	2.75000	8.17	8.17	2.82000	7.84	7.84
2.86000	13.31	13.31	2.93000	12.60	12.60	3.01000	12.22	12.22
3.08000	19.11	19.11	3.16000	18.26	18.26	3.24000	17.53	17.53
3.41000	27.14	27.14	3.50000	26.00	26.00	3.59000	24.99	24.99
3.85000	36.07	36.38	3.95000	34.53	34.83	4.05000	33.14	33.44
4.40000	44.44	46.06	4.51000	42.49	44.04	4.63000	40.85	42.37
5.06000	51.27	55.65	5.19000	49.07	53.28	5.32000	47.06	51.14
5.94000	56.72	66.05	6.09000	54.27	63.21	6.25000	52.06	60.74
7.04000	60.09	76.42	7.22000	57.49	73.17	7.41000	55.12	70.28
8.36000	61.54	86.34	8.58000	58.87	82.71	8.80000	56.42	79.40
9.90000	61.60	95.66	10.10000	58.93	91.32	10.40000	56.45	87.85
11.40000	60.97	103.15	11.70000	58.29	98.79	12.00000	55.84	94.82
13.20000	59.89	110.72	13.50000	57.29	105.87	13.90000	54.84	101.79
15.40000	58.52	118.48	15.80000	55.95	113.45	16.20000	53.59	108.86
18.70000	56.66	128.03	19.20000	54.16	122.63	19.60000	51.91	117.46
22.00000	55.12	135.87	22.50000	52.73	129.95	23.10000	50.49	124.73
33.00000	51.92	155.10	33.80000	49.65	148.42	34.70000	47.56	142.44
44.00000	50.17	168.49	45.10000	47.98	161.26	46.30000	45.96	154.74
66.00000	48.26	187.06	67.70000	46.15	179.05	69.50000	44.21	171.79
110.00000	46.79	210.31	112.00000	44.76	200.98	115.00000	42.89	192.81
220.00000	45.84	241.75	225.00000	43.85	231.25	231.00000	42.02	221.82

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
 Z=72 A=178.500

TD= 4.0 EV			ET=0.259438 MEV			TD= 8.0 EV			ET=0.451304 MEV			TD=12.0 EV			ET=0.610822 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.26200	20.96	20.96	0.45500	4.77	4.77	0.61600	2.34	2.34									
0.26400	37.06	37.06	0.46000	11.31	11.31	0.62300	5.66	5.66									
0.26900	76.30	76.30	0.46900	23.32	23.32	0.63500	11.72	11.72									
0.27700	136.32	136.32	0.48200	41.08	41.08	0.65300	21.58	21.58									
0.28700	206.98	206.98	0.50000	66.19	66.19	0.67800	36.42	36.42									
0.30000	292.38	292.38	0.52300	98.64	98.64	0.70800	55.40	55.40									
0.31600	388.72	388.72	0.55000	136.56	136.56	0.74500	79.69	79.69									
0.33700	502.45	502.45	0.58600	185.81	185.81	0.79400	112.13	112.13									
0.36300	626.22	626.22	0.63100	244.00	244.00	0.85500	151.33	151.33									
0.40200	782.78	782.78	0.69900	323.22	323.22	0.94600	205.11	205.11									
0.45400	948.69	948.68	0.78900	411.37	411.69	1.06000	262.83	263.17									
0.51800	1102.47	1110.19	0.90200	497.93	503.61	1.22000	326.44	331.21									
0.59600	1236.56	1269.54	1.03000	570.06	589.88	1.40000	378.06	394.36									
0.70000	1354.07	1439.90	1.21000	638.13	689.14	1.64000	423.39	463.27									
0.83000	1439.62	1609.77	1.44000	688.49	790.98	1.95000	456.55	534.87									
0.98500	1490.26	1773.00	1.71000	717.25	887.21	2.32000	474.84	603.44									
1.16000	1510.95	1924.50	2.03000	728.96	980.12	2.74000	481.13	666.71									
1.34000	1511.09	2056.23	2.34000	728.63	1055.20	3.17000	479.87	720.57									
1.55000	1497.74	2188.13	2.70000	721.52	1129.67	3.66000	474.17	772.61									
1.81000	1472.48	2328.75	3.15000	708.56	1208.75	4.27000	464.80	827.41									
2.20000	1430.15	2506.14	3.83000	687.39	1308.14	5.19000	450.37	895.84									
2.59000	1389.89	2656.01	4.51000	667.99	1390.69	6.10000	437.65	951.84									
3.89000	1287.91	3035.58	6.76000	621.18	1594.04	9.16000	407.57	1091.16									
5.18000	1225.06	3308.52	9.02000	594.10	1739.63	12.20000	390.97	1189.22									
7.78000	1157.08	3704.97	13.50000	565.24	1943.00	18.30000	372.90	1326.83									
12.90000	1096.90	4202.84	22.50000	539.49	2199.93	30.50000	357.26	1499.32									
25.90000	1051.53	4899.59	45.10000	522.20	2552.19	61.00000	347.19	1734.39									
51.80000	1031.65	5598.62	90.20000	513.16	2902.26	122.00000	341.23	1967.66									
77.80000	1020.95	6005.43	135.00000	507.60	3103.62	183.00000	337.42	2102.43									
129.00000	1006.35	6506.27	225.00000	500.21	3355.47	305.00000	332.57	2269.95									
181.00000	996.96	6837.92	315.00000	496.03	3519.86	427.00000	330.00	2379.51									

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
 Z=72 A=178.500

TD=16.0 EV			ET=0.750324 MEV			TD=20.0 EV			ET=0.875864 MEV			TD=24.0 EV			ET=0.990948 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.75700	1.45	1.45	0.88400	1.02	1.02	1.00000	0.72	0.72									
0.76500	3.34	3.34	0.89300	2.27	2.27	1.01000	1.64	1.64									
0.78000	7.27	7.27	0.91000	5.00	5.00	1.03000	3.81	3.81									
0.80200	13.82	13.82	0.93700	10.11	10.11	1.06000	7.80	7.80									
0.83200	23.90	23.90	0.97200	17.88	17.88	1.09000	12.49	12.49									
0.87000	38.00	38.00	1.01000	27.33	27.33	1.14000	21.43	21.43									
0.91500	55.80	55.80	1.06000	40.76	40.76	1.20000	33.33	33.33									
0.97500	80.17	80.17	1.13000	60.41	60.41	1.28000	50.05	50.05									
1.05000	110.14	110.14	1.22000	85.54	85.54	1.38000	70.92	70.92									
1.16000	150.90	150.90	1.35000	119.37	119.37	1.53000	100.11	100.11									
1.31000	198.35	198.81	1.53000	159.22	159.70	1.73000	133.17	133.64									
1.50000	245.23	249.53	1.75000	196.95	200.85	1.98000	165.05	168.66									
1.72000	284.26	298.21	2.01000	228.72	241.13	2.27000	191.26	202.31									
2.02000	318.70	352.44	2.36000	255.97	285.35	2.67000	214.07	240.13									
2.40000	342.70	407.54	2.80000	274.50	329.91	3.17000	229.15	277.90									
2.85000	355.32	459.88	3.32000	283.93	372.16	3.76000	236.54	313.59									
3.37000	359.13	508.90	3.94000	286.44	412.84	4.45000	238.20	347.29									
3.90000	357.44	550.35	4.55000	284.67	445.97	5.15000	236.43	375.57									
4.50000	352.66	589.98	5.25000	280.54	478.06	5.94000	232.79	402.44									
5.25000	345.25	631.88	6.13000	274.38	512.14	6.93000	227.56	430.90									
6.37000	334.36	683.55	7.44000	265.56	553.92	8.42000	220.11	466.13									
7.50000	324.73	726.59	8.75000	257.93	588.39	9.90000	213.78	494.95									
11.20000	303.09	830.82	13.10000	240.90	672.87	14.80000	199.89	565.41									
15.00000	290.96	906.34	17.50000	231.59	733.00	19.80000	192.26	615.90									
22.50000	277.96	1009.99	26.20000	221.52	815.73	29.70000	184.02	685.28									
37.50000	266.95	1139.82	43.70000	213.07	919.99	49.50000	177.24	772.16									
75.00000	259.97	1316.47	87.50000	207.76	1061.69	99.00000	172.99	890.13									
150.00000	255.50	1491.32	175.00000	204.17	1201.51	198.00000	169.99	1006.60									

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
 Z=72 A=178.500

TD=28.0 EV ET=1.097820 MEV			TD=32.0 EV ET=1.198022 MEV			TD=36.0 EV ET=1.292666 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.10000	0.11	0.11	1.21000	0.48	0.48	1.30000	0.21	0.21
1.11000	0.68	0.68	1.22000	0.96	0.96	1.31000	0.55	0.55
1.14000	2.92	2.92	1.24000	2.13	2.13	1.34000	1.89	1.89
1.17000	5.85	5.85	1.28000	5.16	5.16	1.38000	4.35	4.35
1.21000	10.59	10.59	1.32000	8.94	8.94	1.43000	8.25	8.25
1.27000	18.95	18.95	1.38000	15.60	15.60	1.49000	13.79	13.79
1.33000	28.25	28.25	1.46000	25.62	25.62	1.57000	22.08	22.08
1.42000	42.97	42.97	1.55000	37.56	37.56	1.68000	34.21	34.21
1.53000	60.96	60.96	1.67000	53.48	53.48	1.80000	47.45	47.45
1.70000	86.84	86.84	1.85000	75.72	75.72	2.00000	68.00	68.00
1.92000	115.16	115.64	2.09000	100.83	101.28	2.26000	90.48	90.94
2.19000	141.96	145.28	2.39000	124.88	127.99	2.58000	111.61	114.56
2.52000	165.02	175.24	2.75000	145.02	154.45	2.97000	129.51	138.32
2.96000	184.15	207.72	3.23000	161.60	183.09	3.49000	144.11	164.01
3.51000	196.67	240.16	3.83000	172.31	211.68	4.13000	153.33	189.27
4.17000	202.72	271.30	4.55000	177.36	239.10	4.91000	157.64	213.87
4.94000	203.83	300.56	5.39000	178.12	264.83	5.81000	158.16	236.69
5.70000	202.14	324.45	6.22000	176.50	285.85	6.72000	156.59	255.74
6.58000	198.87	347.76	7.18000	173.53	306.33	7.75000	153.89	273.88
7.68000	194.29	372.34	8.38000	169.48	327.91	9.04000	150.26	293.05
9.33000	187.88	402.64	10.10000	164.08	353.44	10.90000	145.43	315.85
10.90000	182.67	426.46	11.90000	159.28	375.47	12.90000	141.07	336.00
16.40000	170.73	488.03	17.90000	148.97	429.45	19.30000	132.13	383.44
21.90000	164.35	531.10	23.90000	143.47	467.17	25.80000	127.27	417.13
32.90000	157.37	590.86	35.90000	137.45	519.48	38.70000	122.01	463.51
54.80000	151.73	665.33	59.90000	132.62	584.92	64.60000	117.79	521.76
109.00000	148.21	765.70	119.00000	129.62	672.62	129.00000	115.16	600.31
219.00000	145.61	866.17	239.00000	127.34	760.45	258.00000	113.14	677.90

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
 Z=72 A=178.500

TD=40.0 EV ET=1.382585 MEV			TD=44.0 EV ET=1.468424 MEV			TD=48.0 EV ET=1.550692 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.39000	0.16	0.16	1.48000	0.21	0.21	1.56000	0.13	0.13
1.41000	0.74	0.74	1.49000	0.44	0.44	1.58000	0.52	0.52
1.43000	1.49	1.49	1.52000	1.34	1.34	1.61000	1.34	1.34
1.47000	3.46	3.46	1.57000	3.50	3.50	1.65000	2.81	2.81
1.53000	7.34	7.34	1.62000	6.28	6.28	1.72000	6.19	6.19
1.60000	12.83	12.83	1.70000	11.64	11.64	1.79000	10.30	10.30
1.68000	19.88	19.88	1.79000	18.50	18.50	1.89000	16.93	16.93
1.79000	30.17	30.17	1.90000	27.38	27.38	2.01000	25.40	25.40
1.93000	43.29	43.29	2.05000	39.50	39.50	2.17000	36.70	36.70
2.14000	61.56	61.55	2.27000	56.01	56.01	2.40000	51.74	51.74
2.41000	81.36	81.79	2.56000	74.33	74.75	2.71000	68.75	69.18
2.76000	100.92	103.72	2.93000	92.07	94.71	3.10000	84.91	87.48
3.17000	116.76	124.90	3.37000	106.57	114.26	3.56000	98.00	105.27
3.73000	129.95	148.35	3.96000	118.36	135.50	4.18000	108.68	124.72
4.42000	138.16	171.38	4.69000	125.69	156.45	4.96000	115.35	144.20
5.25000	141.86	193.48	5.58000	128.97	176.81	5.89000	118.21	162.71
6.22000	142.20	214.24	6.60000	129.17	195.55	6.97000	118.32	179.98
7.18000	140.73	231.20	7.63000	127.76	211.16	8.06000	116.97	194.34
8.29000	138.23	247.71	8.81000	125.44	226.20	9.30000	114.83	208.09
9.67000	134.93	265.00	10.20000	122.57	241.19	10.80000	112.12	222.13
11.70000	130.49	285.93	12.40000	118.43	260.74	13.10000	108.36	239.86
13.80000	126.65	303.73	14.60000	114.98	276.77	15.50000	105.11	255.01
20.70000	118.64	346.76	22.00000	107.67	316.38	23.20000	98.57	290.77
27.60000	114.36	376.84	29.30000	103.82	343.63	31.00000	95.03	316.04
41.40000	109.67	418.59	44.00000	99.58	381.72	46.50000	91.19	350.87
69.10000	105.93	471.04	73.40000	96.25	429.37	77.50000	88.18	394.49
138.00000	103.60	541.76	146.00000	94.17	493.30	155.00000	86.28	453.56
276.00000	101.78	611.57	293.00000	92.50	557.07	310.00000	84.76	511.71

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
Z=72 A=178.500

TD=52.0 EV ET=1.629801 MEV			TD=56.0 EV ET=1.706089 MEV			TD=60.0 EV ET=1.779837 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.64000	0.12	0.12	1.72000	0.14	0.14	1.79000	0.09	0.09
1.66000	0.45	0.45	1.74000	0.44	0.44	1.81000	0.32	0.32
1.69000	1.14	1.14	1.77000	1.06	1.06	1.85000	1.04	1.04
1.74000	2.76	2.76	1.82000	2.48	2.48	1.90000	2.33	2.33
1.80000	5.30	5.30	1.89000	5.13	5.13	1.97000	4.70	4.70
1.89000	9.96	9.96	1.97000	8.81	8.81	2.06000	8.42	8.42
1.98000	15.24	15.24	2.08000	14.56	14.56	2.17000	13.60	13.60
2.11000	23.34	23.34	2.21000	21.80	21.80	2.31000	20.62	20.62
2.28000	33.95	33.95	2.38000	31.27	31.27	2.49000	29.64	29.64
2.52000	47.83	47.83	2.64000	44.68	44.68	2.75000	41.68	41.68
2.85000	63.79	64.21	2.98000	59.33	59.73	3.11000	55.60	56.00
3.25000	78.40	80.80	3.41000	73.24	75.59	3.55000	68.38	70.59
3.74000	90.67	97.54	3.92000	84.48	91.06	4.09000	79.03	85.31
4.40000	100.56	115.77	4.60000	93.46	107.77	4.80000	87.36	100.95
5.21000	106.55	133.58	5.45000	98.99	124.41	5.69000	92.46	116.56
6.19000	109.11	150.74	6.48000	101.32	140.45	6.76000	94.56	131.49
7.33000	109.14	166.79	7.67000	101.29	155.34	8.00000	94.49	145.39
8.47000	107.87	179.99	8.87000	100.06	167.69	9.25000	93.32	156.91
9.77000	105.86	192.68	10.20000	98.22	179.23	10.60000	91.63	167.43
11.40000	103.26	206.07	11.90000	95.81	191.67	12.40000	89.33	179.26
13.80000	99.82	222.28	14.50000	92.50	207.25	15.10000	86.25	193.78
16.20000	96.97	235.62	17.00000	89.88	219.54	17.70000	83.81	205.25
24.40000	90.87	269.17	25.50000	84.30	250.41	26.60000	78.60	234.21
32.50000	87.65	292.25	34.10000	81.29	272.15	35.50000	75.83	254.36
48.80000	84.12	324.49	51.10000	78.06	301.95	53.30000	72.81	282.31
81.40000	81.37	364.84	85.30000	75.52	339.47	88.90000	70.47	317.29
162.00000	79.64	418.98	170.00000	73.93	389.86	177.00000	68.99	364.26

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HF
Z=72 A=178.500

TD=64.0 EV ET=1.851285 MEV			TD=68.0 EV ET=1.920634 MEV			TD=72.0 EV ET=1.988060 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.86000	0.06	0.06	1.93000	0.06	0.06	2.00000	0.07	0.07
1.88000	0.26	0.26	1.95000	0.23	0.23	2.02000	0.23	0.23
1.92000	0.87	0.87	1.99000	0.78	0.78	2.06000	0.72	0.72
1.98000	2.26	2.26	2.05000	2.01	2.01	2.12000	1.84	1.84
2.05000	4.41	4.41	2.13000	4.24	4.24	2.20000	3.86	3.86
2.14000	7.78	7.78	2.22000	7.31	7.31	2.30000	6.97	6.97
2.25000	12.45	12.45	2.34000	11.97	11.97	2.42000	11.24	11.24
2.40000	19.26	19.26	2.49000	18.18	18.18	2.58000	17.31	17.31
2.59000	27.88	27.88	2.68000	26.04	26.04	2.78000	24.88	24.88
2.86000	39.19	39.20	2.97000	37.11	37.12	3.08000	35.35	35.35
3.23000	52.15	52.52	3.36000	49.48	49.87	3.47000	46.66	47.02
3.70000	64.44	66.61	3.84000	60.83	62.92	3.97000	57.50	59.49
4.25000	74.18	80.15	4.41000	69.96	75.68	4.57000	66.25	71.77
4.99000	81.99	94.89	5.18000	77.28	89.62	5.36000	73.05	84.84
5.92000	86.74	109.62	6.14000	81.67	103.43	6.36000	77.18	97.98
7.03000	88.64	123.60	7.29000	83.43	116.59	7.55000	78.79	110.42
8.33000	88.54	136.74	8.64000	83.29	128.99	8.94000	78.63	122.07
9.62000	87.42	147.47	9.98000	82.22	139.11	10.30000	77.63	131.47
11.10000	85.73	157.83	11.50000	80.64	148.79	11.90000	76.10	140.79
12.90000	83.65	168.46	13.40000	78.64	158.97	13.90000	74.17	150.57
15.70000	80.77	182.04	16.30000	75.93	171.72	16.80000	71.70	162.22
18.50000	78.42	193.15	19.20000	73.72	182.16	19.80000	69.61	172.12
27.70000	73.61	220.07	28.80000	69.21	207.62	29.80000	65.32	196.38
37.00000	71.02	239.03	38.40000	66.79	225.36	39.70000	63.05	213.09
55.50000	68.21	265.17	57.60000	64.16	249.97	59.60000	60.57	236.39
92.50000	66.04	297.93	96.00000	62.14	280.80	99.40000	58.67	265.55
185.00000	64.66	342.24	192.00000	60.85	322.51	198.00000	57.46	304.71

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HP
 Z=72 A=178.500

TD=76.0 EV ET=2.053713 MEV			TD=80.0 EV ET=2.117727 MEV			TD=84.0 EV ET=2.180219 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.07000	0.08	0.08	2.13000	0.05	0.05	2.20000	0.08	0.08
2.09000	0.24	0.24	2.16000	0.26	0.26	2.22000	0.22	0.22
2.13000	0.70	0.70	2.20000	0.71	0.71	2.26000	0.61	0.61
2.19000	1.73	1.73	2.26000	1.66	1.66	2.33000	1.63	1.63
2.27000	3.57	3.57	2.35000	3.61	3.61	2.42000	3.45	3.45
2.38000	6.73	6.73	2.45000	6.28	6.28	2.52000	5.92	5.92
2.50000	10.67	10.67	2.58000	10.22	10.22	2.65000	9.57	9.57
2.66000	16.26	16.26	2.75000	15.71	15.71	2.83000	14.96	14.96
2.87000	23.58	23.58	2.96000	22.48	22.48	3.05000	21.54	21.54
3.18000	33.53	33.54	3.28000	31.97	31.97	3.37000	30.35	30.36
3.59000	44.45	44.81	3.70000	42.29	42.64	3.81000	40.39	40.73
4.10000	54.57	56.50	4.23000	51.98	53.85	4.36000	49.67	51.51
4.72000	62.85	68.16	4.87000	59.83	64.96	5.01000	57.03	61.95
5.54000	69.29	80.61	5.71000	65.88	76.73	5.88000	62.80	73.25
6.57000	73.15	93.04	6.77000	69.51	88.53	6.97000	66.23	84.49
7.80000	74.64	104.84	8.04000	70.91	99.77	8.28000	67.53	95.22
9.24000	74.46	115.92	9.52000	70.72	110.29	9.81000	67.33	105.27
10.60000	73.53	124.56	11.00000	69.76	118.92	11.30000	66.42	113.33
12.30000	72.03	133.66	12.70000	68.37	127.28	13.00000	65.13	121.10
14.30000	70.26	142.66	14.80000	66.65	135.96	15.20000	63.46	129.55
17.40000	67.83	154.10	18.00000	64.35	146.80	18.50000	61.26	139.92
20.50000	65.86	163.46	21.10000	62.54	155.42	21.80000	59.48	148.41
30.80000	61.83	186.35	31.70000	58.72	177.18	32.70000	55.87	169.05
41.00000	59.70	202.14	42.30000	56.68	192.30	43.60000	53.95	183.42
61.60000	57.35	224.25	63.50000	54.47	213.27	65.40000	51.85	203.36
102.00000	55.58	251.50	105.00000	52.80	239.09	109.00000	50.26	228.33
205.00000	54.43	289.08	211.00000	51.70	274.79	218.00000	49.23	262.10

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN HP
 Z=72 A=178.500

TD=88.0 EV ET=2.241293 MEV			TD=92.0 EV ET=2.301040 MEV			TD=96.0 EV ET=2.359544 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.26000	0.07	0.07	2.32000	0.06	0.06	2.38000	0.06	0.06
2.28000	0.19	0.19	2.34000	0.17	0.17	2.40000	0.16	0.16
2.33000	0.65	0.65	2.39000	0.59	0.59	2.45000	0.55	0.55
2.39000	1.47	1.47	2.46000	1.49	1.49	2.52000	1.39	1.39
2.48000	3.13	3.13	2.55000	3.06	3.06	2.61000	2.84	2.84
2.59000	5.64	5.64	2.66000	5.42	5.42	2.73000	5.25	5.25
2.73000	9.31	9.31	2.80000	8.85	8.85	2.87000	8.46	8.46
2.91000	14.34	14.34	2.99000	13.81	13.81	3.06000	13.11	13.11
3.13000	20.47	20.47	3.22000	19.79	19.79	3.30000	18.97	18.97
3.47000	29.18	29.19	3.56000	27.92	27.93	3.65000	26.81	26.82
3.92000	38.70	39.04	4.02000	37.02	37.35	4.12000	35.51	35.83
4.48000	47.47	49.24	4.60000	45.49	47.21	4.71000	43.59	45.24
5.15000	54.51	59.26	5.29000	52.22	56.83	5.42000	50.07	54.52
6.05000	60.02	70.12	6.21000	57.45	67.18	6.37000	55.10	64.52
7.17000	63.25	80.84	7.36000	60.52	77.46	7.55000	58.02	74.38
8.51000	64.46	91.04	8.74000	61.65	87.25	8.96000	59.08	83.73
10.00000	64.28	100.19	10.30000	61.46	96.16	10.60000	58.86	92.47
11.60000	63.38	108.28	11.90000	60.61	103.68	12.20000	58.06	99.49
13.40000	62.11	115.91	13.80000	59.34	111.18	14.10000	56.87	106.52
15.60000	60.55	123.76	16.10000	57.83	118.79	16.50000	55.39	113.96
19.00000	58.44	133.70	19.50000	55.87	128.03	20.00000	53.50	122.86
22.40000	56.74	141.83	23.00000	54.24	135.83	23.50000	51.98	130.16
33.60000	53.31	161.54	34.50000	50.96	154.69	35.30000	48.83	148.30
44.80000	51.47	175.25	46.00000	49.21	167.81	47.10000	47.15	160.91
67.20000	49.48	194.29	69.00000	47.31	186.02	70.70000	45.33	178.39
112.00000	47.96	218.13	115.00000	45.87	208.83	117.00000	43.97	199.95
224.00000	46.99	250.36	230.00000	44.94	239.66	235.00000	43.07	229.68

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
 Z=73 A=180.950

TD= 4.0 EV ET=0.262394 MEV			TD= 8.0 EV ET=0.456035 MEV			TD=12.0 EV ET=0.616907 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.26500	21.64	21.64	0.46000	5.20	5.20	0.62300	2.81	2.81
0.26700	37.98	37.98	0.46500	11.87	11.87	0.62900	5.72	5.72
0.27200	77.85	77.85	0.47400	24.11	24.11	0.64100	11.91	11.91
0.28000	138.90	138.90	0.48700	42.25	42.25	0.66000	22.57	22.57
0.29100	217.85	217.85	0.50600	69.38	69.38	0.68400	37.20	37.20
0.30400	304.51	304.51	0.52900	102.65	102.65	0.71500	57.34	57.34
0.32000	402.48	402.48	0.55600	141.55	141.55	0.75200	82.34	82.34
0.34100	518.41	518.41	0.59200	192.12	192.12	0.80100	115.73	115.73
0.36700	644.86	644.86	0.63800	253.19	253.19	0.86300	156.74	156.74
0.40600	805.16	805.16	0.70600	334.45	334.45	0.95600	213.18	213.18
0.45900	978.21	978.21	0.79800	426.65	427.01	1.07000	272.29	272.65
0.52400	1137.45	1145.56	0.91200	515.56	521.57	1.23000	337.30	342.22
0.60300	1275.25	1309.74	1.04000	588.74	609.39	1.41000	389.92	406.68
0.70800	1394.83	1484.31	1.23000	660.46	715.33	1.66000	437.37	479.51
0.83900	1480.79	1657.70	1.45000	708.03	813.74	1.97000	469.99	551.79
0.99700	1530.89	1825.77	1.73000	736.99	914.58	2.34000	487.54	621.01
1.18000	1549.75	1984.93	2.05000	747.29	1008.13	2.77000	493.01	686.23
1.36000	1547.20	2116.90	2.37000	745.62	1086.00	3.20000	490.86	740.38
1.57000	1531.33	2249.23	2.73000	737.20	1160.72	3.70000	484.17	793.71
1.83000	1503.55	2390.47	3.19000	722.62	1241.76	4.31000	473.96	848.72
2.23000	1457.16	2572.99	3.87000	700.04	1341.42	5.24000	458.46	918.19
2.62000	1414.82	2723.27	4.56000	679.37	1425.44	6.16000	444.99	975.02
3.93000	1308.15	3107.18	6.84000	630.37	1631.98	9.25000	413.63	1116.23
5.24000	1242.77	3385.34	9.12000	602.52	1779.26	12.30000	396.61	1215.11
7.87000	1173.06	3787.53	13.60000	573.23	1983.61	18.50000	378.00	1355.56
13.10000	1111.36	4296.40	22.80000	546.72	2247.13	30.80000	362.14	1530.09
26.20000	1065.90	4999.21	45.60000	529.37	2603.22	61.60000	351.97	1768.45
52.40000	1045.71	5707.88	91.20000	520.10	2958.02	123.00000	345.85	2004.29
78.70000	1034.58	6120.00	136.00000	514.35	3160.13	185.00000	341.84	2141.70
131.00000	1019.25	6631.04	228.00000	506.59	3418.08	308.00000	336.83	2310.96
183.00000	1009.71	6962.50	319.00000	502.35	3584.26	431.00000	334.24	2421.79

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
 Z=73 A=180.950

TD=16.0 EV ET=0.757539 MEV			TD=20.0 EV ET=0.884066 MEV			TD=24.0 EV ET=1.000035 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.76500	1.66	1.66	0.89200	1.01	1.01	1.01000	0.81	0.81
0.77200	3.35	3.35	0.90100	2.29	2.29	1.02000	1.76	1.76
0.78700	7.36	7.36	0.91900	5.25	5.25	1.04000	4.01	4.01
0.81000	14.38	14.38	0.94500	10.31	10.31	1.07000	8.13	8.13
0.84000	24.76	24.76	0.98100	18.52	18.52	1.11000	14.71	14.71
0.87800	39.29	39.29	1.02000	28.53	28.53	1.16000	24.17	24.17
0.92400	58.04	58.04	1.07000	42.40	42.40	1.22000	36.59	36.59
0.98400	83.15	83.15	1.14000	62.66	62.66	1.30000	53.89	53.89
1.06000	114.41	114.41	1.23000	88.56	88.56	1.40000	75.34	75.34
1.17000	156.32	156.32	1.37000	125.89	125.89	1.55000	105.19	105.19
1.32000	205.05	205.51	1.54000	164.37	164.84	1.75000	138.85	139.37
1.51000	253.07	257.46	1.76000	203.08	207.03	2.00000	171.19	175.03
1.74000	294.43	309.25	2.03000	236.60	249.66	2.30000	198.42	210.30
2.04000	328.82	364.16	2.38000	263.90	294.49	2.70000	220.99	248.47
2.42000	352.53	419.89	2.82000	282.24	339.61	3.20000	235.72	286.57
2.87000	364.65	472.80	3.35000	291.39	383.10	3.80000	242.73	323.12
3.40000	367.85	523.18	3.97000	293.32	424.09	4.50000	243.84	357.45
3.93000	365.52	564.92	4.59000	290.99	458.00	5.20000	241.60	385.84
4.54000	360.03	605.46	5.30000	286.29	490.70	6.00000	237.48	413.16
5.30000	351.90	648.11	6.18000	279.65	524.95	7.00000	231.80	442.00
6.43000	340.25	700.46	7.51000	270.17	567.56	8.50000	223.89	477.58
7.57000	330.10	744.06	8.84000	262.09	602.68	10.00000	217.21	506.89
11.30000	307.59	849.59	13.20000	244.50	687.74	15.00000	202.68	578.91
15.10000	295.19	925.58	17.60000	234.97	748.30	20.00000	194.96	629.49
22.70000	281.81	1031.23	26.50000	224.53	833.36	30.00000	186.54	699.82
37.80000	270.62	1162.65	44.20000	215.96	939.07	50.00000	179.66	787.91
75.70000	263.55	1342.11	88.40000	210.61	1082.51	100.00000	175.37	907.53
151.00000	258.96	1518.62	176.00000	206.93	1223.26	200.00000	172.26	1025.54

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
 Z=73 A=180.950

TD=28.0 EV ET=1.107716 MEV			TD=32.0 EV ET=1.208669 MEV			TD=36.0 EV ET=1.304015 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.11000	0.12	0.12	1.22000	0.46	0.46	1.31000	0.17	0.17
1.12000	0.70	0.70	1.23000	0.95	0.95	1.33000	0.91	0.91
1.15000	3.00	3.00	1.25000	2.13	2.13	1.35000	1.87	1.87
1.18000	6.01	6.01	1.29000	5.24	5.24	1.39000	4.37	4.37
1.22000	10.88	10.88	1.34000	10.18	10.18	1.44000	8.36	8.36
1.28000	19.50	19.50	1.40000	17.20	17.20	1.51000	15.08	15.08
1.35000	30.74	30.74	1.47000	26.28	26.28	1.59000	23.70	23.70
1.44000	45.97	45.97	1.57000	39.98	39.98	1.69000	35.10	35.10
1.55000	64.47	64.47	1.69000	56.36	56.36	1.82000	49.88	49.88
1.71000	89.50	89.50	1.87000	79.17	79.16	2.02000	70.95	70.95
1.93000	118.68	119.15	2.11000	104.81	105.29	2.28000	93.93	94.42
2.21000	147.10	150.58	2.41000	129.28	132.54	2.60000	115.47	118.53
2.54000	170.43	181.07	2.77000	149.69	159.47	2.99000	133.63	142.74
2.99000	189.99	214.72	3.26000	166.64	189.12	3.52000	148.55	169.30
3.54000	202.24	247.49	3.86000	177.14	218.02	4.17000	157.67	195.21
4.20000	207.93	278.92	4.59000	181.91	246.05	4.95000	161.66	219.99
4.98000	208.63	308.80	5.43000	182.29	271.97	5.86000	161.83	243.23
5.76000	206.51	333.44	6.28000	180.30	293.62	6.78000	159.95	262.59
6.64000	202.87	356.83	7.25000	176.98	314.39	7.82000	156.95	280.99
7.75000	197.91	381.75	8.46000	172.60	336.24	9.12000	153.03	300.39
9.41000	191.11	412.37	10.20000	166.85	362.15	11.00000	147.89	323.53
11.00000	185.62	436.59	12.00000	161.86	384.28	13.00000	143.35	343.78
16.60000	173.15	499.45	18.10000	151.09	439.35	19.50000	134.02	392.17
22.10000	166.66	542.65	24.10000	145.50	477.21	26.00000	129.08	426.02
33.20000	159.54	603.23	36.20000	139.35	530.25	39.10000	123.67	473.33
55.30000	153.81	678.74	60.40000	134.44	596.59	65.20000	119.40	532.27
110.00000	150.25	780.51	120.00000	131.41	685.51	130.00000	116.74	611.74
221.00000	147.56	882.30	241.00000	129.04	774.50	260.00000	114.65	690.35

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
 Z=73 A=180.950

TD=40.0 EV ET=1.394596 MEV			TD=44.0 EV ET=1.481062 MEV			TD=48.0 EV ET=1.563929 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.40000	0.12	0.12	1.49000	0.16	0.16	1.57000	0.09	0.09
1.42000	0.69	0.69	1.51000	0.64	0.64	1.59000	0.46	0.46
1.45000	1.88	1.88	1.54000	1.66	1.66	1.62000	1.27	1.27
1.49000	4.03	4.03	1.58000	3.46	3.46	1.67000	3.18	3.18
1.54000	7.40	7.40	1.64000	6.93	6.93	1.73000	6.19	6.19
1.61000	13.04	13.04	1.71000	11.79	11.79	1.81000	11.05	11.05
1.70000	21.24	21.24	1.80000	18.84	18.84	1.90000	17.21	17.21
1.81000	31.88	31.88	1.92000	28.84	28.84	2.03000	26.69	26.69
1.95000	45.38	45.38	2.07000	41.33	41.33	2.18000	37.61	37.61
2.16000	64.13	64.13	2.29000	58.29	58.29	2.42000	53.78	53.78
2.44000	85.07	85.55	2.59000	77.62	78.08	2.73000	71.21	71.65
2.78000	104.35	107.24	2.96000	95.56	98.38	3.12000	87.72	90.36
3.20000	120.75	129.31	3.40000	110.16	118.22	3.59000	101.26	108.86
3.76000	133.91	153.06	3.99000	121.93	139.74	4.22000	112.05	128.86
4.46000	142.04	176.66	4.73000	129.20	161.21	5.00000	118.55	148.53
5.29000	145.46	198.95	5.62000	132.22	181.74	5.94000	121.19	167.38
6.27000	145.49	220.08	6.66000	132.14	200.99	7.03000	121.03	184.93
7.25000	143.72	237.48	7.70000	130.47	216.82	8.13000	119.45	199.50
8.36000	140.97	254.06	8.88000	127.93	231.94	9.38000	117.08	213.42
9.76000	137.39	271.68	10.30000	124.79	247.32	10.90000	114.15	227.72
11.80000	132.70	292.80	12.50000	120.44	266.95	13.20000	110.20	245.53
13.90000	128.71	310.69	14.80000	116.71	283.74	15.60000	106.82	260.77
20.90000	120.35	354.57	22.20000	109.22	323.44	23.40000	100.00	297.21
27.80000	115.99	384.80	29.60000	105.26	351.17	31.20000	96.39	322.64
41.80000	111.17	427.38	44.40000	100.95	389.67	46.90000	92.45	358.13
69.70000	107.39	480.46	74.00000	97.57	437.90	78.10000	89.40	402.28
139.00000	105.03	552.01	148.00000	95.45	503.23	156.00000	87.48	462.06
278.00000	103.14	622.74	296.00000	93.73	567.51	312.00000	85.89	520.98

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
 Z=73 A=180.950

TD=52.0 EV ET=1.643611 MEV			TD=56.0 EV ET=1.720449 MEV			TD=60.0 EV ET=1.794728 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.66000	0.21	0.21	1.73000	0.10	0.10	1.81000	0.14	0.14
1.67000	0.39	0.39	1.75000	0.38	0.38	1.83000	0.40	0.40
1.70000	1.07	1.07	1.78000	0.98	0.98	1.86000	0.96	0.96
1.75000	2.69	2.69	1.84000	2.74	2.74	1.92000	2.55	2.55
1.82000	5.76	5.76	1.90000	5.09	5.09	1.99000	5.03	5.03
1.90000	10.04	10.04	1.99000	9.36	9.36	2.08000	8.92	8.92
2.00000	16.10	16.10	2.09000	14.76	14.76	2.18000	13.78	13.78
2.13000	24.47	24.47	2.23000	22.81	22.81	2.33000	21.54	21.54
2.30000	35.41	35.41	2.40000	32.57	32.57	2.51000	30.83	30.83
2.54000	49.67	49.67	2.66000	46.36	46.36	2.78000	43.66	43.66
2.87000	66.03	66.46	3.01000	61.77	62.21	3.14000	57.85	58.28
3.28000	81.27	83.81	3.44000	75.89	78.35	3.58000	70.82	73.14
3.78000	93.85	101.13	3.95000	87.23	94.08	4.12000	81.58	88.11
4.43000	103.54	119.31	4.64000	96.31	111.26	4.84000	90.01	104.18
5.25000	109.48	137.54	5.50000	101.74	128.25	5.74000	95.02	120.12
6.24000	111.85	155.04	6.53000	103.85	144.42	6.81000	96.92	135.17
7.39000	111.64	171.33	7.74000	103.59	159.64	8.07000	96.63	149.38
8.54000	110.14	184.73	8.94000	102.17	172.06	9.33000	95.27	161.06
9.86000	107.92	197.67	10.30000	100.12	183.91	10.70000	93.40	171.78
11.50000	105.14	211.19	12.00000	97.55	196.40	12.50000	90.95	183.66
13.90000	101.52	227.49	14.60000	94.07	212.07	15.20000	87.72	198.26
16.40000	98.44	241.43	17.20000	91.25	224.91	17.90000	85.09	210.22
24.60000	92.19	275.09	25.80000	85.48	256.18	26.90000	79.71	239.57
32.80000	88.88	298.57	34.40000	82.43	277.99	35.80000	76.89	259.80
49.30000	85.27	331.33	51.60000	79.12	308.27	53.80000	73.80	288.20
82.10000	82.49	372.11	86.00000	76.56	346.21	89.70000	71.43	323.64
164.00000	80.73	427.30	172.00000	74.94	397.55	179.00000	69.94	371.41

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
 Z=73 A=180.950

TD=64.0 EV ET=1.866688 MEV			TD=68.0 EV ET=1.936533 MEV			TD=72.0 EV ET=2.004439 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.88000	0.10	0.10	1.95000	0.09	0.09	2.02000	0.09	0.09
1.90000	0.32	0.32	1.97000	0.28	0.28	2.04000	0.27	0.27
1.94000	0.99	0.99	2.01000	0.87	0.87	2.08000	0.80	0.80
1.99000	2.18	2.18	2.07000	2.17	2.17	2.14000	1.97	1.97
2.07000	4.71	4.71	2.14000	4.18	4.18	2.22000	4.08	4.08
2.16000	8.21	8.21	2.24000	7.69	7.69	2.32000	7.32	7.32
2.27000	13.05	13.05	2.36000	12.51	12.51	2.44000	11.73	11.73
2.42000	20.08	20.08	2.51000	18.93	18.93	2.60000	18.00	18.00
2.61000	28.97	28.97	2.71000	27.45	27.45	2.80000	25.81	25.81
2.89000	41.01	41.02	3.00000	38.79	38.80	3.10000	36.58	36.58
3.26000	54.22	54.63	3.38000	51.13	51.52	3.50000	48.46	48.85
3.73000	66.71	68.98	3.87000	62.95	65.13	4.00000	59.48	61.56
4.29000	76.70	82.98	4.45000	72.31	78.32	4.61000	68.46	74.25
5.04000	84.53	98.08	5.22000	79.59	92.43	5.41000	75.29	87.63
5.97000	89.12	112.94	6.19000	83.91	106.53	6.41000	79.29	100.90
7.09000	90.85	127.15	7.35000	85.50	119.91	7.61000	80.75	113.54
8.40000	90.54	140.47	8.71000	85.17	132.49	9.01000	80.41	125.36
9.70000	89.25	151.34	10.00000	84.00	142.32	10.40000	79.23	135.01
11.20000	87.39	161.89	11.60000	82.19	152.59	12.00000	77.57	144.37
13.00000	85.17	172.57	13.50000	80.07	162.83	14.00000	75.52	154.20
15.80000	82.15	186.23	16.40000	77.22	175.66	17.00000	72.84	166.29
18.60000	79.69	197.43	19.30000	74.92	186.18	20.00000	70.68	176.21
28.00000	74.65	225.07	29.00000	70.22	212.10	30.00000	66.27	200.60
37.30000	72.02	244.11	38.70000	67.73	230.13	40.00000	63.94	217.58
56.00000	69.15	270.67	58.00000	65.05	255.03	60.10000	61.40	241.25
93.30000	66.95	303.86	96.80000	62.99	286.37	100.00000	59.48	270.68
186.00000	65.56	348.58	193.00000	61.69	328.47	200.00000	58.25	310.62

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
 Z=73 A=180.950

TD=76.0 EV ET=2.070560 MEV			TD=80.0 EV ET=2.135029 MEV			TD=84.0 EV ET=2.197964 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.09000	0.11	0.11	2.15000	0.07	0.07	2.21000	0.05	0.05
2.11000	0.27	0.27	2.17000	0.21	0.21	2.24000	0.24	0.24
2.15000	0.77	0.77	2.22000	0.76	0.76	2.28000	0.65	0.65
2.21000	1.84	1.84	2.26000	1.76	1.76	2.35000	1.72	1.72
2.29000	3.77	3.77	2.36000	3.54	3.54	2.43000	3.38	3.38
2.40000	7.04	7.04	2.47000	6.55	6.55	2.54000	6.17	6.17
2.52000	11.12	11.12	2.60000	10.63	10.63	2.68000	10.24	10.24
2.69000	17.25	17.25	2.77000	16.30	16.30	2.85000	15.51	15.51
2.89000	24.44	24.44	2.98000	23.28	23.28	3.07000	22.30	22.30
3.20000	34.69	34.69	3.30000	33.05	33.06	3.40000	31.63	31.64
3.62000	46.14	46.53	3.73000	43.88	44.25	3.84000	41.89	42.25
4.14000	56.61	58.65	4.27000	53.90	55.89	4.39000	51.35	53.25
4.76000	64.93	70.49	4.91000	61.80	67.15	5.05000	58.89	64.03
5.59000	71.40	83.24	5.76000	67.87	79.21	5.93000	64.70	75.60
6.62000	75.14	95.79	6.83000	71.42	91.23	7.03000	68.04	87.05
7.86000	76.49	107.78	8.11000	72.66	102.64	8.35000	69.20	97.94
9.31000	76.14	119.02	9.60000	72.31	113.28	9.89000	68.83	108.12
10.70000	75.05	127.90	11.10000	71.20	122.08	11.40000	67.79	116.33
12.40000	73.43	137.04	12.80000	69.69	130.48	13.10000	66.39	124.14
14.40000	71.54	146.08	14.90000	67.87	139.21	15.30000	64.62	132.64
17.50000	68.99	157.60	18.10000	65.45	150.13	18.60000	62.30	143.09
20.70000	66.88	167.32	21.30000	63.50	159.08	21.90000	60.45	151.64
31.00000	62.74	190.34	32.00000	59.56	181.12	32.90000	56.70	172.65
41.40000	60.53	206.52	42.70000	57.47	196.45	43.90000	54.71	187.25
62.10000	58.15	228.85	64.00000	55.22	217.63	65.90000	52.57	207.50
103.00000	56.35	256.57	106.00000	53.52	243.89	109.00000	50.97	232.45
207.00000	55.18	294.67	213.00000	52.41	280.08	219.00000	49.91	266.91

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN TA
 Z=73 A=180.950

TD=88.0 EV ET=2.259470 MEV			TD=92.0 EV ET=2.319640 MEV			TD=96.0 EV ET=2.378557 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.28000	0.08	0.08	2.34000	0.07	0.07	2.40000	0.07	0.07
2.30000	0.21	0.21	2.36000	0.18	0.18	2.42000	0.17	0.17
2.34000	0.57	0.57	2.41000	0.62	0.62	2.47000	0.58	0.58
2.41000	1.54	1.54	2.48000	1.56	1.56	2.54000	1.44	1.44
2.50000	3.26	3.26	2.57000	3.18	3.18	2.64000	3.14	3.14
2.62000	6.12	6.12	2.69000	5.86	5.86	2.75000	5.44	5.44
2.75000	9.65	9.65	2.82000	9.16	9.16	2.90000	9.00	9.00
2.93000	14.85	14.85	3.01000	14.29	14.29	3.09000	13.81	13.81
3.16000	21.45	21.45	3.24000	20.46	20.46	3.32000	19.60	19.60
3.50000	30.39	30.40	3.59000	29.07	29.07	3.68000	27.89	27.90
3.95000	40.12	40.48	4.05000	38.37	38.71	4.16000	36.96	37.31
4.51000	49.06	50.89	4.63000	47.01	48.78	4.75000	45.15	46.88
5.19000	56.28	61.23	5.33000	53.91	58.71	5.47000	51.76	56.43
6.10000	61.82	72.35	6.26000	59.17	69.31	6.42000	56.74	66.55
7.23000	64.97	83.28	7.42000	62.16	79.77	7.61000	59.59	76.59
8.58000	66.05	93.63	8.81000	63.17	89.71	9.03000	60.53	86.08
10.10000	65.72	103.00	10.40000	62.82	98.84	10.70000	60.17	95.03
11.70000	64.69	111.12	12.00000	61.86	106.40	12.30000	59.26	102.08
13.50000	63.31	118.80	13.90000	60.49	113.94	14.20000	57.97	109.16
15.80000	61.58	127.03	16.20000	58.88	121.60	16.60000	56.40	116.65
19.20000	59.38	136.98	19.70000	56.77	131.16	20.20000	54.37	125.84
22.50000	57.67	144.91	23.10000	55.12	138.78	23.70000	52.79	133.17
33.80000	54.09	164.96	34.70000	51.72	157.96	35.60000	49.53	151.56
45.10000	52.20	178.90	46.30000	49.91	171.30	47.50000	47.81	164.34
67.70000	50.17	198.23	69.50000	47.97	189.79	71.30000	45.95	182.06
112.00000	48.64	222.06	115.00000	46.52	212.59	118.00000	44.57	203.92
225.00000	47.64	254.95	231.00000	45.57	244.04	237.00000	43.66	234.06

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN W
 Z=74 A=183.860

TD= 4.0 EV ET=0.265890 MEV			TD= 8.0 EV ET=0.461623 MEV			TD=12.0 EV ET=0.624092 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.26800	17.71	17.71	0.46600	5.81	5.81	0.63000	2.75	2.75
0.27100	42.44	42.44	0.47000	11.20	11.20	0.63600	5.70	5.70
0.27600	82.57	82.57	0.48000	24.98	24.98	0.64900	12.52	12.52
0.28400	144.14	144.14	0.49300	43.41	43.41	0.66700	22.81	22.81
0.29500	223.93	223.93	0.51200	71.03	71.03	0.69200	38.36	38.36
0.30800	311.71	311.71	0.53500	104.96	104.96	0.72300	58.98	58.98
0.32400	411.20	411.20	0.56300	146.18	146.18	0.76100	85.29	85.29
0.34500	529.22	529.22	0.60000	199.28	199.28	0.81100	120.21	120.21
0.37200	662.92	662.92	0.64600	261.68	261.68	0.87300	162.22	162.22
0.41200	829.91	829.91	0.71500	345.87	345.87	0.96700	220.57	220.57
0.46500	1005.68	1005.68	0.80700	439.90	440.27	1.09000	285.20	285.68
0.53100	1169.82	1178.31	0.92300	531.88	538.17	1.24000	346.88	351.84
0.61100	1310.90	1346.80	1.06000	610.27	632.96	1.43000	402.97	420.82
0.71700	1432.23	1525.05	1.24000	678.00	734.18	1.68000	450.14	494.22
0.85000	1518.85	1702.65	1.47000	727.27	837.97	1.99000	482.24	567.04
1.01000	1567.81	1873.91	1.75000	754.91	939.24	2.37000	499.34	638.43
1.19000	1584.43	2031.54	2.07000	763.86	1033.22	2.80000	503.73	703.79
1.38000	1579.52	2171.45	2.40000	760.82	1113.72	3.24000	500.59	759.25
1.59000	1561.27	2303.91	2.76000	751.14	1188.50	3.74000	493.03	812.59
1.86000	1529.86	2450.48	3.23000	734.96	1271.32	4.36000	481.83	868.52
2.26000	1480.66	2632.69	3.92000	710.69	1372.34	5.30000	465.30	938.70
2.65000	1436.38	2783.01	4.61000	689.11	1456.29	6.24000	450.98	996.68
3.98000	1324.58	3172.78	6.92000	638.01	1665.51	9.36000	418.52	1139.05
5.31000	1257.04	3454.90	9.23000	609.37	1814.67	12.40000	401.28	1237.74
7.97000	1185.96	3861.25	13.80000	579.34	2022.68	18.70000	382.17	1380.69
13.20000	1123.81	4370.92	23.00000	552.76	2286.15	31.20000	366.04	1557.92
26.50000	1077.59	5085.68	46.10000	535.21	2647.42	62.40000	355.83	1798.98
53.10000	1057.07	5804.13	92.30000	525.70	3006.59	124.00000	349.58	2035.68
79.70000	1045.53	6219.85	138.00000	519.67	3212.07	187.00000	345.39	2175.37
132.00000	1029.77	6730.90	230.00000	511.74	3469.60	312.00000	340.21	2347.03
186.00000	1019.74	7074.32	323.00000	507.40	3639.33	436.00000	337.62	2458.54

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN W
 Z=74 A=183.860

TD=16.0 EV ET=0.766055 MEV			TD=20.0 EV ET=0.893745 MEV			TD=24.0 EV ET=1.010757 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.77300	1.56	1.56	0.90200	1.06	1.06	1.02000	0.76	0.76
0.78100	3.52	3.52	0.91100	2.37	2.37	1.03000	1.71	1.71
0.79600	7.61	7.61	0.92900	5.39	5.39	1.05000	3.99	3.99
0.81900	14.78	14.78	0.95600	10.78	10.78	1.08000	8.17	8.17
0.85000	25.78	25.78	0.99200	19.22	19.22	1.12000	14.89	14.89
0.88800	40.69	40.69	1.03000	29.24	29.24	1.17000	24.57	24.57
0.93400	59.94	59.94	1.09000	46.40	46.40	1.23000	37.30	37.30
0.99500	86.15	86.15	1.16000	67.26	67.26	1.31000	55.06	55.06
1.07000	117.80	117.80	1.25000	93.76	93.76	1.41000	77.12	77.12
1.18000	160.80	160.80	1.38000	129.22	129.22	1.56000	107.81	107.81
1.34000	213.74	214.28	1.56000	170.81	171.34	1.76000	142.41	142.91
1.53000	262.16	266.86	1.78000	209.98	214.14	2.02000	176.74	180.74
1.76000	303.70	319.24	2.05000	243.76	257.33	2.32000	204.25	216.52
2.06000	338.06	374.71	2.41000	271.71	303.85	2.72000	226.92	255.17
2.45000	361.90	432.28	2.85000	289.56	349.21	3.23000	241.72	294.40
2.91000	373.40	486.44	3.39000	298.24	393.67	3.84000	248.35	331.72
3.44000	375.70	536.84	4.02000	299.48	435.34	4.54000	248.93	366.16
3.98000	372.60	579.35	4.64000	296.58	469.24	5.25000	246.20	395.04
4.59000	366.45	619.87	5.36000	291.30	502.40	6.06000	241.62	422.73
5.36000	357.61	663.08	6.25000	284.10	537.02	7.07000	235.50	451.89
6.51000	345.14	716.28	7.59000	274.08	579.94	8.59000	227.09	487.95
7.66000	334.52	760.20	8.93000	265.63	615.33	10.10000	220.11	517.46
11.40000	311.34	866.08	13.40000	247.22	702.37	15.10000	205.18	589.67
15.30000	298.44	944.06	17.80000	237.60	762.79	20.20000	197.17	641.40
22.90000	284.97	1049.74	26.80000	226.98	848.78	30.30000	188.60	712.51
38.30000	273.54	1183.77	44.60000	218.34	955.21	50.50000	181.63	801.59
76.60000	266.45	1364.90	89.30000	212.94	1100.49	101.00000	177.31	922.54
153.00000	261.70	1543.61	178.00000	209.13	1242.96	202.00000	174.10	1041.79

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN W
 Z=74 A=183.860

TD=28.0 EV ET=1.119393 MEV			TD=32.0 EV ET=1.221230 MEV			TD=36.0 EV ET=1.317403 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.13000	0.60	0.60	1.23000	0.35	0.35	1.33000	0.39	0.39
1.14000	1.28	1.28	1.24000	0.83	0.83	1.34000	0.78	0.78
1.16000	2.90	2.90	1.27000	2.69	2.69	1.37000	2.27	2.27
1.19000	5.94	5.94	1.30000	5.12	5.12	1.40000	4.22	4.22
1.24000	12.26	12.26	1.35000	10.13	10.13	1.46000	9.15	9.15
1.29000	19.69	19.69	1.41000	17.28	17.28	1.52000	15.08	15.08
1.36000	31.21	31.21	1.48000	26.58	26.58	1.60000	23.91	23.91
1.45000	46.84	46.84	1.58000	40.64	40.64	1.71000	36.79	36.79
1.56000	65.87	65.87	1.70000	57.49	57.49	1.84000	51.96	51.96
1.73000	93.13	93.13	1.89000	82.19	82.19	2.04000	73.53	73.53
1.95000	122.85	123.35	2.13000	108.34	108.84	2.30000	96.99	97.50
2.23000	151.72	155.32	2.44000	133.94	137.42	2.63000	119.50	122.75
2.57000	175.91	187.12	2.80000	154.38	164.63	3.03000	138.10	147.80
3.02000	195.33	221.06	3.29000	171.24	194.56	3.55000	152.59	174.07
3.58000	207.46	254.61	3.90000	181.65	224.14	4.21000	161.64	200.57
4.25000	212.73	286.60	4.64000	186.07	252.65	5.00000	165.32	225.77
5.03000	212.94	316.51	5.49000	186.01	278.91	5.92000	165.12	249.31
5.82000	210.38	341.50	6.35000	183.64	300.81	6.85000	162.90	268.90
6.71000	206.35	365.17	7.32000	180.02	321.59	7.90000	159.60	287.49
7.83000	201.02	390.32	8.54000	175.31	343.65	9.22000	155.38	307.19
9.51000	193.81	421.30	10.30000	169.22	369.87	11.10000	150.00	330.33
11.10000	188.12	445.54	12.20000	163.79	393.16	13.10000	145.29	350.63
16.70000	175.29	508.62	18.30000	152.84	448.07	19.70000	135.59	399.84
22.30000	168.57	552.76	24.40000	147.10	486.53	26.30000	130.51	434.21
33.50000	161.31	614.00	36.60000	140.87	539.96	39.50000	125.03	481.89
55.90000	155.49	690.62	61.00000	135.92	606.91	65.80000	120.72	541.38
111.00000	151.91	793.27	122.00000	132.83	697.69	131.00000	118.04	621.56
223.00000	149.13	896.12	244.00000	130.40	787.06	263.00000	115.86	701.42

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN W
 Z=74 A=183.860

TD=40.0 EV ET=1.408764 MEV			TD=44.0 EV ET=1.495971 MEV			TD=48.0 EV ET=1.579543 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.42000	0.27	0.27	1.51000	0.27	0.27	1.59000	0.16	0.16
1.43000	0.56	0.56	1.52000	0.52	0.52	1.61000	0.57	0.57
1.46000	1.73	1.73	1.55000	1.50	1.50	1.64000	1.44	1.44
1.50000	3.86	3.86	1.60000	3.80	3.80	1.69000	3.45	3.45
1.56000	8.02	8.02	1.66000	7.43	7.43	1.75000	6.59	6.59
1.63000	13.88	13.88	1.73000	12.48	12.48	1.83000	11.62	11.62
1.71000	21.37	21.37	1.82000	19.76	19.76	1.92000	17.98	17.98
1.83000	33.30	33.30	1.94000	30.05	30.05	2.05000	27.73	27.73
1.97000	47.16	47.16	2.09000	42.87	42.87	2.21000	39.68	39.68
2.18000	66.37	66.37	2.31000	60.25	60.25	2.44000	55.53	55.53
2.46000	87.76	88.25	2.61000	80.02	80.49	2.76000	73.87	74.35
2.81000	107.90	110.96	2.99000	98.73	101.69	3.15000	90.58	93.34
3.24000	124.70	133.77	3.44000	113.69	122.20	3.63000	104.45	112.45
3.80000	137.69	157.68	4.03000	125.33	143.88	4.26000	115.14	132.61
4.50000	145.58	181.42	4.78000	132.45	165.75	5.05000	121.51	152.65
5.35000	148.75	204.33	5.68000	135.19	186.57	6.00000	123.90	171.77
6.33000	148.43	225.49	6.73000	134.79	206.03	7.10000	123.45	189.50
7.32000	146.37	243.10	7.77000	132.87	221.88	8.21000	121.62	204.22
8.45000	143.33	259.98	8.97000	130.07	237.28	9.47000	119.04	218.27
9.86000	139.50	277.73	10.40000	126.72	252.77	11.00000	115.91	232.68
11.90000	134.60	298.87	12.70000	121.98	273.23	13.40000	111.62	251.22
14.00000	130.45	316.82	14.90000	118.29	289.28	15.70000	108.27	265.83
21.10000	121.76	361.42	22.40000	110.51	329.63	23.60000	101.19	302.85
28.10000	117.28	392.11	29.90000	106.45	357.77	31.50000	97.48	328.65
42.20000	112.40	435.04	44.80000	102.07	396.59	47.30000	93.48	364.44
70.40000	108.57	488.76	74.70000	98.65	445.40	78.90000	90.38	409.24
140.00000	106.20	560.81	149.00000	96.51	511.20	157.00000	88.45	469.35
281.00000	104.23	632.65	299.00000	94.72	576.47	315.00000	86.80	529.16

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN W
 Z=74 A=183.860

TD=52.0 EV ET=1.659900 MEV			TD=56.0 EV ET=1.737387 MEV			TD=60.0 EV ET=1.812291 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.67000	0.12	0.12	1.75000	0.13	0.13	1.83000	0.17	0.17
1.69000	0.47	0.47	1.77000	0.44	0.44	1.84000	0.30	0.30
1.72000	1.19	1.19	1.80000	1.07	1.07	1.88000	1.03	1.03
1.77000	2.90	2.90	1.85000	2.56	2.56	1.93000	2.37	2.37
1.84000	6.08	6.08	1.92000	5.35	5.35	2.01000	5.26	5.26
1.92000	10.51	10.51	2.01000	9.77	9.77	2.10000	9.26	9.26
2.02000	16.76	16.76	2.11000	15.33	15.33	2.21000	14.79	14.79
2.15000	25.38	25.38	2.25000	23.60	23.60	2.35000	22.25	22.25
2.32000	36.61	36.61	2.43000	34.21	34.21	2.53000	31.80	31.80
2.57000	51.80	51.80	2.69000	48.29	48.29	2.80000	44.97	44.97
2.90000	68.44	68.90	3.04000	63.97	64.43	3.17000	59.87	60.32
3.31000	83.88	86.51	3.47000	78.28	80.84	3.62000	73.28	75.73
3.81000	96.56	104.08	3.99000	89.91	97.07	4.16000	84.05	90.86
4.48000	106.48	122.98	4.69000	99.02	114.63	4.89000	92.51	107.30
5.31000	112.24	141.50	5.55000	104.25	131.71	5.79000	97.35	123.32
6.30000	114.34	159.04	6.60000	106.16	148.25	6.88000	99.06	138.71
7.46000	113.87	175.51	7.81000	105.65	163.50	8.15000	98.54	153.06
8.63000	112.13	189.16	9.03000	104.02	176.14	9.42000	96.99	164.85
9.95000	109.73	202.11	10.40000	101.78	188.09	10.80000	94.96	175.66
11.60000	106.76	215.74	12.10000	99.05	200.60	12.60000	92.36	187.56
14.10000	102.83	232.69	14.70000	95.42	216.32	15.40000	88.87	202.69
16.50000	99.78	246.07	17.30000	92.49	229.21	18.10000	86.16	214.63
24.80000	93.28	280.27	26.00000	86.50	260.97	27.10000	80.66	244.02
33.10000	89.89	304.09	34.70000	83.37	283.10	36.20000	77.75	264.74
49.70000	86.22	337.14	52.10000	79.99	313.78	54.30000	74.62	293.32
82.90000	83.39	378.50	86.80000	77.41	352.12	90.60000	72.22	329.21
165.00000	81.63	434.01	173.00000	75.78	403.77	181.00000	70.71	377.59

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN W
 Z=74 A=183.860

TD=64.0 EV ET=1.884854 MEV			TD=68.0 EV ET=1.955284 MEV			TD=72.0 EV ET=2.023757 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.90000	0.12	0.12	1.97000	0.10	0.10	2.04000	0.10	0.10
1.92000	0.35	0.35	1.99000	0.30	0.30	2.06000	0.28	0.28
1.96000	1.05	1.05	2.03000	0.91	0.91	2.10000	0.83	0.83
2.01000	2.28	2.28	2.09000	2.25	2.25	2.16000	2.04	2.04
2.09000	4.89	4.89	2.17000	4.65	4.65	2.24000	4.20	4.20
2.18000	8.50	8.50	2.26000	7.94	7.94	2.34000	7.53	7.53
2.29000	13.49	13.49	2.36000	12.90	12.90	2.46000	12.07	12.07
2.45000	21.20	21.20	2.54000	19.94	19.94	2.63000	18.93	18.93
2.63000	29.85	29.85	2.73000	28.26	28.26	2.83000	26.94	26.94
2.92000	42.63	42.63	3.03000	40.29	40.29	3.13000	37.95	37.96
3.29000	56.08	56.50	3.42000	53.15	53.57	3.54000	50.34	50.75
3.76000	68.76	71.10	3.91000	65.07	67.37	4.04000	61.46	63.65
4.33000	79.00	85.54	4.49000	74.46	80.70	4.65000	70.47	76.48
5.08000	86.79	100.79	5.27000	81.77	95.13	5.46000	77.34	90.16
6.03000	91.33	116.06	6.25000	85.98	109.45	6.47000	81.23	103.64
7.16000	92.86	130.45	7.43000	87.38	123.10	7.69000	82.52	116.52
8.48000	92.32	143.90	8.79000	86.85	135.69	9.10000	81.98	128.45
9.80000	90.84	154.94	10.10000	85.51	145.69	10.50000	80.65	138.17
11.30000	88.84	165.51	11.70000	83.56	155.97	12.10000	78.86	147.55
13.10000	86.49	176.21	13.60000	81.31	166.24	14.10000	76.69	157.41
16.00000	83.23	190.36	16.60000	78.24	179.52	17.20000	73.81	169.92
18.80000	80.70	201.54	19.50000	75.88	190.03	20.20000	71.58	179.83
28.20000	75.55	229.24	29.30000	71.03	216.22	30.30000	67.04	204.48
37.60000	72.84	248.54	39.10000	68.49	234.45	40.40000	64.66	221.64
56.50000	69.91	275.46	58.60000	65.77	259.62	60.70000	62.08	245.57
94.20000	67.69	309.06	97.70000	63.69	291.25	101.00000	60.14	275.34
188.00000	66.28	354.35	195.00000	62.37	333.88	202.00000	58.89	315.71

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN W
 Z=74 A=183.860

TD=76.0 EV ET=2.090428 MEV			TD=80.0 EV ET=2.155433 MEV			TD=84.0 EV ET=2.218891 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.11000	0.11	0.11	2.17000	0.07	0.07	2.24000	0.10	0.10
2.13000	0.28	0.28	2.19000	0.21	0.21	2.26000	0.24	0.24
2.17000	0.79	0.79	2.24000	0.77	0.77	2.30000	0.65	0.65
2.23000	1.89	1.89	2.30000	1.80	1.80	2.37000	1.75	1.75
2.32000	4.15	4.15	2.39000	3.88	3.88	2.46000	3.68	3.68
2.42000	7.23	7.23	2.50000	7.02	7.02	2.57000	6.59	6.59
2.55000	11.78	11.78	2.62000	10.90	10.90	2.70000	10.49	10.49
2.71000	17.73	17.73	2.80000	17.08	17.08	2.88000	16.23	16.23
2.92000	25.48	25.48	3.01000	24.25	24.25	3.10000	23.20	23.20
3.24000	36.28	36.28	3.34000	34.54	34.54	3.43000	32.75	32.76
3.65000	47.65	48.05	3.77000	45.53	45.92	3.88000	43.44	43.82
4.18000	58.47	60.61	4.31000	55.65	57.72	4.43000	53.00	54.98
4.80000	66.83	72.59	4.95000	63.59	69.13	5.10000	60.68	66.05
5.64000	73.33	85.62	5.81000	69.70	81.45	5.99000	66.47	77.84
6.68000	76.98	98.37	6.89000	73.16	93.67	7.10000	69.71	89.45
7.94000	78.16	110.59	8.19000	74.25	105.29	8.43000	70.70	100.45
9.40000	77.63	121.93	9.69000	73.72	116.03	9.98000	70.18	110.72
10.80000	76.40	130.88	11.20000	72.47	124.90	11.50000	69.01	119.00
12.50000	74.65	140.04	12.90000	70.85	133.32	13.30000	67.41	127.25
14.60000	72.56	149.53	15.00000	68.92	142.07	15.50000	65.54	135.72
17.70000	69.91	161.02	18.30000	66.32	153.35	18.80000	63.14	146.14
20.90000	67.73	170.73	21.50000	64.32	162.30	22.10000	61.23	154.70
31.30000	63.47	194.00	32.30000	60.25	184.59	33.20000	57.36	175.94
41.80000	61.21	210.35	43.10000	58.12	200.08	44.30000	55.33	190.69
62.70000	58.79	232.93	64.60000	55.83	221.49	66.50000	53.15	211.17
104.00000	56.97	260.96	107.00000	54.11	248.05	110.00000	51.53	236.40
209.00000	55.78	299.48	215.00000	52.99	284.64	221.00000	50.46	271.24

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN W
 Z=74 A=183.860

TD=88.0 EV ET=2.280906 MEV			TD=92.0 EV ET=2.341574 MEV			TD=96.0 EV ET=2.400978 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.30000	0.08	0.08	2.36000	0.06	0.06	2.42000	0.06	0.06
2.32000	0.20	0.20	2.38000	0.18	0.18	2.44000	0.16	0.16
2.37000	0.68	0.68	2.43000	0.62	0.62	2.49000	0.57	0.57
2.44000	1.73	1.73	2.50000	1.57	1.57	2.56000	1.44	1.44
2.53000	3.54	3.54	2.59000	3.23	3.23	2.66000	3.17	3.17
2.64000	6.25	6.25	2.71000	5.97	5.97	2.78000	5.76	5.76
2.78000	10.16	10.16	2.85000	9.63	9.63	2.92000	9.19	9.19
2.96000	15.51	15.51	3.04000	14.91	14.91	3.12000	14.39	14.39
3.19000	22.29	22.29	3.27000	21.25	21.25	3.36000	20.59	20.59
3.53000	31.45	31.45	3.62000	30.06	30.07	3.72000	29.05	29.06
3.99000	41.58	41.96	4.09000	39.75	40.11	4.20000	38.27	38.63
4.56000	50.76	52.70	4.68000	48.62	50.50	4.80000	46.68	48.51
5.24000	57.97	63.15	5.38000	55.52	60.53	5.52000	53.29	58.16
6.15000	63.47	74.37	6.32000	60.78	71.33	6.48000	58.28	68.47
7.29000	66.54	85.47	7.49000	63.67	81.94	7.68000	61.04	78.65
8.66000	67.48	96.01	8.89000	64.54	91.98	9.12000	61.85	88.31
10.20000	67.00	105.53	10.50000	64.05	101.25	10.80000	61.34	97.33
11.80000	65.85	113.67	12.10000	62.97	108.82	12.40000	60.32	104.40
13.60000	64.36	121.36	14.00000	61.50	116.39	14.40000	58.87	111.83
15.90000	62.54	129.62	16.30000	59.80	124.08	16.80000	57.21	119.30
19.30000	60.24	139.62	19.90000	57.53	133.93	20.40000	55.10	128.48
22.80000	58.36	148.04	23.40000	55.79	141.76	24.00000	53.43	136.01
34.20000	54.70	168.24	35.10000	52.30	161.08	36.00000	50.10	154.54
45.60000	52.78	182.29	46.80000	50.47	174.52	48.00000	48.34	167.42
68.40000	50.71	201.79	70.20000	48.49	193.18	72.00000	46.46	185.31
114.00000	49.16	226.24	117.00000	47.02	216.57	120.00000	45.05	207.72
228.00000	48.16	259.28	234.00000	46.06	248.17	240.00000	44.14	238.01

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN Pt
 Z=78 A=195.090

TD= 4.0 EV ET=0.279237 MEV			TD= 8.0 EV ET=0.482895 MEV			TD=12.0 EV ET=0.651403 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.28200	24.24	24.24	0.48700	5.75	5.75	0.65700	2.76	2.76
0.28400	41.53	41.53	0.49200	12.90	12.90	0.66400	6.43	6.43
0.29000	92.22	92.22	0.50200	27.61	27.61	0.67700	13.78	13.78
0.29800	157.20	157.20	0.51600	48.98	48.98	0.69700	26.27	26.27
0.30900	242.03	242.03	0.53600	80.57	80.57	0.72300	44.12	44.12
0.32300	343.09	343.09	0.56000	119.29	119.29	0.75500	67.73	67.73
0.34000	456.47	456.47	0.58900	166.18	166.18	0.79400	97.74	97.74
0.36300	595.32	595.32	0.62700	226.25	226.25	0.84600	138.11	138.11
0.39000	739.49	739.49	0.67600	299.40	299.40	0.91100	186.93	186.93
0.43200	929.33	929.33	0.74800	395.60	395.60	1.00000	248.11	248.11
0.48800	1129.50	1129.52	0.84500	502.95	503.46	1.13000	323.34	323.84
0.55800	1314.80	1325.08	0.96500	604.29	611.85	1.30000	397.90	404.26
0.64200	1469.32	1511.86	1.11000	690.40	717.80	1.49000	455.70	476.90
0.75300	1597.76	1706.85	1.30000	761.42	828.91	1.75000	504.59	556.55
0.89300	1684.44	1900.02	1.54000	808.93	940.14	2.08000	535.87	636.22
1.06000	1726.46	2082.94	1.83000	831.48	1046.91	2.47000	549.00	710.73
1.25000	1732.57	2251.92	2.17000	833.83	1147.73	2.93000	548.68	781.23
1.45000	1716.01	2400.53	2.51000	824.44	1231.02	3.38000	541.28	838.16
1.67000	1686.05	2540.02	2.89000	808.44	1310.12	3.90000	529.56	893.78
1.95000	1642.13	2692.56	3.38000	785.84	1396.40	4.55000	510.17	952.47
2.37000	1577.96	2884.24	4.10000	754.66	1501.73	5.53000	493.21	1025.63
2.79000	1521.70	3045.95	4.82000	728.29	1589.22	6.51000	475.90	1086.08
4.18000	1390.95	3452.17	7.24000	668.98	1808.25	9.77000	438.61	1234.99
5.58000	1315.39	3748.71	9.65000	637.52	1964.07	13.00000	419.50	1339.86
8.37000	1238.98	4174.29	14.40000	605.52	2180.76	19.50000	399.41	1487.47
13.90000	1173.26	4711.31	24.10000	577.42	2458.83	32.50000	382.56	1672.59
27.90000	1126.32	5460.28	48.20000	559.66	2836.01	65.10000	372.12	1925.52
55.80000	1104.68	6209.51	96.50000	549.14	3211.11	130.00000	365.03	2174.34
83.70000	1091.26	6642.22	144.00000	542.13	3424.11	195.00000	360.20	2317.89
139.00000	1072.94	7176.98	241.00000	533.09	3694.35	325.00000	354.44	2496.23

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN Pt
 Z=78 A=195.090

TD=16.0 EV ET=0.798402 MEV			TD=20.0 EV ET=0.930437 MEV			TD=24.0 EV ET=1.051447 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.80600	1.82	1.82	0.93900	1.17	1.17	1.06000	0.75	0.75
0.81400	3.94	3.94	0.94900	2.75	2.75	1.07000	1.76	1.76
0.83000	8.69	8.69	0.96700	6.06	6.06	1.09000	4.21	4.21
0.85400	16.95	16.95	0.99500	12.25	12.25	1.12000	8.79	8.79
0.88600	29.58	29.58	1.03000	21.37	21.37	1.16000	16.20	16.20
0.92600	47.13	47.13	1.07000	33.13	33.13	1.21000	26.95	26.95
0.97400	69.60	69.60	1.13000	52.33	52.33	1.28000	43.60	43.60
1.03000	96.48	96.48	1.20000	75.67	75.67	1.36000	63.54	63.54
1.11000	134.15	134.15	1.30000	108.52	108.52	1.47000	90.57	90.57
1.23000	185.98	185.98	1.44000	150.59	150.59	1.62000	124.42	124.42
1.39000	243.69	244.29	1.62000	195.73	196.34	1.84000	165.55	166.25
1.59000	298.29	303.84	1.86000	240.95	246.22	2.10000	201.70	206.53
1.83000	343.29	361.66	2.14000	276.58	293.15	2.41000	230.90	245.48
2.15000	379.37	423.18	2.51000	304.48	342.67	2.83000	254.13	287.62
2.55000	401.37	483.76	2.97000	321.03	391.24	3.36000	267.66	329.37
3.03000	409.96	541.26	3.53000	327.10	438.01	3.99000	272.09	368.53
3.59000	408.58	594.94	4.18000	325.33	481.38	4.73000	270.11	405.22
4.15000	402.16	639.19	4.83000	319.77	517.12	5.46000	265.22	435.02
4.79000	392.85	681.72	5.58000	312.01	551.74	6.30000	258.62	463.83
5.58000	381.15	726.11	6.51000	302.42	587.97	7.36000	250.49	494.49
6.78000	365.47	781.68	7.90000	289.98	632.51	8.93000	240.15	531.78
7.98000	352.70	827.58	9.30000	279.87	669.55	10.50000	231.87	562.57
11.90000	326.14	938.71	13.90000	259.14	759.55	15.70000	214.96	637.99
15.90000	312.30	1019.03	18.60000	248.42	824.37	21.00000	206.26	692.05
23.90000	297.77	1130.76	27.90000	237.23	913.49	31.50000	197.13	766.43
39.90000	285.90	1270.55	46.50000	228.21	1025.21	52.50000	189.88	859.67
79.80000	278.65	1460.14	93.00000	222.69	1177.01	105.00000	185.43	986.24
159.00000	273.28	1645.97	186.00000	218.31	1326.37	210.00000	181.75	1110.63

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
 Z=78 A=195.090

TD=28.0 EV ET=1.163692 MEV			TD=32.0 EV ET=1.268872 MEV			TD=36.0 EV ET=1.368175 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.17000	0.37	0.37	1.28000	0.49	0.49	1.38000	0.39	0.39
1.18000	1.04	1.04	1.29000	1.02	1.02	1.39000	0.80	0.80
1.21000	3.71	3.71	1.31000	2.34	2.34	1.42000	2.43	2.43
1.24000	7.20	7.20	1.35000	5.83	5.83	1.46000	5.38	5.38
1.29000	14.37	14.37	1.40000	11.46	11.46	1.51000	10.04	10.04
1.34000	22.77	22.77	1.47000	20.92	20.92	1.58000	17.83	17.83
1.41000	35.73	35.73	1.54000	31.47	31.47	1.66000	27.82	27.82
1.51000	55.24	55.24	1.64000	47.29	47.29	1.77000	42.30	42.30
1.62000	76.47	76.47	1.77000	67.66	67.66	1.91000	60.55	60.55
1.80000	108.30	108.30	1.96000	94.89	94.89	2.12000	85.51	85.51
2.03000	141.90	142.54	2.22000	125.53	126.20	2.39000	111.85	112.48
2.32000	173.44	177.85	2.53000	152.54	156.67	2.73000	136.32	140.24
2.67000	198.89	212.27	2.91000	174.62	186.90	3.14000	155.82	167.26
3.14000	218.57	249.02	3.42000	191.56	219.16	3.69000	170.63	196.06
3.72000	229.53	284.61	4.06000	200.94	250.86	4.37000	178.63	223.99
4.42000	232.89	318.51	4.82000	203.55	280.53	5.19000	180.77	250.54
5.23000	230.90	349.82	5.70000	201.59	307.96	6.15000	178.83	275.31
6.05000	226.45	375.87	6.59000	197.58	330.76	7.11000	175.17	295.63
6.98000	220.67	400.67	7.61000	192.41	352.69	8.20000	170.55	315.01
8.14000	213.74	426.77	8.88000	186.29	375.69	9.57000	165.09	335.53
9.89000	204.82	459.10	10.70000	178.83	402.86	11.60000	158.26	360.51
11.60000	197.89	485.16	12.60000	172.64	426.31	13.60000	152.94	380.81
17.40000	183.55	550.54	19.00000	160.11	484.40	20.50000	141.97	432.50
23.20000	176.32	596.44	25.30000	153.91	524.42	27.30000	136.53	468.12
34.90000	168.58	660.71	38.00000	147.26	580.50	41.00000	130.70	517.98
58.10000	162.56	740.54	63.40000	142.10	650.71	68.40000	126.21	580.43
116.00000	158.85	848.80	126.00000	138.93	744.83	136.00000	123.44	664.15
232.00000	155.67	955.37	253.00000	136.13	838.58	273.00000	120.93	747.42

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
 Z=78 A=195.090

TD=40.0 EV ET=1.462487 MEV			TD=44.0 EV ET=1.552493 MEV			TD=48.0 EV ET=1.638734 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.47000	0.18	0.18	1.56000	0.14	0.14	1.65000	0.18	0.18
1.49000	0.83	0.83	1.58000	0.66	0.66	1.67000	0.64	0.64
1.52000	2.21	2.21	1.61000	1.78	1.78	1.70000	1.61	1.61
1.56000	4.67	4.67	1.66000	4.40	4.40	1.75000	3.85	3.85
1.62000	9.42	9.42	1.72000	8.49	8.49	1.81000	7.36	7.36
1.69000	16.06	16.06	1.80000	15.06	15.06	1.90000	13.77	13.77
1.78000	25.61	25.61	1.89000	23.32	23.32	1.99000	20.98	20.98
1.90000	39.04	39.04	2.01000	34.91	34.91	2.13000	32.80	32.80
2.04000	54.53	54.53	2.17000	50.19	50.19	2.29000	46.14	46.14
2.26000	76.77	76.76	2.40000	70.19	70.19	2.54000	65.09	65.09
2.55000	100.81	101.40	2.71000	92.25	92.84	2.86000	84.88	85.45
2.92000	123.28	127.01	3.10000	112.50	116.04	3.27000	103.39	106.74
3.36000	140.77	151.51	3.57000	128.40	138.54	3.76000	117.79	127.23
3.94000	153.75	177.20	4.19000	140.08	162.09	4.42000	128.54	149.11
4.67000	160.81	202.56	4.96000	146.25	185.03	5.24000	134.11	170.38
5.55000	162.56	226.63	5.89000	147.68	206.86	6.22000	135.29	190.38
6.58000	160.67	249.05	6.98000	145.87	227.24	7.37000	133.54	209.08
7.60000	157.31	267.26	8.07000	142.74	243.94	8.52000	130.62	224.40
8.77000	153.10	284.81	9.31000	138.88	259.90	9.83000	127.06	239.07
10.20000	148.27	302.90	10.80000	134.56	276.10	11.40000	123.09	253.90
12.40000	142.05	325.78	13.10000	128.97	296.69	13.90000	117.84	273.31
14.60000	137.16	344.56	15.50000	124.41	314.31	16.30000	113.91	288.61
21.90000	127.53	390.60	23.20000	115.78	356.00	24.50000	105.97	327.27
29.20000	122.67	422.81	31.00000	111.36	385.52	32.70000	101.97	354.24
43.80000	117.49	467.57	46.50000	106.70	426.22	49.10000	97.72	391.66
73.10000	113.51	523.85	77.60000	103.14	477.40	81.90000	94.50	438.55
146.00000	111.04	599.70	155.00000	100.92	546.37	163.00000	92.49	501.45

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
 Z=78 A=195.090

TD=52.0 EV ET=1.721647 MEV			TD=56.0 EV ET=1.801588 MEV			TD=60.0 EV ET=1.878857 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.73000	0.11	0.11	1.81000	0.09	0.09	1.89000	0.11	0.11
1.75000	0.47	0.47	1.83000	0.39	0.39	1.91000	0.38	0.38
1.79000	1.58	1.58	1.87000	1.34	1.34	1.95000	1.22	1.22
1.84000	3.57	3.57	1.92000	3.06	3.06	2.01000	3.10	3.10
1.91000	7.23	7.23	1.99000	6.24	6.24	2.08000	6.01	6.01
1.99000	12.27	12.27	2.08000	11.24	11.24	2.17000	10.53	10.53
2.10000	20.07	20.07	2.19000	18.17	18.17	2.29000	17.34	17.34
2.23000	29.78	29.78	2.34000	28.17	28.17	2.44000	26.35	26.35
2.41000	43.05	43.05	2.52000	40.01	40.01	2.63000	37.58	37.58
2.66000	59.80	59.81	2.79000	56.11	56.11	2.91000	52.57	52.58
3.01000	78.90	79.48	3.15000	73.53	74.09	3.28000	68.66	69.19
3.44000	95.88	99.12	3.60000	89.29	92.39	3.75000	83.44	86.38
3.95000	108.97	117.89	4.14000	101.50	110.05	4.32000	94.94	103.11
4.64000	118.76	138.06	4.86000	110.44	128.73	5.07000	103.19	120.55
5.50000	123.81	157.72	5.76000	115.01	147.01	6.01000	107.37	137.65
6.54000	124.82	176.41	6.84000	115.85	164.25	7.13000	108.08	153.67
7.74000	123.13	193.58	8.10000	114.22	180.27	8.45000	106.50	168.72
8.95000	120.40	207.76	9.36000	111.67	193.40	9.77000	104.08	181.03
10.30000	117.15	221.08	10.80000	108.57	206.01	11.20000	101.32	192.28
12.00000	113.37	235.22	12.60000	105.03	219.26	13.10000	97.95	204.87
14.60000	108.59	252.96	15.30000	100.64	235.58	15.90000	93.86	220.09
17.20000	104.87	267.50	18.00000	97.23	248.98	18.70000	90.69	232.58
25.80000	97.65	303.03	27.00000	90.57	282.00	28.10000	84.47	263.56
34.40000	94.01	327.84	36.00000	87.21	305.05	37.50000	81.34	285.14
51.60000	90.13	362.31	54.00000	83.63	337.06	56.30000	78.01	315.10
86.00000	87.20	405.54	90.00000	80.94	377.21	93.90000	75.52	352.63
172.00000	85.35	464.01	180.00000	79.23	431.51	187.00000	73.94	403.00

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
 Z=78 A=195.090

TD=64.0 EV ET=1.953705 MEV			TD=68.0 EV ET=2.026346 MEV			TD=72.0 EV ET=2.096964 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.97000	0.14	0.14	2.04000	0.10	0.10	2.11000	0.08	0.08
1.99000	0.40	0.40	2.06000	0.32	0.32	2.13000	0.27	0.27
2.03000	1.18	1.18	2.10000	0.98	0.98	2.18000	1.04	1.04
2.09000	2.88	2.88	2.16000	2.47	2.47	2.24000	2.44	2.44
2.16000	5.50	5.50	2.24000	5.15	5.15	2.32000	4.92	4.92
2.26000	10.04	10.04	2.35000	9.72	9.72	2.43000	9.11	9.11
2.38000	16.22	16.22	2.47000	15.37	15.37	2.55000	14.27	14.27
2.53000	24.38	24.38	2.63000	23.30	23.30	2.72000	21.99	21.99
2.73000	35.10	35.10	2.83000	33.07	33.07	2.93000	31.39	31.39
3.02000	49.19	49.20	3.14000	46.76	46.77	3.25000	44.32	44.32
3.41000	64.55	65.06	3.54000	61.02	61.53	3.66000	57.69	58.18
3.90000	78.43	81.26	4.05000	74.08	76.83	4.19000	70.09	72.74
4.49000	89.13	96.91	4.66000	84.06	91.53	4.82000	79.47	86.62
5.27000	96.81	113.30	5.47000	91.21	106.98	5.66000	86.21	101.27
6.25000	100.67	129.40	6.48000	94.76	122.05	6.71000	89.52	115.58
7.42000	101.28	144.49	7.70000	95.28	136.35	7.96000	89.96	128.96
8.79000	99.76	158.58	9.11000	93.83	149.51	9.43000	88.55	141.51
10.10000	97.58	169.64	10.50000	91.71	160.16	10.90000	86.48	151.77
11.70000	94.78	181.01	12.10000	89.16	170.49	12.50000	84.15	161.20
13.60000	91.74	192.35	14.10000	86.25	181.35	14.60000	81.36	171.62
16.60000	87.80	207.03	17.20000	82.56	195.14	17.80000	77.89	184.61
19.50000	84.87	218.66	20.20000	79.81	206.08	20.90000	75.30	194.93
29.30000	79.09	247.72	30.30000	74.41	233.32	31.40000	70.21	220.77
39.00000	76.20	267.77	40.50000	71.65	252.48	41.90000	67.63	238.77
58.60000	73.09	295.92	60.70000	68.76	278.81	62.90000	64.90	263.73
97.60000	70.78	331.02	101.00000	66.60	311.79	104.00000	62.90	294.50
195.00000	69.30	378.46	202.00000	65.22	356.51	209.00000	61.59	337.03

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
 Z=78 A=195.090

TD=76.0 EV ET=2.165720 MEV			TD=80.0 EV ET=2.232753 MEV			TD=84.0 EV ET=2.298188 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.18000	0.08	0.08	2.25000	0.09	0.09	2.32000	0.11	0.11
2.20000	0.25	0.25	2.27000	0.25	0.25	2.34000	0.27	0.27
2.25000	0.95	0.95	2.32000	0.90	0.90	2.39000	0.88	0.88
2.31000	2.21	2.21	2.38000	2.06	2.06	2.45000	1.96	1.96
2.40000	4.78	4.78	2.47000	4.41	4.41	2.55000	4.40	4.40
2.51000	8.65	8.65	2.58000	7.95	7.95	2.66000	7.72	7.72
2.64000	13.81	13.81	2.72000	13.08	13.08	2.80000	12.49	12.49
2.81000	20.93	20.93	2.90000	20.05	20.05	2.98000	18.96	18.96
3.03000	29.99	29.99	3.12000	28.43	28.43	3.21000	27.10	27.10
3.35000	41.88	41.89	3.46000	40.09	40.10	3.56000	38.24	38.25
3.79000	55.05	55.55	3.90000	52.24	52.71	4.02000	49.99	50.46
4.33000	66.58	69.14	4.46000	63.30	65.76	4.59000	60.37	62.75
4.98000	75.41	82.29	5.13000	71.69	78.28	5.28000	68.35	74.70
5.84000	81.70	96.07	6.02000	77.66	91.45	6.20000	74.03	87.30
6.93000	84.82	109.72	7.14000	80.58	104.39	7.35000	76.75	99.61
8.22000	85.20	122.40	8.48000	80.92	116.54	8.73000	77.04	111.19
9.74000	83.84	134.31	10.00000	79.64	127.54	10.30000	75.80	121.71
11.20000	81.94	143.69	11.60000	77.72	137.02	11.90000	74.01	130.49
12.90000	79.66	152.92	13.30000	75.61	145.51	13.70000	71.94	138.82
15.10000	76.98	162.93	15.60000	73.03	155.14	16.00000	69.54	147.76
18.40000	73.70	175.22	18.90000	70.00	166.48	19.50000	66.58	158.89
21.60000	71.26	184.98	22.30000	67.62	176.05	22.90000	64.37	167.76
32.40000	66.47	209.38	33.40000	63.11	199.16	34.40000	60.06	189.93
43.30000	64.03	226.52	44.60000	60.80	215.40	45.90000	57.88	205.35
64.90000	61.46	250.09	66.90000	58.37	237.83	68.90000	55.57	226.76
108.00000	59.57	279.62	111.00000	56.58	265.73	114.00000	53.88	253.18
216.00000	58.34	319.63	223.00000	55.41	303.98	229.00000	52.77	289.61

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PT
 Z=78 A=195.090

TD=88.0 EV ET=2.362132 MEV			TD=92.0 EV ET=2.424684 MEV			TD=96.0 EV ET=2.485931 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.38000	0.07	0.07	2.44000	0.06	0.06	2.51000	0.09	0.09
2.40000	0.21	0.21	2.47000	0.24	0.24	2.53000	0.21	0.21
2.45000	0.74	0.74	2.52000	0.77	0.77	2.58000	0.69	0.69
2.52000	1.90	1.90	2.59000	1.87	1.87	2.65000	1.69	1.69
2.62000	4.17	4.17	2.69000	4.01	4.01	2.75000	3.66	3.66
2.74000	7.56	7.56	2.81000	7.17	7.17	2.88000	6.85	6.85
2.88000	12.02	12.02	2.95000	11.32	11.32	3.03000	11.03	11.03
3.07000	18.38	18.38	3.15000	17.58	17.58	3.23000	16.90	16.90
3.30000	25.95	25.95	3.39000	24.96	24.96	3.48000	24.10	24.10
3.66000	36.61	36.62	3.75000	34.93	34.94	3.85000	33.67	33.68
4.13000	47.78	48.24	4.24000	45.80	46.25	4.35000	44.02	44.47
4.72000	57.75	60.07	4.84000	55.26	57.49	4.97000	53.13	55.32
5.43000	65.34	71.49	5.57000	62.54	68.46	5.71000	59.98	65.71
6.37000	70.69	83.46	6.54000	67.66	79.98	6.71000	64.89	76.82
7.55000	73.27	95.20	7.75000	70.09	91.20	7.95000	67.18	87.57
8.97000	73.52	106.28	9.21000	70.31	101.82	9.44000	67.36	97.70
10.60000	72.30	116.42	10.90000	69.11	111.61	11.10000	66.26	106.73
12.20000	70.63	124.59	12.60000	67.44	119.67	12.90000	64.61	114.75
14.10000	68.59	132.77	14.50000	65.54	127.25	14.90000	62.74	122.21
16.50000	66.28	141.41	16.90000	63.38	135.31	17.40000	60.64	130.03
20.00000	63.53	151.74	20.60000	60.68	145.49	21.10000	58.12	139.53
23.60000	61.37	160.46	24.20000	58.67	153.60	24.80000	56.20	147.33
35.40000	57.29	181.55	36.30000	54.78	173.79	37.20000	52.48	166.68
47.20000	55.22	195.24	48.40000	52.80	187.84	49.70000	50.57	180.24
70.80000	53.02	216.64	72.70000	50.70	207.42	74.50000	48.58	198.92
118.00000	51.41	242.23	121.00000	49.17	231.83	124.00000	47.11	222.32
236.00000	50.36	276.78	242.00000	48.17	264.88	248.00000	46.16	253.99

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
 Z=79 A=197.000

TD= 4.0 EV ET=0.281484 MEV			TD= 8.0 EV ET=0.486468 MEV			TD=12.0 EV ET=0.655984 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.28400	22.64	22.64	0.49100	6.52	6.52	0.66200	3.06	3.06
0.28700	49.22	49.22	0.49600	13.89	13.89	0.66900	6.84	6.84
0.29200	92.51	92.51	0.50500	27.51	27.51	0.68200	14.44	14.44
0.30100	167.50	167.50	0.52000	51.09	51.09	0.70100	26.69	26.69
0.31200	254.39	254.39	0.53900	82.04	82.04	0.72800	45.84	45.84
0.32600	358.04	358.04	0.56400	123.70	123.70	0.76000	70.28	70.28
0.34300	474.46	474.46	0.59300	172.18	172.18	0.80000	102.17	102.17
0.36500	611.34	611.34	0.63200	235.90	235.90	0.85200	143.97	143.97
0.39400	770.72	770.72	0.68100	311.44	311.44	0.91800	195.21	195.21
0.43600	965.29	965.29	0.75400	411.97	411.97	1.01000	260.32	260.32
0.49200	1170.48	1170.50	0.85100	522.30	522.83	1.14000	337.35	337.91
0.56200	1360.22	1370.87	0.97200	626.90	634.84	1.31000	413.39	420.13
0.64700	1519.55	1563.97	1.11000	711.07	738.35	1.50000	472.03	494.23
0.76000	1651.10	1765.79	1.31000	787.15	857.92	1.77000	522.57	578.06
0.90000	1736.65	1961.59	1.55000	833.99	970.72	2.09000	552.11	656.21
1.06000	1775.63	2139.85	1.84000	855.23	1078.86	2.49000	564.48	733.50
1.26000	1779.46	2320.30	2.18000	855.87	1180.89	2.95000	562.76	804.59
1.46000	1759.63	2470.24	2.52000	844.88	1265.15	3.41000	553.98	863.18
1.68000	1726.52	2611.02	2.91000	826.80	1347.10	3.93000	541.14	919.12
1.97000	1677.52	2770.11	3.40000	802.52	1434.06	4.59000	524.44	979.06
2.39000	1609.57	2962.85	4.13000	769.12	1541.68	5.57000	502.39	1052.66
2.81000	1550.60	3125.71	4.86000	741.21	1630.96	6.55000	484.35	1113.58
4.22000	1413.39	3540.52	7.29000	679.78	1852.49	9.83000	445.66	1264.70
5.62000	1336.17	3839.22	9.72000	647.44	2010.94	13.10000	425.97	1371.77
8.44000	1257.87	4272.83	14.50000	614.83	2230.84	19.60000	405.62	1520.74
14.00000	1191.23	4817.12	24.30000	586.23	2514.03	32.70000	388.47	1709.14
28.10000	1143.79	5578.00	48.60000	568.34	2897.18	65.50000	377.91	1966.06
56.20000	1121.69	6338.82	97.20000	557.51	3277.40	131.00000	370.56	2219.18
84.40000	1107.65	6779.15	145.00000	550.20	3493.31	196.00000	365.55	2363.89
140.00000	1088.66	7320.35	243.00000	540.84	3768.15	327.00000	359.61	2545.17

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
 Z=79 A=197.000

TD=16.0 EV ET=0.803824 MEV			TD=20.0 EV ET=0.936644 MEV			TD=24.0 EV ET=1.058262 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.81100	1.77	1.77	0.94600	1.33	1.33	1.06000	0.15	0.15
0.81900	3.93	3.93	0.95500	2.80	2.80	1.07000	1.08	1.08
0.83500	8.82	8.82	0.97400	6.42	6.42	1.10000	4.80	4.80
0.86000	17.71	17.71	1.00000	12.36	12.36	1.13000	9.64	9.64
0.89200	30.81	30.81	1.03000	20.34	20.34	1.17000	17.43	17.43
0.93200	49.00	49.00	1.08000	35.51	35.51	1.22000	28.65	28.65
0.98000	72.31	72.31	1.14000	55.50	55.50	1.29000	45.99	45.99
1.04000	102.15	102.15	1.21000	79.71	79.71	1.37000	66.67	66.67
1.12000	141.07	141.07	1.31000	113.69	113.69	1.48000	94.65	94.65
1.24000	194.45	194.45	1.45000	157.07	157.07	1.64000	131.75	131.75
1.40000	253.69	254.34	1.63000	203.48	204.13	1.85000	171.92	172.64
1.60000	309.52	315.33	1.87000	249.78	255.26	2.11000	208.97	213.96
1.84000	355.27	374.39	2.15000	286.05	303.23	2.43000	239.47	254.95
2.17000	392.43	438.80	2.52000	314.18	353.70	2.85000	262.54	297.67
2.57000	413.68	500.00	2.99000	330.72	404.04	3.38000	275.64	339.94
3.05000	421.31	558.06	3.55000	336.05	451.32	4.02000	279.47	380.10
3.61000	418.92	612.26	4.21000	333.41	495.75	4.76000	276.77	417.09
4.17000	411.64	656.93	4.87000	327.03	532.27	5.50000	271.20	447.52
4.82000	401.36	700.52	5.61000	318.72	566.67	6.34000	264.07	476.53
5.62000	388.73	745.79	6.55000	308.42	603.59	7.40000	255.44	507.44
6.83000	372.12	802.21	7.96000	295.17	649.10	8.99000	244.46	545.51
8.03000	358.85	848.45	9.36000	284.68	686.41	10.50000	236.15	575.46
12.00000	331.22	961.83	14.00000	263.21	777.93	15.80000	218.35	653.23
16.00000	317.16	1042.81	18.70000	252.32	843.33	21.10000	209.50	707.82
24.10000	302.30	1156.85	28.00000	240.95	933.45	31.70000	200.17	783.65
40.10000	290.33	1297.91	46.80000	231.73	1047.56	52.90000	192.80	878.59
80.30000	282.99	1490.83	93.60000	226.15	1201.74	105.00000	188.34	1005.74
160.00000	277.42	1679.45	187.00000	221.62	1353.09	211.00000	184.50	1132.86

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
Z=79 A=197.000

TD=28.0 EV ET=1.171110 MEV			TD=32.0 EV ET=1.276849 MEV			TD=36.0 EV ET=1.376674 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.18000	0.55	0.55	1.28000	0.13	0.13	1.39000	0.46	0.46
1.19000	1.27	1.27	1.30000	1.18	1.18	1.40000	0.90	0.90
1.21000	3.07	3.07	1.32000	2.57	2.57	1.43000	2.61	2.61
1.25000	7.78	7.78	1.36000	6.25	6.25	1.47000	5.69	5.69
1.29000	13.68	13.68	1.41000	12.13	12.13	1.52000	10.56	10.56
1.35000	24.06	24.06	1.48000	21.99	21.99	1.59000	18.67	18.67
1.42000	37.55	37.55	1.55000	32.96	32.96	1.67000	29.05	29.05
1.52000	57.79	57.79	1.65000	49.37	49.37	1.78000	44.08	44.08
1.63000	79.77	79.77	1.78000	70.46	70.46	1.92000	62.98	62.98
1.81000	112.66	112.66	1.97000	98.61	98.61	2.13000	88.79	88.79
2.04000	147.26	147.91	2.23000	130.19	130.86	2.40000	115.95	116.58
2.34000	180.53	185.27	2.55000	158.64	163.05	2.75000	141.67	145.84
2.65000	206.14	220.26	2.93000	180.89	193.81	3.16000	161.34	173.35
3.16000	225.70	257.55	3.44000	197.75	226.56	3.71000	176.10	202.60
3.74000	236.31	293.61	4.08000	206.83	258.70	4.40000	183.90	231.29
4.45000	239.16	328.35	4.85000	208.99	289.08	5.23000	185.57	258.39
5.26000	236.56	359.93	5.74000	206.46	317.05	6.19000	183.14	283.34
6.08000	231.60	386.22	6.63000	202.01	340.02	7.15000	179.08	303.82
7.02000	225.31	411.50	7.66000	196.39	362.33	8.26000	174.03	323.70
8.19000	217.89	438.04	8.93000	189.91	385.51	9.63000	168.25	344.37
9.95000	208.50	470.81	10.80000	181.90	413.61	11.70000	160.99	370.00
11.70000	201.15	497.67	12.70000	175.50	437.18	13.70000	155.49	390.43
17.50000	186.46	563.56	19.10000	162.66	495.77	20.60000	144.23	442.59
23.40000	179.00	610.62	25.50000	156.27	536.78	27.50000	138.63	479.06
35.10000	171.18	675.44	38.30000	149.51	593.72	41.30000	132.70	529.69
58.50000	165.06	756.71	63.80000	144.29	664.82	68.80000	128.16	592.94
117.00000	161.31	866.93	127.00000	141.09	760.63	137.00000	125.36	678.16
234.00000	158.00	975.07	255.00000	138.16	855.76	275.00000	122.74	762.65

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
Z=79 A=197.000

TD=40.0 EV ET=1.471479 MEV			TD=44.0 EV ET=1.561953 MEV			TD=48.0 EV ET=1.648640 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.48000	0.22	0.22	1.57000	0.16	0.16	1.66000	0.19	0.19
1.50000	0.90	0.90	1.59000	0.70	0.70	1.68000	0.66	0.66
1.53000	2.34	2.34	1.62000	1.87	1.87	1.71000	1.67	1.67
1.57000	4.91	4.91	1.67000	4.59	4.59	1.76000	4.00	4.00
1.63000	9.85	9.85	1.73000	8.85	8.85	1.82000	7.64	7.64
1.70000	16.76	16.76	1.81000	15.67	15.67	1.91000	14.29	14.29
1.79000	26.68	26.68	1.90000	24.25	24.25	2.01000	22.64	22.64
1.91000	40.62	40.62	2.03000	37.28	37.28	2.14000	34.04	34.04
2.06000	57.78	57.78	2.18000	52.10	52.10	2.30000	47.87	47.87
2.28000	80.62	80.62	2.42000	73.62	73.62	2.55000	67.47	67.47
2.57000	105.21	105.85	2.73000	96.19	96.83	2.88000	88.45	89.07
2.94000	128.05	131.99	3.12000	116.80	120.53	3.29000	107.30	110.82
3.38000	145.70	156.95	3.59000	132.85	143.45	3.79000	122.08	132.08
3.97000	158.80	183.45	4.21000	144.51	167.39	4.45000	132.70	154.25
4.70000	165.53	209.09	4.99000	150.51	190.93	5.27000	138.00	175.77
5.59000	166.86	233.65	5.93000	151.57	213.21	6.26000	138.84	196.17
6.62000	164.52	256.24	7.02000	149.36	233.76	7.41000	136.72	215.04
7.65000	160.78	274.77	8.12000	145.88	250.75	8.57000	133.49	230.62
8.82000	156.25	292.46	9.37000	141.71	266.96	9.89000	129.64	245.51
10.30000	150.98	311.29	10.90000	137.03	283.68	11.50000	125.36	260.82
12.50000	144.50	334.28	13.20000	131.20	304.39	14.00000	119.89	280.34
14.70000	139.45	353.19	15.60000	126.49	322.13	16.40000	115.82	295.76
22.00000	129.57	399.66	23.40000	117.55	364.67	24.70000	107.60	335.19
29.40000	124.56	432.63	31.20000	113.09	394.42	32.90000	103.55	362.38
44.10000	119.30	478.09	46.80000	108.34	435.76	49.40000	99.22	400.38
73.50000	115.28	535.10	78.00000	104.74	487.61	82.40000	95.96	448.01
147.00000	112.77	612.28	156.00000	102.48	557.79	164.00000	93.93	511.89

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
 Z=79 A=197.000

TD=52.0 EV ET=1.731979 MEV			TD=56.0 EV ET=1.812331 MEV			TD=60.0 EV ET=1.889995 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.74000	0.11	0.11	1.83000	0.22	0.22	1.90000	0.10	0.10
1.76000	0.48	0.48	1.84000	0.39	0.39	1.92000	0.37	0.37
1.80000	1.62	1.62	1.88000	1.37	1.37	1.96000	1.24	1.24
1.85000	3.69	3.69	1.93000	3.14	3.14	2.02000	3.17	3.17
1.92000	7.48	7.48	2.01000	6.96	6.96	2.09000	6.18	6.18
2.00000	12.71	12.71	2.10000	12.24	12.24	2.19000	11.42	11.42
2.11000	20.80	20.80	2.21000	19.49	19.49	2.30000	17.93	17.93
2.25000	31.66	31.66	2.35000	29.18	29.18	2.45000	27.27	27.27
2.42000	44.63	44.63	2.53000	41.45	41.45	2.64000	38.92	38.92
2.68000	62.61	62.61	2.80000	58.12	58.12	2.92000	54.44	54.44
3.03000	82.17	82.78	3.17000	76.54	77.14	3.30000	71.45	72.01
3.46000	99.47	102.86	3.62000	92.60	95.85	3.77000	86.52	89.59
3.98000	112.90	122.34	4.16000	104.96	113.86	4.34000	98.16	106.66
4.67000	122.58	142.78	4.89000	113.96	133.09	5.10000	106.46	124.60
5.54000	127.42	162.88	5.79000	118.31	151.59	6.04000	110.45	141.92
6.58000	128.08	181.73	6.88000	118.87	169.17	7.18000	110.88	158.38
7.79000	126.04	199.19	8.15000	116.92	185.46	8.50000	109.01	173.55
9.00000	123.04	213.48	9.42000	114.09	198.79	9.82000	106.36	185.96
10.30000	119.69	226.46	10.80000	110.92	211.02	11.30000	103.30	197.68
12.10000	115.46	241.57	12.60000	107.15	224.46	13.20000	99.76	210.34
14.70000	110.47	259.43	15.40000	102.39	241.57	15.00000	95.50	225.66
17.30000	106.63	274.08	18.10000	98.86	255.08	18.80000	92.22	238.26
25.90000	99.22	309.98	27.10000	92.03	288.45	28.30000	85.79	269.84
34.60000	95.47	335.35	36.20000	88.57	312.01	37.70000	82.61	291.63
51.90000	91.52	370.35	54.30000	84.92	344.52	56.60000	79.21	322.04
86.50000	88.55	414.26	90.60000	82.19	385.39	94.40000	76.69	360.17
173.00000	86.67	473.64	181.00000	80.46	440.44	188.00000	75.09	411.33

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
 Z=79 A=197.000

TD=64.0 EV ET=1.965224 MEV			TD=68.0 EV ET=2.038235 MEV			TD=72.0 EV ET=2.109211 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.98000	0.13	0.13	2.05000	0.09	0.09	2.13000	0.15	0.15
2.00000	0.39	0.39	2.07000	0.30	0.30	2.15000	0.38	0.38
2.04000	1.19	1.19	2.11000	0.98	0.98	2.19000	1.03	1.03
2.10000	2.94	2.94	2.18000	2.81	2.81	2.25000	2.47	2.47
2.18000	6.07	6.07	2.26000	5.66	5.66	2.34000	5.39	5.39
2.27000	10.35	10.35	2.36000	10.00	10.00	2.44000	9.36	9.36
2.39000	16.76	16.76	2.48000	15.86	15.86	2.57000	15.18	15.18
2.55000	25.78	25.78	2.64000	24.09	24.09	2.74000	23.20	23.20
2.75000	36.87	36.87	2.85000	34.71	34.71	2.95000	32.92	32.92
3.04000	51.38	51.39	3.15000	48.39	48.40	3.26000	45.85	45.86
3.43000	67.13	67.68	3.56000	63.44	63.98	3.69000	60.25	60.79
3.93000	81.53	84.55	4.07000	76.78	79.64	4.21000	72.63	75.38
4.52000	92.28	100.46	4.68000	86.88	94.63	4.85000	82.25	89.74
5.30000	99.87	117.08	5.50000	94.09	110.53	5.69000	88.92	104.61
6.28000	103.55	133.39	6.52000	97.48	125.93	6.74000	92.07	119.11
7.46000	103.91	148.78	7.74000	97.75	140.37	8.01000	92.28	132.85
8.84000	102.11	163.09	9.17000	96.02	153.84	9.49000	90.62	145.58
10.20000	99.62	174.64	10.50000	93.80	164.14	10.90000	88.45	155.53
11.70000	96.81	185.40	12.20000	90.90	175.22	12.60000	85.80	165.65
13.70000	93.44	197.46	14.20000	87.85	186.15	14.70000	82.87	176.13
16.70000	89.33	212.25	17.30000	84.00	200.04	17.90000	79.25	189.23
19.60000	86.30	223.98	20.30000	81.15	211.08	21.00000	76.57	199.64
29.40000	80.36	253.35	30.50000	75.57	238.85	31.60000	71.30	225.98
39.30000	77.36	274.02	40.70000	72.77	258.19	42.10000	68.69	244.15
58.90000	74.22	302.42	61.10000	69.81	285.03	63.20000	65.91	269.51
98.20000	71.88	338.15	101.00000	67.65	318.11	105.00000	63.87	301.06
196.00000	70.38	386.26	203.00000	66.23	363.84	210.00000	62.54	343.95

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
 Z=79 A=197.000

TD=76.0 EV ET=2.178316 MEV			TD=80.0 EV ET=2.245688 MEV			TD=84.0 EV ET=2.311453 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.20000	0.14	0.14	2.26000	0.07	0.07	2.33000	0.09	0.09
2.22000	0.34	0.34	2.29000	0.33	0.33	2.35000	0.24	0.24
2.26000	0.94	0.94	2.33000	0.88	0.88	2.40000	0.86	0.86
2.33000	2.49	2.49	2.40000	2.30	2.30	2.47000	2.18	2.18
2.41000	4.87	4.87	2.49000	4.79	4.79	2.56000	4.48	4.48
2.52000	8.88	8.88	2.60000	8.51	8.51	2.68000	8.25	8.25
2.65000	14.23	14.23	2.73000	13.47	13.47	2.81000	12.85	12.85
2.83000	22.04	22.04	2.91000	20.69	20.69	3.00000	19.94	19.94
3.04000	31.00	31.00	3.14000	29.76	29.76	3.23000	28.35	28.35
3.37000	43.68	43.68	3.48000	41.79	41.80	3.58000	39.84	39.85
3.81000	57.19	57.72	3.92000	54.27	54.76	4.04000	51.91	52.41
4.35000	68.97	71.64	4.49000	65.73	68.33	4.62000	62.68	65.19
5.01000	78.03	85.24	5.16000	74.17	81.07	5.31000	70.71	77.35
5.88000	84.31	99.37	6.06000	80.13	94.57	6.24000	76.37	90.27
6.97000	87.24	113.17	7.18000	82.88	107.66	7.39000	78.94	102.71
8.27000	87.40	126.08	8.53000	83.00	120.02	8.78000	79.02	114.49
9.80000	85.79	138.16	10.10000	81.45	131.45	10.40000	77.52	125.41
11.30000	83.66	147.86	11.60000	79.48	140.42	12.00000	75.56	134.23
13.00000	81.22	157.13	13.40000	77.09	149.49	13.80000	73.35	142.61
15.20000	78.40	167.21	15.70000	74.38	159.20	16.10000	70.83	151.61
18.50000	74.99	179.59	19.00000	71.23	170.62	19.60000	67.74	162.84
21.70000	72.46	189.45	22.40000	68.76	180.29	23.10000	65.40	172.03
32.60000	67.51	214.31	33.60000	64.10	203.83	34.60000	61.01	194.37
43.50000	65.03	231.62	44.90000	61.74	220.36	46.20000	58.77	210.08
65.30000	62.41	255.64	67.30000	59.27	243.10	69.30000	56.42	231.78
108.00000	60.50	285.28	112.00000	57.45	271.61	115.00000	54.71	258.77
217.00000	59.24	326.18	224.00000	56.27	310.20	231.00000	53.58	295.76

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN AU
 Z=79 A=197.000

TD=88.0 EV ET=2.375720 MEV			TD=92.0 EV ET=2.438586 MEV			TD=96.0 EV ET=2.500141 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.39000	0.06	0.06	2.46000	0.09	0.09	2.52000	0.07	0.07
2.42000	0.27	0.27	2.48000	0.22	0.22	2.55000	0.26	0.26
2.47000	0.86	0.86	2.53000	0.74	0.74	2.60000	0.78	0.78
2.54000	2.10	2.10	2.60000	1.86	1.86	2.67000	1.86	1.86
2.63000	4.24	4.24	2.70000	4.06	4.06	2.77000	3.94	3.94
2.75000	7.74	7.74	2.82000	7.33	7.33	2.90000	7.27	7.27
2.89000	12.36	12.36	2.97000	11.95	11.95	3.05000	11.63	11.63
3.08000	18.96	18.96	3.17000	18.45	18.45	3.25000	17.72	17.72
3.32000	27.14	27.14	3.41000	26.09	26.09	3.50000	25.17	25.17
3.68000	38.14	38.15	3.77000	36.37	36.38	3.87000	35.05	35.06
4.15000	49.61	50.08	4.26000	47.54	48.01	4.37000	45.69	46.15
4.75000	59.94	62.39	4.87000	57.35	59.69	5.00000	55.12	57.43
5.46000	67.58	74.01	5.60000	64.68	70.86	5.75000	62.10	68.14
6.41000	72.93	86.28	6.58000	69.79	82.67	6.75000	66.93	79.39
7.60000	75.36	98.25	7.80000	72.08	94.11	8.00000	69.09	90.34
9.02000	75.41	109.43	9.26000	72.11	104.83	9.50000	69.08	100.64
10.60000	74.05	119.38	10.90000	70.78	114.45	11.20000	67.77	109.94
12.30000	72.12	128.15	12.60000	68.96	122.63	13.00000	65.96	118.00
14.20000	69.94	136.37	14.60000	66.83	130.70	15.00000	63.97	125.51
16.60000	67.51	145.08	17.00000	64.56	138.81	17.50000	61.77	133.38
20.10000	64.64	155.50	20.70000	61.74	149.08	21.20000	59.14	142.97
23.70000	62.41	164.30	24.30000	59.66	157.28	25.00000	57.10	151.05
35.60000	58.19	185.79	36.50000	55.64	177.84	37.50000	53.28	170.69
47.50000	56.07	200.74	48.70000	53.62	192.14	50.00000	51.36	184.36
71.20000	53.84	221.42	73.10000	51.48	211.99	75.00000	49.32	203.35
118.00000	52.22	247.13	121.00000	49.94	236.52	125.00000	47.84	227.19
237.00000	51.14	282.44	243.00000	48.92	270.29	250.00000	46.87	259.35

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
 Z=82 A=207.210

TD=4.0 EV ET=0.293393 MEV			TD=8.0 EV ET=0.505353 MEV			TD=12.0 EV ET=0.680176 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.29600	23.90	23.90	0.51000	6.86	6.86	0.68600	3.04	3.04
0.29900	51.01	51.01	0.51500	14.44	14.44	0.69300	6.95	6.95
0.30500	104.05	104.05	0.52500	30.13	30.13	0.70700	15.48	15.48
0.31300	172.43	172.43	0.54000	54.74	54.74	0.72700	29.08	29.08
0.32500	270.29	270.29	0.56000	88.98	88.98	0.75400	49.42	49.42
0.34000	385.21	385.21	0.58600	134.79	134.79	0.78900	77.98	77.98
0.35700	506.27	506.27	0.61600	187.99	187.99	0.82900	112.13	112.13
0.38100	661.96	661.96	0.65600	257.44	257.44	0.88400	159.44	159.44
0.41000	828.55	828.55	0.70700	340.95	340.95	0.95200	215.75	215.75
0.45400	1042.13	1042.13	0.78300	451.61	451.61	1.05000	289.11	289.11
0.51300	1267.30	1267.38	0.88400	571.89	572.54	1.19000	375.21	376.03
0.58600	1471.10	1483.33	1.01000	684.12	693.30	1.36000	452.69	460.58
0.67400	1638.28	1688.18	1.16000	775.45	807.92	1.56000	514.18	540.07
0.79200	1773.42	1902.14	1.36000	848.57	928.47	1.83000	562.78	624.80
0.93800	1855.69	2107.43	1.61000	892.59	1046.26	2.17000	590.56	707.94
1.11000	1886.93	2297.95	1.92000	908.38	1160.80	2.58000	598.58	786.53
1.32000	1878.13	2484.69	2.27000	902.09	1264.14	3.06000	592.18	859.77
1.52000	1848.36	2632.41	2.62000	885.34	1349.39	3.53000	579.66	976.92
1.76000	1802.68	2783.39	3.03000	861.42	1433.93	4.08000	562.94	976.92
2.05000	1744.80	2939.59	3.53000	832.35	1521.01	4.76000	543.00	1037.60
2.49000	1664.46	3138.26	4.29000	793.41	1631.14	5.78000	517.52	1112.86
2.93000	1597.00	3305.93	5.05000	761.90	1722.46	6.80000	497.32	1175.19
4.40000	1446.42	3730.91	7.58000	695.22	1949.32	10.20000	455.75	1329.45
5.86000	1364.97	4037.45	10.10000	661.57	2111.30	13.60000	435.29	1439.26
8.80000	1284.57	4482.25	15.10000	628.04	2337.78	20.40000	414.38	1592.75
14.60000	1216.98	5040.50	25.20000	599.33	2625.50	34.00000	397.13	1785.33
29.30000	1169.95	5820.42	50.50000	581.50	3019.15	68.00000	386.67	2047.87
58.60000	1146.95	6598.67	101.00000	569.84	3407.69	136.00000	378.67	2306.42
88.00000	1131.34	7047.89	151.00000	561.68	3629.06	204.00000	373.10	2454.88
146.00000	1110.63	7599.81	252.00000	551.79	3907.06	340.00000	366.88	2639.42

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
 Z=82 A=207.210

TD=16.0 EV ET=0.832438 MEV			TD=20.0 EV ET=0.969119 MEV			TD=24.0 EV ET=1.094204 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.84000	1.92	1.92	0.97800	1.30	1.30	1.10000	0.52	0.52
0.84900	4.48	4.48	0.98800	3.00	3.00	1.11000	1.57	1.57
0.86500	9.65	9.65	1.00000	5.32	5.32	1.13000	4.14	4.14
0.89000	19.10	19.10	1.03000	12.33	12.33	1.17000	10.92	10.92
0.92400	33.99	33.99	1.07000	23.75	23.75	1.21000	19.36	19.36
0.96500	54.04	54.04	1.12000	40.25	40.25	1.26000	31.50	31.50
1.01000	77.50	77.50	1.18000	61.87	61.87	1.33000	50.20	50.20
1.08000	114.88	114.88	1.25000	87.93	87.93	1.42000	75.26	75.26
1.16000	156.47	156.47	1.35000	124.40	124.40	1.53000	105.22	105.22
1.29000	217.62	217.62	1.50000	173.86	173.86	1.69000	144.71	144.71
1.45000	279.39	280.16	1.69000	225.03	225.83	1.91000	188.95	189.77
1.66000	339.47	346.31	1.93000	272.57	278.72	2.18000	228.49	234.19
1.91000	386.78	408.95	2.22000	310.29	329.62	2.51000	259.86	277.37
2.24000	422.33	474.03	2.61000	338.53	383.34	2.95000	282.71	322.50
2.66000	441.86	538.41	3.10000	353.11	435.64	3.50000	294.06	366.20
3.16000	446.25	598.40	3.68000	355.62	484.06	4.15000	295.52	406.64
3.74000	440.30	653.77	4.36000	350.06	529.15	4.92000	290.42	444.68
4.42000	430.08	699.32	5.03000	341.49	565.68	5.68000	282.98	475.49
4.99000	417.20	743.49	5.81000	330.95	601.37	6.56000	274.06	505.41
5.82000	402.14	789.71	6.78000	318.81	638.85	7.65000	263.96	536.70
7.07000	383.17	847.06	8.23000	303.82	684.93	9.30000	251.46	575.62
8.32000	368.35	894.51	9.69000	292.12	723.29	10.90000	242.10	606.84
12.40000	338.90	1009.60	14.50000	269.17	816.92	16.40000	223.19	686.29
16.60000	324.12	1093.64	19.30000	258.02	883.04	21.80000	214.21	741.25
24.90000	309.07	1209.21	29.00000	246.28	976.10	32.80000	204.62	819.16
41.60000	296.88	1354.84	48.40000	237.01	1092.63	54.70000	197.20	916.27
83.20000	289.56	1552.01	96.90000	231.40	1250.71	109.00000	192.69	1047.17
166.00000	283.45	1745.00	193.00000	226.45	1404.57	218.00000	188.50	1176.06

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=28.0 EV ET=1.210222 MEV			TD=32.0 EV ET=1.318900 MEV			TD=36.0 EV ET=1.421475 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.22000	0.63	0.63	1.33000	0.52	0.52	1.43000	0.29	0.29
1.23000	1.40	1.40	1.34000	1.10	1.10	1.44000	0.71	0.71
1.25000	3.30	3.30	1.37000	3.38	3.38	1.47000	2.41	2.41
1.29000	8.34	8.34	1.41000	7.51	7.51	1.52000	6.52	6.52
1.34000	16.40	16.40	1.46000	14.00	14.00	1.57000	11.84	11.84
1.40000	27.80	27.80	1.52000	23.14	23.14	1.64000	20.65	20.65
1.47000	42.47	42.47	1.60000	36.65	36.65	1.73000	33.33	33.33
1.57000	64.31	64.31	1.71000	56.15	56.15	1.84000	49.57	49.57
1.69000	89.99	89.99	1.84000	78.74	78.74	1.99000	71.26	71.26
1.87000	124.84	124.84	2.04000	110.12	110.12	2.20000	98.57	98.56
2.11000	162.57	163.35	2.30000	143.10	143.87	2.48000	127.96	128.71
2.42000	197.67	203.17	2.63000	173.22	178.23	2.84000	154.96	159.75
2.78000	223.76	239.84	3.03000	196.44	211.23	3.26000	174.91	188.47
3.26000	242.65	278.27	3.56000	212.78	245.44	3.83000	189.27	219.04
3.87000	251.94	316.12	4.22000	220.39	278.43	4.54000	195.83	248.50
4.59000	252.75	351.06	5.01000	220.74	309.29	5.40000	195.91	276.35
5.44000	248.06	383.79	5.93000	216.41	337.83	6.39000	191.90	301.76
6.29000	241.43	410.61	6.85000	210.53	361.22	7.39000	186.53	322.77
7.26000	233.71	436.27	7.91000	203.69	383.84	8.52000	180.48	342.72
8.47000	225.02	463.28	9.23000	196.07	407.58	9.95000	173.67	363.98
10.20000	214.87	495.16	11.20000	186.88	436.69	12.00000	165.78	389.11
12.10000	206.32	524.05	13.10000	180.09	459.94	14.20000	159.35	411.34
18.10000	190.69	591.40	19.70000	166.41	519.80	21.30000	147.50	464.33
24.20000	182.99	639.54	26.30000	159.81	561.75	28.40000	141.75	501.48
36.30000	175.00	705.89	39.50000	152.88	620.03	42.60000	135.70	553.15
60.50000	168.83	789.12	65.90000	147.60	693.07	71.00000	131.11	617.99
121.00000	165.04	901.94	131.00000	144.37	790.94	142.00000	128.25	705.76
242.00000	161.41	1012.33	263.00000	141.15	888.04	284.00000	125.38	791.55

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=40.0 EV ET=1.518873 MEV			TD=44.0 EV ET=1.611807 MEV			TD=48.0 EV ET=1.700840 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.53000	0.30	0.30	1.62000	0.17	0.17	1.71000	0.16	0.16
1.54000	0.64	0.64	1.64000	0.74	0.74	1.73000	0.63	0.63
1.57000	2.04	2.04	1.67000	1.98	1.98	1.76000	1.67	1.67
1.62000	5.41	5.41	1.72000	4.89	4.89	1.81000	4.12	4.12
1.68000	10.76	10.76	1.78000	9.46	9.46	1.88000	8.73	8.73
1.76000	19.36	19.36	1.86000	16.79	16.79	1.97000	15.99	15.99
1.85000	30.17	30.17	1.96000	27.10	27.10	2.07000	25.04	25.04
1.97000	45.22	45.22	2.09000	41.18	41.18	2.21000	38.30	38.30
2.12000	63.66	63.66	2.25000	58.15	58.15	2.38000	54.03	54.03
2.35000	89.08	89.08	2.49000	81.03	81.03	2.63000	74.79	74.80
2.65000	115.71	116.45	2.82000	106.16	106.92	2.97000	97.37	98.08
3.03000	139.76	144.21	3.22000	127.69	131.97	3.40000	117.49	121.59
3.49000	158.03	170.82	3.70000	143.90	155.83	3.91000	132.31	143.63
4.10000	170.64	198.39	4.35000	155.28	181.09	4.59000	142.47	166.62
4.86000	176.24	224.96	5.15000	160.18	205.15	5.44000	146.82	188.86
5.77000	176.09	249.81	6.12000	159.91	227.92	6.46000	146.44	209.68
6.83000	172.33	272.79	7.25000	156.37	248.95	7.65000	143.11	228.95
7.89000	167.48	291.59	8.38000	151.89	266.14	8.84000	138.97	244.70
9.11000	161.94	309.78	9.67000	146.85	282.63	10.20000	134.33	259.84
10.60000	155.95	328.50	11.20000	141.57	299.17	11.90000	129.26	275.75
12.90000	148.55	352.25	13.70000	134.68	321.36	14.40000	123.31	295.03
15.10000	143.17	370.99	16.10000	129.71	338.84	17.00000	118.64	311.53
22.70000	132.54	419.02	24.10000	120.28	382.10	25.50000	110.05	351.43
30.30000	127.39	452.61	32.20000	115.63	412.76	34.00000	105.86	379.34
45.50000	121.99	499.26	48.30000	110.78	455.07	51.00000	101.46	418.14
75.90000	117.92	557.76	80.50000	107.15	508.18	85.00000	98.18	466.84
151.00000	115.40	636.15	161.00000	104.86	579.99	170.00000	96.09	532.67

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=52.0 EV			TD=56.0 EV			TD=60.0 EV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.80000	0.20	0.20	1.88000	0.13	0.13	1.96000	0.12	0.12
1.82000	0.63	0.63	1.90000	0.48	0.48	1.98000	0.41	0.41
1.85000	1.55	1.55	1.94000	1.56	1.56	2.02000	1.35	1.35
1.91000	4.21	4.21	1.99000	3.50	3.50	2.08000	3.44	3.44
1.98000	8.36	8.36	2.07000	7.65	7.65	2.16000	7.20	7.20
2.07000	14.81	14.81	2.16000	13.37	13.37	2.26000	12.96	12.96
2.17000	22.80	22.80	2.28000	21.93	21.93	2.37000	20.03	20.03
2.32000	35.37	35.37	2.42000	32.41	32.41	2.53000	30.80	30.80
2.50000	50.10	50.10	2.61000	46.31	46.31	2.72000	43.29	43.29
2.76000	69.17	69.17	2.89000	64.62	64.63	3.02000	60.89	60.90
3.12000	90.24	90.93	3.27000	84.34	85.03	3.41000	78.98	79.66
3.57000	108.72	112.62	3.73000	101.08	104.75	3.89000	94.58	98.11
4.10000	122.23	132.84	4.29000	113.71	123.78	4.48000	106.40	116.06
4.82000	131.61	154.31	5.04000	122.29	143.67	5.26000	114.24	134.58
5.71000	135.50	174.82	5.98000	125.82	162.92	6.23000	117.42	152.38
6.78000	135.06	194.06	7.10000	125.30	180.80	7.40000	116.87	169.13
8.03000	131.93	211.89	8.41000	122.32	197.38	8.76000	114.06	184.57
9.28000	128.07	226.46	9.71000	118.73	210.83	10.10000	110.72	197.02
10.70000	123.80	240.39	11.20000	114.75	223.81	11.60000	107.11	208.79
12.50000	119.08	255.22	13.00000	110.54	237.03	13.60000	102.92	221.98
15.10000	113.65	272.88	15.80000	105.34	253.98	16.50000	98.13	237.66
17.80000	109.40	287.99	18.60000	101.45	267.90	19.40000	94.54	250.56
26.70000	101.50	324.86	28.00000	94.11	302.47	29.20000	87.75	282.84
35.70000	97.62	350.89	37.30000	90.58	326.34	38.90000	84.47	305.12
53.50000	93.59	386.63	56.00000	86.84	359.68	58.40000	81.00	336.25
89.30000	90.59	431.73	93.40000	84.09	401.52	97.40000	78.46	375.30
178.00000	88.68	492.20	186.00000	82.33	457.59	194.00000	76.83	427.65

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=64.0 EV			TD=68.0 EV			TD=72.0 EV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.04000	0.13	0.13	2.12000	0.16	0.16	2.19000	0.12	0.12
2.06000	0.40	0.40	2.14000	0.42	0.42	2.21000	0.33	0.33
2.10000	1.24	1.24	2.18000	1.20	1.20	2.26000	1.22	1.22
2.16000	3.11	3.11	2.24000	2.91	2.91	2.32000	2.80	2.80
2.24000	6.47	6.47	2.33000	6.39	6.39	2.41000	5.99	5.99
2.35000	12.18	12.18	2.43000	11.12	11.12	2.52000	10.77	10.77
2.47000	19.18	19.18	2.56000	18.02	18.02	2.65000	17.11	17.11
2.63000	28.95	28.95	2.73000	27.47	27.47	2.82000	25.78	25.78
2.83000	40.85	40.85	2.94000	38.85	38.85	3.04000	36.71	36.71
3.14000	57.29	57.30	3.25000	53.82	53.82	3.36000	50.87	50.87
3.54000	74.07	74.71	3.67000	69.87	70.49	3.80000	66.23	66.85
4.05000	89.00	92.44	4.20000	83.94	87.24	4.34000	79.32	82.46
4.65000	99.79	108.93	4.83000	94.14	102.96	4.99000	88.94	97.32
5.46000	107.13	126.33	5.67000	100.92	119.32	5.86000	95.34	112.84
6.48000	110.07	143.25	6.72000	103.59	135.13	6.95000	97.82	127.84
7.69000	109.50	158.88	7.98000	102.99	149.90	8.26000	97.21	141.88
9.11000	106.81	173.44	9.45000	100.42	163.58	9.78000	94.75	154.79
10.50000	103.67	185.09	10.90000	97.44	174.61	11.30000	91.88	165.34
12.10000	100.19	196.40	12.60000	94.08	185.50	13.00000	88.82	175.29
14.10000	96.42	208.29	14.70000	90.51	196.78	15.20000	85.39	186.10
17.20000	91.81	223.42	17.80000	86.34	210.49	18.40000	81.47	199.05
20.20000	88.49	235.44	21.00000	83.14	222.13	21.70000	78.46	210.01
30.30000	82.21	265.46	31.50000	77.28	250.40	32.60000	72.93	236.83
40.50000	79.12	286.60	42.00000	74.41	270.13	43.40000	70.25	255.37
60.70000	75.90	315.67	63.00000	71.39	297.54	65.20000	67.40	281.36
101.00000	73.54	352.12	105.00000	69.19	331.97	108.00000	65.35	313.49
202.00000	72.01	401.49	210.00000	67.76	378.44	217.00000	63.99	357.67

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=76.0 EV ET=2.244671 MEV			TD=80.0 EV ET=2.313827 MEV			TD=84.0 EV ET=2.381330 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.26000	0.09	0.09	2.33000	0.09	0.09	2.40000	0.10	0.10
2.28000	0.29	0.29	2.36000	0.37	0.37	2.42000	0.26	0.26
2.33000	1.07	1.07	2.40000	0.97	0.97	2.47000	0.92	0.92
2.40000	2.76	2.76	2.47000	2.51	2.51	2.54000	2.33	2.33
2.49000	5.72	5.72	2.56000	5.20	5.20	2.64000	5.12	5.12
2.60000	10.12	10.12	2.68000	9.62	9.62	2.76000	9.24	9.24
2.73000	15.95	15.95	2.82000	15.43	15.43	2.90000	14.64	14.64
2.91000	24.40	24.40	3.00000	23.25	23.25	3.09000	22.30	22.30
3.14000	34.91	34.91	3.23000	32.99	32.99	3.33000	31.72	31.72
3.47000	48.34	48.34	3.58000	46.15	46.16	3.69000	44.23	44.24
3.92000	62.78	63.37	4.04000	59.76	60.33	4.16000	57.08	57.64
4.48000	75.25	78.27	4.62000	71.63	74.57	4.76000	68.41	71.27
5.16000	84.42	92.54	5.32000	80.30	88.11	5.47000	76.51	83.99
6.06000	90.40	107.24	6.24000	85.89	101.99	6.42000	81.83	97.28
7.18000	92.67	121.38	7.40000	88.03	115.50	7.62000	83.83	110.22
8.52000	92.06	134.57	8.79000	87.41	128.11	9.04000	83.21	122.15
10.10000	89.69	146.90	10.40000	85.16	139.70	10.70000	81.05	133.22
11.60000	87.08	156.49	12.00000	82.58	149.12	12.30000	78.66	141.96
13.40000	84.09	166.20	13.80000	79.82	158.06	14.20000	75.96	150.73
15.70000	80.80	176.59	16.10000	76.78	167.67	16.60000	73.02	160.00
19.00000	77.10	188.84	19.60000	73.16	179.68	20.20000	69.59	171.41
22.40000	74.26	199.21	23.10000	70.48	189.52	23.80000	67.05	180.77
33.60000	69.06	224.53	34.70000	65.55	213.67	35.70000	62.40	203.70
44.80000	66.51	242.19	46.20000	63.15	230.36	47.60000	60.11	219.68
67.30000	63.83	266.82	69.40000	60.61	253.76	71.40000	57.70	241.89
112.00000	61.89	297.55	115.00000	58.79	282.71	119.00000	55.97	269.78
224.00000	60.61	339.12	231.00000	57.57	322.45	238.00000	54.82	307.39

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PB
Z=82 A=207.210

TD=88.0 EV ET=2.447294 MEV			TD=92.0 EV ET=2.511818 MEV			TD=96.0 EV ET=2.574993 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.47000	0.11	0.11	2.53000	0.07	0.07	2.60000	0.10	0.10
2.49000	0.27	0.27	2.56000	0.29	0.29	2.62000	0.24	0.24
2.54000	0.89	0.89	2.61000	0.89	0.89	2.67000	0.77	0.77
2.61000	2.21	2.21	2.68000	2.13	2.13	2.75000	2.09	2.09
2.71000	4.79	4.79	2.78000	4.55	4.55	2.85000	4.36	4.36
2.83000	8.61	8.61	2.91000	8.42	8.42	2.98000	7.98	7.98
2.98000	13.99	13.99	3.06000	13.46	13.46	3.14000	13.02	13.02
3.18000	21.51	21.51	3.26000	20.48	20.48	3.34000	19.61	19.61
3.42000	30.27	30.27	3.51000	29.02	29.02	3.60000	27.93	27.93
3.79000	42.25	42.27	3.89000	40.51	40.52	3.99000	38.96	38.97
4.28000	54.69	55.26	4.39000	52.35	52.90	4.50000	50.25	50.78
4.89000	65.36	68.13	5.02000	62.62	65.31	5.14000	60.01	62.60
5.62000	73.08	80.30	5.77000	69.98	76.96	5.92000	67.15	73.94
6.60000	78.15	93.04	6.78000	74.80	89.19	6.95000	71.71	85.60
7.83000	80.02	105.37	8.03000	76.53	100.88	8.23000	73.34	96.79
9.29000	79.40	116.76	9.54000	75.91	111.87	9.78000	72.72	107.35
11.00000	77.31	127.36	11.30000	73.89	122.03	11.50000	70.87	116.67
12.70000	74.94	135.96	13.00000	71.67	130.06	13.30000	68.67	124.67
14.60000	72.43	144.08	15.00000	69.21	138.03	15.40000	66.25	132.51
17.10000	69.60	153.04	17.50000	66.57	146.40	18.00000	63.69	140.62
20.80000	66.34	163.92	21.30000	63.44	156.84	21.80000	60.77	150.37
24.40000	63.99	172.61	25.10000	61.13	165.40	25.70000	58.56	158.60
36.70000	59.52	194.65	37.60000	56.92	186.27	38.60000	54.51	178.74
48.90000	57.35	209.87	50.20000	54.83	200.94	51.40000	52.54	192.67
73.40000	55.06	231.11	75.30000	52.65	221.22	77.20000	50.45	212.17
122.00000	53.42	257.59	125.00000	51.10	246.49	128.00000	48.96	236.33
244.00000	52.33	293.49	251.00000	50.04	281.03	257.00000	47.96	269.43

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
 Z=87 A=223.000

TD= 4.0 EV ET=0.311470 MEV			TD= 8.0 EV ET=0.533888 MEV			TD=12.0 EV ET=0.716651 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.31400	24.61	24.61	0.53900	8.11	8.11	0.72300	3.59	3.59
0.31700	53.48	53.48	0.54400	16.30	16.30	0.73000	7.85	7.85
0.32300	110.22	110.22	0.55500	35.13	35.13	0.74500	17.96	17.96
0.33300	201.93	201.93	0.57100	64.12	64.12	0.76600	33.98	33.98
0.34500	307.42	307.42	0.59200	104.20	104.20	0.79500	58.75	58.75
0.36100	440.60	440.60	0.61900	157.59	157.59	0.83100	92.24	92.24
0.37900	580.59	580.59	0.65100	221.52	221.52	0.87400	134.15	134.15
0.40400	758.55	758.55	0.69400	305.60	305.60	0.93100	189.97	189.97
0.43600	960.24	960.24	0.74700	402.92	402.92	1.00000	254.67	254.67
0.48200	1204.15	1204.15	0.82700	532.35	532.35	1.11000	346.45	346.45
0.54500	1464.21	1464.42	0.93400	671.27	672.18	1.25000	440.34	441.34
0.62200	1691.88	1707.20	1.06000	791.09	801.88	1.43000	527.38	537.22
0.71600	1874.24	1936.07	1.22000	891.45	930.81	1.64000	592.53	624.49
0.84000	2010.20	2166.97	1.44000	966.99	1066.70	1.93000	640.56	717.41
0.99600	2082.39	2388.37	1.70000	1002.38	1189.53	2.29000	661.94	805.40
1.18000	2093.86	2590.84	2.02000	1005.94	1307.01	2.72000	660.93	886.76
1.40000	2060.30	2783.52	2.40000	985.72	1417.39	3.22000	645.25	961.64
1.61000	2009.59	2935.77	2.77000	957.54	1505.45	3.72000	624.99	1023.08
1.86000	1943.54	3090.11	3.20000	923.21	1592.02	4.29000	601.85	1082.05
2.18000	1861.90	3258.69	3.73000	884.40	1682.22	5.01000	575.67	1145.07
2.64000	1761.07	3461.85	4.53000	835.93	1795.79	6.09000	544.14	1223.28
3.11000	1678.56	3637.44	5.33000	798.52	1890.18	7.16000	520.52	1287.66
4.67000	1506.04	4080.77	8.00000	723.73	2126.41	10.70000	474.77	1446.79
6.22000	1418.61	4402.04	10.60000	688.86	2292.54	14.30000	453.17	1562.50
9.34000	1336.03	4868.18	16.00000	653.66	2535.10	21.40000	431.82	1722.09
15.50000	1267.42	5453.15	26.60000	624.79	2833.81	35.80000	414.18	1924.96
31.10000	1221.06	6269.69	53.30000	607.12	3245.51	71.60000	403.72	2199.42
62.20000	1195.89	7081.34	106.00000	593.86	3646.83	143.00000	394.41	2467.90
93.40000	1177.23	7547.72	160.00000	583.98	3882.00	214.00000	387.93	2621.05
155.00000	1153.66	8120.70	266.00000	573.32	4166.60	358.00000	381.31	2814.31

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
 Z=87 A=223.000

TD=16.0 EV ET=0.875529 MEV			TD=20.0 EV ET=1.017985 MEV			TD=24.0 EV ET=1.148256 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.88400	2.35	2.35	1.02000	0.30	0.30	1.15000	0.16	0.16
0.89300	5.17	5.17	1.03000	1.97	1.97	1.17000	2.49	2.49
0.91000	11.32	11.32	1.05000	6.11	6.11	1.19000	5.56	5.56
0.93600	22.48	22.48	1.08000	14.03	14.03	1.22000	11.34	11.34
0.97100	40.00	40.00	1.12000	27.02	27.02	1.27000	23.36	23.36
1.01000	61.80	61.80	1.18000	49.89	49.89	1.33000	40.40	40.40
1.06000	91.66	91.66	1.24000	74.89	74.89	1.40000	62.16	62.16
1.13000	134.46	134.46	1.32000	109.07	109.07	1.49000	90.98	90.98
1.22000	187.64	187.64	1.42000	150.40	150.40	1.60000	125.10	125.10
1.35000	256.23	256.23	1.57000	205.78	205.78	1.77000	172.16	172.16
1.53000	332.04	333.15	1.78000	267.36	268.49	2.00000	222.70	223.72
1.75000	397.62	406.57	2.03000	318.92	326.86	2.29000	267.14	274.46
2.01000	446.30	474.14	2.34000	358.47	383.13	2.64000	299.70	321.83
2.36000	480.18	544.27	2.74000	384.13	439.02	3.10000	320.58	369.60
2.80000	494.24	611.59	3.25000	394.28	493.50	3.67000	327.95	414.79
3.32000	491.73	673.23	3.86000	391.22	543.91	4.36000	324.62	457.16
3.93000	478.75	730.44	4.58000	379.90	590.81	5.16000	314.85	495.94
4.55000	462.60	778.08	5.29000	366.79	628.69	5.97000	303.57	528.09
5.25000	444.93	823.18	6.10000	352.58	664.98	6.88000	291.70	558.41
6.12000	425.60	870.70	7.12000	337.06	703.69	8.03000	278.83	590.86
7.44000	402.40	930.18	8.65000	318.84	751.51	9.76000	263.80	631.04
8.75000	385.22	979.21	10.10000	305.97	789.28	11.40000	253.24	662.73
13.10000	352.54	1100.44	15.20000	280.35	888.19	17.20000	232.43	746.06
17.50000	337.34	1187.58	20.30000	268.64	958.06	22.90000	223.07	803.77
26.20000	322.01	1307.83	30.50000	256.62	1055.31	34.40000	213.28	884.88
43.70000	309.71	1459.64	50.80000	247.28	1176.69	57.40000	205.77	986.56
87.50000	302.32	1666.03	101.00000	241.64	1340.21	114.00000	201.19	1122.64
175.00000	295.12	1867.44	203.00000	235.74	1502.32	229.00000	196.22	1257.49

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
 Z=87 A=223.000

TD=28.0 EV ET=1.269019 MEV			TD=32.0 EV ET=1.382093 MEV			TD=36.0 EV ET=1.488784 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.28000	0.78	0.78	1.39000	0.39	0.39	1.50000	0.43	0.43
1.29000	1.65	1.65	1.40000	0.99	0.99	1.51000	0.92	0.92
1.31000	3.80	3.80	1.43000	3.45	3.45	1.54000	2.90	2.90
1.35000	9.55	9.55	1.47000	8.03	8.03	1.59000	7.65	7.65
1.40000	18.78	18.78	1.53000	16.98	16.98	1.65000	15.15	15.15
1.47000	34.20	34.20	1.60000	29.49	29.49	1.72000	25.53	25.53
1.54000	51.21	51.21	1.68000	45.27	45.27	1.81000	40.27	40.27
1.64000	76.35	76.35	1.79000	67.73	67.73	1.93000	60.69	60.69
1.77000	108.05	108.05	1.93000	95.41	95.41	2.08000	85.37	85.37
1.96000	149.18	149.18	2.14000	132.13	132.12	2.30000	117.39	117.39
2.22000	193.41	194.50	2.41000	169.23	170.23	2.60000	151.56	152.56
2.53000	229.97	236.73	2.76000	202.42	208.83	2.97000	180.41	186.38
2.91000	257.23	277.01	3.17000	225.68	243.86	3.42000	201.25	218.22
3.42000	274.84	318.49	3.73000	240.73	280.57	4.01000	214.01	250.26
4.06000	280.69	358.09	4.42000	245.31	314.99	4.76000	217.84	281.28
4.82000	277.33	394.44	5.25000	242.01	347.02	5.65000	214.66	309.72
5.71000	268.56	428.04	6.21000	234.19	376.27	6.69000	207.51	335.97
6.59000	258.92	455.25	7.18000	225.56	400.46	7.74000	199.74	357.62
7.61000	248.55	481.76	8.29000	216.46	423.72	8.93000	191.67	378.25
8.88000	237.58	509.64	9.67000	206.92	448.14	10.40000	183.30	399.78
10.70000	225.36	542.70	11.70000	196.11	477.79	12.60000	173.69	426.40
12.60000	215.95	571.38	13.80000	187.92	503.19	14.80000	166.65	448.45
19.00000	198.55	642.96	20.70000	173.24	565.18	22.30000	153.64	504.28
25.30000	190.69	692.52	27.60000	166.45	608.79	29.70000	147.71	542.93
38.00000	182.44	762.08	41.40000	159.37	669.50	44.60000	141.47	597.07
63.40000	176.19	849.31	69.10000	154.04	745.95	74.40000	136.83	665.01
126.00000	172.34	966.08	138.00000	150.69	848.84	148.00000	133.90	755.95
253.00000	168.03	1081.51	276.00000	146.90	949.20	297.00000	130.50	845.55

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
 Z=87 A=223.000

TD=40.0 EV ET=1.590065 MEV			TD=44.0 EV ET=1.686682 MEV			TD=48.0 EV ET=1.779228 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.60000	0.29	0.29	1.70000	0.32	0.32	1.79000	0.20	0.20
1.62000	1.11	1.11	1.72000	1.02	1.02	1.81000	0.75	0.75
1.65000	2.85	2.85	1.75000	2.50	2.50	1.85000	2.44	2.44
1.70000	6.92	6.92	1.80000	5.93	5.93	1.90000	5.45	5.45
1.76000	13.25	13.25	1.87000	12.26	12.26	1.97000	10.95	10.95
1.84000	23.30	23.30	1.95000	20.93	20.93	2.06000	19.48	19.48
1.93000	35.83	35.83	2.05000	32.95	32.95	2.17000	31.08	31.08
2.06000	54.62	54.62	2.19000	50.43	50.43	2.31000	46.37	46.37
2.22000	76.99	76.99	2.36000	70.90	70.90	2.49000	65.32	65.32
2.46000	106.58	106.58	2.61000	97.40	97.40	2.75000	89.40	89.40
2.78000	137.27	138.26	2.95000	125.37	126.34	3.11000	115.24	116.17
3.18000	163.33	169.09	3.37000	148.79	154.19	3.55000	136.58	141.64
3.65000	181.41	197.16	3.87000	165.18	179.88	4.09000	151.82	165.80
4.29000	192.79	226.50	4.55000	175.34	206.67	4.80000	160.80	190.11
5.08000	195.90	254.08	5.39000	177.96	231.86	5.69000	163.02	213.32
6.04000	192.80	279.99	6.40000	175.01	255.27	6.76000	160.15	234.88
7.15000	186.23	303.63	7.59000	168.87	277.04	8.00000	154.52	254.61
8.26000	179.26	322.95	8.77000	162.49	294.66	9.25000	148.60	270.86
9.54000	171.93	341.71	10.10000	155.95	311.40	10.60000	142.82	285.70
11.10000	164.47	361.00	11.80000	149.00	329.45	12.40000	136.40	302.41
13.50000	155.70	385.49	14.30000	141.22	351.34	15.10000	129.12	323.02
15.90000	149.35	405.69	16.80000	135.57	369.44	17.70000	124.05	339.40
23.80000	138.03	455.21	25.30000	125.23	415.20	26.60000	114.69	381.18
31.80000	132.70	490.41	33.70000	120.49	446.87	35.50000	110.34	410.42
47.70000	127.17	539.02	50.60000	115.50	491.19	53.30000	105.80	451.06
79.50000	123.08	600.09	84.30000	111.84	546.70	88.90000	102.48	502.07
159.00000	120.44	682.57	168.00000	109.47	621.29	177.00000	100.32	570.35

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN FR
 Z=87 A=223.000

TD=52.0 EV ET=1.868176 MEV			TD=56.0 EV ET=1.953916 MEV			TD=60.0 EV ET=2.036773 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.88000	0.19	0.19	1.97000	0.23	0.23	2.05000	0.15	0.15
1.90000	0.65	0.65	1.99000	0.66	0.66	2.07000	0.50	0.50
1.94000	2.09	2.09	2.03000	1.94	1.94	2.11000	1.58	1.58
1.99000	4.68	4.68	2.09000	4.77	4.77	2.17000	4.00	4.00
2.07000	10.18	10.18	2.16000	9.09	9.09	2.26000	8.98	8.98
2.16000	17.71	17.71	2.26000	16.52	16.52	2.36000	15.73	15.73
2.27000	27.94	27.94	2.38000	26.50	26.50	2.48000	24.72	24.72
2.42000	42.43	42.43	2.54000	40.30	40.30	2.64000	37.15	37.15
2.61000	60.15	60.15	2.73000	56.08	56.08	2.85000	52.84	52.84
2.89000	83.04	83.05	3.02000	77.22	77.23	3.15000	72.44	72.45
3.26000	106.45	107.32	3.41000	99.17	100.03	3.56000	93.06	93.91
3.73000	126.47	131.32	3.90000	117.67	122.29	4.07000	110.17	114.64
4.29000	140.27	153.39	4.49000	130.47	142.96	4.68000	121.92	133.78
5.04000	148.49	176.02	5.27000	137.92	163.88	5.49000	128.75	153.26
5.97000	150.40	197.39	6.25000	139.58	183.88	6.51000	130.22	171.94
7.09000	147.67	217.28	7.42000	136.95	202.32	7.73000	127.69	189.19
8.40000	142.37	235.65	8.79000	131.97	219.38	9.16000	123.00	205.16
9.71000	136.90	250.64	10.10000	127.09	232.74	10.50000	118.51	217.44
11.20000	131.30	265.01	11.70000	121.73	246.52	12.20000	113.41	230.57
13.00000	125.69	279.67	13.60000	116.47	260.28	14.20000	108.47	243.54
15.80000	119.05	298.53	16.60000	110.22	278.19	17.30000	102.71	260.12
18.60000	114.27	314.07	19.50000	105.87	292.44	20.30000	98.70	273.33
28.00000	105.70	352.84	29.30000	98.03	328.31	30.50000	91.43	306.83
37.30000	101.75	379.67	39.00000	94.40	353.16	40.70000	88.02	330.24
56.00000	97.58	417.19	58.60000	90.55	388.07	61.10000	84.46	362.75
93.40000	94.56	464.29	97.60000	87.78	431.70	101.00000	81.93	402.89
186.00000	92.58	527.34	195.00000	85.94	490.52	203.00000	80.19	458.26

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN FR
 Z=87 A=223.000

TD=64.0 EV ET=2.117019 MEV			TD=68.0 EV ET=2.194886 MEV			TD=72.0 EV ET=2.270574 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.13000	0.13	0.13	2.21000	0.13	0.13	2.29000	0.16	0.16
2.15000	0.43	0.43	2.23000	0.41	0.41	2.31000	0.42	0.42
2.20000	1.67	1.67	2.28000	1.52	1.52	2.36000	1.46	1.46
2.26000	3.92	3.92	2.34000	3.55	3.55	2.42000	3.31	3.31
2.34000	7.90	7.90	2.43000	7.62	7.62	2.52000	7.48	7.48
2.45000	14.57	14.57	2.54000	13.72	13.72	2.63000	13.10	13.10
2.58000	23.39	23.39	2.67000	21.76	21.76	2.77000	21.06	21.06
2.75000	35.35	35.35	2.85000	33.30	33.30	2.95000	31.65	31.65
2.96000	49.56	49.56	3.07000	46.86	46.86	3.17000	44.07	44.07
3.28000	68.44	68.46	3.40000	64.58	64.59	3.51000	60.84	60.86
3.70000	87.46	88.29	3.84000	82.66	83.48	3.97000	78.17	78.96
4.23000	103.48	107.76	4.38000	97.44	101.51	4.54000	92.35	96.34
4.86000	114.37	125.63	5.04000	107.77	118.54	5.22000	101.94	112.33
5.71000	120.76	144.09	5.92000	113.68	135.90	6.13000	107.41	128.70
6.77000	122.03	161.60	7.02000	114.80	152.41	7.26000	108.39	144.18
8.04000	119.58	177.79	8.34000	112.44	167.69	8.62000	106.12	158.57
9.52000	115.16	192.71	9.87000	108.25	181.69	10.20000	102.15	171.80
11.00000	110.68	204.88	11.40000	104.04	193.13	11.80000	98.12	182.73
12.70000	106.10	216.68	13.10000	99.87	203.88	13.60000	94.10	193.11
14.80000	101.45	228.94	15.30000	95.42	215.60	15.80000	90.05	203.80
17.90000	96.26	243.92	18.60000	90.43	230.09	19.20000	85.35	217.47
21.10000	92.41	256.67	21.90000	86.85	242.02	22.70000	81.90	229.02
31.70000	85.64	288.09	32.90000	80.52	271.60	34.00000	76.01	256.77
42.30000	82.47	310.04	43.80000	77.58	292.10	45.40000	73.21	276.34
63.50000	79.14	340.53	65.80000	74.46	320.85	68.10000	70.29	303.39
105.00000	76.79	378.18	109.00000	72.25	356.43	113.00000	68.22	337.11
211.00000	75.17	430.08	219.00000	70.73	405.25	227.00000	66.79	383.21

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
 Z=87 A=223.000

TD=76.0 EV ET=2.344256 MEV			TD=80.0 EV ET=2.416084 MEV			TD=84.0 EV ET=2.486192 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.36000	0.11	0.11	2.44000	0.16	0.16	2.51000	0.15	0.15
2.39000	0.46	0.46	2.46000	0.39	0.39	2.53000	0.35	0.35
2.43000	1.22	1.22	2.51000	1.26	1.26	2.58000	1.14	1.14
2.50000	3.17	3.17	2.58000	3.11	3.11	2.66000	3.10	3.10
2.60000	7.01	7.01	2.68000	6.67	6.67	2.75000	6.07	6.07
2.71000	12.16	12.16	2.80000	11.89	11.89	2.88000	11.29	11.29
2.85000	19.47	19.47	2.94000	18.67	18.67	3.03000	18.04	18.04
3.04000	29.76	29.76	3.14000	28.69	28.69	3.23000	27.34	27.34
3.28000	42.23	42.23	3.38000	40.20	40.20	3.48000	38.47	38.47
3.63000	58.04	58.06	3.74000	55.23	55.25	3.85000	52.78	52.79
4.10000	74.25	75.02	4.22000	70.53	71.27	4.35000	67.48	68.22
4.68000	87.50	91.28	4.83000	83.35	87.05	4.97000	79.48	83.06
5.39000	96.66	106.64	5.55000	91.86	101.41	5.71000	87.55	96.73
6.32000	101.76	122.02	6.52000	96.71	116.20	6.71000	92.12	110.85
7.50000	102.64	136.87	7.73000	97.48	130.23	7.95000	92.81	124.47
8.90000	100.46	150.47	9.18000	95.36	143.21	9.44000	90.77	136.53
10.50000	96.75	162.79	10.80000	91.87	154.73	11.10000	87.45	147.48
12.10000	93.03	172.89	12.50000	88.22	164.62	12.90000	83.87	157.16
14.00000	89.11	183.00	14.40000	84.61	173.95	14.90000	80.37	166.21
16.40000	85.08	193.69	16.90000	80.74	184.23	17.40000	76.80	175.70
19.90000	80.68	206.55	20.50000	76.58	196.43	21.10000	72.85	187.30
23.40000	77.54	217.14	24.10000	73.60	206.48	24.80000	70.04	196.87
35.10000	71.96	243.54	36.20000	68.31	231.66	37.20000	65.04	220.77
46.80000	69.33	261.99	48.30000	65.82	249.23	49.70000	62.66	237.58
70.30000	66.56	287.71	72.40000	63.22	273.54	74.50000	60.19	260.74
117.00000	64.61	319.85	120.00000	61.38	303.83	124.00000	58.44	289.84
234.00000	63.26	363.24	241.00000	60.09	345.30	248.00000	57.22	329.09

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN FR
 Z=87 A=223.000

TD=88.0 EV ET=2.554696 MEV			TD=92.0 EV ET=2.621703 MEV			TD=96.0 EV ET=2.687306 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.58000	0.14	0.14	2.64000	0.08	0.08	2.71000	0.10	0.10
2.60000	0.33	0.33	2.67000	0.33	0.33	2.74000	0.34	0.34
2.65000	1.06	1.06	2.72000	1.01	1.01	2.79000	1.00	1.00
2.73000	2.86	2.86	2.80000	2.69	2.69	2.87000	2.57	2.57
2.83000	5.94	5.94	2.91000	5.87	5.87	2.98000	5.54	5.54
2.96000	10.82	10.82	3.04000	10.45	10.45	3.11000	9.82	9.82
3.11000	17.10	17.10	3.19000	16.33	16.33	3.27000	15.69	15.69
3.32000	26.20	26.20	3.40000	24.84	24.84	3.49000	24.04	24.04
3.57000	36.58	36.58	3.67000	35.31	35.31	3.76000	33.85	33.85
3.95000	50.29	50.31	4.06000	48.40	48.42	4.16000	46.43	46.45
4.47000	64.53	65.26	4.58000	61.68	62.37	4.70000	59.31	59.99
5.10000	75.87	79.29	5.24000	72.74	76.09	5.37000	69.77	73.01
5.87000	83.65	92.52	6.02000	80.04	88.58	6.18000	76.81	85.14
6.89000	87.94	105.91	7.07000	84.13	101.44	7.25000	80.64	97.38
8.17000	88.57	118.70	8.38000	84.70	113.65	8.59000	81.15	109.05
9.70000	86.59	130.49	9.96000	82.77	125.01	10.20000	79.29	119.88
11.40000	83.41	140.91	11.70000	79.72	134.94	12.00000	76.33	129.49
13.20000	80.08	149.94	13.60000	76.44	143.81	13.90000	73.26	137.80
15.30000	76.66	158.79	15.70000	73.26	152.04	16.10000	70.14	145.88
17.80000	73.33	167.64	18.30000	70.04	160.61	18.80000	67.03	154.19
21.70000	69.47	179.03	22.20000	66.44	171.24	22.80000	63.59	164.36
25.50000	66.79	188.15	26.20000	63.82	180.20	26.80000	61.15	172.74
38.30000	62.03	211.05	39.30000	59.30	202.04	40.30000	56.80	193.81
51.00000	59.79	226.91	52.40000	57.16	217.29	53.70000	54.76	208.39
76.60000	57.43	249.13	78.60000	54.92	238.47	80.60000	52.61	228.72
127.00000	55.78	276.69	131.00000	53.34	265.11	134.00000	51.11	254.13

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
 Z=92 A=238.000

TD= 4.0 EV ET=0.328282 MEV			TD= 8.0 EV ET=0.560292 MEV			TD=12.0 EV ET=0.750324 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.33100	28.67	28.67	0.56500	8.18	8.18	0.75700	4.16	4.16
0.33400	60.04	60.04	0.57100	19.02	19.02	0.76500	9.62	9.62
0.34100	132.16	132.16	0.58200	39.98	39.98	0.78000	21.08	21.08
0.35100	232.58	232.58	0.59900	74.60	74.60	0.80200	40.26	40.26
0.36400	358.46	358.46	0.62100	122.24	122.24	0.83200	69.79	69.79
0.38000	506.05	506.05	0.64900	185.42	185.42	0.87000	110.69	110.69
0.40000	679.02	679.02	0.68300	263.12	263.12	0.91500	161.43	161.43
0.42600	884.94	884.94	0.72800	363.59	363.59	0.97500	229.10	229.10
0.45900	1116.55	1116.55	0.78400	480.25	480.25	1.05000	309.18	309.18
0.50800	1404.15	1404.15	0.86800	632.35	632.35	1.16000	412.14	412.14
0.57400	1701.04	1701.42	0.98000	791.40	792.63	1.31000	522.19	523.56
0.65600	1957.77	1977.26	1.12000	930.44	945.37	1.50000	618.14	630.98
0.75500	2151.25	2228.20	1.28000	1029.30	1078.62	1.72000	684.84	725.41
0.88600	2283.00	2476.40	1.51000	1099.99	1222.93	2.02000	727.75	822.55
1.05000	2335.42	2708.54	1.79000	1123.30	1354.16	2.40000	739.59	914.63
1.24000	2318.99	2914.56	2.12000	1109.96	1472.74	2.85000	726.65	997.96
1.47000	2253.67	3111.89	2.52000	1071.95	1585.91	3.37000	699.52	1073.87
1.70000	2173.31	3274.23	2.91000	1029.94	1676.19	3.90000	669.93	1137.33
1.96000	2083.05	3430.32	3.36000	983.69	1764.42	4.50000	639.17	1197.84
2.29000	1979.13	3600.12	3.92000	934.12	1857.59	5.25000	606.70	1262.19
2.79000	1851.18	3816.65	4.76000	875.89	1974.66	6.37000	569.63	1342.11
3.28000	1755.36	3996.44	5.60000	832.91	2072.43	7.50000	542.59	1409.51
4.92000	1564.20	4457.87	8.40000	751.96	2318.44	11.20000	493.62	1575.24
6.56000	1473.08	4796.44	11.20000	715.88	2496.52	15.00000	471.69	1697.35
9.84000	1391.08	5284.76	16.80000	681.46	2747.00	22.50000	450.28	1865.59
16.40000	1322.02	5903.74	28.00000	652.40	3061.59	37.50000	432.74	2076.63
32.80000	1276.79	6756.29	56.00000	634.95	3491.69	75.00000	422.22	2363.93
65.60000	1248.52	7603.52	112.00000	619.31	3913.29	150.00000	411.23	2644.09
98.40000	1226.37	8086.85	168.00000	607.95	4153.81	225.00000	403.71	2804.09
164.00000	1200.12	8687.63	280.00000	596.81	4453.81	375.00000	397.16	3004.17

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
 Z=92 A=238.000

TD=16.0 EV ET=0.915258 MEV			TD=20.0 EV ET=1.063002 MEV			TD=24.0 EV ET=1.198022 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.92400	2.69	2.69	1.07000	1.21	1.21	1.21000	1.39	1.39
0.93300	5.85	5.85	1.08000	3.24	3.24	1.22000	2.82	2.82
0.95100	13.26	13.26	1.10000	8.21	8.21	1.24000	6.32	6.32
0.97900	27.14	27.14	1.13000	17.61	17.61	1.28000	15.49	15.49
1.01000	45.05	45.05	1.17000	32.90	32.90	1.32000	26.87	26.87
1.06000	77.59	77.59	1.23000	59.65	59.65	1.38000	46.64	46.64
1.11000	112.45	112.45	1.29000	88.78	88.78	1.46000	75.65	75.65
1.18000	161.98	161.98	1.38000	133.34	133.34	1.55000	109.10	109.10
1.28000	229.49	229.49	1.48000	180.69	180.69	1.67000	151.79	151.79
1.41000	306.40	306.40	1.64000	247.15	247.15	1.85000	207.65	207.65
1.60000	393.81	395.28	1.86000	317.34	318.84	2.09000	264.80	266.18
1.83000	465.28	476.74	2.12000	373.04	383.17	2.39000	312.36	321.69
2.10000	514.54	549.29	2.44000	412.63	443.19	2.75000	344.64	371.97
2.47000	544.75	624.10	2.87000	435.36	503.67	3.23000	362.51	422.29
2.92000	551.06	692.37	3.40000	438.85	559.50	3.83000	364.52	469.41
3.47000	539.50	756.36	4.03000	428.48	610.43	4.55000	354.97	512.70
4.11000	517.75	814.91	4.78000	410.21	658.15	5.39000	339.39	552.44
4.75000	495.21	862.95	5.52000	391.99	696.76	6.22000	324.14	584.66
5.49000	471.87	909.64	6.37000	373.51	734.10	7.18000	308.72	616.08
6.40000	448.00	958.51	7.44000	354.43	774.08	8.38000	293.05	649.45
7.77000	420.90	1019.48	9.03000	333.26	823.22	10.10000	276.28	689.17
9.15000	401.41	1070.79	10.60000	318.39	863.78	11.90000	263.81	723.93
13.70000	366.65	1197.35	15.90000	291.59	966.21	17.90000	241.99	810.30
18.30000	351.38	1288.58	21.20000	279.92	1038.96	23.90000	232.48	871.33
27.40000	336.01	1414.62	31.80000	267.88	1140.44	35.90000	222.64	956.29
45.70000	323.66	1573.69	53.10000	258.46	1268.26	59.90000	215.10	1062.82
91.50000	316.15	1789.64	106.00000	252.65	1440.32	119.00000	210.38	1205.21
183.00000	307.65	1999.31	212.00000	245.72	1607.83	239.00000	204.50	1345.50

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
Z=92 A=238.000

TD=28.0 EV ET=1.323129 MEV			TD=32.0 EV ET=1.440231 MEV			TD=36.0 EV ET=1.550692 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.33000	0.52	0.52	1.45000	0.55	0.55	1.56000	0.39	0.39
1.34000	1.42	1.42	1.46000	1.25	1.25	1.58000	1.55	1.55
1.37000	5.14	5.14	1.49000	4.13	4.13	1.61000	4.05	4.05
1.41000	12.04	12.04	1.54000	11.05	11.05	1.65000	8.55	8.55
1.46000	22.99	22.99	1.59000	19.94	19.94	1.72000	18.82	18.82
1.53000	41.13	41.13	1.67000	36.79	36.79	1.79000	31.09	31.09
1.61000	63.93	63.93	1.75000	55.31	55.31	1.89000	50.35	50.35
1.72000	96.04	96.04	1.87000	83.79	83.79	2.01000	74.09	74.09
1.85000	132.22	132.22	2.01000	115.48	115.48	2.17000	104.22	104.22
2.05000	180.55	180.54	2.23000	158.64	158.64	2.40000	141.62	141.63
2.31000	228.52	229.89	2.52000	201.67	203.07	2.71000	179.76	181.08
2.64000	268.88	277.52	2.88000	236.60	244.83	3.10000	210.94	218.63
3.04000	296.14	321.06	3.31000	259.63	282.50	3.56000	231.04	252.04
3.57000	310.65	364.32	3.88000	271.70	320.06	4.18000	241.49	285.87
4.23000	311.64	404.70	4.60000	272.14	355.66	4.96000	241.44	317.73
5.02000	303.01	441.76	5.47000	264.12	388.59	5.89000	234.06	346.83
5.95000	289.33	476.12	6.48000	251.97	418.66	6.97000	223.19	373.47
6.88000	276.00	504.24	7.48000	240.39	443.06	8.06000	212.74	395.49
7.93000	262.93	531.04	8.64000	228.81	466.97	9.30000	202.53	416.65
9.26000	249.57	559.86	10.00000	217.84	490.83	10.80000	192.63	438.40
11.20000	235.16	594.71	12.20000	204.77	522.83	13.10000	181.47	466.10
13.20000	224.69	624.65	14.40000	195.68	549.33	15.50000	173.36	490.04
19.80000	206.68	698.45	21.60000	180.31	614.08	23.20000	159.99	547.42
26.40000	198.76	750.58	28.80000	173.51	659.74	31.00000	153.98	588.35
39.60000	190.48	823.21	43.20000	166.38	723.32	46.50000	147.71	644.89
66.10000	184.20	914.70	72.00000	161.05	803.21	77.50000	143.07	715.96
132.00000	180.18	1037.66	144.00000	157.55	911.02	155.00000	139.98	811.78
264.00000	175.10	1157.06	288.00000	153.07	1015.41	310.00000	135.97	904.52

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
Z=92 A=238.000

TD=40.0 EV ET=1.655528 MEV			TD=44.0 EV ET=1.755521 MEV			TD=48.0 EV ET=1.851285 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.67000	0.50	0.50	1.77000	0.40	0.40	1.86000	0.18	0.18
1.68000	0.96	0.96	1.79000	1.21	1.21	1.88000	0.78	0.78
1.72000	3.62	3.62	1.82000	2.94	2.94	1.92000	2.67	2.67
1.77000	8.47	8.47	1.87000	6.95	6.95	1.98000	6.95	6.95
1.83000	15.95	15.95	1.94000	14.35	14.35	2.05000	13.52	13.52
1.92000	29.34	29.34	2.03000	25.84	25.84	2.14000	23.60	23.60
2.01000	44.09	44.09	2.14000	41.41	41.41	2.25000	37.20	37.20
2.15000	67.62	67.62	2.28000	61.74	61.74	2.40000	56.26	56.26
2.31000	93.24	93.24	2.45000	85.22	85.22	2.59000	79.19	79.19
2.56000	127.82	127.82	2.72000	117.30	117.31	2.86000	107.20	107.21
2.89000	162.19	163.44	3.07000	148.40	149.66	3.23000	136.03	137.19
3.31000	190.41	197.66	3.51000	173.56	180.40	3.70000	159.41	165.88
3.80000	208.22	227.73	4.03000	189.55	207.81	4.25000	173.96	191.12
4.46000	217.30	258.17	4.73000	197.53	235.52	4.99000	181.06	216.60
5.29000	216.99	286.84	5.61000	197.00	261.62	5.92000	180.36	240.59
6.29000	210.10	313.28	6.67000	190.57	285.68	7.03000	174.37	262.52
7.44000	200.23	337.25	7.89000	181.51	307.52	8.33000	165.91	282.77
8.60000	190.83	357.06	9.12000	172.94	325.56	9.62000	158.09	299.22
9.93000	181.61	376.25	10.50000	164.74	342.70	11.10000	150.48	315.21
11.50000	172.90	395.50	12.20000	156.68	360.62	12.90000	143.12	331.68
14.00000	162.75	420.97	14.90000	147.39	384.19	15.70000	134.82	352.95
16.50000	155.69	442.05	17.50000	141.18	402.97	18.50000	129.07	370.52
24.80000	143.71	494.31	26.30000	130.44	450.54	27.70000	119.44	413.79
33.10000	138.39	531.02	35.10000	125.65	483.93	37.00000	115.07	444.50
49.60000	132.81	581.80	52.60000	120.63	530.11	55.50000	110.49	486.95
82.70000	128.70	645.85	87.70000	116.95	588.37	92.50000	107.17	540.33
165.00000	125.94	731.79	175.00000	114.45	666.49	185.00000	104.87	612.17

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
Z=92 A=238.000

TD=52.0 EV ET=1.943315 MEV			TD=56.0 EV ET=2.032017 MEV			TD=60.0 EV ET=2.117727 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.96000	0.32	0.32	2.05000	0.29	0.29	2.13000	0.16	0.16
1.98000	0.90	0.90	2.07000	0.80	0.80	2.16000	0.80	0.80
2.02000	2.65	2.65	2.11000	2.32	2.32	2.20000	2.18	2.18
2.07000	5.75	5.75	2.17000	5.64	5.64	2.26000	5.15	5.15
2.15000	12.27	12.27	2.25000	11.52	11.52	2.35000	11.11	11.11
2.25000	22.18	22.18	2.35000	20.36	20.36	2.45000	19.10	19.10
2.37000	35.34	35.34	2.47000	32.09	32.09	2.58000	30.56	30.56
2.52000	52.21	52.21	2.64000	49.15	49.15	2.75000	45.91	45.91
2.72000	73.53	73.53	2.84000	68.16	68.16	2.96000	63.87	63.87
3.01000	99.98	99.99	3.14000	92.63	92.65	3.28000	87.24	87.25
3.40000	126.49	127.67	3.55000	117.53	118.65	3.70000	110.00	111.09
3.88000	147.33	153.43	4.06000	137.15	143.01	4.23000	128.20	133.79
4.46000	160.72	176.89	4.67000	149.47	164.90	4.87000	139.66	154.37
5.24000	167.13	200.54	5.48000	155.18	186.69	5.71000	144.82	174.61
6.21000	166.32	222.56	6.50000	154.28	207.26	6.77000	143.88	193.78
7.38000	160.67	242.92	7.72000	148.95	226.10	8.04000	138.85	211.38
8.74000	152.83	261.59	9.14000	141.63	243.42	9.52000	131.98	227.58
10.10000	145.58	276.86	10.50000	135.16	257.05	11.00000	125.68	240.83
11.60000	138.78	291.16	12.10000	128.70	270.68	12.70000	119.59	253.73
13.60000	131.62	307.27	14.20000	122.02	285.75	14.80000	113.67	267.18
16.50000	124.14	326.62	17.20000	115.16	303.59	18.00000	107.17	284.20
19.40000	118.95	342.64	20.30000	110.25	318.83	21.10000	102.82	297.84
29.10000	110.11	382.80	30.40000	102.15	356.00	31.70000	95.25	332.85
38.80000	106.13	410.98	40.60000	98.46	382.33	42.30000	91.83	357.35
58.20000	101.93	450.17	60.90000	94.58	418.73	63.50000	88.23	391.40
97.10000	98.89	499.56	101.00000	91.82	464.07	105.00000	85.68	433.48
194.00000	96.78	565.78	203.00000	89.84	526.08	211.00000	83.84	491.34

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
Z=92 A=238.000

TD=64.0 EV ET=2.200730 MEV			TD=68.0 EV ET=2.281267 MEV			TD=72.0 EV ET=2.359544 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.22000	0.23	0.23	2.30000	0.20	0.20	2.38000	0.19	0.19
2.24000	0.62	0.62	2.32000	0.53	0.53	2.40000	0.50	0.50
2.28000	1.79	1.79	2.37000	1.88	1.88	2.45000	1.72	1.72
2.35000	4.87	4.87	2.44000	4.76	4.76	2.52000	4.31	4.31
2.44000	10.27	10.27	2.53000	9.70	9.70	2.61000	8.78	8.78
2.55000	18.24	18.24	2.64000	16.96	16.96	2.73000	16.00	16.00
2.68000	28.63	28.63	2.78000	27.16	27.16	2.87000	25.35	25.35
2.86000	43.36	43.36	2.96000	40.59	40.59	3.06000	38.35	38.35
3.08000	60.37	60.37	3.19000	56.82	56.82	3.30000	53.86	53.86
3.41000	82.12	82.14	3.53000	77.26	77.27	3.65000	73.11	73.12
3.85000	103.57	104.65	3.99000	97.67	98.72	4.12000	92.21	93.20
4.40000	120.48	125.88	4.56000	113.54	118.71	4.71000	107.26	112.18
5.06000	131.02	145.02	5.24000	123.36	136.66	5.42000	116.58	129.32
5.94000	135.78	164.15	6.15000	127.77	154.66	6.37000	120.68	146.46
7.04000	134.77	182.08	7.30000	126.75	171.70	7.55000	119.63	162.42
8.36000	129.98	198.58	8.66000	122.21	187.15	8.96000	115.29	177.05
9.90000	123.50	213.78	10.20000	116.30	201.02	10.60000	109.52	190.50
11.40000	117.73	225.93	11.80000	110.69	212.85	12.20000	104.40	201.28
13.20000	111.92	238.28	13.60000	105.38	224.12	14.10000	99.30	212.14
15.40000	106.34	250.99	15.90000	100.06	236.27	16.50000	94.27	223.68
18.70000	100.33	266.83	19.30000	94.41	251.16	20.00000	89.01	237.66
22.00000	96.19	279.92	22.80000	90.43	263.81	23.50000	85.38	249.22
33.00000	89.20	312.63	34.20000	83.89	294.61	35.30000	79.20	278.43
44.00000	86.03	335.55	45.60000	80.92	316.19	47.10000	76.39	298.87
66.00000	82.67	367.41	68.40000	77.78	346.18	70.70000	73.43	327.24
110.00000	80.29	407.49	114.00000	75.55	383.91	117.00000	71.36	362.39
220.00000	78.57	461.35	228.00000	73.93	434.60	235.00000	69.82	410.56

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
 Z=92 A=238.000

TD=76.0 EV ET=2.435744 MEV			TD=80.0 EV ET=2.510021 MEV			TD=84.0 EV ET=2.582516 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.46000	0.21	0.21	2.53000	0.15	0.15	2.60000	0.11	0.11
2.48000	0.51	0.51	2.56000	0.54	0.54	2.63000	0.45	0.45
2.53000	1.64	1.64	2.61000	1.62	1.62	2.68000	1.40	1.40
2.60000	4.02	4.02	2.68000	3.83	3.83	2.76000	3.73	3.73
2.70000	8.61	8.61	2.78000	8.07	8.07	2.86000	7.68	7.68
2.82000	15.29	15.29	2.91000	14.77	14.77	2.99000	13.89	13.89
2.97000	24.53	24.53	3.06000	23.33	23.33	3.15000	22.36	22.36
3.16000	36.50	36.50	3.26000	34.98	34.98	3.35000	33.18	33.18
3.41000	51.36	51.36	3.51000	48.72	48.72	3.61000	46.45	46.45
3.77000	69.53	69.55	3.89000	66.41	66.44	4.00000	63.30	63.33
4.26000	87.73	88.73	4.39000	83.50	84.47	4.51000	79.49	80.41
4.87000	101.88	106.68	5.02000	96.93	101.57	5.16000	92.34	96.79
5.60000	110.55	122.82	5.77000	105.08	116.86	5.93000	100.09	111.36
6.57000	114.31	138.89	6.77000	108.59	132.14	6.97000	103.42	126.08
7.79000	113.27	154.06	8.03000	107.54	146.58	8.26000	102.37	139.76
9.25000	109.11	167.97	9.53000	103.56	159.76	9.81000	98.53	152.37
10.90000	103.76	180.43	11.20000	98.55	171.42	11.60000	93.55	163.89
12.60000	98.76	190.97	13.00000	93.66	181.73	13.40000	89.04	173.39
14.60000	93.85	201.45	15.00000	89.14	191.40	15.40000	84.86	182.35
17.00000	89.25	212.04	17.50000	84.71	201.60	18.00000	80.60	192.19
20.70000	84.17	225.60	21.30000	79.90	214.47	21.90000	76.04	204.42
24.30000	80.77	236.50	25.10000	76.62	225.07	25.80000	72.93	214.51
36.50000	74.97	264.18	37.60000	71.18	251.21	38.70000	67.75	239.50
48.70000	72.32	283.54	50.20000	68.67	269.65	51.60000	65.38	256.98
73.00000	69.54	310.33	75.30000	66.03	295.14	77.40000	62.87	281.26
121.00000	67.59	343.75	125.00000	64.19	326.98	129.00000	61.12	311.83
243.00000	66.13	389.36	251.00000	62.81	370.31	258.00000	59.81	352.85

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN U
 Z=92 A=238.000

TD=88.0 EV ET=2.653351 MEV			TD=92.0 EV ET=2.722634 MEV			TD=96.0 EV ET=2.790463 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.67000	0.09	0.09	2.74000	0.09	0.09	2.81000	0.09	0.09
2.70000	0.40	0.40	2.77000	0.37	0.37	2.84000	0.36	0.36
2.75000	1.25	1.25	2.83000	1.36	1.36	2.90000	1.28	1.28
2.83000	3.37	3.37	2.91000	3.40	3.40	2.98000	3.19	3.19
2.94000	7.39	7.39	3.02000	7.20	7.20	3.09000	6.72	6.72
3.07000	13.18	13.18	3.15000	12.62	12.62	3.23000	12.18	12.18
3.23000	21.07	21.07	3.32000	20.46	20.46	3.40000	19.53	19.53
3.44000	31.66	31.66	3.53000	30.36	30.36	3.62000	29.25	29.25
3.71000	44.49	44.49	3.81000	42.78	42.78	3.90000	40.90	40.90
4.11000	60.56	60.59	4.22000	58.13	58.16	4.32000	55.66	55.68
4.64000	76.15	77.06	4.76000	72.92	73.81	4.88000	70.01	70.89
5.30000	88.22	92.51	5.44000	84.48	88.66	5.58000	81.09	85.17
6.10000	95.63	106.57	6.26000	91.52	102.08	6.41000	87.71	97.88
7.16000	98.71	120.49	7.35000	94.42	115.43	7.53000	90.48	110.72
8.49000	97.66	133.60	8.71000	93.38	127.92	8.92000	89.46	122.67
10.00000	94.18	145.08	10.30000	89.93	139.17	10.60000	86.02	133.76
11.90000	89.26	156.52	12.20000	85.32	149.81	12.50000	81.70	143.69
13.70000	85.05	165.38	14.10000	81.19	158.52	14.50000	77.64	152.25
15.90000	80.78	174.54	16.30000	77.22	167.06	16.70000	73.94	160.22
18.50000	76.85	183.66	19.00000	73.41	175.89	19.50000	70.26	168.78
22.50000	72.52	195.32	23.10000	69.29	187.03	23.70000	66.33	179.44
26.50000	69.56	204.94	27.20000	66.48	196.22	27.90000	63.66	188.24
39.80000	64.63	228.87	40.80000	61.80	219.05	41.80000	59.20	210.06
53.00000	62.39	245.49	54.40000	59.65	235.01	55.80000	57.14	225.43
79.60000	59.99	268.74	81.60000	57.37	257.19	83.70000	54.97	246.68
132.00000	58.34	297.64	136.00000	55.79	285.11	139.00000	53.46	273.25
265.00000	57.09	337.00	272.00000	54.60	322.55	279.00000	52.32	309.32

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
Z=94 A=242.000

TD= 4.0 EV			TD= 8.0 EV			TD=12.0 EV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.33600	36.72	36.72	0.57200	8.82	8.82	0.76600	4.55	4.55
0.33900	69.89	69.89	0.57800	20.36	20.36	0.77400	10.39	10.39
0.34600	146.26	146.26	0.58900	42.72	42.72	0.78900	22.66	22.66
0.35500	242.21	242.21	0.60600	79.73	79.73	0.81200	44.25	44.25
0.36900	386.38	386.38	0.62900	133.13	133.13	0.84200	76.12	76.12
0.38500	543.32	543.32	0.65700	200.95	200.95	0.88000	120.21	120.21
0.40500	727.47	727.47	0.69200	286.76	286.76	0.92600	176.04	176.04
0.43200	954.82	954.82	0.73700	394.33	394.33	0.98600	248.69	248.69
0.46500	1200.49	1200.49	0.79400	520.99	520.99	1.06000	333.28	333.28
0.51500	1510.57	1510.57	0.87900	684.09	684.09	1.17000	443.08	443.08
0.58200	1826.13	1826.60	0.99200	852.41	853.78	1.32000	559.58	560.95
0.66500	2094.52	2116.05	1.13000	994.64	1010.50	1.51000	659.90	673.34
0.76500	2291.96	2376.18	1.30000	1100.24	1155.70	1.74000	730.36	774.95
0.89800	2420.73	2632.11	1.53000	1166.48	1301.50	2.04000	770.69	873.53
1.06000	2462.59	2863.62	1.81000	1183.13	1433.48	2.42000	778.09	966.45
1.26000	2430.98	3080.77	2.15000	1161.26	1555.65	2.88000	759.45	1051.97
1.49000	2350.40	3277.26	2.55000	1115.29	1668.57	3.41000	726.63	1129.33
1.73000	2253.90	3445.81	2.94000	1067.43	1758.93	3.94000	693.21	1192.87
1.99000	2153.29	3601.26	3.40000	1015.09	1849.33	4.55000	658.81	1254.60
2.32000	2039.87	3771.10	3.97000	960.47	1944.51	5.31000	623.36	1320.19
2.82000	1902.57	3988.87	4.82000	897.95	2063.71	6.45000	583.53	1402.13
3.32000	1799.31	4173.93	5.67000	852.59	2163.52	7.59000	555.25	1470.79
4.99000	1598.94	4648.79	8.50000	769.15	2415.22	11.30000	505.25	1639.37
6.65000	1506.70	4995.96	11.30000	733.16	2596.25	15.10000	483.34	1763.80
9.98000	1424.77	5498.37	17.00000	698.45	2855.41	22.70000	461.70	1937.55
16.60000	1355.57	6131.61	28.30000	669.16	3177.64	37.90000	443.89	2154.96
33.20000	1310.03	7007.10	56.70000	651.47	3620.25	75.90000	433.19	2450.35
66.50000	1279.97	8777.36	113.00000	634.78	4049.94	151.00000	421.46	2735.09
99.80000	1256.08	8372.47	170.00000	622.56	4297.79	227.00000	413.44	2899.70
166.00000	1228.85	8985.11	283.00000	611.30	4604.50	379.00000	406.89	3105.55

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
Z=94 A=242.000

TD=16.0 EV			TD=20.0 EV			TD=24.0 EV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.93400	2.72	2.72	1.08000	0.95	0.95	1.22000	1.08	1.08
0.94400	6.49	6.49	1.09000	3.04	3.04	1.23000	2.53	2.53
0.96200	14.47	14.47	1.11000	8.27	8.27	1.25000	6.16	6.16
0.99000	29.45	29.45	1.15000	22.05	22.05	1.29000	15.83	15.83
1.02000	48.13	48.13	1.19000	39.10	39.10	1.34000	31.27	31.27
1.07000	83.15	83.15	1.24000	63.34	63.34	1.40000	52.92	52.92
1.12000	120.68	120.68	1.31000	100.02	100.02	1.47000	80.36	80.36
1.20000	181.49	181.49	1.39000	142.65	142.65	1.57000	120.34	120.34
1.29000	246.45	246.45	1.50000	198.40	198.40	1.69000	165.93	165.93
1.43000	334.36	334.36	1.66000	268.67	268.67	1.87000	225.12	225.12
1.61000	421.42	422.87	1.88000	342.07	343.72	2.11000	285.02	286.52
1.85000	498.76	511.38	2.14000	399.38	410.39	2.42000	335.31	345.78
2.12000	547.98	585.74	2.47000	439.87	473.68	2.78000	367.03	397.04
2.49000	576.28	661.81	2.90000	460.44	534.81	3.26000	383.18	447.99
2.96000	579.03	733.49	3.43000	460.93	591.00	3.87000	382.58	496.15
3.51000	563.15	797.39	4.08000	446.80	643.61	4.60000	370.02	540.08
4.16000	537.18	856.80	4.83000	425.47	691.32	5.44000	351.94	579.87
4.81000	511.49	905.58	5.58000	404.83	730.53	6.29000	334.53	612.96
5.55000	485.97	952.40	6.44000	384.44	768.47	7.26000	317.59	644.84
6.47000	460.07	1002.13	7.52000	363.83	809.10	8.47000	300.73	678.73
7.86000	431.12	1064.52	9.13000	341.31	859.31	10.20000	283.02	719.08
9.25000	410.80	1116.78	10.70000	325.93	900.39	12.10000	269.51	756.11
13.80000	375.43	1245.37	16.10000	298.35	1006.23	18.10000	247.67	843.49
18.50000	359.92	1340.22	21.40000	286.80	1080.11	24.20000	238.13	906.45
27.70000	344.48	1469.67	32.20000	274.61	1185.12	36.30000	228.27	993.38
46.20000	332.02	1632.97	53.70000	265.14	1316.04	60.50000	220.67	1102.52
92.50000	324.36	1854.54	107.00000	259.21	1492.09	121.00000	215.78	1250.01
185.00000	315.20	2069.22	214.00000	251.75	1663.59	242.00000	209.47	1392.73

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
Z=94 A=242.000

TD=28.0 EV ET=1.337291 MEV			TD=32.0 EV ET=1.455444 MEV			TD=36.0 EV ET=1.566889 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.35000	1.09	1.09	1.46000	0.25	0.25	1.58000	0.62	0.62
1.36000	2.18	2.18	1.48000	1.75	1.75	1.59000	1.23	1.23
1.39000	6.47	6.47	1.51000	5.03	5.03	1.62000	3.73	3.73
1.43000	14.22	14.22	1.55000	11.01	11.01	1.67000	9.75	9.75
1.48000	26.32	26.32	1.61000	22.53	22.53	1.73000	19.24	19.24
1.55000	46.12	46.12	1.68000	38.46	38.46	1.81000	34.34	34.34
1.63000	70.81	70.81	1.77000	60.93	60.93	1.91000	55.18	55.18
1.73000	102.25	102.25	1.89000	91.57	91.57	2.03000	80.73	80.73
1.87000	144.03	144.03	2.03000	125.49	125.49	2.19000	112.99	112.99
2.07000	195.30	195.29	2.25000	171.34	171.33	2.42000	152.76	152.76
2.34000	247.26	248.86	2.54000	216.57	218.04	2.74000	193.95	195.44
2.67000	288.29	297.90	2.91000	253.42	262.49	3.13000	225.77	234.19
3.07000	315.14	342.35	3.34000	276.12	300.98	3.60000	245.89	269.00
3.61000	328.28	386.90	3.92000	287.01	339.66	4.23000	255.05	303.65
4.27000	326.96	427.45	4.65000	285.35	375.88	5.01000	253.09	335.60
5.08000	315.62	465.47	5.53000	275.06	409.19	5.95000	243.72	365.04
6.01000	299.82	499.84	6.54000	261.07	439.31	7.05000	231.01	392.19
6.95000	284.83	528.36	7.56000	247.96	464.28	8.14000	219.44	414.27
8.02000	270.38	555.80	8.73000	235.30	488.52	9.40000	208.21	435.90
9.36000	256.04	585.04	10.10000	223.52	512.75	10.90000	197.67	457.83
11.30000	240.93	620.27	12.30000	209.82	545.13	13.30000	185.54	486.98
13.30000	230.08	650.66	14.50000	200.40	572.05	15.60000	177.55	510.21
20.00000	211.59	726.81	21.80000	184.62	638.84	23.50000	163.74	570.01
26.70000	203.63	780.57	29.10000	177.80	685.91	31.30000	157.80	611.56
40.10000	195.28	855.36	43.60000	170.63	751.00	47.00000	151.47	669.76
66.80000	188.98	948.94	72.70000	165.23	833.11	78.30000	146.78	742.67
133.00000	184.85	1074.53	145.00000	161.64	943.26	156.00000	143.61	840.42
267.00000	179.37	1197.42	291.00000	156.80	1050.66	313.00000	139.29	935.79

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
Z=94 A=242.000

TD=40.0 EV ET=1.672654 MEV			TD=44.0 EV ET=1.773528 MEV			TD=48.0 EV ET=1.870132 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.68000	0.25	0.25	1.79000	0.50	0.50	1.88000	0.22	0.22
1.70000	1.19	1.19	1.80000	0.92	0.92	1.90000	0.88	0.88
1.73000	3.29	3.29	1.84000	3.31	3.31	1.94000	2.95	2.95
1.78000	8.30	8.30	1.89000	7.70	7.70	2.00000	7.61	7.61
1.85000	17.65	17.65	1.96000	15.76	15.76	2.07000	14.75	14.75
1.94000	32.19	32.19	2.05000	28.23	28.23	2.16000	25.67	25.67
2.04000	49.96	49.96	2.16000	45.05	45.05	2.28000	41.73	41.73
2.17000	73.48	73.48	2.30000	66.94	66.94	2.43000	62.24	62.24
2.34000	102.55	102.55	2.48000	93.51	93.51	2.61000	85.47	85.47
2.59000	139.03	139.03	2.74000	126.27	126.27	2.89000	116.30	116.31
2.92000	174.82	176.22	3.10000	159.81	161.19	3.27000	147.05	148.40
3.34000	203.68	211.57	3.54000	185.55	192.98	3.74000	170.72	177.89
3.84000	221.49	242.89	4.07000	201.54	221.51	4.30000	185.06	204.02
4.51000	229.43	274.06	4.78000	208.50	249.88	5.04000	191.06	229.71
5.35000	227.35	303.14	5.67000	206.38	276.35	5.98000	188.91	254.04
6.35000	218.74	329.60	6.73000	198.39	300.45	7.10000	181.44	276.19
7.52000	207.24	354.02	7.98000	187.77	322.87	8.41000	171.70	296.64
8.69000	196.75	374.06	9.22000	178.25	341.09	9.72000	162.94	313.41
10.00000	186.91	393.11	10.60000	169.39	358.33	11.20000	154.72	329.51
11.70000	176.92	414.07	12.40000	160.36	377.44	13.00000	146.88	346.15
14.20000	166.44	439.67	15.00000	151.05	400.33	15.80000	138.17	367.72
16.70000	159.23	460.96	17.70000	144.41	420.11	18.70000	132.04	386.20
25.00000	147.18	514.05	26.60000	133.53	468.91	28.00000	122.28	430.59
33.40000	141.83	551.88	35.40000	128.79	502.86	37.40000	117.91	462.12
50.10000	136.20	604.14	53.20000	123.69	550.60	56.10000	113.30	505.69
83.60000	132.04	670.01	88.60000	119.99	610.28	93.50000	109.95	560.51
167.00000	129.18	758.30	177.00000	117.39	690.54	187.00000	107.57	634.19

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
 Z=94 A=242.000

TD=52.0 EV ET=1.962967 MEV			TD=56.0 EV ET=2.052442 MEV			TD=60.0 EV ET=2.138898 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.98000	0.35	0.35	2.07000	0.31	0.31	2.16000	0.33	0.33
2.00000	0.98	0.98	2.09000	0.85	0.85	2.18000	0.83	0.83
2.04000	2.88	2.88	2.13000	2.48	2.48	2.22000	2.30	2.30
2.10000	7.02	7.02	2.19000	6.07	6.07	2.28000	5.49	5.49
2.17000	13.31	13.31	2.27000	12.43	12.43	2.37000	11.93	11.93
2.27000	24.03	24.03	2.38000	23.00	23.00	2.48000	21.48	21.48
2.39000	38.24	38.24	2.50000	35.72	35.72	2.60000	32.92	32.92
2.55000	57.59	57.59	2.66000	53.01	53.01	2.78000	50.41	50.41
2.74000	79.27	79.27	2.87000	74.38	74.38	2.99000	69.59	69.59
3.04000	108.32	108.34	3.18000	101.05	101.06	3.31000	94.35	94.37
3.43000	136.02	137.31	3.59000	126.84	128.11	3.74000	118.63	119.85
3.92000	157.71	164.44	4.10000	146.75	153.18	4.27000	137.12	143.24
4.51000	170.92	188.73	4.72000	158.89	175.84	4.91000	148.31	164.25
5.30000	176.33	212.84	5.54000	163.69	198.07	5.77000	152.74	185.18
6.28000	174.15	235.13	6.56000	161.55	218.70	6.84000	150.62	204.58
7.45000	167.18	255.50	7.79000	154.96	237.75	8.12000	144.40	222.34
8.83000	158.10	274.47	9.23000	146.51	255.35	9.62000	136.48	238.78
10.20000	150.05	289.91	10.60000	139.33	269.14	11.10000	129.55	252.09
11.70000	142.70	304.33	12.30000	131.95	283.67	12.80000	122.97	265.10
13.70000	135.08	320.61	14.30000	125.23	298.12	14.90000	116.66	278.71
16.60000	127.23	340.25	17.40000	117.84	316.77	18.10000	109.85	295.99
19.60000	121.70	357.08	20.50000	112.82	332.21	21.30000	105.22	310.31
29.40000	112.74	398.28	30.70000	104.60	370.35	32.00000	97.54	346.22
39.20000	108.76	427.22	41.00000	100.91	397.38	42.70000	94.12	371.38
58.80000	104.52	467.45	61.50000	97.00	434.75	64.10000	90.48	406.33
98.10000	101.46	518.16	102.00000	94.21	481.31	106.00000	87.91	449.55
196.00000	99.27	586.07	205.00000	92.15	544.90	213.00000	86.00	508.88

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
 Z=94 A=242.000

TD=64.0 EV ET=2.222620 MEV			TD=68.0 EV ET=2.303854 MEV			TD=72.0 EV ET=2.382808 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.24000	0.22	0.22	2.32000	0.17	0.17	2.40000	0.17	0.17
2.26000	0.62	0.62	2.34000	0.52	0.52	2.43000	0.68	0.68
2.31000	2.25	2.25	2.39000	1.94	1.94	2.47000	1.75	1.75
2.37000	5.17	5.17	2.46000	5.01	5.01	2.54000	4.52	4.52
2.46000	10.98	10.98	2.55000	10.33	10.33	2.64000	9.91	9.91
2.57000	19.58	19.58	2.67000	18.92	18.92	2.76000	17.79	17.79
2.71000	31.67	31.67	2.81000	29.97	29.97	2.90000	27.91	27.91
2.88000	46.65	46.65	2.99000	44.42	44.42	3.09000	41.90	41.90
3.11000	65.70	65.70	3.22000	61.77	61.77	3.33000	58.49	58.49
3.44000	88.75	88.76	3.57000	84.00	84.02	3.69000	79.42	79.44
3.88000	111.21	112.37	4.03000	105.20	106.37	4.16000	99.28	100.38
4.44000	128.81	134.70	4.60000	121.35	126.99	4.76000	114.80	120.24
5.11000	139.21	154.51	5.29000	131.04	145.56	5.48000	123.89	137.91
6.00000	143.17	174.03	6.22000	134.72	164.10	6.43000	127.21	155.19
7.11000	141.06	192.17	7.37000	132.65	181.17	7.62000	125.19	171.34
8.44000	135.17	208.82	8.75000	127.05	196.86	9.05000	119.84	186.20
10.00000	127.71	224.26	10.30000	120.28	210.86	10.70000	113.26	199.77
11.50000	121.36	236.46	11.90000	114.11	222.74	12.30000	107.63	210.61
13.30000	115.08	248.92	13.80000	108.09	234.70	14.20000	102.12	221.57
15.50000	109.14	261.79	16.10000	102.49	246.90	16.60000	96.76	233.26
18.80000	102.84	277.88	19.50000	96.64	261.95	20.20000	91.11	247.83
22.20000	98.44	291.59	23.00000	92.55	274.78	23.80000	87.30	259.87
33.30000	91.35	325.16	34.50000	85.92	306.39	35.70000	81.09	289.74
44.40000	88.18	348.69	46.00000	82.95	328.54	47.60000	78.29	310.67
66.60000	84.79	381.39	69.10000	79.76	359.43	71.40000	75.30	339.75
111.00000	82.38	422.55	115.00000	77.52	398.07	119.00000	73.20	376.35
222.00000	80.59	477.78	230.00000	75.84	450.05	238.00000	71.61	425.43

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
 Z=94 A=242.000

TD=76.0 EV ET=2.459664 MEV			TD=80.0 EV ET=2.534582 MEV			TD=84.0 EV ET=2.607700 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.48000	0.18	0.18	2.55000	0.11	0.11	2.63000	0.16	0.16
2.50000	0.48	0.48	2.58000	0.51	0.51	2.65000	0.41	0.41
2.55000	1.65	1.65	2.63000	1.62	1.62	2.71000	1.64	1.64
2.63000	4.61	4.61	2.71000	4.37	4.37	2.79000	4.22	4.22
2.73000	9.66	9.66	2.81000	9.02	9.02	2.89000	8.54	8.54
2.85000	16.95	16.95	2.94000	16.32	16.32	3.02000	15.30	15.30
3.00000	26.95	26.95	3.09000	25.58	25.58	3.18000	24.46	24.46
3.19000	39.83	39.83	3.29000	38.11	38.11	3.39000	36.68	36.68
3.44000	55.72	55.72	3.54000	52.81	52.81	3.65000	50.83	50.83
3.81000	75.47	75.50	3.92000	71.60	71.62	4.04000	68.62	68.64
4.30000	94.41	95.51	4.43000	89.82	90.88	4.56000	85.74	86.79
4.91000	108.83	114.04	5.06000	103.51	108.54	5.21000	98.74	103.63
5.65000	117.38	130.74	5.82000	111.55	124.36	5.99000	106.30	118.65
6.64000	120.50	147.28	6.84000	114.46	140.09	7.04000	108.99	133.63
7.87000	118.51	162.60	8.11000	112.51	154.67	8.34000	107.09	147.45
9.34000	113.42	176.62	9.63000	107.62	168.04	9.90000	102.42	160.17
11.00000	107.31	189.19	11.40000	101.61	180.36	11.70000	96.75	171.79
12.70000	101.81	199.79	13.10000	96.56	190.10	13.50000	91.79	181.35
14.70000	96.51	210.38	15.20000	91.45	200.32	15.60000	87.07	190.83
17.20000	91.43	221.52	17.70000	86.79	210.59	18.20000	82.58	200.73
20.90000	86.16	235.23	21.50000	81.80	223.60	22.10000	77.85	213.11
24.50000	82.68	246.29	25.30000	78.44	234.36	26.00000	74.66	223.35
36.80000	76.79	274.69	38.00000	72.89	261.36	39.10000	69.38	249.15
49.10000	74.14	294.57	50.60000	70.40	280.12	52.10000	67.02	267.06
73.70000	71.32	322.17	76.00000	67.72	306.37	78.20000	64.48	292.03
122.00000	69.35	356.39	126.00000	65.87	338.98	130.00000	62.71	323.26
245.00000	67.84	403.17	253.00000	64.43	383.41	260.00000	61.35	365.32

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN PU
 Z=94 A=242.000

TD=88.0 EV ET=2.679143 MEV			TD=92.0 EV ET=2.749021 MEV			TD=96.0 EV ET=2.817432 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.70000	0.13	0.13	2.77000	0.12	0.12	2.84000	0.12	0.12
2.73000	0.49	0.49	2.80000	0.44	0.44	2.87000	0.43	0.43
2.78000	1.45	1.45	2.85000	1.33	1.33	2.93000	1.45	1.45
2.86000	3.80	3.80	2.94000	3.80	3.80	3.01000	3.54	3.54
2.97000	8.20	8.20	3.05000	7.95	7.95	3.12000	7.40	7.40
3.10000	14.49	14.49	3.18000	13.84	13.84	3.26000	13.33	13.33
3.26000	23.02	23.02	3.35000	22.32	22.32	3.43000	21.27	21.27
3.48000	34.95	34.95	3.57000	33.47	33.47	3.66000	32.20	32.20
3.75000	48.63	48.63	3.84000	46.27	46.27	3.94000	44.63	44.63
4.15000	65.61	65.63	4.26000	62.94	62.97	4.36000	60.23	60.26
4.68000	81.85	82.85	4.81000	78.59	79.59	4.93000	75.42	76.40
5.35000	94.31	99.02	5.49000	90.29	94.86	5.63000	86.64	91.10
6.16000	101.54	113.50	6.32000	97.16	108.70	6.48000	93.16	104.34
7.23000	104.02	127.68	7.42000	99.48	122.29	7.60000	95.33	117.27
8.57000	102.16	140.93	8.79000	97.67	134.92	9.01000	93.55	129.44
10.10000	97.89	152.57	10.40000	93.45	146.32	10.70000	89.38	140.60
12.00000	92.31	164.04	12.30000	88.24	157.00	12.60000	84.50	150.57
13.90000	87.45	173.42	14.20000	83.70	165.77	14.60000	80.03	159.19
16.00000	83.07	182.23	16.40000	79.41	174.40	16.90000	75.88	167.59
18.70000	78.74	191.80	19.20000	75.23	183.66	19.70000	72.00	176.22
22.70000	74.25	203.60	23.30000	70.95	194.94	23.90000	67.92	187.02
26.70000	71.22	213.37	27.40000	68.07	204.27	28.10000	65.18	195.96
40.10000	66.21	237.93	41.20000	63.29	227.84	42.20000	60.64	218.48
53.50000	63.95	255.10	54.90000	61.14	244.20	56.30000	58.57	234.23
80.30000	61.53	278.93	82.40000	58.84	267.00	84.50000	56.37	256.08
133.00000	59.86	308.53	137.00000	57.25	295.53	140.00000	54.86	283.23
267.00000	58.56	348.90	274.00000	56.00	333.93	281.00000	53.66	320.22

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
Z=99 A=254.000

TD= 4.0 EV ET=0.345851 MEV			TD= 8.0 EV ET=0.587756 MEV			TD=12.0 EV ET=0.785278 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.34900	39.75	39.75	0.59300	11.09	11.09	0.79300	5.94	5.94
0.35200	77.37	77.37	0.59900	24.39	24.39	0.80000	11.87	11.87
0.35900	164.25	164.25	0.61100	52.72	52.72	0.81600	27.17	27.17
0.37000	297.95	297.95	0.62800	96.02	96.02	0.84000	53.84	53.84
0.38300	451.11	451.11	0.65200	161.49	161.49	0.87100	93.02	93.02
0.40100	653.73	653.73	0.68100	244.24	244.24	0.91000	146.90	146.90
0.42100	865.06	865.06	0.71700	348.06	348.06	0.95800	216.04	216.04
0.44900	1135.62	1135.62	0.76400	479.51	479.51	1.02000	304.46	304.46
0.48400	1432.66	1432.66	0.82200	628.88	628.88	1.09000	397.97	397.97
0.53600	1795.36	1795.36	0.91100	823.35	823.35	1.21000	535.41	535.41
0.60500	2153.03	2153.77	1.02000	1004.68	1006.10	1.37000	671.90	673.88
0.69100	2447.96	2475.13	1.17000	1169.99	1190.16	1.57000	780.53	798.78
0.79500	2650.95	2756.16	1.35000	1277.94	1348.96	1.80000	846.60	902.87
0.93300	2762.48	3023.90	1.58000	1330.03	1495.47	2.12000	877.54	1007.61
1.10000	2769.65	3258.96	1.88000	1325.33	1634.34	2.51000	868.66	1100.47
1.31000	2691.62	3480.14	2.23000	1278.52	1756.07	2.98000	833.03	1185.13
1.55000	2564.57	3677.81	2.64000	1209.63	1868.25	3.53000	784.71	1263.15
1.79000	2435.31	3841.41	3.05000	1143.78	1960.88	4.08000	740.18	1327.61
2.07000	2299.14	4005.06	3.52000	1078.14	2051.59	4.71000	697.30	1390.47
2.42000	2156.06	4181.85	4.11000	1012.06	2149.42	5.49000	655.44	1457.53
2.93000	1997.15	4402.62	4.99000	940.01	2273.04	6.67000	610.15	1542.75
3.45000	1880.12	4595.67	5.87000	889.99	2377.40	7.85000	579.43	1614.75
5.18000	1666.94	5094.48	8.81000	803.22	2643.50	11.70000	528.17	1793.08
6.91000	1575.16	5463.99	11.70000	768.57	2834.64	15.70000	506.93	1926.74
10.30000	1497.95	5988.03	17.60000	734.99	3109.10	23.50000	486.04	2108.72
17.20000	1428.19	6663.43	29.30000	705.40	3449.77	39.20000	468.05	2338.12
34.50000	1382.14	7593.04	58.70000	687.31	3917.10	78.50000	456.94	2649.79
69.10000	1347.16	8508.22	117.00000	667.47	4368.40	157.00000	442.88	2950.83
103.00000	1319.39	9017.96	176.00000	653.42	4627.86	235.00000	433.88	3121.44
172.00000	1290.06	9666.22	293.00000	642.49	4950.90	392.00000	427.99	3338.19

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
Z=99 A=254.000

TD=16.0 EV ET=0.956450 MEV			TD=20.0 EV ET=1.109643 MEV			TD=24.0 EV ET=1.249555 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
0.96600	3.64	3.64	1.12000	2.29	2.29	1.26000	1.48	1.48
0.97500	7.62	7.62	1.13000	4.96	4.96	1.27000	3.22	3.22
0.99400	17.57	17.57	1.15000	11.48	11.48	1.29000	7.58	7.58
1.02000	34.03	34.03	1.18000	23.77	23.77	1.33000	19.21	19.21
1.06000	64.03	64.03	1.23000	49.13	49.13	1.38000	37.75	37.75
1.10000	97.67	97.67	1.28000	78.33	78.33	1.44000	63.69	63.69
1.16000	151.31	151.31	1.35000	122.15	122.15	1.52000	101.20	101.20
1.24000	223.18	223.18	1.44000	178.87	178.87	1.62000	148.56	148.56
1.33000	299.01	299.01	1.55000	243.69	243.69	1.74000	201.80	201.80
1.48000	406.40	406.40	1.71000	323.86	323.86	1.93000	273.04	273.04
1.67000	506.63	508.73	1.94000	408.35	410.50	2.18000	341.18	343.20
1.91000	586.41	602.44	2.21000	469.80	483.93	2.49000	393.03	406.04
2.19000	634.28	681.75	2.55000	508.29	550.75	2.87000	423.78	461.54
2.58000	654.58	761.61	2.99000	521.85	613.18	3.37000	433.80	514.24
3.06000	644.80	833.08	3.55000	512.19	671.23	3.99000	424.72	562.10
3.63000	615.99	897.36	4.21000	487.96	723.10	4.74000	403.60	606.08
4.30000	578.75	957.00	4.99000	457.54	771.53	5.62000	377.90	646.83
4.97000	545.19	1006.32	5.77000	430.62	811.56	6.49000	355.69	680.15
5.73000	513.82	1053.95	6.65000	405.88	850.05	7.49000	335.07	712.82
6.69000	483.00	1105.79	7.76000	381.86	891.85	8.74000	315.42	747.90
8.12000	450.59	1170.40	9.43000	356.58	944.40	10.60000	295.05	791.57
9.56000	428.68	1225.35	11.00000	340.59	986.22	12.40000	281.85	827.26
14.30000	392.67	1361.97	16.60000	312.45	1098.76	18.70000	259.37	921.39
19.10000	378.03	1461.12	22.10000	301.32	1177.40	24.90000	250.36	987.08
28.60000	362.81	1598.12	33.20000	289.30	1288.06	37.40000	240.51	1079.33
47.80000	350.13	1771.45	55.40000	279.66	1426.61	62.40000	232.78	1194.95
95.60000	342.09	2004.77	110.00000	273.40	1611.31	124.00000	227.60	1349.01
191.00000	331.21	2229.62	221.00000	264.49	1792.36	249.00000	220.08	1499.56

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
Z=99 A=254.000

TD=28.0 EV ET=1.379139 MEV			TD=32.0 EV ET=1.500392 MEV			TD=36.0 EV ET=1.614740 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.39000	1.06	1.06	1.51000	0.67	0.67	1.63000	0.86	0.86
1.40000	2.29	2.29	1.53000	2.60	2.60	1.64000	1.61	1.61
1.43000	7.27	7.27	1.56000	6.74	6.74	1.67000	4.67	4.67
1.47000	16.40	16.40	1.60000	14.12	14.12	1.72000	11.97	11.97
1.53000	33.93	33.93	1.66000	28.17	28.17	1.79000	25.56	25.56
1.59000	54.37	54.37	1.74000	50.32	50.32	1.87000	44.02	44.02
1.68000	87.54	87.54	1.83000	77.38	77.38	1.96000	66.53	66.53
1.79000	128.49	128.49	1.95000	113.67	113.67	2.09000	99.36	99.36
1.93000	177.06	177.06	2.10000	155.87	155.87	2.26000	139.29	139.29
2.13000	235.43	235.43	2.32000	207.74	207.74	2.50000	186.17	186.18
2.41000	294.61	296.63	2.62000	258.71	260.65	2.82000	230.94	232.82
2.75000	338.10	350.19	3.00000	297.25	308.79	3.22000	264.35	274.88
3.17000	363.58	397.88	3.45000	318.37	349.80	3.71000	283.10	311.96
3.72000	371.10	442.99	4.05000	324.19	389.40	4.35000	287.82	346.99
4.41000	362.38	484.44	4.80000	315.93	425.70	5.16000	280.07	379.51
5.24000	343.68	522.33	5.70000	299.26	458.85	6.13000	264.98	409.14
6.20000	321.71	557.02	6.75000	279.81	489.49	7.26000	247.59	436.48
7.17000	302.54	586.02	7.80000	263.17	514.83	8.39000	232.83	459.11
8.27000	285.08	614.11	9.00000	247.96	539.60	9.68000	219.40	481.20
9.65000	268.49	644.32	10.50000	233.63	566.11	11.30000	206.74	504.92
11.70000	251.41	681.91	12.70000	219.10	598.72	13.70000	193.86	534.38
13.70000	240.28	712.80	15.00000	209.05	627.31	16.10000	185.34	559.08
20.60000	221.74	793.21	22.50000	193.47	697.48	24.20000	171.67	621.91
27.50000	214.10	850.10	30.00000	186.95	747.09	32.20000	165.98	665.73
41.30000	205.77	929.19	45.00000	179.77	816.11	48.40000	159.62	727.42
68.90000	199.35	1028.39	75.00000	174.31	902.83	80.70000	154.86	804.62
137.00000	194.92	1160.52	150.00000	170.40	1019.37	161.00000	151.40	907.82
275.00000	188.42	1289.35	300.00000	164.69	1131.38	322.00000	146.30	1007.33

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
Z=99 A=254.000

TD=40.0 EV ET=1.723243 MEV			TD=44.0 EV ET=1.826716 MEV			TD=48.0 EV ET=1.925799 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
1.74000	0.75	0.75	1.84000	0.45	0.45	1.94000	0.40	0.40
1.75000	1.36	1.36	1.86000	1.46	1.46	1.96000	1.25	1.25
1.79000	4.87	4.87	1.89000	3.66	3.66	2.00000	3.85	3.85
1.84000	11.24	11.24	1.95000	10.04	10.04	2.06000	9.58	9.58
1.91000	22.82	22.82	2.02000	19.93	19.93	2.13000	18.28	18.28
1.99000	38.44	38.44	2.11000	35.04	35.04	2.23000	33.01	33.01
2.10000	61.82	61.82	2.22000	55.23	55.23	2.34000	50.71	50.71
2.24000	91.83	91.83	2.37000	83.02	83.02	2.50000	76.65	76.65
2.41000	125.64	125.64	2.55000	114.00	114.00	2.69000	105.20	105.20
2.67000	168.64	168.65	2.83000	153.93	153.95	2.98000	141.28	141.30
3.01000	208.66	210.49	3.19000	190.26	192.02	3.37000	175.41	177.17
3.44000	238.61	248.60	3.65000	217.48	226.99	3.85000	199.77	208.82
3.96000	254.94	281.77	4.20000	231.90	257.04	4.42000	212.57	235.94
4.65000	258.72	313.58	4.93000	234.96	285.90	5.19000	215.22	262.51
5.51000	251.38	342.69	5.84000	228.03	312.34	6.16000	208.59	287.05
6.54000	237.67	369.26	6.94000	215.32	336.70	7.31000	196.91	309.24
7.75000	221.90	394.03	8.22000	200.97	359.20	8.66000	183.70	329.93
8.96000	208.61	414.50	9.49000	189.03	377.67	10.00000	172.76	346.92
10.30000	196.89	433.95	10.90000	178.48	395.29	11.50000	163.05	363.26
12.00000	185.69	455.08	12.70000	168.35	414.56	13.40000	153.84	380.95
14.60000	173.98	482.16	15.50000	157.65	439.62	16.30000	144.27	403.59
17.20000	166.30	504.76	18.20000	150.90	459.78	19.20000	138.02	422.46
25.80000	154.28	561.13	27.40000	140.03	511.57	28.80000	128.27	469.58
34.40000	149.18	600.88	36.50000	135.46	547.62	38.50000	124.05	503.04
51.60000	143.53	656.13	54.80000	130.35	597.96	57.70000	119.42	548.99
86.10000	139.31	725.76	91.30000	126.60	661.10	96.20000	116.01	606.98
172.00000	136.19	818.79	182.00000	123.77	745.40	192.00000	113.41	684.37

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN ES
 Z=99 A=254.000

TD=52.0 EV ET=2.021007 MEV			TD=56.0 EV ET=2.112763 MEV			TD=60.0 EV ET=2.201417 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.04000	0.47	0.47	2.13000	0.35	0.35	2.22000	0.33	0.33
2.06000	1.25	1.25	2.15000	0.99	0.99	2.24000	0.89	0.89
2.10000	3.57	3.57	2.19000	2.94	2.94	2.28000	2.61	2.61
2.16000	8.60	8.60	2.26000	8.10	8.10	2.35000	7.15	7.15
2.24000	17.40	17.40	2.34000	15.96	15.96	2.44000	15.06	15.06
2.34000	30.48	30.48	2.45000	28.82	28.82	2.55000	26.63	26.63
2.46000	47.57	47.57	2.57000	44.09	44.09	2.68000	41.53	41.53
2.62000	70.53	70.53	2.74000	65.86	65.86	2.85000	62.25	62.25
2.82000	97.13	97.13	2.95000	90.75	90.75	3.08000	85.62	85.62
3.13000	131.14	131.16	3.27000	122.00	122.03	3.41000	114.43	114.46
3.53000	161.95	163.61	3.69000	150.74	152.34	3.85000	141.26	142.85
4.04000	184.68	193.27	4.22000	171.64	179.77	4.40000	160.47	168.28
4.64000	196.32	218.38	4.85000	182.35	203.21	5.06000	170.30	190.24
5.45000	198.50	242.94	5.70000	184.18	226.11	5.94000	171.79	211.44
6.46000	192.25	265.44	6.76000	178.19	247.06	7.04000	166.09	230.93
7.67000	181.34	286.01	8.02000	168.02	266.09	8.36000	156.49	248.81
9.09000	169.09	305.18	9.50000	156.65	283.87	9.90000	145.88	265.39
10.50000	158.99	320.93	10.90000	147.71	297.84	11.40000	137.33	278.79
12.10000	149.95	336.27	12.60000	139.12	312.41	13.20000	129.29	292.57
14.10000	141.51	352.63	14.70000	131.24	327.75	15.40000	122.01	306.89
17.10000	132.90	373.24	17.90000	123.13	347.32	18.70000	114.64	324.93
20.20000	127.10	390.98	21.10000	117.86	363.60	22.00000	109.83	339.94
30.30000	118.24	434.53	31.60000	109.73	403.91	33.00000	102.31	377.75
40.40000	114.41	465.15	42.20000	106.17	432.52	44.00000	99.03	404.31
60.60000	110.16	507.66	63.30000	102.24	472.00	66.00000	95.37	441.17
101.00000	107.05	561.17	105.00000	99.40	521.24	110.00000	92.73	487.57
202.00000	104.64	632.81	211.00000	97.14	588.21	220.00000	90.63	549.63

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNs) BY FAST ELECTRONS IN ES
 Z=99 A=254.000

TD=64.0 EV ET=2.287263 MEV			TD=68.0 EV ET=2.370553 MEV			TD=72.0 EV ET=2.451503 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.31000	0.37	0.37	2.39000	0.26	0.26	2.47000	0.21	0.21
2.33000	0.90	0.90	2.41000	0.70	0.70	2.50000	0.84	0.84
2.37000	2.47	2.47	2.46000	2.46	2.46	2.54000	2.14	2.14
2.44000	6.56	6.56	2.53000	6.23	6.23	2.62000	6.07	6.07
2.53000	13.66	13.66	2.63000	13.49	13.49	2.72000	12.76	12.76
2.65000	25.07	25.07	2.74000	23.04	23.04	2.84000	22.35	22.35
2.79000	39.62	39.62	2.89000	37.24	37.24	2.99000	35.39	35.39
2.97000	58.40	58.40	3.08000	55.31	55.31	3.18000	51.96	51.96
3.20000	80.52	80.52	3.31000	75.49	75.49	3.43000	72.02	72.02
3.54000	107.38	107.41	3.67000	101.40	101.43	3.79000	95.70	95.73
4.00000	132.70	134.24	4.14000	124.91	126.38	4.29000	118.49	119.96
4.57000	150.59	158.04	4.74000	141.95	149.15	4.90000	134.17	141.06
5.26000	159.72	178.75	5.45000	150.35	168.49	5.63000	142.00	159.25
6.17000	160.96	198.53	6.40000	151.40	187.23	6.61000	142.94	176.95
7.31000	155.54	216.78	7.58000	146.20	204.37	7.84000	137.92	193.29
8.69000	146.42	233.65	9.00000	137.63	220.15	9.31000	129.77	208.21
10.20000	136.98	248.41	10.60000	128.54	234.35	11.00000	121.01	221.89
11.80000	128.69	261.41	12.30000	120.60	246.85	12.70000	113.79	233.30
13.70000	121.02	274.59	14.20000	113.70	258.79	14.70000	107.16	244.79
16.00000	114.18	288.12	16.50000	107.48	271.12	17.10000	101.28	256.54
19.40000	107.36	304.92	20.10000	100.91	287.34	20.80000	95.17	271.75
22.80000	102.90	318.92	23.70000	96.67	300.79	24.50000	91.21	284.38
34.30000	95.84	354.65	35.50000	90.16	334.09	36.70000	85.10	315.85
45.70000	92.78	379.49	47.40000	87.27	357.65	49.00000	82.39	338.11
68.60000	89.36	414.11	71.10000	84.07	390.17	73.50000	79.38	368.83
114.00000	86.93	457.37	118.00000	81.80	430.79	122.00000	77.25	407.21
228.00000	84.96	515.56	237.00000	79.93	485.88	245.00000	75.48	459.22

ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
 Z=99 A=254.000

TD=76.0 EV ET=2.530298 MEV			TD=80.0 EV ET=2.607103 MEV			TD=84.0 EV ET=2.682061 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.55000	0.20	0.20	2.63000	0.22	0.22	2.70000	0.14	0.14
2.58000	0.77	0.77	2.65000	0.55	0.55	2.73000	0.59	0.59
2.63000	2.32	2.32	2.71000	2.20	2.20	2.78000	1.83	1.83
2.70000	5.52	5.52	2.78000	5.14	5.14	2.86000	4.89	4.89
2.80000	11.59	11.59	2.89000	11.33	11.33	2.97000	10.62	10.62
2.93000	21.11	21.11	3.02000	20.17	20.17	3.11000	19.46	19.46
3.08000	33.11	33.11	3.18000	32.03	32.03	3.27000	30.48	30.48
3.28000	49.19	49.19	3.38000	46.89	46.89	3.48000	44.96	44.96
3.54000	68.40	68.40	3.64000	64.68	64.68	3.75000	62.06	62.06
3.92000	91.30	91.34	4.04000	86.97	87.01	4.15000	82.73	82.76
4.42000	112.19	113.57	4.56000	106.92	108.30	4.69000	101.94	103.28
5.06000	127.26	133.93	5.21000	120.95	127.35	5.36000	115.29	121.46
5.81000	134.55	151.07	5.99000	127.87	143.78	6.16000	121.79	137.08
6.83000	135.34	167.96	7.03000	128.53	159.67	7.24000	122.34	152.33
8.09000	130.54	183.32	8.34000	123.87	174.40	8.58000	117.87	166.27
9.61000	122.77	197.49	9.90000	116.49	187.81	10.10000	111.19	178.45
11.30000	114.70	210.09	11.70000	108.58	200.16	12.00000	103.41	190.61
13.10000	107.66	221.23	13.50000	102.12	210.40	13.90000	97.09	200.64
15.10000	101.56	231.82	15.60000	96.25	220.65	16.00000	91.66	210.15
17.70000	95.72	243.52	18.20000	90.89	231.44	18.70000	86.50	220.55
21.50000	90.02	257.84	22.10000	85.48	245.03	22.70000	81.37	233.48
25.30000	86.32	269.74	26.00000	81.98	256.33	26.80000	77.98	244.48
37.90000	80.58	299.58	39.10000	76.50	284.96	40.20000	72.83	271.59
50.60000	78.01	320.66	52.10000	74.09	304.85	53.60000	70.53	290.58
75.90000	75.17	349.76	78.20000	71.39	332.55	80.40000	67.97	316.92
126.00000	73.17	386.14	130.00000	69.50	367.21	134.00000	66.17	350.10
253.00000	71.49	435.40	260.00000	67.91	413.73	268.00000	64.66	394.40

 ATOMIC DISPLACEMENT CROSS-SECTIONS (BARNS) BY FAST ELECTRONS IN ES
 Z=99 A=254.000

TD=88.0 EV ET=2.755299 MEV			TD=92.0 EV ET=2.826931 MEV			TD=96.0 EV ET=2.897057 MEV		
ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE	ENERGY (MEV)	PRIMARY	CASCADE
2.78000	0.20	0.20	2.85000	0.16	0.16	2.92000	0.15	0.15
2.81000	0.65	0.65	2.88000	0.56	0.56	2.95000	0.51	0.51
2.86000	1.86	1.86	2.94000	1.92	1.92	3.01000	1.76	1.76
2.94000	4.74	4.74	3.02000	4.67	4.67	3.09000	4.29	4.29
3.05000	10.09	10.09	3.13000	9.69	9.69	3.21000	9.41	9.41
3.19000	18.30	18.30	3.27000	17.37	17.37	3.36000	17.16	17.16
3.36000	29.20	29.20	3.44000	27.55	27.55	3.53000	26.72	26.72
3.58000	43.33	43.33	3.67000	41.36	41.36	3.76000	39.67	39.67
3.85000	59.25	59.25	3.95000	56.79	56.79	4.05000	54.63	54.63
4.27000	79.39	79.43	4.38000	76.04	76.08	4.49000	73.04	73.08
4.82000	97.49	98.81	4.94000	93.25	94.51	5.06000	89.41	90.63
5.51000	110.17	116.18	5.65000	105.42	111.21	5.79000	101.09	106.70
6.33000	116.28	131.03	6.50000	111.26	125.55	6.66000	106.64	120.44
7.43000	116.75	145.48	7.63000	111.62	139.37	7.82000	106.93	133.69
8.81000	112.44	158.84	9.04000	107.46	152.08	9.27000	102.89	145.91
10.40000	105.92	170.66	10.70000	101.10	163.57	11.00000	96.67	157.09
12.30000	98.68	181.96	12.70000	94.03	174.60	13.00000	90.06	167.40
14.30000	92.51	191.79	14.70000	88.31	183.73	15.00000	84.69	175.96
16.50000	87.26	201.02	16.90000	83.42	192.34	17.30000	79.90	184.41
19.20000	82.49	210.68	19.70000	78.82	201.69	20.20000	75.45	193.47
23.40000	77.52	223.29	24.00000	74.09	213.73	24.60000	70.95	205.00
27.50000	74.40	233.50	28.20000	71.12	223.50	28.90000	68.12	214.35
41.30000	69.48	259.46	42.40000	66.43	248.41	43.40000	63.65	238.16
55.10000	67.30	277.63	56.50000	64.35	265.72	57.90000	61.65	254.82
82.60000	64.87	302.74	84.80000	62.03	289.81	86.90000	59.43	277.90
137.00000	63.17	334.11	141.00000	60.41	319.97	144.00000	57.89	306.62
275.00000	61.71	376.62	282.00000	59.02	360.41	289.00000	56.56	345.57

RATIO OF MOTT TO RUTHERFORD SCATTERING IN H, Z= 1

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9990	0.9990	0.9990	0.9991	0.9991	0.9992	0.9992	0.9993	0.9995	0.9997	0.9999
10	0.9943	0.9943	0.9943	0.9945	0.9947	0.9950	0.9953	0.9957	0.9963	0.9976	0.9987
15	0.9856	0.9856	0.9858	0.9862	0.9866	0.9874	0.9880	0.9889	0.9905	0.9936	0.9963
20	0.9732	0.9732	0.9735	0.9743	0.9750	0.9764	0.9775	0.9792	0.9821	0.9877	0.9928
25	0.9571	0.9572	0.9576	0.9589	0.9600	0.9622	0.9639	0.9665	0.9711	0.9801	0.9881
30	0.9375	0.9376	0.9383	0.9401	0.9416	0.9449	0.9473	0.9511	0.9578	0.9707	0.9823
35	0.9144	0.9147	0.9156	0.9181	0.9201	0.9245	0.9278	0.9330	0.9421	0.9597	0.9755
40	0.8882	0.8885	0.8897	0.8930	0.8956	0.9013	0.9056	0.9124	0.9242	0.9471	0.9677
45	0.8590	0.8594	0.8609	0.8650	0.8683	0.8755	0.8808	0.8894	0.9042	0.9330	0.9600
50	0.8271	0.8275	0.8293	0.8343	0.8384	0.8472	0.8537	0.8624	0.8823	0.9176	0.9494
55	0.7926	0.7931	0.7953	0.8013	0.8061	0.8166	0.8245	0.8370	0.8587	0.9009	0.9391
60	0.7558	0.7564	0.7590	0.7660	0.7718	0.7841	0.7933	0.8080	0.8335	0.8832	0.9281
65	0.7171	0.7178	0.7207	0.7289	0.7355	0.7498	0.7605	0.7775	0.8069	0.8645	0.9164
70	0.6767	0.6775	0.6809	0.6902	0.6977	0.7140	0.7262	0.7457	0.7792	0.8449	0.9043
75	0.6350	0.6358	0.6397	0.6502	0.6587	0.6770	0.6908	0.7127	0.7506	0.8247	0.8917
80	0.5922	0.5931	0.5974	0.6092	0.6187	0.6391	0.6545	0.6790	0.7213	0.8040	0.8788
85	0.5487	0.5497	0.5545	0.5675	0.5780	0.6006	0.6176	0.6447	0.6914	0.7829	0.8657
90	0.5048	0.5060	0.5112	0.5254	0.5369	0.5617	0.5804	0.6101	0.6613	0.7616	0.8524
95	0.4609	0.4622	0.4679	0.4833	0.4959	0.5228	0.5432	0.5754	0.6312	0.7404	0.8391
100	0.4174	0.4187	0.4248	0.4416	0.4551	0.4842	0.5062	0.5410	0.6013	0.7192	0.8263
105	0.3744	0.3759	0.3825	0.4004	0.4149	0.4462	0.4697	0.5071	0.5718	0.6984	0.8130
110	0.3325	0.3340	0.3410	0.3602	0.3757	0.4090	0.4341	0.4740	0.5430	0.6780	0.8003
115	0.2918	0.2934	0.3009	0.3212	0.3376	0.3729	0.3996	0.4419	0.5151	0.6583	0.7880
120	0.2527	0.2545	0.2623	0.2837	0.3010	0.3383	0.3664	0.4111	0.4882	0.6393	0.7761
125	0.2156	0.2174	0.2256	0.2481	0.2663	0.3054	0.3349	0.3817	0.4627	0.6213	0.7649
130	0.1806	0.1825	0.1911	0.2146	0.2336	0.2744	0.3052	0.3541	0.4387	0.6043	0.7503
135	0.1481	0.1501	0.1590	0.1834	0.2031	0.2456	0.2776	0.3285	0.4164	0.5885	0.7404
140	0.1183	0.1204	0.1296	0.1548	0.1753	0.2192	0.2524	0.3050	0.3959	0.5741	0.7354
145	0.0915	0.0936	0.1031	0.1291	0.1502	0.1954	0.2296	0.2838	0.3775	0.5610	0.7273
150	0.0678	0.0700	0.0797	0.1064	0.1280	0.1744	0.2095	0.2651	0.3612	0.5495	0.7201
155	0.0474	0.0496	0.0596	0.0869	0.1089	0.1564	0.1922	0.2490	0.3472	0.5367	0.7139
160	0.0305	0.0328	0.0429	0.0707	0.0931	0.1414	0.1778	0.2357	0.3356	0.5314	0.7088
165	0.0173	0.0196	0.0298	0.0579	0.0807	0.1297	0.1666	0.2252	0.3265	0.5250	0.7047
170	0.0077	0.0100	0.0204	0.0488	0.0718	0.1212	0.1585	0.2176	0.3199	0.5203	0.7018
175	0.0019	0.0043	0.0147	0.0433	0.0664	0.1161	0.1536	0.2131	0.3160	0.5175	0.7001
180	0.0000	0.0024	0.0128	0.0414	0.0646	0.1144	0.1519	0.2116	0.3147	0.5166	0.6995

RATIO OF MOTT TO RUTHERFORD SCATTERING IN HE, Z= 2

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9999	0.9999	1.0000	1.0000	1.0000	1.0001	1.0001	1.0001	1.0002	1.0004	1.0004
10	0.9961	0.9961	0.9962	0.9964	0.9965	0.9968	0.9970	0.9973	0.9979	0.9989	0.9999
15	0.9882	0.9883	0.9884	0.9888	0.9891	0.9899	0.9904	0.9912	0.9927	0.9954	0.9978
20	0.9765	0.9766	0.9769	0.9777	0.9783	0.9796	0.9806	0.9822	0.9849	0.9901	0.9946
25	0.9611	0.9612	0.9616	0.9628	0.9638	0.9660	0.9676	0.9701	0.9745	0.9829	0.9903
30	0.9420	0.9421	0.9428	0.9446	0.9460	0.9491	0.9515	0.9552	0.9615	0.9739	0.9848
35	0.9194	0.9196	0.9205	0.9229	0.9249	0.9292	0.9324	0.9374	0.9462	0.9632	0.9783
40	0.8936	0.8938	0.8950	0.8982	0.9008	0.9063	0.9105	0.9171	0.9286	0.9508	0.9707
45	0.8646	0.8650	0.8664	0.8705	0.8737	0.8807	0.8860	0.8944	0.9088	0.9370	0.9621
50	0.8328	0.8332	0.8351	0.8400	0.8440	0.8526	0.8591	0.8694	0.8871	0.9217	0.9527
55	0.7985	0.7989	0.8011	0.8070	0.8118	0.8222	0.8299	0.8423	0.8636	0.9051	0.9424
60	0.7618	0.7623	0.7649	0.7719	0.7775	0.7897	0.7988	0.8133	0.8384	0.8874	0.9314
65	0.7230	0.7237	0.7266	0.7347	0.7413	0.7553	0.7660	0.7828	0.8119	0.8686	0.9198
70	0.6825	0.6833	0.6867	0.6959	0.7034	0.7195	0.7316	0.7509	0.7841	0.8490	0.9076
75	0.6406	0.6415	0.6453	0.6557	0.6642	0.6824	0.6961	0.7178	0.7553	0.8287	0.8949
80	0.5976	0.5986	0.6029	0.6145	0.6240	0.6443	0.6596	0.6839	0.7258	0.8079	0.8819
85	0.5539	0.5550	0.5597	0.5726	0.5830	0.6055	0.6225	0.6493	0.6958	0.7866	0.8686
90	0.5098	0.5109	0.5161	0.5303	0.5417	0.5664	0.5850	0.6145	0.6655	0.7652	0.8552
95	0.4656	0.4668	0.4725	0.4879	0.5004	0.5272	0.5475	0.5796	0.6351	0.7437	0.8418
100	0.4216	0.4230	0.4291	0.4458	0.4593	0.4883	0.5101	0.5449	0.6049	0.7223	0.8284
105	0.3783	0.3798	0.3864	0.4042	0.4187	0.4499	0.4734	0.5107	0.5751	0.7012	0.8153
110	0.3360	0.3376	0.3446	0.3636	0.3791	0.4123	0.4374	0.4772	0.5460	0.6806	0.8024
115	0.2949	0.2966	0.3040	0.3243	0.3407	0.3759	0.4025	0.4448	0.5177	0.6606	0.7898
120	0.2555	0.2572	0.2651	0.2864	0.3037	0.3410	0.3690	0.4136	0.4906	0.6414	0.7778
125	0.2180	0.2198	0.2280	0.2504	0.2686	0.3077	0.3372	0.3839	0.4648	0.6231	0.7663
130	0.1826	0.1846	0.1931	0.2166	0.2355	0.2764	0.3071	0.3560	0.4405	0.6058	0.7556
135	0.1498	0.1518	0.1607	0.1851	0.2048	0.2472	0.2792	0.3300	0.4179	0.5898	0.7455
140	0.1197	0.1217	0.1310	0.1562	0.1766	0.2205	0.2536	0.3062	0.3971	0.5751	0.7363
145	0.0925	0.0947	0.1042	0.1302	0.1512	0.1965	0.2306	0.2848	0.3784	0.5619	0.7280
150	0.0686	0.0707	0.0805	0.1072	0.1288	0.1752	0.2102	0.2658	0.3619	0.5502	0.7207
155	0.0480	0.0502	0.0602	0.0874	0.1095	0.1569	0.1927	0.2495	0.3478	0.5401	0.7184
160	0.0309	0.0332	0.0433	0.0710	0.0935	0.1418	0.1782	0.2360	0.3360	0.5318	0.7192
165	0.0175	0.0198	0.0301	0.0582	0.0809	0.1299	0.1668	0.2254	0.3268	0.5252	0.7050
170	0.0078	0.0101	0.0205	0.0489	0.0719	0.1213	0.1586	0.2178	0.3201	0.5205	0.7021
175	0.0020	0.0043	0.0148	0.0433	0.0664	0.1161	0.1536	0.2132	0.3161	0.5177	0.7003
180	0.0000	0.0024	0.0128	0.0414	0.0646	0.1144	0.1520	0.2116	0.3147	0.5167	0.6997

RATIO OF MOTTE TO RUTHERFORD SCATTERING IN BE, Z= 4

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018
10	0.9999	0.9999	1.0000	1.0001	1.0002	1.0003	1.0005	1.0007	1.0010	1.0016	1.0019
15	0.9936	0.9936	0.9938	0.9941	0.9944	0.9949	0.9954	0.9960	0.9972	0.9992	1.0008
20	0.9834	0.9835	0.9837	0.9844	0.9849	0.9861	0.9870	0.9883	0.9906	0.9950	0.9985
25	0.9692	0.9693	0.9697	0.9708	0.9717	0.9736	0.9751	0.9774	0.9813	0.9886	0.9949
30	0.9513	0.9514	0.9520	0.9537	0.9550	0.9579	0.9600	0.9634	0.9693	0.9805	0.9901
35	0.9296	0.9298	0.9306	0.9329	0.9348	0.9388	0.9418	0.9466	0.9547	0.9704	0.9841
40	0.9045	0.9048	0.9059	0.9089	0.9114	0.9167	0.9207	0.9269	0.9377	0.9586	0.9769
45	0.8762	0.8765	0.8779	0.8818	0.8849	0.8916	0.8967	0.9047	0.9185	0.9452	0.9687
50	0.8448	0.8452	0.8470	0.8517	0.8556	0.8639	0.8702	0.8801	0.8971	0.9302	0.9595
55	0.8107	0.8111	0.8133	0.8190	0.8237	0.8337	0.8412	0.8532	0.8738	0.9138	0.9494
60	0.7741	0.7746	0.7771	0.7839	0.7894	0.8013	0.8102	0.8244	0.8487	0.8962	0.9385
65	0.7353	0.7359	0.7388	0.7467	0.7532	0.7669	0.7773	0.7938	0.8222	0.8774	0.9269
70	0.6946	0.6954	0.6987	0.7078	0.7151	0.7309	0.7428	0.7617	0.7943	0.8577	0.9146
75	0.6524	0.6533	0.6570	0.6673	0.6756	0.6935	0.7070	0.7284	0.7653	0.8372	0.9018
80	0.6090	0.6100	0.6142	0.6257	0.6350	0.6551	0.6702	0.6941	0.7354	0.8161	0.8886
85	0.5648	0.5659	0.5705	0.5833	0.5936	0.6158	0.6326	0.6591	0.7050	0.7945	0.8751
90	0.5201	0.5212	0.5264	0.5404	0.5517	0.5762	0.5946	0.6238	0.6742	0.7727	0.8514
95	0.4752	0.4765	0.4821	0.4974	0.5098	0.5364	0.5564	0.5883	0.6433	0.7507	0.8476
100	0.4306	0.4319	0.4380	0.4545	0.4679	0.4968	0.5185	0.5530	0.6125	0.7289	0.8339
105	0.3865	0.3880	0.3945	0.4123	0.4267	0.4577	0.4810	0.5181	0.5821	0.7073	0.8203
110	0.3434	0.3450	0.3519	0.3709	0.3863	0.4194	0.4443	0.4839	0.5524	0.6861	0.8070
115	0.3016	0.3032	0.3106	0.3308	0.3471	0.3823	0.4088	0.4508	0.5235	0.6656	0.7941
120	0.2613	0.2631	0.2709	0.2922	0.3094	0.3465	0.3745	0.4189	0.4957	0.6458	0.7816
125	0.2230	0.2248	0.2330	0.2554	0.2735	0.3125	0.3419	0.3886	0.4692	0.6270	0.7698
130	0.1869	0.1888	0.1974	0.2208	0.2397	0.2805	0.3112	0.3600	0.4443	0.6033	0.7586
135	0.1533	0.1553	0.1642	0.1886	0.2083	0.2507	0.2826	0.3334	0.4211	0.5928	0.7481
140	0.1225	0.1246	0.1338	0.1590	0.1794	0.2233	0.2564	0.3090	0.3998	0.5776	0.7386
145	0.0948	0.0969	0.1064	0.1324	0.1534	0.1987	0.2328	0.2870	0.3806	0.5640	0.7300
150	0.0702	0.0724	0.0822	0.1088	0.1304	0.1769	0.2119	0.2675	0.3636	0.5519	0.7223
155	0.0491	0.0514	0.0613	0.0886	0.1107	0.1581	0.1939	0.2508	0.3491	0.5415	0.7158
160	0.0316	0.0339	0.0441	0.0718	0.0943	0.1426	0.1791	0.2369	0.3370	0.5329	0.7103
165	0.0179	0.0202	0.0305	0.0586	0.0814	0.1304	0.1674	0.2260	0.3274	0.5261	0.7061
170	0.0080	0.0103	0.0207	0.0491	0.0721	0.1216	0.1589	0.2182	0.3206	0.5212	0.7030
175	0.0020	0.0044	0.0148	0.0434	0.0665	0.1163	0.1538	0.2134	0.3165	0.5183	0.7011
180	0.0000	0.0024	0.0129	0.0415	0.0647	0.1145	0.1521	0.2119	0.3151	0.5173	0.7005

RATIO OF MOTTE TO RUTHERFORD SCATTERING IN C, Z= 6

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0037	1.0037	1.0037	1.0037	1.0036	1.0036	1.0036	1.0035	1.0033	1.0030	1.0025
10	1.0038	1.0038	1.0038	1.0039	1.0039	1.0040	1.0040	1.0041	1.0042	1.0043	1.0040
15	0.9991	0.9991	0.9992	0.9995	0.9997	1.0001	1.0005	1.0010	1.0018	1.0031	1.0039
20	0.9905	0.9906	0.9908	0.9913	0.9918	0.9928	0.9935	0.9946	0.9965	1.0000	1.0025
25	0.9777	0.9777	0.9781	0.9791	0.9799	0.9816	0.9829	0.9849	0.9883	0.9946	0.9997
30	0.9609	0.9610	0.9616	0.9631	0.9643	0.9670	0.9689	0.9720	0.9773	0.9873	0.9956
35	0.9402	0.9404	0.9412	0.9433	0.9451	0.9488	0.9516	0.9560	0.9636	0.9780	0.9902
40	0.9159	0.9162	0.9172	0.9201	0.9225	0.9275	0.9312	0.9372	0.9473	0.9668	0.9836
45	0.8882	0.8885	0.8899	0.8936	0.8966	0.9030	0.9078	0.9155	0.9286	0.9538	0.9757
50	0.8573	0.8577	0.8594	0.8640	0.8677	0.8757	0.8817	0.8913	0.9076	0.9392	0.9669
55	0.8235	0.8239	0.8260	0.8316	0.8361	0.8458	0.8531	0.8647	0.8846	0.9230	0.9570
60	0.7870	0.7875	0.7900	0.7966	0.8020	0.8135	0.8222	0.8360	0.8596	0.9055	0.9461
65	0.7482	0.7488	0.7516	0.7594	0.7657	0.7791	0.7893	0.8054	0.8331	0.8868	0.9345
70	0.7073	0.7081	0.7113	0.7203	0.7275	0.7430	0.7546	0.7732	0.8050	0.8670	0.9222
75	0.6649	0.6657	0.6694	0.6795	0.6877	0.7053	0.7186	0.7396	0.7758	0.8463	0.9093
80	0.6211	0.6220	0.6261	0.6375	0.6467	0.6665	0.6813	0.7050	0.7457	0.8249	0.8959
85	0.5763	0.5773	0.5820	0.5946	0.6048	0.6268	0.6433	0.6695	0.7148	0.8030	0.8822
90	0.5310	0.5321	0.5372	0.5511	0.5623	0.5865	0.6047	0.6336	0.6835	0.7808	0.8682
95	0.4854	0.4867	0.4922	0.5074	0.5197	0.5461	0.5660	0.5976	0.6521	0.7584	0.8441
100	0.4401	0.4414	0.4474	0.4639	0.4772	0.5058	0.5274	0.5616	0.6207	0.7361	0.8400
105	0.3952	0.3967	0.4031	0.4208	0.4352	0.4660	0.4892	0.5261	0.5897	0.7140	0.8260
110	0.3513	0.3528	0.3597	0.3787	0.3940	0.4269	0.4518	0.4912	0.5593	0.6923	0.8123
115	0.3086	0.3102	0.3176	0.3377	0.3540	0.3890	0.4154	0.4573	0.5297	0.6712	0.7990
120	0.2675	0.2692	0.2770	0.2983	0.3155	0.3525	0.3804	0.4247	0.5012	0.6509	0.7861
125	0.2283	0.2302	0.2383	0.2607	0.2788	0.3177	0.3471	0.3936	0.4741	0.6315	0.7738
130	0.1914	0.1933	0.2019	0.2253	0.2442	0.2849	0.3156	0.3643	0.4485	0.6133	0.7622
135	0.1571	0.1591	0.1680	0.1923	0.2120	0.2544	0.2863	0.3370	0.4247	0.5962	0.7514
140	0.1256	0.1276	0.1368	0.1620	0.1825	0.2261	0.2595	0.3120	0.4028	0.5806	0.7415
145	0.0971	0.0992	0.1088	0.1347	0.1558	0.2014	0.2352	0.2894	0.3831	0.5665	0.7325
150	0.0720	0.0742	0.0839	0.1106	0.1322	0.1787	0.2138	0.2694	0.3657	0.5540	0.7246
155	0.0504	0.0526	0.0626	0.0899	0.1120	0.1595	0.1954	0.2523	0.3506	0.5433	0.7178
160	0.0324	0.0347	0.0449	0.0727	0.0952	0.1436	0.1801	0.2380	0.3382	0.5344	0.7121
165	0.0183	0.0206	0.0310	0.0591	0.0820	0.1310	0.1681	0.2268	0.3284	0.5274	0.7077
170	0.0082	0.0105	0.0209	0.0494	0.0724	0.1220	0.1594	0.2188	0.3214	0.5224	0.7045
175	0.0021	0.0044	0.0149	0.0435	0.0667	0.1166	0.1542	0.2139	0.3171	0.5193	0.7025
180	0.0000	0.0024	0.0129	0.0416	0.0648	0.1148	0.1524	0.2123	0.3157	0.5183	0.7019

RATIO OF MOTT TO RUTHERFORD SCATTERING IN O, Z=8

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0056	1.0056	1.0056	1.0055	1.0055	1.0054	1.0053	1.0052	1.0049	1.0043	1.0035
10	1.0077	1.0077	1.0077	1.0077	1.0077	1.0077	1.0077	1.0076	1.0075	1.0070	1.0062
15	1.0047	1.0047	1.0048	1.0050	1.0051	1.0054	1.0057	1.0060	1.0065	1.0071	1.0071
20	0.9978	0.9978	0.9980	0.9985	0.9988	0.9996	1.0002	1.0011	1.0026	1.0052	1.0067
25	0.9863	0.9864	0.9867	0.9876	0.9883	0.9898	0.9909	0.9927	0.9956	1.0008	1.0047
30	0.9708	0.9709	0.9714	0.9728	0.9740	0.9764	0.9781	0.9809	0.9857	0.9945	1.0014
35	0.9512	0.9514	0.9521	0.9541	0.9557	0.9592	0.9618	0.9659	0.9729	0.9859	0.9966
40	0.9278	0.9280	0.9290	0.9318	0.9340	0.9387	0.9422	0.9478	0.9573	0.9754	0.9906
45	0.9008	0.9010	0.9023	0.9059	0.9087	0.9149	0.9195	0.9268	0.9392	0.9629	0.9832
50	0.8704	0.8707	0.8724	0.8768	0.8804	0.8881	0.8939	0.9030	0.9187	0.9487	0.9747
55	0.8368	0.8373	0.8393	0.8447	0.8491	0.8585	0.8655	0.8767	0.8959	0.9328	0.9650
60	0.8005	0.8010	0.8034	0.8099	0.8151	0.8264	0.8348	0.8482	0.8711	0.9155	0.9544
65	0.7617	0.7623	0.7651	0.7727	0.7788	0.7920	0.8019	0.8176	0.8446	0.8968	0.9428
70	0.7207	0.7214	0.7246	0.7334	0.7405	0.7557	0.7671	0.7853	0.8165	0.8769	0.9305
75	0.6779	0.6788	0.6824	0.6924	0.7004	0.7178	0.7308	0.7515	0.7870	0.8561	0.9175
80	0.6337	0.6346	0.6387	0.6499	0.6590	0.6785	0.6932	0.7165	0.7566	0.8345	0.9039
85	0.5884	0.5895	0.5940	0.6065	0.6166	0.6383	0.6547	0.6806	0.7253	0.8122	0.8899
90	0.5425	0.5436	0.5486	0.5624	0.5736	0.5975	0.6156	0.6442	0.6935	0.7896	0.8757
95	0.4962	0.4975	0.5030	0.5180	0.5302	0.5564	0.5762	0.6075	0.6615	0.7668	0.8613
100	0.4501	0.4514	0.4574	0.4737	0.4870	0.5154	0.5368	0.5708	0.6295	0.7440	0.8468
105	0.4044	0.4059	0.4123	0.4299	0.4442	0.4748	0.4979	0.5346	0.5979	0.7214	0.8325
110	0.3596	0.3611	0.3680	0.3869	0.4022	0.4350	0.4597	0.4990	0.5667	0.6991	0.8183
115	0.3160	0.3177	0.3250	0.3451	0.3613	0.3962	0.4226	0.4643	0.5365	0.6775	0.8046
120	0.2740	0.2758	0.2835	0.3048	0.3219	0.3589	0.3867	0.4309	0.5073	0.6566	0.7913
125	0.2340	0.2358	0.2440	0.2663	0.2844	0.3233	0.3526	0.3991	0.4795	0.6366	0.7786
130	0.1962	0.1981	0.2067	0.2301	0.2490	0.2897	0.3204	0.3691	0.4532	0.6178	0.7666
135	0.1611	0.1631	0.1720	0.1963	0.2160	0.2584	0.2904	0.3411	0.4287	0.6003	0.7554
140	0.1288	0.1308	0.1401	0.1653	0.1857	0.2297	0.2628	0.3154	0.4063	0.5841	0.7451
145	0.0996	0.1018	0.1113	0.1373	0.1584	0.2037	0.2379	0.2922	0.3860	0.5696	0.7358
150	0.0739	0.0760	0.0858	0.1126	0.1342	0.1808	0.2159	0.2716	0.3680	0.5577	0.7276
155	0.0517	0.0539	0.0639	0.0913	0.1134	0.1611	0.1970	0.2540	0.3526	0.5456	0.7205
160	0.0333	0.0356	0.0458	0.0736	0.0962	0.1447	0.1813	0.2393	0.3398	0.5364	0.7146
165	0.0188	0.0211	0.0315	0.0597	0.0826	0.1318	0.1689	0.2278	0.3297	0.5292	0.7100
170	0.0084	0.0108	0.0212	0.0497	0.0728	0.1225	0.1600	0.2195	0.3224	0.5240	0.7066
175	0.0021	0.0045	0.0150	0.0437	0.0669	0.1169	0.1546	0.2145	0.3180	0.5208	0.7046
180	0.0000	0.0024	0.0129	0.0417	0.0650	0.1151	0.1529	0.2128	0.3166	0.5198	0.7039

RATIO OF MOTT TO RUTHERFORD SCATTERING IN Mg, Z=12

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0094	1.0094	1.0093	1.0092	1.0091	1.0089	1.0088	1.0085	1.0080	1.0069	1.0055
10	1.0156	1.0156	1.0156	1.0155	1.0154	1.0152	1.0150	1.0147	1.0141	1.0126	1.0106
15	1.0163	1.0163	1.0163	1.0163	1.0163	1.0163	1.0163	1.0163	1.0161	1.0153	1.0136
20	1.0128	1.0128	1.0129	1.0132	1.0134	1.0138	1.0142	1.0146	1.0152	1.0159	1.0153
25	1.0044	1.0044	1.0047	1.0053	1.0058	1.0069	1.0077	1.0089	1.0108	1.0138	1.0152
30	0.9916	0.9917	0.9921	0.9933	0.9942	0.9961	0.9975	0.9997	1.0033	1.0095	1.0136
35	0.9743	0.9745	0.9751	0.9768	0.9782	0.9811	0.9833	0.9867	0.9924	1.0027	1.0104
40	0.9529	0.9531	0.9540	0.9564	0.9584	0.9625	0.9656	0.9704	0.9786	0.9937	1.0056
45	0.9274	0.9277	0.9288	0.9320	0.9346	0.9402	0.9443	0.9508	0.9618	0.9825	0.9993
50	0.8982	0.8985	0.9000	0.9041	0.9074	0.9145	0.9198	0.9282	0.9424	0.9692	0.9917
55	0.8654	0.8658	0.8677	0.8728	0.8769	0.8856	0.8922	0.9026	0.9203	0.9540	0.9827
60	0.8295	0.8300	0.8323	0.8384	0.8433	0.8539	0.8619	0.8745	0.8960	0.9371	0.9725
65	0.7908	0.7914	0.7940	0.8013	0.8071	0.8197	0.8291	0.8440	0.8696	0.9186	0.9612
70	0.7495	0.7502	0.7533	0.7617	0.7685	0.7831	0.7941	0.8115	0.8413	0.8987	0.9489
75	0.7062	0.7070	0.7105	0.7202	0.7280	0.7447	0.7573	0.7773	0.8115	0.8777	0.9358
80	0.6611	0.6620	0.6660	0.6769	0.6858	0.7047	0.7190	0.7416	0.7804	0.8556	0.9220
85	0.6148	0.6158	0.6202	0.6324	0.6423	0.6635	0.6795	0.7048	0.7484	0.8328	0.9076
90	0.5675	0.5686	0.5735	0.5871	0.5980	0.6215	0.6392	0.6673	0.7156	0.8094	0.8929
95	0.5197	0.5209	0.5264	0.5412	0.5532	0.5791	0.5985	0.6293	0.6824	0.7857	0.8778
100	0.4719	0.4732	0.4791	0.4953	0.5084	0.5365	0.5577	0.5913	0.6492	0.7619	0.8627
105	0.4245	0.4259	0.4323	0.4498	0.4639	0.4943	0.5172	0.5535	0.6161	0.7382	0.8476
110	0.3778	0.3793	0.3862	0.4049	0.4201	0.4527	0.4773	0.5163	0.5836	0.7148	0.8327
115	0.3323	0.3339	0.3413	0.3612	0.3774	0.4122	0.4384	0.4800	0.5518	0.6920	0.8181
120	0.2884	0.2901	0.2979	0.3190	0.3362	0.3731	0.4009	0.4450	0.5211	0.6699	0.8039
125	0.2464	0.2483	0.2564	0.2788	0.2968	0.3357	0.3650	0.4115	0.4918	0.6488	0.7904
130	0.2068	0.2087	0.2173	0.2407	0.2596	0.3004	0.3311	0.3798	0.4641	0.6288	0.7775
135	0.1698	0.1718	0.1808	0.2052	0.2249	0.2674	0.2995	0.3503	0.4382	0.6101	0.7656
140	0.1358	0.1379	0.1472	0.1725	0.1930	0.2371	0.2704	0.3232	0.4144	0.5930	0.7545
145	0.1052	0.1073	0.1169	0.1430	0.1642	0.2098	0.2441	0.2986	0.3929	0.5774	0.7445
150	0.0780	0.0802	0.0900	0.1169	0.1387	0.1855	0.2209	0.2769	0.3739	0.5637	0.7357
155	0.0546	0.0568	0.0669	0.0944	0.1167	0.1647	0.2008	0.2582	0.3575	0.5519	0.7280
160	0.0352	0.0375	0.0477	0.0758	0.0985	0.1474	0.1842	0.2427	0.3439	0.5420	0.7217
165	0.0199	0.0222	0.0326	0.0611	0.0841	0.1337	0.1711	0.2305	0.3331	0.5343	0.7167
170	0.0089	0.0112	0.0218	0.0505	0.0738	0.1239	0.1617	0.2217	0.3254	0.5287	0.7131
175	0.0022	0.0046	0.0152	0.0441	0.0676	0.1180	0.1560	0.2164	0.3208	0.5253	0.7109
180	0.0000	0.0024	0.0130	0.0420	0.0655	0.1160	0.1541	0.2146	0.3192	0.5242	0.7102

RATIO OF MOTT TO RUTHERFORD SCATTERING IN AL, Z=13

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0103	1.0103	1.0103	1.0101	1.0100	1.0098	1.0096	1.0093	1.0088	1.0075	1.0060
10	1.0176	1.0176	1.0176	1.0174	1.0173	1.0171	1.0168	1.0165	1.0158	1.0140	1.0116
15	1.0192	1.0192	1.0192	1.0192	1.0192	1.0191	1.0190	1.0189	1.0186	1.0173	1.0152
20	1.0167	1.0167	1.0168	1.0170	1.0172	1.0175	1.0177	1.0181	1.0185	1.0186	1.0175
25	1.0090	1.0091	1.0093	1.0099	1.0103	1.0113	1.0120	1.0131	1.0147	1.0172	1.0179
30	0.9970	0.9971	0.9975	0.9986	0.9994	1.0012	1.0025	1.0045	1.0078	1.0134	1.0168
35	0.9804	0.9805	0.9811	0.9827	0.9840	0.9868	0.9889	0.9922	0.9975	1.0071	1.0140
40	0.9595	0.9597	0.9605	0.9629	0.9647	0.9687	0.9717	0.9764	0.9842	0.9985	1.0096
45	0.9344	0.9346	0.9358	0.9389	0.9414	0.9468	0.9508	0.9571	0.9678	0.9876	1.0036
50	0.9055	0.9058	0.9073	0.9113	0.9145	0.9215	0.9266	0.9348	0.9487	0.9747	0.9962
55	0.8730	0.8734	0.8752	0.8802	0.8842	0.8928	0.8993	0.9095	0.9268	0.9597	0.9874
60	0.8372	0.8377	0.8399	0.8459	0.8508	0.8613	0.8691	0.8815	0.9026	0.9429	0.9773
65	0.7985	0.7991	0.8017	0.8088	0.8146	0.8270	0.8363	0.8511	0.8763	0.9245	0.9661
70	0.7572	0.7579	0.7609	0.7693	0.7760	0.7905	0.8013	0.8185	0.8480	0.9046	0.9539
75	0.7137	0.7145	0.7180	0.7276	0.7353	0.7519	0.7644	0.7842	0.8181	0.8835	0.9408
80	0.6684	0.6693	0.6733	0.6841	0.6929	0.7117	0.7259	0.7483	0.7869	0.8613	0.9269
85	0.6218	0.6228	0.6272	0.6394	0.6492	0.6703	0.6862	0.7113	0.7546	0.8384	0.9125
90	0.5742	0.5753	0.5802	0.5937	0.6045	0.6279	0.6456	0.6735	0.7216	0.8148	0.8976
95	0.5260	0.5272	0.5327	0.5474	0.5594	0.5851	0.6045	0.6352	0.6881	0.7909	0.8825
100	0.4778	0.4791	0.4850	0.5011	0.5141	0.5422	0.5633	0.5968	0.6545	0.7668	0.8572
105	0.4299	0.4313	0.4377	0.4551	0.4692	0.4995	0.5224	0.5586	0.6211	0.7428	0.8519
110	0.3827	0.3842	0.3911	0.4098	0.4249	0.4575	0.4821	0.5210	0.5882	0.7192	0.8368
115	0.3367	0.3383	0.3456	0.3656	0.3818	0.4165	0.4427	0.4843	0.5560	0.6960	0.8220
120	0.2922	0.2940	0.3017	0.3229	0.3401	0.3769	0.4047	0.4488	0.5250	0.6737	0.8076
125	0.2498	0.2516	0.2598	0.2821	0.3002	0.3391	0.3684	0.4149	0.4952	0.6522	0.7938
130	0.2096	0.2115	0.2201	0.2435	0.2625	0.3033	0.3340	0.3828	0.4671	0.6319	0.7808
135	0.1722	0.1742	0.1832	0.2076	0.2274	0.2699	0.3020	0.3529	0.4409	0.6130	0.7684
140	0.1378	0.1398	0.1491	0.1745	0.1950	0.2392	0.2725	0.3254	0.4167	0.5966	0.7574
145	0.1066	0.1088	0.1184	0.1446	0.1658	0.2114	0.2459	0.3005	0.3949	0.5798	0.7472
150	0.0791	0.0813	0.0912	0.1181	0.1399	0.1869	0.2223	0.2784	0.3756	0.5658	0.7382
155	0.0554	0.0576	0.0677	0.0953	0.1177	0.1657	0.2019	0.2595	0.3589	0.5538	0.7304
160	0.0357	0.0380	0.0483	0.0764	0.0992	0.1481	0.1851	0.2437	0.3451	0.5438	0.7240
165	0.0202	0.0225	0.0330	0.0615	0.0846	0.1343	0.1718	0.2313	0.3342	0.5359	0.7189
170	0.0090	0.0114	0.0219	0.0508	0.0741	0.1243	0.1622	0.2224	0.3264	0.5302	0.7152
175	0.0023	0.0046	0.0153	0.0443	0.0678	0.1183	0.1564	0.2170	0.3216	0.5268	0.7130
180	0.0000	0.0024	0.0130	0.0421	0.0657	0.1163	0.1545	0.2152	0.3201	0.5257	0.7123

RATIO OF MOTT TO RUTHERFORD SCATTERING IN SI, Z=14

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0113	1.0113	1.0112	1.0111	1.0109	1.0107	1.0105	1.0102	1.0096	1.0081	1.0064
10	1.0197	1.0196	1.0196	1.0194	1.0193	1.0189	1.0187	1.0183	1.0174	1.0154	1.0127
15	1.0222	1.0222	1.0222	1.0221	1.0220	1.0219	1.0218	1.0215	1.0210	1.0194	1.0168
20	1.0206	1.0206	1.0206	1.0208	1.0209	1.0212	1.0213	1.0215	1.0217	1.0214	1.0197
25	1.0138	1.0138	1.0140	1.0145	1.0149	1.0158	1.0164	1.0173	1.0187	1.0206	1.0206
30	1.0025	1.0026	1.0030	1.0039	1.0047	1.0064	1.0076	1.0095	1.0125	1.0174	1.0200
35	0.9865	0.9866	0.9872	0.9888	0.9900	0.9927	0.9946	0.9977	1.0027	1.0116	1.0176
40	0.9662	0.9664	0.9672	0.9694	0.9712	0.9751	0.9779	0.9824	0.9899	1.0035	1.0136
45	0.9415	0.9418	0.9429	0.9459	0.9484	0.9536	0.9575	0.9636	0.9739	0.9929	1.0088
50	0.9130	0.9133	0.9147	0.9187	0.9218	0.9286	0.9336	0.9416	0.9551	0.9803	1.0008
55	0.8807	0.8811	0.8829	0.8878	0.8917	0.9002	0.9065	0.9165	0.9335	0.9655	0.9922
60	0.8451	0.8456	0.8477	0.8537	0.8585	0.8688	0.8765	0.8886	0.9094	0.9489	0.9824
65	0.8064	0.8070	0.8096	0.8166	0.8223	0.8346	0.8438	0.8583	0.8831	0.9305	0.9712
70	0.7650	0.7657	0.7687	0.7770	0.7837	0.7980	0.8087	0.8257	0.8548	0.9107	0.9591
75	0.7214	0.7222	0.7257	0.7352	0.7429	0.7593	0.7717	0.7913	0.8249	0.8895	0.9460
80	0.6759	0.6768	0.6808	0.6915	0.7002	0.7189	0.7330	0.7552	0.7935	0.8673	0.9321
85	0.6290	0.6300	0.6344	0.6465	0.6563	0.6772	0.6930	0.7180	0.7610	0.8442	0.9176
90	0.5810	0.5821	0.5870	0.6004	0.6113	0.6346	0.6521	0.6799	0.7277	0.8204	0.9026
95	0.5325	0.5337	0.5391	0.5539	0.5658	0.5914	0.6107	0.6413	0.6940	0.7963	0.8873
100	0.4838	0.4851	0.4910	0.5071	0.5201	0.5480	0.5691	0.6025	0.6600	0.7719	0.8718
105	0.4354	0.4368	0.4432	0.4606	0.4747	0.5050	0.5278	0.5639	0.6263	0.7477	0.8564
110	0.3877	0.3892	0.3961	0.4148	0.4299	0.4625	0.4870	0.5259	0.5930	0.7237	0.8411
115	0.3412	0.3428	0.3501	0.3701	0.3863	0.4210	0.4472	0.4887	0.5604	0.7003	0.8261
120	0.2962	0.2979	0.3057	0.3269	0.3440	0.3809	0.4087	0.4528	0.5289	0.6776	0.8115
125	0.2532	0.2551	0.2633	0.2856	0.3037	0.3426	0.3719	0.4185	0.4988	0.6559	0.7975
130	0.2126	0.2145	0.2231	0.2465	0.2655	0.3063	0.3371	0.3859	0.4703	0.6353	0.7843
135	0.1746	0.1766	0.1856	0.2101	0.2299	0.2725	0.3046	0.3556	0.4437	0.6161	0.7719
140	0.1397	0.1418	0.1511	0.1765	0.1971	0.2413	0.2747	0.3277	0.4192	0.5983	0.7605
145	0.1082	0.1103	0.1199	0.1462	0.1675	0.2132	0.2477	0.3024	0.3970	0.5823	0.7501
150	0.0802	0.0825	0.0923	0.1193	0.1412	0.1883	0.2237	0.2800	0.3774	0.5681	0.7410
155	0.0562	0.0584	0.0686	0.0962	0.1186	0.1668	0.2031	0.2608	0.3605	0.5559	0.7331
160	0.0362	0.0385	0.0488	0.0770	0.0998	0.1490	0.1860	0.2448	0.3465	0.5457	0.7265
165	0.0205	0.0228	0.0333	0.0619	0.0851	0.1349	0.1725	0.2322	0.3354	0.5377	0.7213
170	0.0092	0.0115	0.0221	0.0510	0.0744	0.1248	0.1628	0.2231	0.3274	0.5319	0.7176
175	0.0023	0.0046	0.0153	0.0444	0.0680	0.1187	0.1569	0.2176	0.3226	0.5284	0.7153
180	0.0000	0.0024	0.0131	0.0422	0.0659	0.1167	0.1550	0.2158	0.3210	0.5273	0.7146

RATIO OF MOTT TO RUTHERFORD SCATTERING IN K, Z=19

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0159	1.0158	1.0158	1.0155	1.0154	1.0150	1.0147	1.0142	1.0132	1.0110	1.0084
10	1.0297	1.0297	1.0296	1.0293	1.0290	1.0284	1.0279	1.0271	1.0256	1.0221	1.0176
15	1.0372	1.0372	1.0371	1.0368	1.0366	1.0360	1.0356	1.0349	1.0334	1.0297	1.0246
20	1.0405	1.0405	1.0405	1.0404	1.0403	1.0400	1.0398	1.0394	1.0384	1.0354	1.0306
25	1.0382	1.0382	1.0383	1.0385	1.0386	1.0389	1.0390	1.0392	1.0392	1.0380	1.0344
30	1.0311	1.0311	1.0314	1.0320	1.0324	1.0334	1.0341	1.0351	1.0366	1.0380	1.0366
35	1.0186	1.0187	1.0191	1.0203	1.0212	1.0231	1.0245	1.0266	1.0300	1.0350	1.0366
40	1.0014	1.0015	1.0022	1.0040	1.0055	1.0085	1.0108	1.0142	1.0199	1.0294	1.0349
45	0.9793	0.9795	0.9804	0.9830	0.9851	0.9895	0.9927	0.9978	1.0062	1.0210	1.0311
50	0.9527	0.9530	0.9543	0.9577	0.9605	0.9664	0.9708	0.9777	0.9892	1.0101	1.0257
55	0.9219	0.9222	0.9238	0.9283	0.9318	0.9394	0.9451	0.9540	0.9690	0.9966	1.0184
60	0.8871	0.8876	0.8896	0.8951	0.8995	0.9089	0.9160	0.9271	0.9459	0.9810	1.0095
65	0.8488	0.8494	0.8518	0.8584	0.8637	0.8751	0.8837	0.8971	0.9201	0.9633	0.9992
70	0.8073	0.8080	0.8108	0.8187	0.8250	0.8385	0.8486	0.8646	0.8919	0.9437	0.9875
75	0.7631	0.7639	0.7672	0.7763	0.7836	0.7993	0.8111	0.8298	0.8616	0.9225	0.9746
80	0.7166	0.7174	0.7212	0.7316	0.7400	0.7580	0.7716	0.7929	0.8296	0.8999	0.9607
85	0.6682	0.6692	0.6735	0.6852	0.6947	0.7151	0.7304	0.7546	0.7962	0.8761	0.9459
90	0.6184	0.6195	0.6243	0.6374	0.6480	0.6708	0.6879	0.7150	0.7616	0.8515	0.9305
95	0.5678	0.5689	0.5743	0.5888	0.6005	0.6257	0.6447	0.6747	0.7264	0.8263	0.9147
100	0.5167	0.5180	0.5238	0.5397	0.5525	0.5802	0.6010	0.6339	0.6907	0.8007	0.8985
105	0.4657	0.4671	0.4735	0.4907	0.5047	0.5348	0.5574	0.5933	0.6551	0.7751	0.8822
110	0.4153	0.4168	0.4236	0.4423	0.4573	0.4898	0.5142	0.5529	0.6197	0.7497	0.8659
115	0.3659	0.3676	0.3749	0.3948	0.4110	0.4458	0.4719	0.5135	0.5851	0.7247	0.8500
120	0.3181	0.3198	0.3276	0.3488	0.3660	0.4030	0.4309	0.4751	0.5514	0.7004	0.8344
125	0.2722	0.2741	0.2823	0.3048	0.3230	0.3621	0.3916	0.4384	0.5192	0.6770	0.8194
130	0.2287	0.2306	0.2393	0.2629	0.2821	0.3232	0.3543	0.4035	0.4885	0.6549	0.8051
135	0.1881	0.1901	0.1992	0.2239	0.2439	0.2869	0.3194	0.3709	0.4599	0.6341	0.7918
140	0.1506	0.1527	0.1621	0.1878	0.2086	0.2534	0.2872	0.3408	0.4335	0.6149	0.7794
145	0.1167	0.1188	0.1286	0.1552	0.1768	0.2231	0.2581	0.3136	0.4095	0.5976	0.7682
150	0.0866	0.0888	0.0989	0.1263	0.1485	0.1962	0.2322	0.2894	0.3883	0.5821	0.7582
155	0.0607	0.0630	0.0732	0.1013	0.1241	0.1730	0.2100	0.2686	0.3700	0.5688	0.7446
160	0.0391	0.0414	0.0519	0.0806	0.1038	0.1538	0.1914	0.2513	0.3547	0.5578	0.7425
165	0.0221	0.0245	0.0352	0.0643	0.0878	0.1386	0.1768	0.2376	0.3427	0.5490	0.7368
170	0.0099	0.0123	0.0231	0.0525	0.0764	0.1276	0.1663	0.2278	0.3341	0.5428	0.7328
175	0.0025	0.0049	0.0157	0.0454	0.0694	0.1210	0.1600	0.2218	0.3289	0.5390	0.7303
180	0.0000	0.0025	0.0133	0.0430	0.0671	0.1188	0.1579	0.2198	0.3271	0.5377	0.7295

RATIO OF MOTT TO RUTHERFORD SCATTERING IN TI, Z=22

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0185	1.0185	1.0184	1.0181	1.0179	1.0174	1.0170	1.0164	1.0152	1.0125	1.0093
10	1.0357	1.0357	1.0355	1.0351	1.0348	1.0340	1.0334	1.0324	1.0304	1.0259	1.0202
15	1.0463	1.0463	1.0461	1.0457	1.0454	1.0446	1.0440	1.0429	1.0408	1.0357	1.0289
20	1.0529	1.0528	1.0527	1.0524	1.0522	1.0516	1.0511	1.0503	1.0486	1.0438	1.0369
25	1.0534	1.0534	1.0534	1.0534	1.0534	1.0532	1.0531	1.0528	1.0519	1.0486	1.0426
30	1.0491	1.0491	1.0492	1.0496	1.0499	1.0504	1.0508	1.0513	1.0517	1.0508	1.0466
35	1.0390	1.0391	1.0394	1.0403	1.0410	1.0425	1.0435	1.0450	1.0473	1.0498	1.0484
40	1.0240	1.0241	1.0246	1.0262	1.0274	1.0299	1.0318	1.0346	1.0391	1.0460	1.0483
45	1.0036	1.0038	1.0046	1.0069	1.0087	1.0126	1.0155	1.0199	1.0270	1.0390	1.0459
50	0.9785	0.9788	0.9799	0.9831	0.9856	0.9910	0.9949	1.0011	1.0114	1.0294	1.0417
55	0.9487	0.9490	0.9506	0.9547	0.9580	0.9650	0.9703	0.9785	0.9922	1.0170	1.0354
60	0.9147	0.9151	0.9170	0.9222	0.9264	0.9353	0.9419	0.9523	0.9689	1.0022	1.0274
65	0.8767	0.8773	0.8796	0.8859	0.8910	0.9019	0.9100	0.9228	0.9445	0.9850	1.0177
70	0.8353	0.8359	0.8387	0.8462	0.8523	0.8653	0.8751	0.8904	0.9166	0.9657	1.0065
75	0.7908	0.7915	0.7947	0.8035	0.8107	0.8259	0.8374	0.8554	0.8862	0.9446	0.9939
80	0.7436	0.7444	0.7482	0.7583	0.7665	0.7841	0.7973	0.8182	0.8539	0.9219	0.9801
85	0.6944	0.6953	0.6995	0.7111	0.7204	0.7404	0.7554	0.7792	0.8199	0.8979	0.9654
90	0.6434	0.6445	0.6492	0.6622	0.6726	0.6951	0.7120	0.7387	0.7846	0.8728	0.9498
95	0.5914	0.5926	0.5979	0.6123	0.6239	0.6488	0.6676	0.6973	0.7484	0.8470	0.9337
100	0.5388	0.5401	0.5459	0.5617	0.5745	0.6019	0.6226	0.6553	0.7117	0.8207	0.9172
105	0.4861	0.4876	0.4939	0.5111	0.5250	0.5550	0.5776	0.6133	0.6748	0.7943	0.9005
110	0.4339	0.4354	0.4422	0.4609	0.4760	0.5084	0.5328	0.5715	0.6382	0.7679	0.8837
115	0.3827	0.3843	0.3916	0.4117	0.4279	0.4627	0.4889	0.5305	0.6022	0.7419	0.8672
120	0.3329	0.3346	0.3424	0.3638	0.3810	0.4182	0.4462	0.4905	0.5672	0.7166	0.8511
125	0.2851	0.2869	0.2952	0.3178	0.3361	0.3755	0.4052	0.4522	0.5335	0.6923	0.8355
130	0.2397	0.2416	0.2504	0.2742	0.2935	0.3349	0.3662	0.4158	0.5015	0.6691	0.8206
135	0.1972	0.1993	0.2084	0.2333	0.2535	0.2969	0.3297	0.3817	0.4715	0.6474	0.8067
140	0.1580	0.1601	0.1696	0.1956	0.2166	0.2619	0.2960	0.3501	0.4438	0.6273	0.7938
145	0.1225	0.1247	0.1345	0.1614	0.1832	0.2301	0.2655	0.3216	0.4187	0.6090	0.7821
150	0.0909	0.0932	0.1033	0.1311	0.1535	0.2019	0.2383	0.2962	0.3964	0.5928	0.7717
155	0.0637	0.0660	0.0765	0.1049	0.1280	0.1775	0.2149	0.2743	0.3771	0.5789	0.7627
160	0.0411	0.0435	0.0541	0.0831	0.1067	0.1573	0.1955	0.2561	0.3611	0.5672	0.7552
165	0.0232	0.0257	0.0365	0.0660	0.0899	0.1413	0.1801	0.2418	0.3485	0.5580	0.7493
170	0.0104	0.0128	0.0238	0.0536	0.0778	0.1298	0.1691	0.2314	0.3394	0.5514	0.7450
175	0.0026	0.0051	0.0161	0.0461	0.0705	0.1229	0.1624	0.2252	0.3338	0.5474	0.7424
180	0.0000	0.0025	0.0135	0.0436	0.0680	0.1205	0.1602	0.2231	0.3320	0.5461	0.7415

RATIO OF MOTT TO RUTHERFORD SCATTERING IN V, Z=23

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0193	1.0193	1.0192	1.0189	1.0187	1.0182	1.0178	1.0171	1.0159	1.0130	1.0099
10	1.0377	1.0377	1.0375	1.0370	1.0367	1.0358	1.0352	1.0341	1.0320	1.0271	1.0218
15	1.0494	1.0493	1.0491	1.0487	1.0483	1.0474	1.0467	1.0456	1.0433	1.0377	1.0303
20	1.0570	1.0570	1.0569	1.0565	1.0562	1.0555	1.0549	1.0540	1.0520	1.0466	1.0389
25	1.0586	1.0586	1.0586	1.0585	1.0584	1.0581	1.0579	1.0574	1.0562	1.0522	1.0453
30	1.0552	1.0552	1.0553	1.0556	1.0558	1.0562	1.0565	1.0568	1.0569	1.0552	1.0500
35	1.0460	1.0461	1.0464	1.0472	1.0478	1.0491	1.0500	1.0513	1.0532	1.0548	1.0524
40	1.0317	1.0318	1.0324	1.0338	1.0349	1.0373	1.0390	1.0416	1.0457	1.0516	1.0528
45	1.0120	1.0122	1.0130	1.0152	1.0169	1.0206	1.0233	1.0275	1.0342	1.0453	1.0510
50	0.9874	0.9877	0.9888	0.9918	0.9943	0.9995	1.0033	1.0092	1.0191	1.0361	1.0472
55	0.9580	0.9584	0.9598	0.9638	0.9671	0.9739	0.9790	0.9870	1.0003	1.0241	1.0413
60	0.9243	0.9247	0.9266	0.9316	0.9357	0.9444	0.9509	0.9611	0.9782	1.0096	1.0336
65	0.8865	0.8870	0.8893	0.8955	0.9005	0.9112	0.9192	0.9318	0.9531	0.9926	1.0242
70	0.8451	0.8457	0.8484	0.8558	0.8619	0.8747	0.8843	0.8995	0.9252	0.9735	1.0131
75	0.8005	0.8012	0.8044	0.8131	0.8202	0.8353	0.8466	0.8644	0.8949	0.9524	1.0007
80	0.7531	0.7539	0.7576	0.7677	0.7758	0.7933	0.8064	0.8271	0.8624	0.9297	0.9870
85	0.7036	0.7045	0.7087	0.7202	0.7294	0.7493	0.7642	0.7878	0.8283	0.9056	0.9723
90	0.6522	0.6533	0.6580	0.6709	0.6813	0.7037	0.7205	0.7471	0.7927	0.8804	0.9567
95	0.5998	0.6010	0.6062	0.6205	0.6321	0.6570	0.6757	0.7053	0.7562	0.8544	0.9405
100	0.5466	0.5479	0.5537	0.5695	0.5822	0.6096	0.6303	0.6629	0.7191	0.8279	0.9239
105	0.4934	0.4948	0.5011	0.5183	0.5322	0.5622	0.5847	0.6204	0.6819	0.8011	0.9070
110	0.4405	0.4420	0.4488	0.4675	0.4826	0.5150	0.5394	0.5781	0.6448	0.7744	0.8902
115	0.3886	0.3903	0.3976	0.4176	0.4338	0.4687	0.4949	0.5365	0.6083	0.7482	0.8735
120	0.3381	0.3399	0.3477	0.3691	0.3864	0.4236	0.4516	0.4961	0.5728	0.7225	0.8572
125	0.2897	0.2915	0.2998	0.3225	0.3408	0.3803	0.4100	0.4572	0.5387	0.6978	0.8414
130	0.2436	0.2455	0.2543	0.2782	0.2975	0.3391	0.3704	0.4202	0.5062	0.6743	0.8264
135	0.2005	0.2025	0.2117	0.2367	0.2570	0.3005	0.3334	0.3856	0.4757	0.6522	0.8122
140	0.1606	0.1628	0.1723	0.1984	0.2195	0.2649	0.2992	0.3535	0.4475	0.6318	0.7992
145	0.1245	0.1267	0.1366	0.1636	0.1855	0.2326	0.2681	0.3245	0.4220	0.6133	0.7873
150	0.0925	0.0947	0.1049	0.1328	0.1554	0.2039	0.2406	0.2987	0.3993	0.5968	0.7767
155	0.0648	0.0671	0.0776	0.1062	0.1294	0.1792	0.2168	0.2765	0.3798	0.5826	0.7676
160	0.0418	0.0442	0.0549	0.0841	0.1077	0.1586	0.1970	0.2579	0.3635	0.5708	0.7600
165	0.0236	0.0261	0.0369	0.0666	0.0906	0.1423	0.1817	0.2433	0.3506	0.5614	0.7540
170	0.0106	0.0130	0.0240	0.0540	0.0783	0.1307	0.1701	0.2328	0.3414	0.5547	0.7496
175	0.0026	0.0051	0.0162	0.0464	0.0709	0.1235	0.1633	0.2264	0.3357	0.5506	0.7470
180	0.0000	0.0025	0.0136	0.0439	0.0684	0.1212	0.1610	0.2243	0.3339	0.5492	0.7461

RATIO OF MOTT TO RUTHERFORD SCATTERING IN CR, Z=24

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0202	1.0202	1.0200	1.0197	1.0195	1.0190	1.0185	1.0178	1.0165	1.0135	1.0099
10	1.0397	1.0396	1.0395	1.0390	1.0386	1.0377	1.0370	1.0358	1.0336	1.0283	1.0218
15	1.0524	1.0524	1.0522	1.0517	1.0512	1.0503	1.0495	1.0482	1.0457	1.0396	1.0316
20	1.0612	1.0611	1.0610	1.0606	1.0602	1.0594	1.0588	1.0576	1.0554	1.0494	1.0409
25	1.0638	1.0638	1.0637	1.0636	1.0634	1.0630	1.0627	1.0620	1.0605	1.0558	1.0480
30	1.0614	1.0614	1.0615	1.0617	1.0619	1.0621	1.0622	1.0623	1.0620	1.0595	1.0533
35	1.0531	1.0532	1.0534	1.0541	1.0547	1.0558	1.0566	1.0577	1.0592	1.0599	1.0564
40	1.0396	1.0397	1.0402	1.0415	1.0426	1.0448	1.0464	1.0488	1.0524	1.0573	1.0574
45	1.0206	1.0207	1.0215	1.0236	1.0252	1.0287	1.0313	1.0352	1.0415	1.0516	1.0561
50	0.9965	0.9968	0.9979	1.0008	1.0031	1.0081	1.0118	1.0175	1.0269	1.0429	1.0528
55	0.9676	0.9679	0.9693	0.9732	0.9763	0.9830	0.9880	0.9957	1.0085	1.0313	1.0473
60	0.9341	0.9345	0.9363	0.9413	0.9453	0.9538	0.9602	0.9701	0.9868	1.0171	1.0400
65	0.8965	0.8970	0.8992	0.9053	0.9103	0.9208	0.9287	0.9410	0.9619	1.0004	1.0308
70	0.8551	0.8557	0.8584	0.8657	0.8717	0.8843	0.8938	0.9087	0.9341	0.9814	1.0199
75	0.8104	0.8111	0.8143	0.8229	0.8299	0.8448	0.8560	0.8737	0.9037	0.9604	1.0076
80	0.7628	0.7637	0.7673	0.7773	0.7854	0.8027	0.8157	0.8362	0.8712	0.9377	0.9940
85	0.7130	0.7139	0.7181	0.7295	0.7387	0.7585	0.7733	0.7968	0.8369	0.9135	0.9794
90	0.6613	0.6623	0.6671	0.6799	0.6903	0.7125	0.7293	0.7557	0.8011	0.8882	0.9638
95	0.6084	0.6095	0.6148	0.6291	0.6406	0.6654	0.6841	0.7136	0.7643	0.8620	0.9475
100	0.5546	0.5559	0.5617	0.5775	0.5902	0.6176	0.6382	0.6708	0.7268	0.8352	0.9308
105	0.5008	0.5022	0.5085	0.5257	0.5397	0.5696	0.5921	0.6278	0.6892	0.8082	0.9139
110	0.4473	0.4488	0.4556	0.4743	0.4894	0.5218	0.5462	0.5849	0.6516	0.7813	0.8969
115	0.3947	0.3964	0.4037	0.4238	0.4400	0.4749	0.5012	0.5428	0.6147	0.7547	0.8800
120	0.3435	0.3453	0.3531	0.3746	0.3919	0.4292	0.4572	0.5018	0.5787	0.7287	0.8635
125	0.2944	0.2963	0.3046	0.3273	0.3457	0.3852	0.4151	0.4624	0.5440	0.7036	0.8476
130	0.2476	0.2496	0.2584	0.2823	0.3017	0.3434	0.3749	0.4208	0.5110	0.6797	0.8324
135	0.2038	0.2059	0.2151	0.2402	0.2605	0.3043	0.3373	0.3896	0.4801	0.6573	0.8181
140	0.1633	0.1655	0.1751	0.2012	0.2224	0.2681	0.3024	0.3571	0.4515	0.6366	0.8048
145	0.1267	0.1289	0.1388	0.1660	0.1879	0.2352	0.2709	0.3276	0.4255	0.6178	0.7928
150	0.0941	0.0963	0.1066	0.1346	0.1573	0.2061	0.2429	0.3013	0.4025	0.6010	0.7820
155	0.0659	0.0683	0.0788	0.1075	0.1308	0.1809	0.2187	0.2787	0.3826	0.5866	0.7728
160	0.0425	0.0449	0.0557	0.0850	0.1088	0.1599	0.1985	0.2598	0.3660	0.5745	0.7651
165	0.0241	0.0265	0.0374	0.0672	0.0914	0.1434	0.1827	0.2450	0.3529	0.5650	0.7590
170	0.0108	0.0132	0.0243	0.0545	0.0789	0.1315	0.1712	0.2343	0.3435	0.5582	0.7546
175	0.0027	0.0052	0.0163	0.0467	0.0713	0.1243	0.1643	0.2278	0.3378	0.5540	0.7519
180	0.0000	0.0025	0.0137	0.0441	0.0688	0.1219	0.1620	0.2256	0.3358	0.5526	0.7510

RATIO OF MOTT TO RUTHERFORD SCATTERING IN FE, Z=26

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0218	1.0218	1.0217	1.0213	1.0210	1.0204	1.0200	1.0192	1.0177	1.0143	1.0101
10	1.0436	1.0435	1.0433	1.0428	1.0423	1.0413	1.0404	1.0391	1.0366	1.0306	1.0232
15	1.0585	1.0584	1.0582	1.0576	1.0571	1.0559	1.0550	1.0535	1.0506	1.0434	1.0341
20	1.0695	1.0695	1.0693	1.0688	1.0683	1.0673	1.0664	1.0650	1.0622	1.0549	1.0448
25	1.0743	1.0743	1.0742	1.0739	1.0736	1.0729	1.0723	1.0713	1.0692	1.0629	1.0532
30	1.0740	1.0740	1.0740	1.0741	1.0741	1.0740	1.0739	1.0735	1.0725	1.0683	1.0599
35	1.0676	1.0676	1.0678	1.0683	1.0687	1.0695	1.0700	1.0706	1.0713	1.0702	1.0643
40	1.0557	1.0558	1.0562	1.0574	1.0582	1.0601	1.0614	1.0633	1.0661	1.0690	1.0666
45	1.0381	1.0382	1.0389	1.0408	1.0423	1.0454	1.0476	1.0511	1.0565	1.0645	1.0664
50	1.0152	1.0155	1.0165	1.0192	1.0214	1.0260	1.0293	1.0345	1.0430	1.0569	1.0641
55	0.9872	0.9875	0.9888	0.9925	0.9955	1.0017	1.0064	1.0136	1.0255	1.0462	1.0596
60	0.9544	0.9548	0.9565	0.9613	0.9651	0.9732	0.9792	0.9887	1.0044	1.0327	1.0530
65	0.9171	0.9176	0.9198	0.9257	0.9304	0.9406	0.9482	0.9600	0.9800	1.0165	1.0444
70	0.8759	0.8764	0.8791	0.8862	0.8920	0.9043	0.9135	0.9279	0.9524	0.9979	1.0341
75	0.8310	0.8317	0.8348	0.8433	0.8501	0.8647	0.8757	0.8929	0.9222	0.9771	1.0221
80	0.7831	0.7839	0.7875	0.7974	0.8053	0.8223	0.8351	0.8552	0.8895	0.9544	1.0087
85	0.7327	0.7336	0.7377	0.7490	0.7581	0.7776	0.7922	0.8153	0.8549	0.9301	0.9942
90	0.6802	0.6812	0.6859	0.6986	0.7089	0.7310	0.7475	0.7737	0.8186	0.9045	0.9786
95	0.6263	0.6275	0.6327	0.6469	0.6584	0.6830	0.7016	0.7309	0.7812	0.8780	0.9623
100	0.5715	0.5727	0.5785	0.5942	0.6069	0.6342	0.6547	0.6872	0.7430	0.8508	0.9355
105	0.5164	0.5178	0.5241	0.5413	0.5552	0.5851	0.6076	0.6432	0.7045	0.8232	0.9283
110	0.4615	0.4630	0.4699	0.4885	0.5036	0.5361	0.5605	0.5993	0.6660	0.7956	0.9115
115	0.4075	0.4092	0.4166	0.4367	0.4529	0.4879	0.5143	0.5561	0.6281	0.7684	0.8939
120	0.3549	0.3567	0.3645	0.3861	0.4035	0.4409	0.4691	0.5139	0.5911	0.7417	0.8771
125	0.3043	0.3062	0.3145	0.3374	0.3559	0.3957	0.4257	0.4732	0.5554	0.7160	0.8608
130	0.2561	0.2580	0.2669	0.2910	0.3105	0.3526	0.3842	0.4345	0.5214	0.6914	0.8452
135	0.2109	0.2130	0.2222	0.2475	0.2680	0.3121	0.3454	0.3982	0.4895	0.6683	0.8306
140	0.1691	0.1712	0.1809	0.2073	0.2287	0.2747	0.3094	0.3646	0.4599	0.6469	0.8170
145	0.1311	0.1334	0.1434	0.1708	0.1930	0.2408	0.2768	0.3340	0.4331	0.6246	0.8046
150	0.0974	0.0997	0.1101	0.1384	0.1613	0.2106	0.2478	0.3069	0.4092	0.6101	0.7936
155	0.0683	0.0707	0.0813	0.1104	0.1339	0.1846	0.2228	0.2835	0.3886	0.5952	0.7841
160	0.0441	0.0465	0.0574	0.0870	0.1111	0.1628	0.2019	0.2640	0.3714	0.5827	0.7762
165	0.0249	0.0274	0.0385	0.0686	0.0931	0.1457	0.1854	0.2486	0.3578	0.5729	0.7699
170	0.0112	0.0137	0.0248	0.0554	0.0801	0.1334	0.1736	0.2375	0.3481	0.5658	0.7654
175	0.0028	0.0053	0.0166	0.0473	0.0723	0.1259	0.1664	0.2307	0.3422	0.5615	0.7627
180	0.0000	0.0025	0.0138	0.0447	0.0697	0.1234	0.1640	0.2285	0.3402	0.5601	0.7617

RATIO OF MOTT TO RUTHERFORD SCATTERING IN NI, Z=28

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0234	1.0233	1.0232	1.0228	1.0225	1.0218	1.0213	1.0204	1.0188	1.0150	1.0104
10	1.0474	1.0473	1.0471	1.0465	1.0459	1.0449	1.0439	1.0423	1.0395	1.0327	1.0244
15	1.0645	1.0644	1.0642	1.0634	1.0628	1.0615	1.0604	1.0587	1.0553	1.0471	1.0364
20	1.0779	1.0779	1.0776	1.0770	1.0764	1.0751	1.0741	1.0723	1.0689	1.0602	1.0484
25	1.0850	1.0849	1.0847	1.0843	1.0839	1.0829	1.0821	1.0807	1.0779	1.0700	1.0582
30	1.0868	1.0868	1.0868	1.0866	1.0865	1.0861	1.0857	1.0849	1.0831	1.0771	1.0664
35	1.0823	1.0824	1.0825	1.0828	1.0830	1.0834	1.0837	1.0839	1.0837	1.0805	1.0722
40	1.0723	1.0724	1.0727	1.0736	1.0743	1.0758	1.0768	1.0782	1.0801	1.0809	1.0758
45	1.0562	1.0563	1.0570	1.0586	1.0599	1.0626	1.0645	1.0675	1.0719	1.0777	1.0769
50	1.0347	1.0349	1.0358	1.0383	1.0403	1.0444	1.0475	1.0522	1.0596	1.0712	1.0757
55	1.0076	1.0079	1.0092	1.0126	1.0154	1.0212	1.0255	1.0322	1.0432	1.0615	1.0722
60	0.9755	0.9759	0.9776	0.9821	0.9857	0.9934	0.9992	1.0081	1.0229	1.0488	1.0664
65	0.9387	0.9392	0.9413	0.9470	0.9515	0.9613	0.9686	0.9799	0.9989	1.0333	1.0585
70	0.8976	0.8982	0.9008	0.9077	0.9133	0.9252	0.9341	0.9481	0.9717	1.0151	1.0488
75	0.8527	0.8534	0.8564	0.8647	0.8714	0.8857	0.8963	0.9131	0.9416	0.9946	1.0373
80	0.8045	0.8053	0.8088	0.8185	0.8263	0.8430	0.8555	0.8752	0.9088	0.9720	1.0242
85	0.7535	0.7544	0.7585	0.7696	0.7785	0.7978	0.8122	0.8350	0.8739	0.9477	1.0098
90	0.7002	0.7012	0.7058	0.7184	0.7286	0.7505	0.7669	0.7928	0.8372	0.9219	0.9944
95	0.6453	0.6464	0.6516	0.6657	0.6772	0.7017	0.7201	0.7492	0.7991	0.8950	0.9781
100	0.5893	0.5906	0.5963	0.6120	0.6246	0.6518	0.6722	0.7046	0.7602	0.8673	0.9511
105	0.5329	0.5343	0.5406	0.5578	0.5717	0.6016	0.6240	0.6596	0.7208	0.8393	0.9438
110	0.4766	0.4782	0.4850	0.5037	0.5188	0.5513	0.5758	0.6146	0.6814	0.8111	0.9263
115	0.4212	0.4228	0.4302	0.4504	0.4667	0.5019	0.5283	0.5702	0.6425	0.7832	0.9089
120	0.3670	0.3688	0.3767	0.3983	0.4158	0.4535	0.4818	0.5268	0.6044	0.7558	0.8918
125	0.3148	0.3167	0.3252	0.3482	0.3668	0.4068	0.4370	0.4849	0.5677	0.7293	0.8752
130	0.2651	0.2671	0.2760	0.3003	0.3200	0.3624	0.3943	0.4450	0.5326	0.7040	0.8593
135	0.2184	0.2205	0.2299	0.2544	0.2761	0.3206	0.3542	0.4075	0.4996	0.6802	0.8443
140	0.1752	0.1773	0.1871	0.2138	0.2354	0.2819	0.3170	0.3727	0.4690	0.6592	0.8304
145	0.1359	0.1382	0.1483	0.1760	0.1985	0.2468	0.2832	0.3411	0.4413	0.6381	0.8177
150	0.1010	0.1033	0.1138	0.1424	0.1656	0.2155	0.2532	0.3130	0.4166	0.6202	0.8065
155	0.0708	0.0732	0.0840	0.1134	0.1372	0.1885	0.2272	0.2887	0.3952	0.6048	0.7967
160	0.0457	0.0482	0.0592	0.0892	0.1136	0.1660	0.2056	0.2685	0.3774	0.5919	0.7886
165	0.0259	0.0284	0.0396	0.0701	0.0949	0.1483	0.1885	0.2525	0.3634	0.5817	0.7821
170	0.0116	0.0141	0.0254	0.0564	0.0815	0.1355	0.1762	0.2410	0.3532	0.5744	0.7775
175	0.0029	0.0054	0.0169	0.0480	0.0733	0.1277	0.1688	0.2340	0.3471	0.5699	0.7747
180	0.0000	0.0026	0.0140	0.0453	0.0706	0.1251	0.1663	0.2317	0.3450	0.5684	0.7737

RATIO OF MOTT TO RUTHERFORD SCATTERING IN CU, Z=29

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0241	1.0241	1.0239	1.0236	1.0232	1.0225	1.0219	1.0210	1.0193	1.0153	1.0105
10	1.0493	1.0492	1.0490	1.0483	1.0477	1.0465	1.0455	1.0439	1.0409	1.0338	1.0249
15	1.0675	1.0674	1.0671	1.0663	1.0657	1.0643	1.0631	1.0612	1.0576	1.0488	1.0374
20	1.0821	1.0821	1.0818	1.0811	1.0804	1.0790	1.0779	1.0760	1.0723	1.0629	1.0501
25	1.0903	1.0903	1.0901	1.0895	1.0890	1.0879	1.0870	1.0854	1.0822	1.0735	1.0606
30	1.0933	1.0933	1.0932	1.0930	1.0927	1.0922	1.0917	1.0907	1.0885	1.0814	1.0696
35	1.0899	1.0899	1.0900	1.0902	1.0903	1.0906	1.0906	1.0906	1.0899	1.0858	1.0761
40	1.0808	1.0808	1.0811	1.0819	1.0826	1.0838	1.0846	1.0858	1.0872	1.0869	1.0804
45	1.0655	1.0656	1.0662	1.0677	1.0689	1.0714	1.0732	1.0758	1.0798	1.0844	1.0822
50	1.0446	1.0448	1.0457	1.0481	1.0500	1.0539	1.0568	1.0612	1.0682	1.0786	1.0816
55	1.0181	1.0184	1.0196	1.0229	1.0256	1.0312	1.0354	1.0418	1.0522	1.0694	1.0786
60	0.9865	0.9868	0.9884	0.9928	0.9964	1.0039	1.0094	1.0181	1.0324	1.0572	1.0733
65	0.9499	0.9504	0.9524	0.9580	0.9625	0.9720	0.9791	0.9902	1.0087	1.0419	1.0658
70	0.9089	0.9095	0.9120	0.9188	0.9243	0.9361	0.9448	0.9586	0.9817	1.0240	1.0564
75	0.8640	0.8647	0.8677	0.8758	0.8824	0.8965	0.9070	0.9236	0.9516	1.0037	1.0451
80	0.8156	0.8163	0.8199	0.8294	0.8372	0.8537	0.8661	0.8856	0.9188	0.9812	1.0322
85	0.7643	0.7652	0.7692	0.7803	0.7892	0.8083	0.8226	0.8452	0.8838	0.9568	1.0180
90	0.7106	0.7116	0.7162	0.7288	0.7389	0.7606	0.7770	0.8027	0.8468	0.9309	1.0226
95	0.6552	0.6563	0.6615	0.6756	0.6870	0.7114	0.7298	0.7588	0.8085	0.9039	0.9863
100	0.5986	0.5999	0.6056	0.6212	0.6339	0.6610	0.6814	0.7137	0.7692	0.8760	0.9593
105	0.5416	0.5430	0.5493	0.5664	0.5803	0.6102	0.6327	0.6682	0.7294	0.8477	0.9519
110	0.4845	0.4861	0.4929	0.5116	0.5268	0.5593	0.5838	0.6227	0.6895	0.8192	0.9344
115	0.4283	0.4300	0.4374	0.4576	0.4740	0.5092	0.5357	0.5777	0.6501	0.7910	0.9168
120	0.3734	0.3751	0.3831	0.4048	0.4223	0.4601	0.4885	0.5336	0.6114	0.7633	0.8996
125	0.3204	0.3223	0.3307	0.3538	0.3725	0.4127	0.4430	0.4911	0.5741	0.7364	0.8829
130	0.2698	0.2718	0.2808	0.3052	0.3250	0.3675	0.3996	0.4505	0.5385	0.7108	0.8668
135	0.2224	0.2245	0.2339	0.2595	0.2803	0.3251	0.3588	0.4124	0.5050	0.6866	0.8517
140	0.1784	0.1806	0.1904	0.2172	0.2389	0.2857	0.3210	0.3770	0.4739	0.6642	0.8376
145	0.1384	0.1407	0.1509	0.1788	0.2014	0.2500	0.2866	0.3449	0.4457	0.6438	0.8248
150	0.1029	0.1052	0.1158	0.1446	0.1679	0.2182	0.2561	0.3163	0.4205	0.6256	0.8134
155	0.0722	0.0746	0.0854	0.1150	0.1390	0.1907	0.2296	0.2915	0.3988	0.6099	0.8035
160	0.0466	0.0490	0.0601	0.0904	0.1149	0.1677	0.2076	0.2709	0.3807	0.5968	0.7953
165	0.0264	0.0289	0.0402	0.0710	0.0959	0.1496	0.1902	0.2547	0.3664	0.5865	0.7888
170	0.0118	0.0144	0.0258	0.0569	0.0822	0.1366	0.1777	0.2429	0.3560	0.5790	0.7840
175	0.0029	0.0055	0.0170	0.0488	0.0739	0.1287	0.1701	0.2358	0.3498	0.5745	0.7812
180	0.0000	0.0026	0.0141	0.0456	0.0711	0.1261	0.1675	0.2334	0.3477	0.5729	0.7802

RATIO OF MOTT TO RUTHERFORD SCATTERING IN ZN, Z=30

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0248	1.0248	1.0247	1.0243	1.0239	1.0232	1.0226	1.0216	1.0199	1.0156	1.0105
10	1.0511	1.0511	1.0508	1.0501	1.0495	1.0482	1.0472	1.0455	1.0423	1.0347	1.0254
15	1.0704	1.0704	1.0701	1.0692	1.0685	1.0670	1.0658	1.0638	1.0599	1.0505	1.0383
20	1.0863	1.0863	1.0860	1.0852	1.0845	1.0829	1.0817	1.0796	1.0756	1.0655	1.0517
25	1.0957	1.0956	1.0954	1.0948	1.0942	1.0929	1.0919	1.0901	1.0866	1.0769	1.0629
30	1.0999	1.0998	1.0997	1.0994	1.0991	1.0983	1.0977	1.0965	1.0938	1.0858	1.0727
35	1.0975	1.0975	1.0975	1.0976	1.0977	1.0977	1.0977	1.0974	1.0962	1.0940	1.0800
40	1.0893	1.0894	1.0897	1.0904	1.0909	1.0919	1.0926	1.0935	1.0944	1.0929	1.0850
45	1.0749	1.0750	1.0756	1.0770	1.0781	1.0803	1.0820	1.0843	1.0878	1.0912	1.0875
50	1.0548	1.0550	1.0558	1.0580	1.0598	1.0636	1.0663	1.0704	1.0768	1.0860	1.0875
55	1.0288	1.0291	1.0303	1.0335	1.0361	1.0415	1.0454	1.0516	1.0615	1.0774	1.0850
60	0.9976	0.9980	0.9995	1.0038	1.0072	1.0145	1.0199	1.0283	1.0420	1.0656	1.0802
65	0.9613	0.9618	0.9638	0.9692	0.9736	0.9830	0.9899	1.0007	1.0188	1.0508	1.0732
70	0.9205	0.9210	0.9235	0.9302	0.9356	0.9472	0.9558	0.9693	0.9919	1.0332	1.0641
75	0.8755	0.8762	0.8792	0.8872	0.8937	0.9076	0.9180	0.9344	0.9620	1.0130	1.0531
80	0.8270	0.8277	0.8312	0.8407	0.8484	0.8648	0.8770	0.8963	0.9291	0.9905	1.0404
85	0.7754	0.7763	0.7803	0.7913	0.8001	0.8191	0.8333	0.8557	0.8940	0.9662	1.0263
90	0.7213	0.7223	0.7269	0.7394	0.7495	0.7711	0.7873	0.8130	0.8568	0.9403	1.0111
95	0.6654	0.6665	0.6717	0.6857	0.6971	0.7214	0.7397	0.7686	0.8182	0.9131	0.9948
100	0.6082	0.6095	0.6152	0.6308	0.6434	0.6705	0.6909	0.7231	0.7785	0.8850	0.9778
105	0.5505	0.5519	0.5582	0.5744	0.5893	0.6191	0.6416	0.6771	0.7383	0.8564	0.9604
110	0.4927	0.4942	0.5011	0.5198	0.5350	0.5676	0.5921	0.6310	0.6979	0.8277	0.9427
115	0.4357	0.4374	0.4448	0.4650	0.4815	0.5167	0.5433	0.5854	0.6579	0.7991	0.9251
120	0.3799	0.3817	0.3897	0.4114	0.4290	0.4669	0.4954	0.5407	0.6187	0.7710	0.9077
125	0.3261	0.3280	0.3365	0.3597	0.3784	0.4188	0.4492	0.4975	0.5809	0.7438	0.8908
130	0.2747	0.2767	0.2857	0.3102	0.3301	0.3729	0.4051	0.4562	0.5447	0.7178	0.8746
135	0.2264	0.2286	0.2380	0.2638	0.2847	0.3297	0.3636	0.4175	0.5106	0.6933	0.8593
140	0.1817	0.1839	0.1938	0.2208	0.2426	0.2897	0.3251	0.3815	0.4790	0.6705	0.8452
145	0.1410	0.1433	0.1536	0.1816	0.2044	0.2533	0.2902	0.3488	0.4503	0.6498	0.8322
150	0.1048	0.1072	0.1178	0.1468	0.1703	0.2209	0.2590	0.3197	0.4247	0.6313	0.8207
155	0.0735	0.0760	0.0869	0.1167	0.1409	0.1929	0.2321	0.2945	0.4025	0.6153	0.8107
160	0.0475	0.0499	0.0611	0.0916	0.1163	0.1695	0.2097	0.2735	0.3841	0.6020	0.8223
165	0.0269	0.0294	0.0408	0.0718	0.0969	0.1511	0.1919	0.2569	0.3695	0.5915	0.7957
170	0.0120	0.0146	0.0261	0.0575	0.0830	0.1378	0.1792	0.2450	0.3590	0.5839	0.7910
175	0.0030	0.0056	0.0172	0.0488	0.0745	0.1297	0.1714	0.2377	0.3526	0.5793	0.7881
180	0.0000	0.0026	0.0142	0.0460	0.0717	0.1270	0.1688	0.2353	0.3505	0.5777	0.7871

RATIO OF MOTT TO RUTHERFORD SCATTERING IN GE, Z=32

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0262	1.0262	1.0260	1.0256	1.0252	1.0244	1.0237	1.0227	1.0207	1.0161	1.0106
10	1.0547	1.0547	1.0544	1.0536	1.0529	1.0515	1.0503	1.0485	1.0449	1.0365	1.0261
15	1.0763	1.0762	1.0759	1.0749	1.0742	1.0724	1.0710	1.0687	1.0643	1.0537	1.0400
20	1.0947	1.0946	1.0943	1.0933	1.0925	1.0907	1.0893	1.0868	1.0822	1.0705	1.0547
25	1.1065	1.1065	1.1062	1.1053	1.1046	1.1031	1.1018	1.0996	1.0952	1.0838	1.0674
30	1.1131	1.1130	1.1129	1.1123	1.1118	1.1107	1.1098	1.1081	1.1046	1.0945	1.0787
35	1.1129	1.1129	1.1129	1.1128	1.1126	1.1123	1.1119	1.1111	1.1090	1.1015	1.0876
40	1.1068	1.1069	1.1071	1.1075	1.1078	1.1084	1.1088	1.1091	1.1090	1.1051	1.0942
45	1.0942	1.0943	1.0947	1.0959	1.0968	1.0986	1.0999	1.1017	1.1040	1.1049	1.0981
50	1.0756	1.0758	1.0765	1.0785	1.0785	1.0801	1.0833	1.0857	1.0892	1.1012	1.0994
55	1.0509	1.0511	1.0522	1.0552	1.0575	1.0625	1.0661	1.0716	1.0804	1.0938	1.0982
60	1.0206	1.0209	1.0224	1.0265	1.0297	1.0365	1.0415	1.0493	1.0620	1.0831	1.0944
65	0.9850	0.9854	0.9873	0.9925	0.9967	1.0056	1.0122	1.0224	1.0394	1.0690	1.0883
70	0.9444	0.9450	0.9474	0.9539	0.9591	0.9702	0.9785	0.9914	1.0131	1.0520	1.0800
75	0.8995	0.9001	0.9030	0.9109	0.9172	0.9308	0.9409	0.9567	0.9834	1.0322	1.0696
80	0.8506	0.8514	0.8548	0.8641	0.8716	0.8877	0.8997	0.9186	0.9506	1.0101	1.0574
85	0.7985	0.7994	0.8034	0.8142	0.8229	0.8416	0.8556	0.8777	0.9152	0.9858	1.0437
90	0.7436	0.7446	0.7491	0.7615	0.7715	0.7929	0.8090	0.8343	0.8776	0.9577	1.0286
95	0.6867	0.6878	0.6929	0.7069	0.7182	0.7424	0.7606	0.7893	0.8384	0.9323	1.0125
100	0.6282	0.6295	0.6352	0.6508	0.6634	0.6904	0.7107	0.7428	0.7980	0.9039	0.9955
105	0.5691	0.5705	0.5768	0.5940	0.6079	0.6378	0.6602	0.6958	0.7569	0.8748	0.9780
110	0.5098	0.5113	0.5182	0.5370	0.5522	0.5849	0.6095	0.6484	0.7155	0.8454	0.9603
115	0.4512	0.4528	0.4603	0.4806	0.4971	0.5326	0.5592	0.6015	0.6744	0.8162	0.9425
120	0.3936	0.3954	0.4035	0.4254	0.4431	0.4812	0.5099	0.5555	0.6341	0.7874	0.9249
125	0.3381	0.3400	0.3486	0.3720	0.3909	0.4316	0.4623	0.5110	0.5951	0.7595	0.9077
130	0.2850	0.2870	0.2961	0.3209	0.3410	0.3841	0.4167	0.4684	0.5577	0.7327	0.8913
135	0.2350	0.2372	0.2467	0.2728	0.2940	0.3395	0.3738	0.4283	0.5225	0.7075	0.8757
140	0.1887	0.1909	0.2009	0.2282	0.2504	0.2980	0.3339	0.3910	0.4898	0.6840	0.8613
145	0.1465	0.1488	0.1592	0.1877	0.2107	0.2603	0.2977	0.3571	0.4601	0.6626	0.8480
150	0.1089	0.1113	0.1221	0.1515	0.1754	0.2267	0.2654	0.3269	0.4335	0.6435	0.8363
155	0.0764	0.0789	0.0900	0.1203	0.1448	0.1976	0.2374	0.3008	0.4106	0.6270	0.8260
160	0.0493	0.0519	0.0632	0.0942	0.1193	0.1733	0.2141	0.2790	0.3914	0.6132	0.8175
165	0.0279	0.0305	0.0421	0.0736	0.0991	0.1542	0.1957	0.2617	0.3763	0.6023	0.8108
170	0.0125	0.0151	0.0268	0.0587	0.0846	0.1403	0.1824	0.2493	0.3653	0.5944	0.8059
175	0.0031	0.0058	0.0175	0.0497	0.0758	0.1319	0.1744	0.2418	0.3587	0.5887	0.8030
180	0.0000	0.0027	0.0145	0.0467	0.0729	0.1292	0.1717	0.2393	0.3565	0.5881	0.8020

RATIO OF MOTT TO RUTHERFORD SCATTERING IN RB, Z=37

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0293	1.0293	1.0290	1.0285	1.0280	1.0270	1.0262	1.0249	1.0224	1.0168	1.0102
10	1.0632	1.0632	1.0628	1.0618	1.0609	1.0591	1.0576	1.0552	1.0507	1.0401	1.0271
15	1.0905	1.0904	1.0899	1.0887	1.0876	1.0853	1.0834	1.0804	1.0746	1.0607	1.0429
20	1.1154	1.1153	1.1148	1.1135	1.1123	1.1098	1.1078	1.1044	1.0979	1.0819	1.0607
25	1.1337	1.1336	1.1331	1.1318	1.1307	1.1283	1.1263	1.1230	1.1164	1.0999	1.0770
30	1.1468	1.1467	1.1463	1.1452	1.1443	1.1422	1.1405	1.1375	1.1315	1.1156	1.0924
35	1.1528	1.1527	1.1525	1.1518	1.1511	1.1497	1.1484	1.1462	1.1414	1.1275	1.1054
40	1.1525	1.1524	1.1524	1.1522	1.1520	1.1514	1.1508	1.1496	1.1466	1.1360	1.1162
45	1.1450	1.1450	1.1452	1.1457	1.1460	1.1466	1.1469	1.1471	1.1464	1.1402	1.1242
50	1.1308	1.1309	1.1314	1.1327	1.1337	1.1357	1.1371	1.1389	1.1412	1.1405	1.1294
55	1.1098	1.1100	1.1108	1.1131	1.1149	1.1185	1.1211	1.1250	1.1368	1.1368	1.1317
60	1.0824	1.0827	1.0839	1.0872	1.0899	1.0955	1.0995	1.1056	1.1153	1.1291	1.1311
65	1.0488	1.0492	1.0509	1.0554	1.0590	1.0667	1.0723	1.0810	1.0950	1.1176	1.1278
70	1.0094	1.0099	1.0121	1.0180	1.0227	1.0326	1.0400	1.0515	1.0704	1.1026	1.1219
75	0.9648	0.9655	0.9681	0.9754	0.9813	0.9938	1.0030	1.0175	1.0416	1.0843	1.1135
80	0.9155	0.9162	0.9195	0.9283	0.9354	0.9505	0.9618	0.9794	1.0092	1.0631	1.1030
85	0.8621	0.8629	0.8668	0.8772	0.8855	0.9035	0.9169	0.9379	0.9735	1.0393	1.0906
90	0.8052	0.8061	0.8106	0.8226	0.8324	0.8532	0.8688	0.8933	0.9351	1.0133	1.0765
95	0.7456	0.7467	0.7517	0.7655	0.7766	0.8004	0.8182	0.8464	0.8945	0.9854	1.0610
100	0.6838	0.6851	0.6908	0.7063	0.7188	0.7456	0.7658	0.7977	0.8522	0.9552	1.0445
105	0.6210	0.6224	0.6287	0.6459	0.6599	0.6897	0.7122	0.7478	0.8088	0.9260	1.0272
110	0.5575	0.5590	0.5660	0.5849	0.6003	0.6333	0.6581	0.6973	0.7649	0.8953	1.0094
115	0.4943	0.4960	0.5036	0.5243	0.5410	0.5770	0.6041	0.6470	0.7210	0.8645	0.9914
120	0.4321	0.4340	0.4422	0.4645	0.4826	0.5216	0.5509	0.5974	0.6776	0.8340	0.9736
125	0.3718	0.3737	0.3825	0.4065	0.4259	0.4677	0.4992	0.5492	0.6355	0.8042	0.9559
130	0.3139	0.3159	0.3253	0.3508	0.3715	0.4160	0.4496	0.5028	0.5950	0.7755	0.9391
135	0.2592	0.2614	0.2713	0.2983	0.3201	0.3672	0.4027	0.4591	0.5566	0.7484	0.9229
140	0.2083	0.2106	0.2210	0.2493	0.2723	0.3217	0.3590	0.4183	0.5210	0.7231	0.9080
145	0.1619	0.1643	0.1752	0.2047	0.2287	0.2803	0.3192	0.3811	0.4884	0.6999	0.8942
150	0.1205	0.1230	0.1342	0.1649	0.1898	0.2433	0.2837	0.3479	0.4593	0.6793	0.8819
155	0.0846	0.0872	0.0988	0.1304	0.1560	0.2112	0.2528	0.3191	0.4341	0.6613	0.8712
160	0.0547	0.0573	0.0692	0.1016	0.1278	0.1844	0.2271	0.2950	0.4130	0.6463	0.8523
165	0.0310	0.0337	0.0457	0.0788	0.1055	0.1632	0.2067	0.2760	0.3963	0.6345	0.8553
170	0.0139	0.0166	0.0288	0.0623	0.0894	0.1479	0.1920	0.2623	0.3842	0.6259	0.8501
175	0.0035	0.0062	0.0186	0.0523	0.0797	0.1386	0.1831	0.2539	0.3770	0.6207	0.8471
180	0.0000	0.0028	0.0152	0.0490	0.0764	0.1355	0.1801	0.2511	0.3745	0.6189	0.8461

RATIO OF MOTT TO RUTHERFORD SCATTERING IN ZR, Z=40

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0308	1.0308	1.0305	1.0299	1.0294	1.0282	1.0274	1.0259	1.0232	1.0169	1.0098
10	1.0679	1.0678	1.0674	1.0662	1.0653	1.0631	1.0615	1.0588	1.0536	1.0416	1.0271
15	1.0985	1.0984	1.0978	1.0964	1.0951	1.0924	1.0903	1.0868	1.0800	1.0639	1.0436
20	1.1275	1.1274	1.1268	1.1252	1.1238	1.1208	1.1184	1.1143	1.1066	1.0878	1.0630
25	1.1499	1.1498	1.1492	1.1476	1.1462	1.1432	1.1408	1.1366	1.1287	1.1087	1.0815
30	1.1673	1.1672	1.1667	1.1652	1.1640	1.1612	1.1589	1.1551	1.1475	1.1276	1.0993
35	1.1774	1.1773	1.1769	1.1758	1.1748	1.1726	1.1708	1.1676	1.1610	1.1428	1.1151
40	1.1810	1.1810	1.1808	1.1801	1.1795	1.1782	1.1769	1.1747	1.1698	1.1544	1.1286
45	1.1771	1.1771	1.1771	1.1771	1.1771	1.1768	1.1764	1.1755	1.1728	1.1617	1.1393
50	1.1661	1.1662	1.1665	1.1673	1.1679	1.1690	1.1697	1.1704	1.1706	1.1649	1.1471
55	1.1478	1.1479	1.1486	1.1504	1.1517	1.1545	1.1564	1.1592	1.1627	1.1637	1.1519
60	1.1225	1.1228	1.1238	1.1267	1.1290	1.1336	1.1370	1.1420	1.1495	1.1583	1.1536
65	1.0905	1.0909	1.0924	1.0965	1.0997	1.1066	1.1115	1.1191	1.1311	1.1488	1.1524
70	1.0522	1.0527	1.0547	1.0601	1.0645	1.0736	1.0804	1.0908	1.1078	1.1354	1.1483
75	1.0081	1.0086	1.0112	1.0181	1.0236	1.0354	1.0441	1.0576	1.0799	1.1183	1.1416
80	0.9586	0.9593	0.9624	0.9709	0.9777	0.9922	1.0030	1.0198	1.0479	1.0980	1.1324
85	0.9045	0.9054	0.9091	0.9192	0.9273	0.9447	0.9577	0.9780	1.0123	1.0747	1.1211
90	0.8464	0.8474	0.8518	0.8636	0.8731	0.8936	0.9088	0.9328	0.9735	1.0489	1.1179
95	0.7852	0.7863	0.7913	0.8049	0.8159	0.8394	0.8571	0.8849	0.9322	1.0210	1.0931
100	0.7214	0.7227	0.7283	0.7438	0.7562	0.7830	0.8030	0.8347	0.8888	0.9915	1.0772
105	0.6561	0.6575	0.6638	0.6811	0.6951	0.7250	0.7475	0.7831	0.8441	0.9607	1.0602
110	0.5899	0.5914	0.5984	0.6175	0.6330	0.6662	0.6911	0.7306	0.7985	0.9293	1.0427
115	0.5237	0.5255	0.5331	0.5540	0.5710	0.6073	0.6347	0.6781	0.7528	0.8975	1.0247
120	0.4584	0.4603	0.4686	0.4913	0.5097	0.5492	0.5790	0.6262	0.7076	0.8660	1.0069
125	0.3948	0.3968	0.4058	0.4302	0.4500	0.4925	0.5246	0.5755	0.6634	0.8351	0.9892
130	0.3336	0.3358	0.3453	0.3714	0.3925	0.4380	0.4723	0.5267	0.6208	0.8054	0.9722
135	0.2758	0.2780	0.2881	0.3158	0.3382	0.3863	0.4227	0.4805	0.5805	0.7770	0.9559
140	0.2218	0.2242	0.2348	0.2639	0.2875	0.3382	0.3765	0.4373	0.5428	0.7506	0.9407
145	0.1726	0.1750	0.1862	0.2165	0.2412	0.2942	0.3343	0.3979	0.5084	0.7263	0.9267
150	0.1285	0.1311	0.1426	0.1742	0.1998	0.2549	0.2965	0.3627	0.4776	0.7047	0.9143
155	0.0903	0.0929	0.1049	0.1374	0.1639	0.2207	0.2637	0.3321	0.4508	0.6858	0.9034
160	0.0583	0.0611	0.0733	0.1067	0.1338	0.1922	0.2363	0.3065	0.4284	0.6701	0.8943
165	0.0331	0.0358	0.0483	0.0824	0.1101	0.1696	0.2146	0.2863	0.4107	0.6576	0.8871
170	0.0148	0.0176	0.0303	0.0649	0.0929	0.1533	0.1989	0.2716	0.3979	0.6485	0.8819
175	0.0037	0.0066	0.0193	0.0542	0.0825	0.1434	0.1895	0.2628	0.3902	0.6431	0.8788
180	0.0000	0.0029	0.0157	0.0506	0.0790	0.1401	0.1863	0.2598	0.3875	0.6413	0.8777

RATIO OF MOTT TO RUTHERFORD SCATTERING IN NB, Z=41

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0313	1.0312	1.0310	1.0303	1.0298	1.0286	1.0277	1.0262	1.0233	1.0169	1.0096
10	1.0693	1.0692	1.0688	1.0676	1.0666	1.0644	1.0627	1.0598	1.0545	1.0420	1.0270
15	1.1010	1.1009	1.1004	1.0988	1.0975	1.0947	1.0925	1.0888	1.0817	1.0649	1.0436
20	1.1315	1.1313	1.1307	1.1290	1.1275	1.1243	1.1218	1.1175	1.1094	1.0896	1.0636
25	1.1553	1.1552	1.1545	1.1528	1.1513	1.1481	1.1455	1.1411	1.1327	1.1115	1.0827
30	1.1742	1.1741	1.1735	1.1719	1.1706	1.1675	1.1651	1.1609	1.1527	1.1315	1.1013
35	1.1857	1.1856	1.1852	1.1839	1.1828	1.1803	1.1783	1.1747	1.1675	1.1478	1.1180
40	1.1907	1.1907	1.1904	1.1896	1.1889	1.1872	1.1858	1.1832	1.1775	1.1605	1.1325
45	1.1881	1.1880	1.1880	1.1879	1.1877	1.1871	1.1865	1.1852	1.1818	1.1689	1.1442
50	1.1782	1.1783	1.1785	1.1792	1.1796	1.1805	1.1809	1.1812	1.1806	1.1731	1.1529
55	1.1609	1.1610	1.1616	1.1632	1.1644	1.1669	1.1686	1.1709	1.1737	1.1729	1.1586
60	1.1364	1.1367	1.1377	1.1404	1.1425	1.1469	1.1500	1.1546	1.1613	1.1683	1.1612
65	1.1050	1.1054	1.1068	1.1107	1.1139	1.1204	1.1251	1.1323	1.1436	1.1595	1.1607
70	1.0671	1.0676	1.0695	1.0748	1.0790	1.0879	1.0985	1.1045	1.1208	1.1467	1.1573
75	1.0232	1.0238	1.0262	1.0330	1.0384	1.0499	1.0584	1.0716	1.0933	1.1301	1.1511
80	0.9737	0.9744	0.9775	0.9858	0.9925	1.0068	1.0174	1.0339	1.0615	1.1101	1.1425
85	0.9195	0.9203	0.9240	0.9340	0.9420	0.9592	0.9721	0.9921	1.0259	1.0871	1.1316
90	0.8610	0.8619	0.8663	0.8780	0.8875	0.9078	0.9229	0.9467	0.9870	1.0614	1.1189
95	0.7992	0.8003	0.8053	0.8188	0.8298	0.8532	0.8708	0.8984	0.9455	1.0335	1.1043
100	0.7347	0.7360	0.7416	0.7570	0.7695	0.7962	0.8162	0.8478	0.9018	1.0040	1.0886
105	0.6685	0.6699	0.6763	0.6936	0.7075	0.7375	0.7600	0.7956	0.8566	0.9730	1.0718
110	0.6014	0.6029	0.6099	0.6291	0.6446	0.6779	0.7029	0.7425	0.8105	0.9414	1.0544
115	0.5342	0.5359	0.5436	0.5646	0.5816	0.6181	0.6456	0.6892	0.7642	0.9093	1.0365
120	0.4678	0.4696	0.4780	0.5008	0.5193	0.5590	0.5890	0.6364	0.7183	0.8775	1.0187
125	0.4030	0.4050	0.4140	0.4386	0.4585	0.5014	0.5336	0.5849	0.6734	0.8462	1.0010
130	0.3407	0.3429	0.3525	0.3787	0.4000	0.4458	0.4804	0.5352	0.6301	0.8160	0.9840
135	0.2817	0.2840	0.2942	0.3220	0.3446	0.3932	0.4299	0.4881	0.5890	0.7873	0.9677
140	0.2266	0.2290	0.2398	0.2691	0.2929	0.3441	0.3828	0.4442	0.5507	0.7605	0.9525
145	0.1763	0.1789	0.1901	0.2208	0.2457	0.2992	0.3397	0.4040	0.5156	0.7359	0.9384
150	0.1314	0.1340	0.1456	0.1775	0.2034	0.2591	0.3011	0.3680	0.4842	0.7139	0.9259
155	0.0923	0.0950	0.1071	0.1400	0.1667	0.2242	0.2676	0.3368	0.4569	0.6947	0.9150
160	0.0597	0.0624	0.0748	0.1086	0.1360	0.1950	0.2396	0.3107	0.4340	0.6787	0.9059
165	0.0338	0.0366	0.0493	0.0837	0.1117	0.1720	0.2175	0.2900	0.4160	0.6660	0.8986
170	0.0151	0.0180	0.0308	0.0658	0.0941	0.1553	0.2015	0.2750	0.4029	0.6568	0.8934
175	0.0038	0.0067	0.0196	0.0549	0.0835	0.1452	0.1918	0.2660	0.3950	0.6513	0.8903
180	0.0000	0.0029	0.0159	0.0512	0.0799	0.1418	0.1885	0.2629	0.3923	0.6494	0.8893

RATIO OF MOTT TO RUTHERFORD SCATTERING IN Mo, Z=42

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0317	1.0316	1.0314	1.0307	1.0301	1.0289	1.0280	1.0264	1.0235	1.0168	1.0094
10	1.0707	1.0706	1.0702	1.0689	1.0679	1.0656	1.0638	1.0609	1.0553	1.0423	1.0269
15	1.1035	1.1034	1.1028	1.1012	1.0999	1.0969	1.0946	1.0907	1.0833	1.0657	1.0436
20	1.1354	1.1352	1.1345	1.1327	1.1312	1.1278	1.1251	1.1207	1.1121	1.0912	1.0640
25	1.1606	1.1605	1.1598	1.1580	1.1564	1.1530	1.1502	1.1455	1.1366	1.1141	1.0838
30	1.1810	1.1809	1.1803	1.1786	1.1771	1.1738	1.1712	1.1667	1.1579	1.1352	1.1032
35	1.1941	1.1940	1.1935	1.1920	1.1908	1.1881	1.1858	1.1819	1.1740	1.1527	1.1209
40	1.2005	1.2004	1.2001	1.1991	1.1983	1.1963	1.1947	1.1917	1.1853	1.1665	1.1363
45	1.1992	1.1991	1.1990	1.1987	1.1984	1.1975	1.1967	1.1950	1.1908	1.1761	1.1490
50	1.1905	1.1906	1.1908	1.1912	1.1915	1.1920	1.1922	1.1921	1.1907	1.1813	1.1587
55	1.1742	1.1743	1.1749	1.1763	1.1774	1.1795	1.1809	1.1828	1.1848	1.1821	1.1653
60	1.1506	1.1508	1.1518	1.1543	1.1562	1.1603	1.1632	1.1674	1.1733	1.1784	1.1687
65	1.1199	1.1202	1.1216	1.1253	1.1283	1.1345	1.1390	1.1458	1.1563	1.1703	1.1691
70	1.0824	1.0828	1.0847	1.0898	1.0939	1.1025	1.1089	1.1185	1.1341	1.1582	1.1664
75	1.0387	1.0392	1.0417	1.0483	1.0536	1.0648	1.0731	1.0859	1.1069	1.1421	1.1609
80	0.9892	0.9899	0.9929	1.0011	1.0077	1.0218	1.0322	1.0484	1.0754	1.1225	1.1528
85	0.9348	0.9356	0.9393	0.9492	0.9571	0.9741	0.9868	1.0066	1.0399	1.0997	1.1424
90	0.8759	0.8769	0.8812	0.8929	0.9023	0.9224	0.9374	0.9610	1.0009	1.0742	1.1300
95	0.8136	0.8147	0.8197	0.8332	0.8441	0.8674	0.8849	0.9124	0.9591	1.0464	1.1158
100	0.7484	0.7497	0.7553	0.7707	0.7831	0.8098	0.8298	0.8613	0.9151	1.0167	1.1003
105	0.6814	0.6828	0.6891	0.7064	0.7204	0.7504	0.7729	0.8085	0.8694	0.9857	1.0837
110	0.6132	0.6148	0.6218	0.6410	0.6566	0.6899	0.7150	0.7547	0.8228	0.9538	1.0664
115	0.5450	0.5467	0.5544	0.5755	0.5926	0.6293	0.6569	0.7006	0.7759	0.9214	1.0486
120	0.4774	0.4793	0.4877	0.5107	0.5292	0.5692	0.5993	0.6470	0.7293	0.8893	1.0309
125	0.4115	0.4135	0.4226	0.4474	0.4674	0.5105	0.5430	0.5946	0.6837	0.8576	1.0133
130	0.3480	0.3502	0.3599	0.3863	0.4078	0.4540	0.4888	0.5441	0.6397	0.8271	0.9963
135	0.2878	0.2901	0.3004	0.3285	0.3513	0.4003	0.4373	0.4961	0.5979	0.7980	0.9799
140	0.2316	0.2341	0.2449	0.2745	0.2985	0.3502	0.3893	0.4513	0.5588	0.7708	0.9647
145	0.1803	0.1828	0.1942	0.2252	0.2503	0.3044	0.3453	0.4103	0.5230	0.7458	0.9506
150	0.1343	0.1370	0.1488	0.1810	0.2071	0.2634	0.3059	0.3736	0.4910	0.7234	0.9380
155	0.0944	0.0971	0.1093	0.1426	0.1696	0.2278	0.2717	0.3417	0.4632	0.7040	0.9271
160	0.0610	0.0638	0.0763	0.1105	0.1382	0.1980	0.2431	0.3150	0.4399	0.6877	0.9179
165	0.0346	0.0374	0.0502	0.0851	0.1134	0.1744	0.2205	0.2939	0.4215	0.6748	0.9107
170	0.0155	0.0184	0.0313	0.0667	0.0954	0.1573	0.2041	0.2786	0.4081	0.6654	0.9054
175	0.0039	0.0068	0.0199	0.0556	0.0846	0.1470	0.1942	0.2693	0.4000	0.6598	0.9023
180	0.0000	0.0030	0.0161	0.0519	0.0809	0.1435	0.1909	0.2662	0.3973	0.6579	0.9012

RATIO OF MOTT TO RUTHERFORD SCATTERING IN Ag, Z=47

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0333	1.0332	1.0329	1.0321	1.0315	1.0301	1.0290	1.0271	1.0237	1.0162	1.0082
10	1.0769	1.0768	1.0762	1.0747	1.0735	1.0708	1.0686	1.0651	1.0584	1.0431	1.0255
15	1.1151	1.1149	1.1142	1.1122	1.1105	1.1069	1.1040	1.0991	1.0901	1.0685	1.0422
20	1.1539	1.1537	1.1529	1.1509	1.1486	1.1443	1.1408	1.1351	1.1243	1.0980	1.0644
25	1.1867	1.1865	1.1856	1.1831	1.1811	1.1764	1.1728	1.1666	1.1548	1.1257	1.0872
30	1.2151	1.2149	1.2141	1.2116	1.2096	1.2049	1.2013	1.1950	1.1830	1.1524	1.1105
35	1.2362	1.2360	1.2352	1.2330	1.2311	1.2269	1.2234	1.2176	1.2060	1.1759	1.1329
40	1.2505	1.2503	1.2497	1.2478	1.2463	1.2427	1.2397	1.2346	1.2243	1.1959	1.1532
45	1.2565	1.2564	1.2560	1.2547	1.2536	1.2510	1.2488	1.2449	1.2365	1.2116	1.1713
50	1.2546	1.2545	1.2544	1.2539	1.2534	1.2521	1.2509	1.2485	1.2427	1.2227	1.1862
55	1.2442	1.2442	1.2444	1.2448	1.2451	1.2454	1.2454	1.2450	1.2425	1.2220	1.1980
60	1.2255	1.2257	1.2263	1.2278	1.2289	1.2312	1.2327	1.2345	1.2360	1.2303	1.2063
65	1.1987	1.1989	1.2000	1.2028	1.2050	1.2094	1.2126	1.2171	1.2232	1.2267	1.2112
70	1.1640	1.1644	1.1659	1.1702	1.1735	1.1805	1.1855	1.1930	1.2044	1.2183	1.2126
75	1.1220	1.1224	1.1246	1.1304	1.1350	1.1447	1.1518	1.1626	1.1798	1.2054	1.2109
80	1.0730	1.0736	1.0764	1.0839	1.0899	1.1026	1.1119	1.1263	1.1499	1.1883	1.2062
85	1.0179	1.0187	1.0221	1.0314	1.0389	1.0547	1.0665	1.0848	1.1151	1.1673	1.1986
90	0.9573	0.9583	0.9624	0.9736	0.9826	1.0019	1.0162	1.0386	1.0761	1.1430	1.1888
95	0.8922	0.8933	0.8982	0.9114	0.9220	0.9448	0.9618	0.9884	1.0334	1.1157	1.1766
100	0.8234	0.8246	0.8302	0.8455	0.8578	0.8842	0.9040	0.9351	0.9879	1.0861	1.1630
105	0.7518	0.7532	0.7596	0.7770	0.7910	0.8211	0.8437	0.8792	0.9400	1.0545	1.1477
110	0.6785	0.6801	0.6873	0.7068	0.7225	0.7563	0.7817	0.8219	0.8907	1.0218	1.1316
115	0.6045	0.6063	0.6142	0.6358	0.6533	0.6908	0.7190	0.7637	0.8405	0.9882	1.1147
120	0.5308	0.5328	0.5414	0.5651	0.5843	0.6255	0.6565	0.7057	0.7904	0.9545	1.0977
125	0.4585	0.4606	0.4700	0.4957	0.5165	0.5613	0.5950	0.6486	0.7410	0.9210	1.0804
130	0.3885	0.3908	0.4009	0.4286	0.4510	0.4992	0.5355	0.5933	0.6932	0.8887	1.0538
135	0.3219	0.3243	0.3351	0.3646	0.3885	0.4399	0.4788	0.5405	0.6474	0.8575	1.0476
140	0.2595	0.2620	0.2734	0.3047	0.3300	0.3845	0.4256	0.4911	0.6046	0.8284	1.0325
145	0.2022	0.2049	0.2169	0.2497	0.2762	0.3335	0.3768	0.4456	0.5652	0.8015	1.0185
150	0.1508	0.1536	0.1661	0.2003	0.2281	0.2878	0.3330	0.4009	0.5298	0.7774	1.0060
155	0.1061	0.1090	0.1220	0.1574	0.1861	0.2480	0.2948	0.3694	0.4990	0.7563	0.9949
160	0.0686	0.0716	0.0849	0.1214	0.1509	0.2147	0.2629	0.3396	0.4731	0.7387	0.9858
165	0.0389	0.0420	0.0556	0.0929	0.1231	0.1882	0.2375	0.3160	0.4527	0.7247	0.9784
170	0.0174	0.0205	0.0344	0.0722	0.1029	0.1691	0.2191	0.2989	0.4378	0.7145	0.9731
175	0.0044	0.0075	0.0215	0.0597	0.0907	0.1575	0.2081	0.2886	0.4289	0.7094	0.9700
180	0.0000	0.0032	0.0172	0.0555	0.0866	0.1536	0.2043	0.2851	0.4258	0.7064	0.9691

RATIO OF MOTT TO RUTHERFORD SCATTERING IN SN, Z=50

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0339	1.0338	1.0335	1.0326	1.0319	1.0304	1.0292	1.0272	1.0236	1.0156	1.0075
10	1.0799	1.0798	1.0792	1.0775	1.0762	1.0731	1.0708	1.0668	1.0596	1.0429	1.0244
15	1.1211	1.1209	1.1201	1.1178	1.1160	1.1118	1.1086	1.1032	1.0930	1.0691	1.0405
20	1.1641	1.1639	1.1629	1.1603	1.1580	1.1531	1.1492	1.1427	1.1303	1.1005	1.0632
25	1.2016	1.2014	1.2003	1.1974	1.1950	1.1896	1.1854	1.1782	1.1646	1.1310	1.0875
30	1.2352	1.2350	1.2339	1.2310	1.2285	1.2230	1.2186	1.2112	1.1969	1.1611	1.1128
35	1.2615	1.2613	1.2603	1.2576	1.2552	1.2500	1.2457	1.2386	1.2245	1.1884	1.1380
40	1.2811	1.2809	1.2800	1.2776	1.2755	1.2708	1.2670	1.2605	1.2474	1.2124	1.1614
45	1.2922	1.2920	1.2914	1.2895	1.2879	1.2841	1.2810	1.2755	1.2642	1.2323	1.1830
50	1.2950	1.2949	1.2945	1.2933	1.2923	1.2898	1.2876	1.2836	1.2747	1.2474	1.2013
55	1.2888	1.2888	1.2887	1.2885	1.2882	1.2873	1.2863	1.2842	1.2786	1.2575	1.2166
60	1.2738	1.2739	1.2742	1.2751	1.2757	1.2767	1.2771	1.2773	1.2757	1.2623	1.2282
65	1.2499	1.2501	1.2509	1.2530	1.2547	1.2579	1.2601	1.2630	1.2660	1.2620	1.2363
70	1.2175	1.2178	1.2191	1.2227	1.2255	1.2313	1.2354	1.2413	1.2498	1.2564	1.2408
75	1.1769	1.1773	1.1792	1.1844	1.1886	1.1972	1.2034	1.2128	1.2272	1.2459	1.2418
80	1.1286	1.1292	1.1317	1.1387	1.1443	1.1560	1.1646	1.1777	1.1987	1.2308	1.2396
85	1.0734	1.0741	1.0774	1.0862	1.0933	1.1084	1.1195	1.1367	1.1648	1.2113	1.2342
90	1.0119	1.0128	1.0168	1.0277	1.0364	1.0550	1.0689	1.0904	1.1261	1.1882	1.2264
95	0.9452	0.9463	0.9510	0.9640	0.9745	0.9968	1.0134	1.0394	1.0831	1.1615	1.2160
100	0.8741	0.8753	0.8809	0.8961	0.9083	0.9345	0.9541	0.9848	1.0368	1.1323	1.2038
105	0.7997	0.8011	0.8075	0.8249	0.8389	0.8690	0.8916	0.9271	0.9876	1.1006	1.1898
110	0.7230	0.7246	0.7318	0.7515	0.7674	0.8015	0.8271	0.8676	0.9367	1.0575	1.1748
115	0.6452	0.6470	0.6550	0.6770	0.6947	0.7328	0.7615	0.8068	0.8845	1.0333	1.1587
120	0.5674	0.5694	0.5783	0.6025	0.6220	0.6641	0.6958	0.7459	0.8323	0.9989	1.1925
125	0.4908	0.4929	0.5026	0.5290	0.5503	0.5962	0.6308	0.6857	0.7804	0.9644	1.1258
130	0.4164	0.4187	0.4292	0.4576	0.4807	0.5304	0.5678	0.6273	0.7301	0.9310	1.1197
135	0.3453	0.3478	0.3590	0.3895	0.4142	0.4673	0.5075	0.5713	0.6817	0.8986	1.0939
140	0.2787	0.2813	0.2932	0.3255	0.3517	0.4082	0.4509	0.5187	0.6364	0.8684	1.0791
145	0.2173	0.2201	0.2326	0.2666	0.2943	0.3538	0.3987	0.4703	0.5945	0.8403	1.0653
150	0.1623	0.1652	0.1782	0.2138	0.2427	0.3049	0.3519	0.4268	0.5570	0.8151	1.0530
155	0.1142	0.1172	0.1307	0.1677	0.1976	0.2622	0.3110	0.3888	0.5241	0.7930	1.0421
160	0.0739	0.0770	0.0909	0.1290	0.1599	0.2264	0.2768	0.3570	0.4966	0.7745	1.0330
165	0.0420	0.0451	0.0594	0.0983	0.1299	0.1980	0.2496	0.3317	0.4748	0.7598	1.0258
170	0.0188	0.0220	0.0365	0.0760	0.1082	0.1774	0.2298	0.3133	0.4588	0.7491	1.0205
175	0.0048	0.0080	0.0227	0.0626	0.0951	0.1650	0.2179	0.3023	0.4494	0.7428	1.0174
180	0.0000	0.0033	0.0180	0.0581	0.0906	0.1608	0.2139	0.2985	0.4461	0.7406	1.0165

RATIO OF MOTT TO RUTHERFORD SCATTERING IN CS, Z=55

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0342	1.0341	1.0338	1.0328	1.0320	1.0303	1.0290	1.0268	1.0228	1.0143	1.0064
10	1.0836	1.0835	1.0828	1.0808	1.0793	1.0757	1.0730	1.0685	1.0602	1.0415	1.0222
15	1.1292	1.1290	1.1280	1.1254	1.1231	1.1182	1.1143	1.1079	1.0959	1.0680	1.0364
20	1.1791	1.1789	1.1777	1.1744	1.1717	1.1656	1.1608	1.1529	1.1378	1.1021	1.0589
25	1.2246	1.2243	1.2230	1.2194	1.2163	1.2095	1.2042	1.1952	1.1781	1.1368	1.0848
30	1.2673	1.2670	1.2656	1.2618	1.2586	1.2514	1.2457	1.2361	1.2177	1.1723	1.1130
35	1.3033	1.3030	1.3016	1.2978	1.2946	1.2875	1.2817	1.2721	1.2534	1.2063	1.1426
40	1.3326	1.3323	1.3311	1.3275	1.3245	1.3176	1.3122	1.3029	1.2846	1.2373	1.1711
45	1.3534	1.3531	1.3520	1.3489	1.3462	1.3402	1.3353	1.3269	1.3100	1.2647	1.1986
50	1.3653	1.3651	1.3642	1.3617	1.3596	1.3547	1.3507	1.3435	1.3288	1.2873	1.2231
55	1.3675	1.3674	1.3668	1.3652	1.3638	1.3605	1.3575	1.3522	1.3406	1.3048	1.2449
60	1.3598	1.3598	1.3596	1.3591	1.3586	1.3572	1.3557	1.3526	1.3449	1.3166	1.2628
65	1.3421	1.3422	1.3425	1.3433	1.3439	1.3447	1.3449	1.3446	1.3416	1.3226	1.2771
70	1.3145	1.3147	1.3156	1.3179	1.3197	1.3231	1.3254	1.3283	1.3308	1.3229	1.2875
75	1.2773	1.2776	1.2792	1.2832	1.2863	1.2928	1.2973	1.3037	1.3126	1.3174	1.2940
80	1.2310	1.2315	1.2337	1.2396	1.2443	1.2540	1.2610	1.2716	1.2875	1.3066	1.2969
85	1.1761	1.1768	1.1798	1.1877	1.1941	1.2074	1.2172	1.2321	1.2557	1.2905	1.2922
90	1.1137	1.1145	1.1183	1.1284	1.1366	1.1538	1.1665	1.1862	1.2182	1.2701	1.2926
95	1.0444	1.0454	1.0500	1.0625	1.0726	1.0939	1.1097	1.1344	1.1752	1.2453	1.2859
100	0.9696	0.9708	0.9763	0.9912	1.0032	1.0289	1.0480	1.0779	1.1280	1.2173	1.2771
105	0.8901	0.8915	0.8979	0.9153	0.9294	0.9595	0.9819	1.0172	1.0769	1.1860	1.2660
110	0.8074	0.8091	0.8164	0.8364	0.8526	0.8871	0.9131	0.9539	1.0234	1.1529	1.2536
115	0.7227	0.7245	0.7328	0.7553	0.7736	0.8127	0.8421	0.8885	0.9678	1.1179	1.2397
120	0.6374	0.6394	0.6486	0.6737	0.6941	0.7377	0.7706	0.8225	0.9118	1.0825	1.2254
125	0.5526	0.5548	0.5650	0.5926	0.6150	0.6630	0.6993	0.7567	0.8556	1.0465	1.2104
130	0.4700	0.4724	0.4834	0.5135	0.5378	0.5902	0.6298	0.6925	0.8008	1.0115	1.1958
135	0.3905	0.3931	0.4050	0.4374	0.4636	0.5201	0.5627	0.6305	0.7477	0.9772	1.1811
140	0.3157	0.3186	0.3312	0.3658	0.3938	0.4541	0.4997	0.5722	0.6978	0.9451	1.1674
145	0.2466	0.2496	0.2630	0.2995	0.3291	0.3930	0.4413	0.5181	0.6515	0.9150	1.1544
150	0.1844	0.1875	0.2015	0.2399	0.2710	0.3380	0.3887	0.4695	0.6098	0.8880	1.1428
155	0.1299	0.1332	0.1478	0.1877	0.2201	0.2899	0.3427	0.4268	0.5733	0.8643	1.1325
160	0.0842	0.0875	0.1026	0.1438	0.1773	0.2494	0.3040	0.3910	0.5425	0.8443	1.1239
165	0.0478	0.0513	0.0667	0.1090	0.1433	0.2172	0.2732	0.3625	0.5181	0.8284	1.1170
170	0.0214	0.0249	0.0406	0.0836	0.1185	0.1938	0.2508	0.3417	0.5003	0.8168	1.1120
175	0.0055	0.0090	0.0249	0.0684	0.1037	0.1798	0.2374	0.3294	0.4897	0.8100	1.1090
180	0.0000	0.0036	0.0195	0.0632	0.0986	0.1750	0.2328	0.3251	0.4860	0.8077	1.1083

RATIO OF MOTT TO RUTHERFORD SCATTERING IN ND, Z=60

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0338	1.0337	1.0333	1.0323	1.0314	1.0295	1.0281	1.0257	1.0215	1.0128	1.0054
10	1.0856	1.0854	1.0846	1.0824	1.0806	1.0766	1.0736	1.0685	1.0592	1.0392	1.0201
15	1.1347	1.1344	1.1333	1.1302	1.1276	1.1218	1.1173	1.1098	1.0960	1.0647	1.0314
20	1.1910	1.1907	1.1893	1.1853	1.1820	1.1748	1.1690	1.1596	1.1417	1.1001	1.0521
25	1.2445	1.2442	1.2425	1.2380	1.2343	1.2259	1.2194	1.2084	1.1876	1.1382	1.0784
30	1.2968	1.2964	1.2947	1.2898	1.2857	1.2766	1.2694	1.2574	1.2344	1.1786	1.1082
35	1.3434	1.3430	1.3412	1.3362	1.3320	1.3226	1.3152	1.3027	1.2787	1.2192	1.1416
40	1.3838	1.3834	1.3816	1.3767	1.3725	1.3633	1.3559	1.3434	1.3191	1.2576	1.1748
45	1.4158	1.4154	1.4138	1.4092	1.4053	1.3966	1.3896	1.3777	1.3542	1.2934	1.2084
50	1.4385	1.4382	1.4368	1.4328	1.4294	1.4216	1.4153	1.4044	1.3827	1.3244	1.2394
55	1.4510	1.4508	1.4496	1.4464	1.4437	1.4374	1.4321	1.4229	1.4039	1.3505	1.2683
60	1.4526	1.4525	1.4517	1.4496	1.4477	1.4437	1.4394	1.4323	1.4171	1.3706	1.2935
65	1.4430	1.4429	1.4427	1.4419	1.4411	1.4389	1.4367	1.4325	1.4219	1.3846	1.3151
70	1.4220	1.4221	1.4224	1.4231	1.4236	1.4241	1.4241	1.4231	1.4182	1.3921	1.3325
75	1.3898	1.3900	1.3910	1.3935	1.3954	1.3991	1.4014	1.4042	1.4060	1.3932	1.3458
80	1.3467	1.3471	1.3488	1.3534	1.3569	1.3641	1.3692	1.3763	1.3857	1.3881	1.3552
85	1.2933	1.2939	1.2964	1.3032	1.3086	1.3197	1.3277	1.3396	1.3573	1.3768	1.3604
90	1.2306	1.2313	1.2348	1.2440	1.2513	1.2667	1.2780	1.2951	1.3220	1.3604	1.3624
95	1.1592	1.1602	1.1645	1.1763	1.1858	1.2057	1.2204	1.2431	1.2799	1.3386	1.3608
100	1.0807	1.0819	1.0872	1.1018	1.1134	1.1383	1.1566	1.1852	1.2325	1.3128	1.3566
105	0.9959	0.9973	1.0037	1.0211	1.0351	1.0649	1.0871	1.1218	1.1799	1.2828	1.3497
110	0.9068	0.9084	0.9159	0.9362	0.9525	0.9875	1.0136	1.0547	1.1241	1.2504	1.3410
115	0.8142	0.8161	0.8246	0.8478	0.8666	0.9068	0.9369	0.9844	1.0651	1.2154	1.3306
120	0.7203	0.7225	0.7321	0.7583	0.7794	0.8249	0.8590	0.9129	1.0052	1.1794	1.3193
125	0.6262	0.6286	0.6392	0.6683	0.6919	0.7425	0.7805	0.8408	0.9443	1.1423	1.3070
130	0.5340	0.5366	0.5483	0.5802	0.6061	0.6617	0.7036	0.7701	0.8846	1.1059	1.2946
135	0.4446	0.4475	0.4601	0.4948	0.5229	0.5833	0.6289	0.7013	0.8264	1.0699	1.2822
140	0.3603	0.3633	0.3769	0.4141	0.4443	0.5092	0.5583	0.6363	0.7714	1.0360	1.2702
145	0.2818	0.2851	0.2995	0.3391	0.3712	0.4403	0.4925	0.5757	0.7200	1.0040	1.2589
150	0.2111	0.2145	0.2297	0.2714	0.3052	0.3781	0.4332	0.5210	0.6736	0.9753	1.2486
155	0.1489	0.1525	0.1684	0.2119	0.2472	0.3234	0.3811	0.4729	0.6327	0.9498	1.2395
160	0.0966	0.1002	0.1167	0.1618	0.1984	0.2774	0.3371	0.4324	0.5983	0.9284	1.2316
165	0.0549	0.0587	0.0756	0.1220	0.1596	0.2407	0.3022	0.4002	0.5709	0.9113	1.2256
170	0.0245	0.0284	0.0456	0.0929	0.1312	0.2139	0.2766	0.3765	0.5509	0.8987	1.2211
175	0.0064	0.0103	0.0277	0.0755	0.1143	0.1980	0.2614	0.3626	0.5390	0.8914	1.2184
180	0.0000	0.0040	0.0215	0.0695	0.1084	0.1924	0.2561	0.3577	0.5349	0.8990	1.2176

RATIO OF MOTT TO RUTHERFORD SCATTERING IN TB, Z=65

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0327	1.0326	1.0322	1.0311	1.0302	1.0282	1.0267	1.0242	1.0199	1.0114	1.0048
10	1.0857	1.0855	1.0846	1.0822	1.0802	1.0758	1.0724	1.0669	1.0570	1.0363	1.0187
15	1.1371	1.1368	1.1355	1.1319	1.1289	1.1224	1.1173	1.1088	1.0933	1.0593	1.0262
20	1.1990	1.1986	1.1969	1.1923	1.1884	1.1799	1.1732	1.1622	1.1416	1.0945	1.0436
25	1.2603	1.2598	1.2579	1.2524	1.2479	1.2379	1.2300	1.2169	1.1923	1.1348	1.0687
30	1.3224	1.3219	1.3197	1.3136	1.3086	1.2974	1.2886	1.2738	1.2459	1.1792	1.0986
35	1.3803	1.3798	1.3775	1.3712	1.3658	1.3546	1.3446	1.3289	1.2989	1.2260	1.1347
40	1.4330	1.4325	1.4302	1.4237	1.4183	1.4062	1.3965	1.3803	1.3491	1.2719	1.1718
45	1.4780	1.4775	1.4753	1.4689	1.4637	1.4518	1.4423	1.4263	1.3951	1.3165	1.2111
50	1.5136	1.5132	1.5111	1.5052	1.5002	1.4891	1.4801	1.4648	1.4347	1.3568	1.2488
55	1.5386	1.5382	1.5364	1.5313	1.5269	1.5170	1.5089	1.4950	1.4672	1.3928	1.2853
60	1.5518	1.5515	1.5500	1.5459	1.5423	1.5341	1.5274	1.5155	1.4910	1.4226	1.3185
65	1.5526	1.5523	1.5514	1.5485	1.5460	1.5401	1.5350	1.5258	1.5060	1.4462	1.3484
70	1.5404	1.5403	1.5399	1.5386	1.5374	1.5343	1.5313	1.5255	1.5114	1.4627	1.3741
75	1.5151	1.5152	1.5155	1.5161	1.5164	1.5166	1.5161	1.5142	1.5071	1.4721	1.3955
80	1.4771	1.4774	1.4785	1.4813	1.4834	1.4873	1.4897	1.4925	1.4934	1.4745	1.4127
85	1.4266	1.4271	1.4290	1.4342	1.4383	1.4465	1.4522	1.4601	1.4701	1.4698	1.4256
90	1.3647	1.3654	1.3683	1.3762	1.3825	1.3954	1.4047	1.4184	1.4385	1.4589	1.4345
95	1.2919	1.2928	1.2968	1.3076	1.3162	1.3342	1.3474	1.3673	1.3985	1.4415	1.4396
100	1.2101	1.2112	1.2164	1.2303	1.2414	1.2649	1.2822	1.3088	1.3518	1.4193	1.4415
105	1.1199	1.1213	1.1276	1.1447	1.1585	1.1877	1.2093	1.2429	1.2984	1.3918	1.4404
110	1.0238	1.0255	1.0330	1.0535	1.0700	1.1051	1.1313	1.1722	1.2407	1.3611	1.4369
115	0.9225	0.9245	0.9333	0.9572	0.9764	1.0177	1.0485	1.0968	1.1785	1.3268	1.4313
120	0.8190	0.8212	0.8313	0.8586	0.8807	0.9281	0.9636	1.0195	1.1146	1.2910	1.4243
125	0.7141	0.7166	0.7279	0.7586	0.7835	0.8369	0.8770	0.9404	1.0488	1.2534	1.4161
130	0.6106	0.6134	0.6259	0.6600	0.6877	0.7470	0.7917	0.8624	0.9839	1.2160	1.4073
135	0.5097	0.5127	0.5264	0.5637	0.5940	0.6590	0.7080	0.7858	0.9199	1.1787	1.3982
140	0.4139	0.4172	0.4320	0.4724	0.5051	0.5756	0.6287	0.7132	0.8592	1.1432	1.3890
145	0.3244	0.3279	0.3437	0.3869	0.4219	0.4974	0.5543	0.6450	0.8020	1.1096	1.3803
150	0.2434	0.2471	0.2638	0.3096	0.3467	0.4266	0.4871	0.5833	0.7503	1.0791	1.3722
155	0.1719	0.1758	0.1934	0.2413	0.2802	0.3642	0.4276	0.5287	0.7045	1.0520	1.3650
160	0.1116	0.1157	0.1339	0.1837	0.2242	0.3114	0.3774	0.4827	0.6659	1.0291	1.3588
165	0.0636	0.0678	0.0865	0.1378	0.1795	0.2694	0.3375	0.4460	0.6351	1.0108	1.3538
170	0.0283	0.0326	0.0518	0.1042	0.1467	0.2386	0.3081	0.4190	0.6124	0.9973	1.3502
175	0.0074	0.0118	0.0312	0.0842	0.1273	0.2203	0.2908	0.4031	0.5991	0.9894	1.3479
180	0.0000	0.0044	0.0239	0.0772	0.1205	0.2139	0.2846	0.3975	0.5944	0.9869	1.3472

RATIO OF MOTT TO RUTHERFORD SCATTERING IN YB, Z=70

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0311	1.0310	1.0306	1.0295	1.0285	1.0265	1.0249	1.0224	1.0182	1.0102	1.0042
10	1.0840	1.0838	1.0829	1.0803	1.0781	1.0735	1.0699	1.0641	1.0537	1.0333	1.0184
15	1.1362	1.1358	1.1344	1.1304	1.1270	1.1197	1.1141	1.1048	1.0880	1.0526	1.0218
20	1.2023	1.2019	1.1999	1.1946	1.1902	1.1804	1.1728	1.1602	1.1370	1.0857	1.0344
25	1.2707	1.2702	1.2679	1.2614	1.2561	1.2443	1.2351	1.2198	1.1914	1.1265	1.0566
30	1.3424	1.3418	1.3392	1.3319	1.3258	1.3123	1.3017	1.2841	1.2509	1.1734	1.0846
35	1.4125	1.4118	1.4090	1.4010	1.3945	1.3798	1.3683	1.3490	1.3125	1.2257	1.1217
40	1.4786	1.4780	1.4750	1.4667	1.4598	1.4444	1.4322	1.4118	1.3729	1.2786	1.1616
45	1.5383	1.5377	1.5347	1.5263	1.5194	1.5038	1.4915	1.4707	1.4307	1.3323	1.2058
50	1.5890	1.5883	1.5854	1.5773	1.5705	1.5553	1.5432	1.5226	1.4828	1.3826	1.2499
55	1.6290	1.6284	1.6257	1.6182	1.6119	1.5976	1.5862	1.5667	1.5283	1.4296	1.2949
60	1.6564	1.6559	1.6536	1.6470	1.6414	1.6287	1.6183	1.6006	1.5650	1.4707	1.3359
65	1.6704	1.6700	1.6681	1.6627	1.6581	1.6476	1.6389	1.6236	1.5924	1.5056	1.3749
70	1.6697	1.6695	1.6682	1.6644	1.6612	1.6534	1.6468	1.6349	1.6093	1.5330	1.4401
75	1.6541	1.6539	1.6534	1.6516	1.6499	1.6456	1.6415	1.6337	1.6152	1.5527	1.4811
80	1.6235	1.6236	1.6238	1.6244	1.6246	1.6243	1.6233	1.6204	1.6104	1.5647	1.4877
85	1.5778	1.5781	1.5793	1.5825	1.5848	1.5892	1.5918	1.5945	1.5944	1.5685	1.4897
90	1.5184	1.5189	1.5212	1.5273	1.5321	1.5417	1.5482	1.5584	1.5684	1.5651	1.5075
95	1.4452	1.4460	1.4495	1.4589	1.4663	1.4816	1.4925	1.5085	1.5320	1.5540	1.5211
100	1.3607	1.3618	1.3666	1.3795	1.3897	1.4112	1.4269	1.4505	1.4874	1.5370	1.5308
105	1.2652	1.2665	1.2727	1.2893	1.3026	1.3306	1.3513	1.3830	1.4342	1.5136	1.5373
110	1.1618	1.1634	1.1710	1.1915	1.2080	1.2429	1.2688	1.3090	1.3752	1.4859	1.5408
115	1.0510	1.0530	1.0620	1.0865	1.1062	1.1483	1.1796	1.2285	1.3103	1.4535	1.5419
120	0.9366	0.9389	0.9494	0.9780	1.0010	1.0503	1.0871	1.1449	1.2425	1.4188	1.5408
125	0.8192	0.8219	0.8339	0.8665	0.8928	0.9493	0.9916	1.0583	1.1717	1.3815	1.5384
130	0.7028	0.7058	0.7192	0.7558	0.7854	0.8490	0.8967	0.9722	1.1012	1.3438	1.5346
135	0.5881	0.5914	0.6062	0.6467	0.6795	0.7498	0.8028	0.8867	1.0309	1.3057	1.5303
140	0.4788	0.4824	0.4986	0.5427	0.5785	0.6554	0.7133	0.8053	0.9638	1.2691	1.5253
145	0.3760	0.3799	0.3973	0.4448	0.4833	0.5663	0.6288	0.7283	0.9002	1.2340	1.5205
150	0.2826	0.2868	0.3053	0.3559	0.3969	0.4853	0.5521	0.6584	0.8424	1.2020	1.5156
155	0.2000	0.2043	0.2238	0.2771	0.3204	0.4136	0.4841	0.5962	0.7910	1.1734	1.5113
160	0.1300	0.1345	0.1548	0.2104	0.2555	0.3528	0.4264	0.5437	0.7474	1.1491	1.5074
165	0.0741	0.0788	0.0998	0.1572	0.2038	0.3043	0.3804	0.5017	0.7126	1.1297	1.5042
170	0.0330	0.0378	0.0593	0.1180	0.1657	0.2686	0.3465	0.4707	0.6870	1.1153	1.5020
175	0.0087	0.0136	0.0354	0.0949	0.1433	0.2476	0.3266	0.4525	0.6719	1.1068	1.5004
180	0.0001	0.0049	0.0268	0.0866	0.1352	0.2401	0.3195	0.4461	0.6667	1.1041	1.4996

RATIO OF MOTT TO RUTHERFORD SCATTERING IN HF, Z=72

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0304	1.0303	1.0299	1.0287	1.0278	1.0257	1.0242	1.0217	1.0175	1.0098	1.0040
10	1.0829	1.0827	1.0817	1.0791	1.0769	1.0721	1.0685	1.0626	1.0523	1.0323	1.0187
15	1.1348	1.1345	1.1330	1.1288	1.1254	1.1178	1.1120	1.1024	1.0853	1.0496	1.0205
20	1.2022	1.2017	1.1997	1.1941	1.1894	1.1792	1.1712	1.1581	1.1340	1.0814	1.0308
25	1.2731	1.2726	1.2701	1.2633	1.2576	1.2451	1.2354	1.2192	1.1893	1.1218	1.0513
30	1.3486	1.3479	1.3451	1.3372	1.3307	1.3163	1.3049	1.2861	1.2508	1.1692	1.0780
35	1.4235	1.4228	1.4197	1.4111	1.4040	1.3882	1.3757	1.3549	1.3157	1.2233	1.1149
40	1.4953	1.4946	1.4913	1.4823	1.4747	1.4579	1.4446	1.4224	1.3801	1.2788	1.1554
45	1.5614	1.5607	1.5574	1.5481	1.5404	1.5233	1.5096	1.4868	1.4430	1.3361	1.2012
50	1.6187	1.6179	1.6147	1.6056	1.5980	1.5810	1.5674	1.5445	1.5004	1.3906	1.2477
55	1.6655	1.6648	1.6618	1.6532	1.6460	1.6298	1.6168	1.5947	1.5517	1.4423	1.2949
60	1.6995	1.6989	1.6961	1.6884	1.6819	1.6671	1.6551	1.6347	1.5941	1.4882	1.3403
65	1.7196	1.7191	1.7168	1.7103	1.7047	1.6920	1.6817	1.6636	1.6272	1.5281	1.3831
70	1.7245	1.7242	1.7224	1.7175	1.7133	1.7034	1.6951	1.6803	1.6494	1.5605	1.4224
75	1.7136	1.7133	1.7123	1.7094	1.7068	1.7003	1.6946	1.6840	1.6602	1.5850	1.4576
80	1.6868	1.6867	1.6866	1.6860	1.6853	1.6830	1.6805	1.6749	1.6598	1.6015	1.4884
85	1.6437	1.6439	1.6448	1.6470	1.6485	1.6509	1.6520	1.6522	1.6473	1.6093	1.5446
90	1.5858	1.5863	1.5883	1.5935	1.5976	1.6055	1.6107	1.6175	1.6242	1.6095	1.5364
95	1.5129	1.5137	1.5169	1.5256	1.5324	1.5463	1.5561	1.5702	1.5898	1.6016	1.5540
100	1.4276	1.4287	1.4333	1.4456	1.4554	1.4759	1.4906	1.5128	1.5465	1.5872	1.5675
105	1.3300	1.3314	1.3374	1.3537	1.3667	1.3941	1.4142	1.4449	1.4937	1.5659	1.5776
110	1.2237	1.2253	1.2329	1.2533	1.2697	1.3044	1.3301	1.3698	1.4346	1.5399	1.5844
115	1.1089	1.1109	1.1200	1.1447	1.1646	1.2069	1.2383	1.2873	1.3687	1.5088	1.5888
120	0.9897	0.9921	1.0028	1.0319	1.0553	1.1053	1.1426	1.2011	1.2994	1.4748	1.5806
125	0.8669	0.8697	0.8819	0.9153	0.9423	1.0000	1.0433	1.1113	1.2266	1.4380	1.5911
130	0.7447	0.7478	0.7616	0.7993	0.8298	0.8951	0.9442	1.0216	1.1537	1.4004	1.5898
135	0.6239	0.6273	0.6426	0.6845	0.7183	0.7911	0.8458	0.9324	1.0808	1.3621	1.5880
140	0.5085	0.5122	0.5290	0.5748	0.6119	0.6917	0.7518	0.8470	1.0110	1.3252	1.5851
145	0.3996	0.4037	0.4218	0.4713	0.5114	0.5977	0.6628	0.7661	0.9446	1.2897	1.5823
150	0.3007	0.3050	0.3243	0.3771	0.4199	0.5122	0.5818	0.6925	0.8842	1.2572	1.5790
155	0.2128	0.2174	0.2378	0.2935	0.3387	0.4362	0.5098	0.6270	0.8302	1.2280	1.5762
160	0.1384	0.1431	0.1644	0.2227	0.2699	0.3718	0.4488	0.5715	0.7846	1.2033	1.5735
165	0.0790	0.0839	0.1059	0.1661	0.2150	0.3204	0.4001	0.5271	0.7480	1.1833	1.5713
170	0.0352	0.0402	0.0628	0.1244	0.1745	0.2824	0.3641	0.4944	0.7210	1.1687	1.5697
175	0.0093	0.0144	0.0373	0.0998	0.1506	0.2601	0.3430	0.4751	0.7051	1.1600	1.5685
180	0.0001	0.0052	0.0282	0.0910	0.1420	0.2521	0.3354	0.4683	0.6996	1.1571	1.5678

RATIO OF MOTT TO RUTHERFORD SCATTERING IN TA, Z=73

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0300	1.0299	1.0295	1.0283	1.0274	1.0254	1.0238	1.0214	1.0172	1.0096	1.0039
10	1.0823	1.0821	1.0811	1.0784	1.0762	1.0714	1.0677	1.0618	1.0515	1.0318	1.0189
15	1.1339	1.1336	1.1321	1.1278	1.1243	1.1166	1.1107	1.1011	1.0837	1.0482	1.0200
20	1.2018	1.2013	1.1993	1.1935	1.1888	1.1783	1.1701	1.1567	1.1322	1.0791	1.0291
25	1.2739	1.2733	1.2708	1.2638	1.2580	1.2451	1.2351	1.2185	1.1879	1.1192	1.0486
30	1.3512	1.3505	1.3476	1.3395	1.3327	1.3178	1.3061	1.2866	1.2503	1.1667	1.0745
35	1.4285	1.4278	1.4246	1.4157	1.4083	1.3918	1.3789	1.3574	1.3168	1.2216	1.1112
40	1.5033	1.5025	1.4991	1.4896	1.4817	1.4642	1.4503	1.4272	1.3832	1.2784	1.1519
45	1.5726	1.5719	1.5684	1.5587	1.5506	1.5326	1.5183	1.4943	1.4486	1.3374	1.1984
50	1.6333	1.6326	1.6291	1.6195	1.6115	1.5935	1.5792	1.5551	1.5087	1.3904	1.2460
55	1.6838	1.6830	1.6798	1.6706	1.6630	1.6457	1.6319	1.6085	1.5630	1.4481	1.2947
60	1.7212	1.7206	1.7176	1.7093	1.7023	1.6864	1.6736	1.6517	1.6085	1.4965	1.3418
65	1.7446	1.7441	1.7416	1.7344	1.7284	1.7145	1.7033	1.6838	1.6445	1.5390	1.3866
70	1.7525	1.7521	1.7502	1.7446	1.7399	1.7288	1.7196	1.7034	1.6696	1.5741	1.4280
75	1.7441	1.7439	1.7427	1.7391	1.7360	1.7284	1.7218	1.7097	1.6831	1.6011	1.4654
80	1.7194	1.7194	1.7190	1.7179	1.7167	1.7133	1.7098	1.7028	1.6849	1.6199	1.4984
85	1.6779	1.6780	1.6787	1.6803	1.6814	1.6828	1.6831	1.6820	1.6744	1.6299	1.5269
90	1.6209	1.6213	1.6232	1.6279	1.6316	1.6386	1.6431	1.6486	1.6529	1.6321	1.5507
95	1.5483	1.5490	1.5521	1.5603	1.5668	1.5799	1.5891	1.6022	1.6197	1.6259	1.5705
100	1.4627	1.4637	1.4681	1.4802	1.4898	1.5096	1.5239	1.5452	1.5771	1.6130	1.5859
105	1.3641	1.3654	1.3714	1.3875	1.4003	1.4273	1.4471	1.4772	1.5247	1.5929	1.5981
110	1.2562	1.2579	1.2654	1.2858	1.3021	1.3367	1.3622	1.4015	1.4655	1.5678	1.6366
115	1.1393	1.1414	1.1505	1.1753	1.1952	1.2376	1.2691	1.3181	1.3992	1.5374	1.6128
120	1.0178	1.0202	1.0309	1.0602	1.0838	1.1342	1.1718	1.2306	1.3292	1.5039	1.5162
125	0.8921	0.8949	0.9073	0.9411	0.9684	1.0268	1.0705	1.1392	1.2554	1.4674	1.6183
130	0.7668	0.7700	0.7840	0.8223	0.8532	0.9195	0.9692	1.0477	1.1813	1.4299	1.6183
135	0.6428	0.6463	0.6619	0.7045	0.7389	0.8129	0.8685	0.9564	1.1071	1.3916	1.6179
140	0.5242	0.5280	0.5451	0.5918	0.6296	0.7109	0.7721	0.8691	1.0359	1.3545	1.6161
145	0.4122	0.4163	0.4348	0.4853	0.5262	0.6143	0.6807	0.7861	0.9680	1.3188	1.6144
150	0.3102	0.3146	0.3344	0.3884	0.4321	0.5264	0.5975	0.7106	0.9062	1.2861	1.6121
155	0.2197	0.2243	0.2452	0.3022	0.3485	0.4424	0.5235	0.6433	0.8510	1.2567	1.6101
160	0.1429	0.1477	0.1696	0.2292	0.2776	0.3819	0.4607	0.5863	0.8042	1.2317	1.6080
165	0.0815	0.0866	0.1091	0.1708	0.2209	0.3288	0.4105	0.5406	0.7667	1.2116	1.6064
170	0.0363	0.0415	0.0646	0.1278	0.1791	0.2897	0.3735	0.5069	0.7390	1.1968	1.6052
175	0.0097	0.0149	0.0383	0.1024	0.1545	0.2667	0.3517	0.4871	0.7227	1.1879	1.6042
180	0.0001	0.0053	0.0289	0.0933	0.1456	0.2585	0.3439	0.4801	0.7170	1.1851	1.6035

RATIO OF MOTT TO RUTHERFORD SCATTERING IN W, Z=74

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0296	1.0295	1.0291	1.0280	1.0270	1.0250	1.0234	1.0210	1.0169	1.0095	1.0038
10	1.0816	1.0814	1.0804	1.0777	1.0754	1.0706	1.0669	1.0610	1.0507	1.0314	1.0192
15	1.1329	1.1326	1.1310	1.1267	1.1231	1.1154	1.1094	1.0996	1.0821	1.0467	1.0195
20	1.2012	1.2007	1.1986	1.1927	1.1879	1.1771	1.1688	1.1552	1.1303	1.0767	1.0274
25	1.2744	1.2738	1.2712	1.2640	1.2580	1.2448	1.2345	1.2176	1.1862	1.1164	1.0459
30	1.3534	1.3528	1.3497	1.3413	1.3344	1.3189	1.3069	1.2868	1.2495	1.1640	1.0709
35	1.4333	1.4325	1.4292	1.4199	1.4122	1.3952	1.3818	1.3594	1.3175	1.2196	1.1072
40	1.5109	1.5101	1.5065	1.4966	1.4884	1.4701	1.4557	1.4316	1.3859	1.2775	1.1480
45	1.5836	1.5828	1.5791	1.5690	1.5605	1.5416	1.5267	1.5016	1.4538	1.3383	1.1952
50	1.6479	1.6471	1.6434	1.6333	1.6248	1.6059	1.5908	1.5655	1.5168	1.3969	1.2439
55	1.7020	1.7012	1.6977	1.6880	1.6798	1.6615	1.6469	1.6222	1.5741	1.4535	1.2941
60	1.7431	1.7424	1.7392	1.7302	1.7227	1.7056	1.6920	1.6686	1.6227	1.5045	1.3029
65	1.7699	1.7693	1.7666	1.7588	1.7522	1.7372	1.7250	1.7039	1.6618	1.5497	1.3898
70	1.7810	1.7805	1.7783	1.7721	1.7668	1.7545	1.7444	1.7266	1.6899	1.5874	1.4333
75	1.7553	1.7550	1.7535	1.7493	1.7456	1.7356	1.7293	1.7356	1.7061	1.6170	1.4729
80	1.7528	1.7527	1.7521	1.7503	1.7486	1.7441	1.7397	1.7312	1.7104	1.6384	1.5081
85	1.7129	1.7130	1.7134	1.7145	1.7151	1.7154	1.7149	1.7123	1.7020	1.6507	1.5389
90	1.6569	1.6573	1.6590	1.6632	1.6664	1.6724	1.6762	1.6804	1.6822	1.6550	1.5650
95	1.5846	1.5853	1.5882	1.5961	1.6022	1.6145	1.6230	1.6350	1.6502	1.6506	1.5869
100	1.4987	1.4997	1.5041	1.5158	1.5251	1.5443	1.5581	1.5784	1.6085	1.6392	1.6044
105	1.3992	1.4005	1.4064	1.4223	1.4350	1.4616	1.4809	1.5104	1.5565	1.6204	1.6186
110	1.2898	1.2915	1.2990	1.3193	1.3356	1.3699	1.3953	1.4343	1.4973	1.5963	1.6291
115	1.1709	1.1729	1.1821	1.2069	1.2269	1.2694	1.3009	1.3498	1.4306	1.5667	1.6371
120	1.0468	1.0492	1.0601	1.0896	1.1134	1.1641	1.2019	1.2611	1.3599	1.5337	1.6422
125	0.9182	0.9211	0.9336	0.9678	0.9954	1.0544	1.0986	1.1680	1.2851	1.4976	1.6460
130	0.7898	0.7930	0.8073	0.8461	0.8775	0.9447	0.9951	1.0746	1.2099	1.4602	1.6475
135	0.6625	0.6660	0.6819	0.7252	0.7602	0.8354	0.8920	0.9814	1.1342	1.4220	1.6485
140	0.5405	0.5444	0.5619	0.6095	0.6480	0.7308	0.7932	0.8919	1.0616	1.3848	1.6479
145	0.4252	0.4294	0.4483	0.4999	0.5417	0.6316	0.6993	0.8069	0.9922	1.3490	1.6474
150	0.3202	0.3247	0.3449	0.4001	0.4448	0.5411	0.6139	0.7294	0.9290	1.3160	1.6461
155	0.2268	0.2315	0.2529	0.3113	0.3586	0.4606	0.5377	0.6602	0.8725	1.2864	1.6450
160	0.1475	0.1525	0.1749	0.2360	0.2855	0.3923	0.4731	0.6016	0.8205	1.2512	1.6436
165	0.0842	0.0894	0.1125	0.1757	0.2270	0.3377	0.4214	0.5546	0.7860	1.2408	1.6426
170	0.0375	0.0428	0.0665	0.1313	0.1839	0.2974	0.3832	0.5199	0.7576	1.2259	1.6418
175	0.0100	0.0153	0.0394	0.1051	0.1585	0.2736	0.3607	0.4996	0.7409	1.2169	1.6410
180	0.0001	0.0055	0.0296	0.0957	0.1494	0.2651	0.3527	0.4923	0.7351	1.2140	1.6403

RATIO OF MOTT TO RUTHERFORD SCATTERING IN Au, Z=79

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0277	1.0276	1.0272	1.0260	1.0251	1.0231	1.0217	1.0194	1.0156	1.0089	1.0029
10	1.0774	1.0772	1.0762	1.0734	1.0712	1.0663	1.0627	1.0569	1.0470	1.0299	1.0212
15	1.1258	1.1255	1.1238	1.1192	1.1155	1.1073	1.1010	1.0909	1.0732	1.0396	1.0188
20	1.1948	1.1942	1.1919	1.1854	1.1801	1.1683	1.1593	1.1446	1.1181	1.0638	1.0202
25	1.2723	1.2717	1.2687	1.2605	1.2538	1.2389	1.2274	1.2085	1.1740	1.1001	1.0328
30	1.3594	1.3586	1.3550	1.3452	1.3372	1.3193	1.3054	1.2824	1.2401	1.1462	1.0518
35	1.4512	1.4503	1.4463	1.4353	1.4261	1.4059	1.3900	1.3638	1.3150	1.2041	1.0849
40	1.5436	1.5426	1.5383	1.5262	1.5161	1.4939	1.4764	1.4474	1.3930	1.2670	1.1248
45	1.6340	1.6330	1.6284	1.6156	1.6050	1.5815	1.5629	1.5320	1.4736	1.3360	1.1739
50	1.7174	1.7163	1.7116	1.6985	1.6876	1.6634	1.6442	1.6121	1.5511	1.4049	1.2271
55	1.7917	1.7907	1.7861	1.7731	1.7623	1.7380	1.7189	1.6866	1.6247	1.4738	1.2839
60	1.8531	1.8521	1.8476	1.8352	1.8248	1.8014	1.7828	1.7513	1.6903	1.5385	1.3415
65	1.8996	1.8987	1.8946	1.8831	1.8735	1.8518	1.8344	1.8048	1.7466	1.5982	1.3983
70	1.9288	1.9281	1.9245	1.9146	1.9062	1.8870	1.8715	1.8448	1.7914	1.6507	1.4530
75	1.9392	1.9386	1.9358	1.9279	1.9211	1.9054	1.8925	1.8698	1.8234	1.6949	1.5045
80	1.9303	1.9298	1.9280	1.9226	1.9178	1.9066	1.8970	1.8795	1.8421	1.7303	1.5520
85	1.9005	1.9004	1.8996	1.8973	1.8950	1.8891	1.8835	1.8725	1.8461	1.7558	1.5953
90	1.8516	1.8518	1.8523	1.8535	1.8541	1.8544	1.8535	1.8500	1.8376	1.7721	1.6337
95	1.7824	1.7829	1.7849	1.7901	1.7940	1.8013	1.8059	1.8110	1.8128	1.7786	1.6680
100	1.6962	1.6970	1.7007	1.7103	1.7179	1.7331	1.7435	1.7582	1.7768	1.7651	1.5974
105	1.5924	1.5936	1.5990	1.6135	1.6250	1.6487	1.6657	1.6909	1.7280	1.7658	1.7234
110	1.4757	1.4773	1.4846	1.5042	1.5199	1.5528	1.5767	1.6130	1.6698	1.7480	1.7448
115	1.3459	1.3479	1.3572	1.3823	1.4023	1.4448	1.4760	1.5241	1.6019	1.7236	1.7638
120	1.2086	1.2111	1.2224	1.2530	1.2776	1.3299	1.3687	1.4289	1.5281	1.6943	1.7788
125	1.0643	1.0673	1.0806	1.1168	1.1461	1.2083	1.2548	1.3273	1.4485	1.6610	1.7830
130	0.9188	0.9222	0.9376	0.9794	1.0132	1.0854	1.1394	1.2242	1.3672	1.6251	1.8028
135	0.7730	0.7769	0.7942	0.8416	0.8798	0.9617	1.0232	1.1200	1.2845	1.5879	1.8123
140	0.6326	0.6369	0.6561	0.7087	0.7512	0.8224	0.9110	1.0192	1.2042	1.5506	1.8193
145	0.4988	0.5035	0.5245	0.5820	0.6285	0.7284	0.8037	0.9228	1.1270	1.5145	1.8259
150	0.3764	0.3814	0.4041	0.4660	0.5162	0.6241	0.7054	0.8343	1.0561	1.4807	1.8306
155	0.2670	0.2724	0.2965	0.3624	0.4158	0.5307	0.6174	0.7550	0.9925	1.4502	1.8349
160	0.1740	0.1797	0.2050	0.2742	0.3303	0.4512	0.5425	0.6875	0.9382	1.4240	1.8380
165	0.0994	0.1053	0.1316	0.2035	0.2618	0.3875	0.4824	0.6333	0.8945	1.4028	1.8404
170	0.0443	0.0503	0.0774	0.1512	0.2111	0.3403	0.4379	0.5931	0.8622	1.3872	1.8422
175	0.0118	0.0180	0.0454	0.1204	0.1813	0.3125	0.4117	0.5695	0.8431	1.3776	1.8429
180	0.0001	0.0062	0.0338	0.1093	0.1706	0.3026	0.4023	0.5611	0.8365	1.3744	1.8423

RATIO OF MOTT TO RUTHERFORD SCATTERING IN Pb, Z=82

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0265	1.0265	1.0260	1.0249	1.0241	1.0222	1.0208	1.0186	1.0150	1.0086	1.0022
10	1.0745	1.0742	1.0732	1.0705	1.0683	1.0635	1.0600	1.0544	1.0450	1.0297	1.0229
15	1.1201	1.1197	1.1180	1.1133	1.1095	1.1012	1.0949	1.0888	1.0674	1.0359	1.0197
20	1.1881	1.1875	1.1851	1.1783	1.1727	1.1605	1.1512	1.1361	1.1092	1.0558	1.0172
25	1.2671	1.2664	1.2633	1.2545	1.2474	1.2316	1.2194	1.1996	1.1637	1.0888	1.0257
30	1.3580	1.3572	1.3533	1.3427	1.3340	1.3147	1.2997	1.2752	1.2301	1.1326	1.0400
35	1.4566	1.4557	1.4513	1.4391	1.4291	1.4069	1.3896	1.3610	1.3082	1.1906	1.0698
40	1.5579	1.5568	1.5520	1.5385	1.5273	1.5026	1.4832	1.4511	1.3914	1.2554	1.1078
45	1.6595	1.6583	1.6531	1.6387	1.6267	1.6001	1.5793	1.5446	1.4795	1.3286	1.1568
50	1.7554	1.7542	1.7488	1.7337	1.7212	1.6934	1.6715	1.6350	1.5661	1.4035	1.2118
55	1.8434	1.8422	1.8368	1.8216	1.8090	1.7808	1.7585	1.7212	1.6502	1.4798	1.2714
60	1.9188	1.9176	1.9123	1.8974	1.8850	1.8572	1.8352	1.7981	1.7270	1.5532	1.3343
65	1.9791	1.9780	1.9730	1.9590	1.9473	1.9209	1.8999	1.8642	1.7951	1.6223	1.3971
70	2.0216	2.0206	2.0161	2.0035	1.9929	1.9688	1.9495	1.9165	1.8516	1.6847	1.4588
75	2.0439	2.0430	2.0393	2.0286	2.0196	1.9990	1.9822	1.9531	1.8948	1.7390	1.5179
80	2.0452	2.0446	2.0418	2.0337	2.0268	2.0106	1.9972	1.9734	1.9239	1.7841	1.5734
85	2.0237	2.0233	2.0217	2.0168	2.0124	2.0018	1.9925	1.9753	1.9372	1.8191	1.6252
90	1.9807	1.9807	1.9804	1.9792	1.9779	1.9738	1.9695	1.9602	1.9358	1.8441	1.5719
95	1.9149	1.9151	1.9164	1.9196	1.9218	1.9253	1.9267	1.9266	1.9182	1.8586	1.7189
100	1.8295	1.8302	1.8332	1.8412	1.8474	1.8593	1.8672	1.8774	1.8871	1.8635	1.7526
105	1.7238	1.7249	1.7299	1.7432	1.7536	1.7750	1.7900	1.8116	1.8415	1.8590	1.7870
110	1.6028	1.6044	1.6114	1.6304	1.6455	1.6768	1.6995	1.7334	1.7848	1.8463	1.8163
115	1.4663	1.4684	1.4776	1.5026	1.5225	1.5645	1.5953	1.6422	1.7168	1.8263	1.8433
120	1.3205	1.3230	1.3345	1.3657	1.3907	1.4437	1.4828	1.5432	1.6416	1.8002	1.8657
125	1.1657	1.1688	1.1826	1.2201	1.2503	1.3144	1.3621	1.4363	1.5594	1.7694	1.8866
130	1.0087	1.0123	1.0283	1.0721	1.1074	1.1828	1.2390	1.3269	1.4743	1.7352	1.9035
135	0.8503	0.8544	0.8728	0.9228	0.9631	1.0494	1.1140	1.2156	1.3873	1.6942	1.9195
140	0.6971	0.7017	0.7222	0.7781	0.8233	0.9201	0.9928	1.1073	1.3021	1.6624	1.9322
145	0.5505	0.5556	0.5781	0.6396	0.6893	0.7961	0.8763	1.0031	1.2198	1.6266	1.9442
150	0.4160	0.4214	0.4458	0.5124	0.5663	0.6821	0.7692	0.9072	1.1439	1.5926	1.9535
155	0.2955	0.3013	0.3273	0.3984	0.4560	0.5798	0.6731	0.8210	1.0754	1.5619	1.9620
160	0.1927	0.1988	0.2263	0.3012	0.3619	0.4925	0.5910	0.7474	1.0169	1.5353	1.9685
165	0.1102	0.1166	0.1451	0.2231	0.2863	0.4223	0.5250	0.6881	0.9697	1.5137	1.9736
170	0.0491	0.0557	0.0850	0.1653	0.2303	0.3704	0.4762	0.6443	0.9348	1.4978	1.9774
175	0.0131	0.0198	0.0496	0.1312	0.1973	0.3398	0.4473	0.6183	0.9140	1.4879	1.9792
180	0.0001	0.0068	0.0368	0.1189	0.1854	0.3288	0.4371	0.6092	0.9069	1.4845	1.9789

RATIO OF MOTT TO RUTHERFORD SCATTERING IN PR, Z=87

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0249	1.0248	1.0245	1.0234	1.0226	1.0209	1.0196	1.0176	1.0143	1.0082	1.0003
10	1.0694	1.0692	1.0682	1.0656	1.0635	1.0591	1.0558	1.0508	1.0427	1.0308	1.0263
15	1.1084	1.1080	1.1063	1.1016	1.0979	1.0897	1.0836	1.0739	1.0578	1.0316	1.0235
20	1.1723	1.1717	1.1691	1.1620	1.1562	1.1436	1.1340	1.1187	1.0921	1.0429	1.0154
25	1.2512	1.2505	1.2470	1.2376	1.2298	1.2129	1.1999	1.1790	1.1418	1.0685	1.0165
30	1.3463	1.3454	1.3411	1.3292	1.3195	1.2981	1.2816	1.2547	1.2062	1.1057	1.0215
35	1.4549	1.4537	1.4487	1.4347	1.4232	1.3979	1.3782	1.3460	1.2873	1.1613	1.0432
40	1.5704	1.5692	1.5634	1.5475	1.5343	1.5054	1.4828	1.4457	1.3774	1.2269	1.0757
45	1.6912	1.6898	1.6835	1.6660	1.6516	1.6196	1.5947	1.5535	1.4772	1.3052	1.1217
50	1.8094	1.8079	1.8012	1.7825	1.7671	1.7329	1.7061	1.6617	1.5788	1.3888	1.1777
55	1.9227	1.9212	1.9142	1.8949	1.8789	1.8433	1.8153	1.7688	1.6813	1.4773	1.2414
60	2.0246	2.0231	2.0161	1.9966	1.9804	1.9444	1.9160	1.8685	1.7787	1.5655	1.3109
65	2.1121	2.1105	2.1037	2.0847	2.0689	2.0335	2.0055	1.9585	1.8686	1.6514	1.3830
70	2.1808	2.1794	2.1730	2.1551	2.1401	2.1066	2.0799	2.0347	1.9475	1.7319	1.4562
75	2.2274	2.2262	2.2204	2.2044	2.1909	2.1605	2.1360	2.0944	2.0127	1.8050	1.5286
80	2.2505	2.2494	2.2447	2.2312	2.2198	2.1937	2.1726	2.1360	2.0627	1.8690	1.5984
85	2.2468	2.2461	2.2425	2.2324	2.2237	2.2034	2.1866	2.1568	2.0951	1.9224	1.6656
90	2.2177	2.2172	2.2152	2.2091	2.2037	2.1905	2.1790	2.1577	2.1105	1.9648	1.7281
95	2.1605	2.1605	2.1602	2.1589	2.1575	2.1528	2.1477	2.1365	2.1070	1.9957	1.7875
100	2.0791	2.0795	2.0812	2.0885	2.0885	2.0934	2.0956	2.0961	2.0868	2.0150	1.8412
105	1.9718	1.9727	1.9767	1.9872	1.9952	2.0109	2.0214	2.0351	2.0490	2.0237	1.8920
110	1.8446	1.8460	1.8524	1.8695	1.8830	1.9105	1.9299	1.9579	1.9968	2.0219	1.9370
115	1.6968	1.6988	1.7079	1.7321	1.7514	1.7916	1.8207	1.8642	1.9305	2.0116	1.9798
120	1.5357	1.5383	1.5501	1.5818	1.6072	1.6605	1.6996	1.7592	1.8539	1.9929	2.0172
125	1.3619	1.3652	1.3797	1.4192	1.4508	1.5178	1.5672	1.6436	1.7680	1.9685	2.0528
130	1.1832	1.1871	1.2045	1.2516	1.2895	1.3701	1.4299	1.5230	1.6770	1.9385	2.0835
135	1.0012	1.0057	1.0258	1.0806	1.1247	1.2189	1.2891	1.3988	1.5825	1.9061	2.1127
140	0.8234	0.8285	0.8513	0.9134	0.9635	1.0706	1.1508	1.2765	1.4886	1.8712	2.1375
145	0.6521	0.6578	0.6831	0.7522	0.8080	0.9275	1.0170	1.1580	1.3973	1.8369	2.1607
150	0.4939	0.5001	0.5277	0.6031	0.6641	0.7949	0.8931	1.0480	1.3120	1.8034	2.1800
155	0.3516	0.3582	0.3879	0.4690	0.5346	0.6754	0.7813	0.9486	1.2348	1.7729	2.1971
160	0.2297	0.2367	0.2681	0.3540	0.4236	0.5730	0.6854	0.8633	1.1684	1.7461	2.2108
165	0.1315	0.1388	0.1717	0.2615	0.3341	0.4904	0.6080	0.7944	1.1146	1.7242	2.2217
170	0.0587	0.0663	0.1002	0.1928	0.2678	0.4291	0.5507	0.7434	1.0748	1.7081	2.2298
175	0.0156	0.0233	0.0579	0.1521	0.2285	0.3928	0.5166	0.7129	1.0508	1.6977	2.2340
180	0.0001	0.0078	0.0426	0.1375	0.2144	0.3799	0.5046	0.7023	1.0426	1.6939	2.2347

RATIO OF MOTT TO RUTHERFORD SCATTERING IN U, Z=92

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0238	1.0237	1.0234	1.0224	1.0217	1.0201	1.0190	1.0171	1.0141	1.0077	0.9976
10	1.0647	1.0645	1.0637	1.0613	1.0595	1.0556	1.0528	1.0486	1.0421	1.0338	1.0295
15	1.0950	1.0947	1.0930	1.0886	1.0850	1.0774	1.0718	1.0632	1.0494	1.0304	1.0300
20	1.1511	1.1506	1.1480	1.1408	1.1351	1.1226	1.1133	1.0985	1.0737	1.0325	1.0182
25	1.2261	1.2253	1.2217	1.2118	1.2037	1.1862	1.1730	1.1518	1.1151	1.0482	1.0124
30	1.3215	1.3205	1.3158	1.3029	1.2924	1.2694	1.2519	1.2235	1.1734	1.0753	1.0066
35	1.4370	1.4358	1.4301	1.4145	1.4016	1.3735	1.3519	1.3167	1.2536	1.1244	1.0174
40	1.5651	1.5636	1.5570	1.5387	1.5236	1.4905	1.4650	1.4232	1.3474	1.1870	1.0408
45	1.7048	1.7031	1.6956	1.6750	1.6580	1.6206	1.5916	1.5439	1.4567	1.2670	1.0900
50	1.8466	1.8448	1.8367	1.8141	1.7955	1.7544	1.7224	1.6697	1.5726	1.3571	1.1334
55	1.9880	1.9861	1.9775	1.9535	1.9337	1.8898	1.8555	1.7989	1.6939	1.4562	1.1977
60	2.1207	2.1187	2.1098	2.0850	2.0645	2.0189	1.9832	1.9240	1.8134	1.5590	1.2719
65	2.2405	2.2385	2.2296	2.2046	2.1840	2.1380	2.1018	2.0416	1.9281	1.6623	1.3518
70	2.3417	2.3397	2.3310	2.3068	2.2866	2.2415	2.2059	2.1464	2.0331	1.7627	1.4358
75	2.4194	2.4176	2.4094	2.3867	2.3677	2.3252	2.2913	2.2344	2.1248	1.8571	1.5215
80	2.4710	2.4694	2.4621	2.4418	2.4248	2.3863	2.3555	2.3030	2.2007	1.9431	1.6364
85	2.4918	2.4905	2.4845	2.4676	2.4533	2.4207	2.3942	2.3486	2.2575	2.0187	1.6905
90	2.4825	2.4816	2.4772	2.4646	2.4538	2.4287	2.4079	2.3710	2.2947	2.0823	1.7707
95	2.4394	2.4389	2.4365	2.4293	2.4229	2.4071	2.3933	2.3676	2.3104	2.1338	1.8489
100	2.3662	2.3661	2.3660	2.3650	2.3637	2.3587	2.3531	2.3404	2.3056	2.1717	1.9216
105	2.2605	2.2611	2.2636	2.2698	2.2742	2.2819	2.2858	2.2882	2.2798	2.1979	1.9919
110	2.1287	2.1299	2.1352	2.1493	2.1601	2.1815	2.1958	2.2149	2.2355	2.2108	2.0563
115	1.9701	1.9720	1.9805	2.0031	2.0210	2.0575	2.0833	2.1208	2.1737	2.2139	2.1184
120	1.7928	1.7955	1.8072	1.8388	1.8640	1.9163	1.9541	2.0109	2.0976	2.2058	2.1747
125	1.5979	1.6013	1.6165	1.6576	1.6903	1.7593	1.8098	1.8869	2.0094	2.1900	2.2287
130	1.3944	1.3985	1.4177	1.4676	1.5081	1.5938	1.6570	1.7544	1.9129	2.1677	2.2772
135	1.1846	1.1896	1.2116	1.2716	1.3198	1.4222	1.4982	1.6163	1.8113	2.1812	2.3232
140	0.9776	0.9832	1.0087	1.0778	1.1334	1.2520	1.3403	1.4781	1.7081	2.1101	2.3639
145	0.7767	0.7831	0.8117	0.8895	0.9522	1.0863	1.1864	1.3433	1.6070	2.0790	2.4015
150	0.5897	0.5968	0.6283	0.7141	0.7833	0.9315	1.0244	1.2167	1.5113	2.0471	2.3339
155	0.4207	0.4283	0.4624	0.5554	0.6305	0.7914	0.9120	1.1019	1.4243	2.0181	2.4625
160	0.2753	0.2834	0.3198	0.4188	0.4989	0.6706	0.7995	1.0028	1.3488	1.9918	2.4859
165	0.1578	0.1663	0.2044	0.3084	0.3925	0.5729	0.7084	0.9223	1.2873	1.9701	2.5044
170	0.0706	0.0794	0.1189	0.2265	0.3135	0.5004	0.6409	0.8628	1.2420	1.9543	2.5181
175	0.0186	0.0276	0.0678	0.1776	0.2663	0.4569	0.6002	0.8267	1.2141	1.9436	2.5257
180	0.0001	0.0091	0.0497	0.1602	0.2497	0.4417	0.5861	0.8143	1.2046	1.9395	2.5282

RATIO OF MOTT TO RUTHERFORD SCATTERING IN PU, Z=94

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0235	1.0235	1.0231	1.0222	1.0215	1.0200	1.0189	1.0171	1.0141	1.0073	0.9963
10	1.0632	1.0630	1.0622	1.0600	1.0583	1.0547	1.0521	1.0483	1.0425	1.0355	1.0305
15	1.0895	1.0891	1.0876	1.0833	1.0799	1.0727	1.0674	1.0593	1.0468	1.0310	1.0332
20	1.1414	1.1409	1.1383	1.1313	1.1256	1.1134	1.1043	1.0900	1.0665	1.0294	1.0207
25	1.2135	1.2126	1.2090	1.1991	1.1910	1.1735	1.1603	1.1393	1.1035	1.0407	1.0125
30	1.3076	1.3066	1.3018	1.2886	1.2779	1.2545	1.2367	1.2080	1.1580	1.0627	1.0323
35	1.4248	1.4235	1.4176	1.4014	1.3881	1.3590	1.3368	1.3007	1.2365	1.1079	1.0080
40	1.5570	1.5554	1.5485	1.5293	1.5135	1.4789	1.4522	1.4088	1.3306	1.1680	1.0268
45	1.7038	1.7021	1.6941	1.6722	1.6542	1.6147	1.5840	1.5339	1.4427	1.2475	1.0621
50	1.8553	1.8533	1.8446	1.8204	1.8005	1.7565	1.7224	1.6664	1.5638	1.3392	1.1132
55	2.0086	2.0065	1.9971	1.9711	1.9497	1.9023	1.8654	1.8046	1.6924	1.4418	1.1766
60	2.1547	2.1525	2.1427	2.1156	2.0932	2.0435	2.0047	1.9405	1.8211	1.5501	1.2517
65	2.2890	2.2868	2.2769	2.2493	2.2265	2.1758	2.1360	2.0700	1.9463	1.6605	1.3341
70	2.4050	2.4029	2.3931	2.3659	2.3434	2.2932	2.2536	2.1876	2.0629	1.7692	1.4220
75	2.4973	2.4953	2.4860	2.4602	2.4387	2.3906	2.3525	2.2885	2.1665	1.8727	1.5128
80	2.5625	2.5607	2.5523	2.5288	2.5091	2.4648	2.4295	2.3698	2.2542	1.9683	1.6039
85	2.5955	2.5939	2.5867	2.5666	2.5497	2.5112	2.4802	2.4272	2.3225	2.0539	1.6949
90	2.5962	2.5950	2.5895	2.5738	2.5604	2.5296	2.5043	2.4600	2.3701	2.1272	1.7828
95	2.5607	2.5599	2.5564	2.5463	2.5375	2.5163	2.4983	2.4655	2.3951	2.1883	1.8690
100	2.4922	2.4920	2.4909	2.4873	2.4838	2.4740	2.4645	2.4452	2.3981	2.2349	1.9502
105	2.3885	2.3889	2.3905	2.3946	2.3972	2.4007	2.4012	2.3980	2.3786	2.2694	2.0292
110	2.2555	2.2566	2.2613	2.2737	2.2831	2.3013	2.3129	2.3274	2.3386	2.2894	2.1024
115	2.0930	2.0948	2.1029	2.1246	2.1415	2.1758	2.1998	2.2339	2.2797	2.2992	2.1733
120	1.9090	1.9116	1.9233	1.9546	1.9794	2.0308	2.0677	2.1225	2.2044	2.2964	2.2384
125	1.7052	1.7086	1.7240	1.7655	1.7986	1.8680	1.9186	1.9954	2.1159	2.2863	2.3009
130	1.4907	1.4950	1.5141	1.5659	1.6073	1.6948	1.7592	1.8581	2.0175	2.2667	2.3578
135	1.2687	1.2738	1.2967	1.3588	1.4087	1.5145	1.5928	1.7141	1.9131	2.2434	2.4116
140	1.0484	1.0543	1.0809	1.1530	1.2110	1.3344	1.4262	1.5690	1.8061	2.2145	2.4599
145	0.8341	0.8408	0.8708	0.9525	1.0183	1.1587	1.2633	1.4270	1.7009	2.1852	2.5044
150	0.6340	0.6414	0.6746	0.7651	0.8380	0.9939	1.1104	1.2931	1.6007	2.1545	2.5432
155	0.4527	0.4608	0.4969	0.5952	0.6746	0.8444	0.9715	1.1714	1.5094	2.1264	2.5771
160	0.2965	0.3051	0.3436	0.4487	0.5335	0.7153	0.8515	1.0660	1.4300	2.1006	2.6053
165	0.1700	0.1791	0.2196	0.3300	0.4193	0.6106	0.7541	0.9803	1.3652	2.0793	2.6270
170	0.0762	0.0855	0.1275	0.2420	0.3345	0.5329	0.6819	0.9169	1.3174	2.0637	2.6438
175	0.0200	0.0296	0.0724	0.1892	0.2836	0.4861	0.6382	0.8783	1.2877	2.0530	2.6531
180	0.0001	0.0097	0.0529	0.1706	0.2657	0.4699	0.6231	0.8651	1.2776	2.0488	2.6566

RATIO OF MOTT TO RUTHERFORD SCATTERING IN ES, Z=99

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	1.0233	1.0233	1.0230	1.0221	1.0215	1.0200	1.0189	1.0172	1.0140	1.0058	0.9927
10	1.0609	1.0607	1.0600	1.0583	1.0569	1.0541	1.0522	1.0493	1.0453	1.0405	1.0319
15	1.0762	1.0759	1.0746	1.0709	1.0681	1.0621	1.0579	1.0517	1.0429	1.0357	1.0248
20	1.1151	1.1145	1.1121	1.1057	1.1005	1.0896	1.0815	1.0693	1.0502	1.0257	1.0302
25	1.1760	1.1752	1.1717	1.1620	1.1541	1.1374	1.1250	1.1055	1.0738	1.0252	1.0182
30	1.2627	1.2616	1.2567	1.2433	1.2323	1.2087	1.1910	1.1628	1.1150	1.0322	0.9975
35	1.3799	1.3785	1.3722	1.3549	1.3408	1.3102	1.2870	1.2498	1.1852	1.0642	0.9992
40	1.5192	1.5175	1.5098	1.4886	1.4713	1.4335	1.4046	1.3581	1.2760	1.1143	0.9941
45	1.6819	1.6799	1.6708	1.6459	1.6255	1.5810	1.5467	1.4911	1.3918	1.1885	1.0163
50	1.8567	1.8544	1.8441	1.8159	1.7927	1.7418	1.7025	1.6386	1.5233	1.2809	1.0582
55	2.0405	2.0380	2.0267	1.9956	1.9700	1.9136	1.8700	1.7987	1.6689	1.3896	1.1160
60	2.2228	2.2201	2.2081	2.1747	2.1471	2.0865	2.0395	1.9622	1.8206	1.5099	1.1904
65	2.3973	2.3945	2.3819	2.3471	2.3184	2.2549	2.2054	2.1239	1.9734	1.6370	1.2763
70	2.5557	2.5528	2.5401	2.5048	2.4756	2.4110	2.3604	2.2767	2.1211	1.7666	1.3720
75	2.6904	2.6876	2.6751	2.6405	2.6117	2.5479	2.4978	2.4144	2.2579	1.8943	1.4745
80	2.7962	2.7936	2.7818	2.7490	2.7217	2.6608	2.6127	2.5321	2.3793	2.0159	1.5804
85	2.8661	2.8637	2.8531	2.8235	2.7988	2.7433	2.6990	2.6244	2.4807	2.1292	1.6891
90	2.8984	2.8964	2.8875	2.8624	2.8413	2.7934	2.7549	2.6889	2.5593	2.2297	1.7968
95	2.8878	2.8864	2.8797	2.8606	2.8444	2.8068	2.7760	2.7221	2.6127	2.3182	1.9047
100	2.8365	2.8356	2.8316	2.8198	2.8094	2.7845	2.7630	2.7240	2.6395	2.3903	2.0090
105	2.7416	2.7415	2.7406	2.7376	2.7343	2.7246	2.7146	2.6936	2.6402	2.4494	2.1117
110	2.6087	2.6093	2.6121	2.6188	2.6235	2.6308	2.6337	2.6331	2.6148	2.4910	2.2099
115	2.4379	2.4394	2.4462	2.4640	2.4776	2.5042	2.5217	2.5443	2.5663	2.5209	2.3053
120	2.2373	2.2398	2.2509	2.2804	2.3034	2.3505	2.3835	2.4309	2.4957	2.5348	2.3958
125	2.0101	2.0136	2.0292	2.0712	2.1044	2.1735	2.2231	2.2971	2.4084	2.5397	2.4827
130	1.7658	1.7704	1.7906	1.8453	1.8888	1.9801	2.0466	2.1476	2.3061	2.5320	2.5642
135	1.5099	1.5154	1.5404	1.6080	1.6620	1.7760	1.8598	1.9884	2.1955	2.5190	2.6408
140	1.2524	1.2590	1.2885	1.3686	1.4328	1.5689	1.6694	1.8288	2.0789	2.4977	2.7117
145	1.0000	1.0076	1.0415	1.1337	1.2077	1.3651	1.4818	1.6632	1.9631	2.4748	2.7762
150	0.7622	0.7707	0.8086	0.9119	0.9950	1.1720	1.3036	1.5089	1.8509	2.4485	2.8340
155	0.5457	0.5550	0.5966	0.7099	0.8012	0.9959	1.1410	1.3680	1.7482	2.4238	2.8800
160	0.3581	0.3681	0.4129	0.5347	0.6330	0.8428	0.9995	1.2450	1.6579	2.4003	2.9263
165	0.2055	0.2161	0.2634	0.3922	0.4961	0.7181	0.8841	1.1445	1.5838	2.3805	2.9594
170	0.0924	0.1034	0.1526	0.2865	0.3946	0.6257	0.7987	1.0703	1.5292	2.3661	2.9839
175	0.0239	0.0351	0.0854	0.2223	0.3328	0.5692	0.7462	1.0242	1.4946	2.3554	2.9983
180	0.0001	0.0115	0.0621	0.2002	0.3116	0.5500	0.7284	1.0088	1.4830	2.3515	3.0047

RATIO OF NOTT TO MCKINLEY-PESHBACH SCATTERING IN BE, Z= 4

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	1.0000
10	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002
15	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002	1.0002
20	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004
25	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005
30	1.0007	1.0007	1.0007	1.0007	1.0007	1.0007	1.0007	1.0007	1.0006	1.0006	1.0006
35	1.0008	1.0008	1.0008	1.0008	1.0008	1.0008	1.0008	1.0008	1.0008	1.0007	1.0007
40	1.0010	1.0010	1.0010	1.0010	1.0009	1.0009	1.0009	1.0009	1.0009	1.0008	1.0008
45	1.0011	1.0011	1.0011	1.0011	1.0011	1.0010	1.0010	1.0010	1.0010	1.0009	1.0009
50	1.0012	1.0012	1.0012	1.0012	1.0012	1.0012	1.0012	1.0011	1.0011	1.0010	1.0010
55	1.0013	1.0013	1.0013	1.0013	1.0013	1.0013	1.0013	1.0012	1.0012	1.0011	1.0011
60	1.0015	1.0015	1.0015	1.0014	1.0014	1.0014	1.0014	1.0014	1.0013	1.0012	1.0011
65	1.0016	1.0016	1.0016	1.0016	1.0015	1.0015	1.0015	1.0014	1.0014	1.0013	1.0012
70	1.0017	1.0017	1.0017	1.0017	1.0016	1.0016	1.0016	1.0015	1.0015	1.0014	1.0013
75	1.0018	1.0018	1.0018	1.0018	1.0017	1.0017	1.0017	1.0016	1.0015	1.0014	1.0013
80	1.0019	1.0019	1.0019	1.0018	1.0018	1.0018	1.0017	1.0017	1.0016	1.0015	1.0014
85	1.0020	1.0020	1.0020	1.0019	1.0019	1.0019	1.0018	1.0018	1.0017	1.0015	1.0014
90	1.0021	1.0021	1.0021	1.0020	1.0020	1.0019	1.0019	1.0018	1.0017	1.0015	1.0014
95	1.0022	1.0022	1.0021	1.0021	1.0021	1.0020	1.0019	1.0019	1.0017	1.0016	1.0015
100	1.0022	1.0022	1.0022	1.0022	1.0022	1.0020	1.0020	1.0019	1.0018	1.0016	1.0015
105	1.0023	1.0023	1.0023	1.0022	1.0022	1.0021	1.0020	1.0019	1.0018	1.0016	1.0015
110	1.0024	1.0024	1.0023	1.0023	1.0022	1.0021	1.0020	1.0019	1.0018	1.0016	1.0015
115	1.0025	1.0025	1.0024	1.0023	1.0023	1.0021	1.0021	1.0020	1.0018	1.0016	1.0015
120	1.0025	1.0025	1.0024	1.0023	1.0023	1.0021	1.0020	1.0019	1.0018	1.0016	1.0015
125	1.0026	1.0026	1.0025	1.0024	1.0023	1.0021	1.0021	1.0019	1.0018	1.0016	1.0015
130	1.0026	1.0026	1.0025	1.0024	1.0023	1.0021	1.0020	1.0019	1.0018	1.0016	1.0015
135	1.0027	1.0027	1.0026	1.0024	1.0023	1.0021	1.0020	1.0019	1.0017	1.0016	1.0015
140	1.0027	1.0027	1.0026	1.0024	1.0022	1.0020	1.0019	1.0018	1.0017	1.0016	1.0015
145	1.0028	1.0027	1.0026	1.0023	1.0022	1.0020	1.0019	1.0018	1.0017	1.0016	1.0015
150	1.0027	1.0027	1.0025	1.0023	1.0021	1.0019	1.0018	1.0017	1.0016	1.0015	1.0015
155	1.0028	1.0027	1.0025	1.0022	1.0020	1.0018	1.0017	1.0017	1.0016	1.0015	1.0015
160	1.0028	1.0027	1.0024	1.0020	1.0019	1.0017	1.0017	1.0016	1.0015	1.0015	1.0015
165	1.0027	1.0026	1.0022	1.0018	1.0017	1.0016	1.0016	1.0015	1.0015	1.0015	1.0015
170	1.0032	1.0028	1.0021	1.0017	1.0016	1.0016	1.0015	1.0015	1.0015	1.0015	1.0015
175	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033
180	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033

RATIO OF NOTT TO MCKINLEY-PESHBACH SCATTERING IN C, Z= 6

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
10	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0004	1.0003
15	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005	1.0005
20	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0008
25	1.0012	1.0012	1.0012	1.0012	1.0012	1.0011	1.0011	1.0011	1.0011	1.0011	1.0010
30	1.0015	1.0015	1.0015	1.0015	1.0015	1.0015	1.0015	1.0015	1.0014	1.0014	1.0013
35	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0018	1.0017	1.0017	1.0016	1.0015
40	1.0021	1.0021	1.0021	1.0021	1.0021	1.0021	1.0021	1.0020	1.0020	1.0019	1.0018
45	1.0024	1.0024	1.0024	1.0024	1.0024	1.0024	1.0023	1.0023	1.0022	1.0021	1.0020
50	1.0027	1.0027	1.0027	1.0027	1.0027	1.0026	1.0026	1.0026	1.0025	1.0023	1.0022
55	1.0030	1.0030	1.0030	1.0030	1.0029	1.0029	1.0029	1.0028	1.0027	1.0025	1.0024
60	1.0033	1.0033	1.0033	1.0032	1.0032	1.0032	1.0031	1.0031	1.0029	1.0027	1.0026
65	1.0035	1.0035	1.0035	1.0035	1.0035	1.0034	1.0033	1.0033	1.0031	1.0029	1.0027
70	1.0038	1.0038	1.0038	1.0037	1.0037	1.0036	1.0035	1.0035	1.0033	1.0031	1.0029
75	1.0040	1.0040	1.0040	1.0040	1.0039	1.0038	1.0037	1.0036	1.0035	1.0032	1.0030
80	1.0043	1.0043	1.0042	1.0042	1.0041	1.0040	1.0039	1.0038	1.0036	1.0033	1.0031
85	1.0045	1.0045	1.0044	1.0044	1.0043	1.0042	1.0041	1.0040	1.0038	1.0034	1.0032
90	1.0047	1.0047	1.0046	1.0045	1.0045	1.0043	1.0042	1.0041	1.0039	1.0035	1.0033
95	1.0049	1.0049	1.0048	1.0047	1.0046	1.0045	1.0044	1.0042	1.0040	1.0036	1.0033
100	1.0050	1.0050	1.0050	1.0049	1.0048	1.0046	1.0045	1.0043	1.0040	1.0036	1.0034
105	1.0052	1.0052	1.0052	1.0050	1.0049	1.0047	1.0046	1.0044	1.0041	1.0037	1.0034
110	1.0054	1.0053	1.0053	1.0051	1.0050	1.0048	1.0046	1.0044	1.0041	1.0037	1.0035
115	1.0055	1.0055	1.0054	1.0052	1.0051	1.0048	1.0047	1.0044	1.0041	1.0037	1.0035
120	1.0056	1.0056	1.0055	1.0053	1.0051	1.0048	1.0047	1.0044	1.0041	1.0037	1.0035
125	1.0058	1.0058	1.0057	1.0054	1.0052	1.0049	1.0047	1.0044	1.0041	1.0037	1.0035
130	1.0059	1.0058	1.0057	1.0054	1.0052	1.0048	1.0046	1.0043	1.0040	1.0037	1.0035
135	1.0060	1.0060	1.0058	1.0054	1.0052	1.0048	1.0045	1.0043	1.0040	1.0037	1.0035
140	1.0061	1.0060	1.0058	1.0053	1.0051	1.0046	1.0044	1.0042	1.0039	1.0036	1.0035
145	1.0062	1.0061	1.0058	1.0053	1.0050	1.0045	1.0043	1.0041	1.0038	1.0036	1.0035
150	1.0062	1.0061	1.0058	1.0051	1.0048	1.0043	1.0041	1.0039	1.0037	1.0036	1.0035
155	1.0063	1.0062	1.0057	1.0049	1.0046	1.0042	1.0040	1.0038	1.0036	1.0035	1.0035
160	1.0064	1.0061	1.0055	1.0046	1.0043	1.0039	1.0038	1.0037	1.0036	1.0035	1.0035
165	1.0063	1.0059	1.0050	1.0042	1.0040	1.0037	1.0036	1.0035	1.0035	1.0035	1.0035
170	1.0069	1.0061	1.0047	1.0039	1.0037	1.0036	1.0035	1.0035	1.0034	1.0034	1.0035
175	1.0077	1.0030	1.0033	1.0033	1.0033	1.0033	1.0033	1.0034	1.0034	1.0034	1.0035
180	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033	1.0033	1.0034	1.0034	1.0034	1.0035

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN O, Z= 8

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9998	0.9998	0.9998	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999	0.9999
10	1.0007	1.0007	1.0007	1.0007	1.0007	1.0007	1.0007	1.0006	1.0006	1.0006	1.0006
15	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009	1.0009
20	1.0016	1.0016	1.0016	1.0016	1.0016	1.0016	1.0016	1.0015	1.0015	1.0014	1.0013
25	1.0021	1.0021	1.0021	1.0021	1.0020	1.0020	1.0020	1.0020	1.0019	1.0019	1.0017
30	1.0027	1.0027	1.0027	1.0027	1.0027	1.0026	1.0026	1.0026	1.0025	1.0024	1.0023
35	1.0032	1.0032	1.0032	1.0032	1.0032	1.0031	1.0031	1.0031	1.0030	1.0028	1.0027
40	1.0038	1.0038	1.0038	1.0038	1.0037	1.0037	1.0037	1.0036	1.0035	1.0033	1.0031
45	1.0043	1.0043	1.0043	1.0043	1.0042	1.0042	1.0041	1.0041	1.0039	1.0037	1.0035
50	1.0048	1.0048	1.0048	1.0048	1.0048	1.0047	1.0046	1.0045	1.0044	1.0041	1.0039
55	1.0053	1.0053	1.0053	1.0053	1.0052	1.0051	1.0051	1.0050	1.0048	1.0045	1.0043
60	1.0058	1.0058	1.0058	1.0057	1.0057	1.0056	1.0055	1.0054	1.0052	1.0049	1.0046
65	1.0063	1.0063	1.0063	1.0062	1.0061	1.0060	1.0059	1.0058	1.0056	1.0052	1.0049
70	1.0067	1.0067	1.0067	1.0066	1.0066	1.0064	1.0063	1.0062	1.0059	1.0055	1.0051
75	1.0072	1.0072	1.0071	1.0070	1.0070	1.0068	1.0067	1.0065	1.0062	1.0057	1.0054
80	1.0076	1.0076	1.0075	1.0074	1.0073	1.0071	1.0070	1.0068	1.0065	1.0059	1.0056
85	1.0080	1.0080	1.0079	1.0078	1.0077	1.0074	1.0073	1.0071	1.0067	1.0061	1.0057
90	1.0083	1.0083	1.0082	1.0081	1.0080	1.0077	1.0075	1.0073	1.0069	1.0063	1.0059
95	1.0087	1.0087	1.0086	1.0084	1.0083	1.0080	1.0078	1.0075	1.0071	1.0064	1.0060
100	1.0090	1.0090	1.0089	1.0087	1.0085	1.0082	1.0080	1.0077	1.0072	1.0065	1.0061
105	1.0093	1.0093	1.0092	1.0089	1.0088	1.0084	1.0081	1.0078	1.0073	1.0066	1.0062
110	1.0096	1.0095	1.0094	1.0091	1.0089	1.0085	1.0082	1.0079	1.0074	1.0067	1.0063
115	1.0099	1.0098	1.0097	1.0093	1.0091	1.0086	1.0083	1.0079	1.0074	1.0067	1.0063
120	1.0101	1.0100	1.0099	1.0095	1.0092	1.0087	1.0083	1.0079	1.0074	1.0067	1.0064
125	1.0103	1.0103	1.0101	1.0096	1.0093	1.0087	1.0084	1.0079	1.0074	1.0067	1.0064
130	1.0105	1.0104	1.0102	1.0096	1.0093	1.0086	1.0083	1.0078	1.0073	1.0066	1.0064
135	1.0107	1.0106	1.0103	1.0097	1.0093	1.0086	1.0082	1.0077	1.0072	1.0066	1.0064
140	1.0108	1.0107	1.0104	1.0096	1.0091	1.0084	1.0080	1.0075	1.0070	1.0064	1.0064
145	1.0110	1.0109	1.0104	1.0095	1.0089	1.0082	1.0078	1.0074	1.0069	1.0065	1.0065
150	1.0111	1.0109	1.0103	1.0092	1.0086	1.0078	1.0075	1.0071	1.0068	1.0065	1.0064
155	1.0112	1.0110	1.0102	1.0088	1.0082	1.0075	1.0072	1.0069	1.0066	1.0064	1.0064
160	1.0113	1.0110	1.0098	1.0083	1.0078	1.0071	1.0069	1.0067	1.0065	1.0064	1.0064
165	1.0112	1.0106	1.0091	1.0076	1.0072	1.0067	1.0066	1.0064	1.0063	1.0063	1.0064
170	1.0120	1.0107	1.0084	1.0070	1.0067	1.0065	1.0064	1.0063	1.0063	1.0063	1.0064
175	1.0065	1.0063	1.0061	1.0061	1.0061	1.0061	1.0061	1.0061	1.0062	1.0063	1.0064
180	1.0061	1.0061	1.0061	1.0061	1.0061	1.0061	1.0061	1.0061	1.0062	1.0063	1.0064

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN MG, Z=12

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998
10	1.0013	1.0013	1.0013	1.0013	1.0013	1.0013	1.0013	1.0012	1.0012	1.0010	1.0008
15	1.0021	1.0021	1.0021	1.0020	1.0020	1.0020	1.0020	1.0020	1.0019	1.0018	1.0015
20	1.0034	1.0034	1.0034	1.0034	1.0034	1.0034	1.0033	1.0033	1.0032	1.0030	1.0027
25	1.0046	1.0046	1.0045	1.0045	1.0045	1.0044	1.0044	1.0043	1.0042	1.0040	1.0037
30	1.0059	1.0059	1.0059	1.0059	1.0058	1.0058	1.0057	1.0056	1.0055	1.0052	1.0048
35	1.0071	1.0071	1.0071	1.0071	1.0070	1.0069	1.0069	1.0068	1.0066	1.0062	1.0058
40	1.0084	1.0084	1.0084	1.0083	1.0083	1.0082	1.0081	1.0080	1.0078	1.0073	1.0068
45	1.0096	1.0096	1.0096	1.0095	1.0095	1.0093	1.0092	1.0091	1.0088	1.0083	1.0078
50	1.0108	1.0108	1.0108	1.0107	1.0106	1.0105	1.0104	1.0102	1.0099	1.0093	1.0087
55	1.0120	1.0120	1.0119	1.0118	1.0117	1.0115	1.0114	1.0112	1.0108	1.0101	1.0095
60	1.0131	1.0131	1.0130	1.0129	1.0128	1.0126	1.0124	1.0122	1.0117	1.0110	1.0103
65	1.0142	1.0142	1.0141	1.0139	1.0138	1.0136	1.0134	1.0131	1.0126	1.0117	1.0110
70	1.0152	1.0152	1.0151	1.0149	1.0148	1.0145	1.0142	1.0139	1.0134	1.0124	1.0116
75	1.0162	1.0162	1.0161	1.0159	1.0157	1.0153	1.0151	1.0147	1.0141	1.0130	1.0122
80	1.0171	1.0171	1.0170	1.0167	1.0165	1.0161	1.0158	1.0154	1.0147	1.0135	1.0127
85	1.0180	1.0180	1.0179	1.0176	1.0173	1.0169	1.0165	1.0160	1.0153	1.0140	1.0131
90	1.0188	1.0188	1.0186	1.0183	1.0180	1.0175	1.0171	1.0166	1.0157	1.0144	1.0135
95	1.0196	1.0196	1.0194	1.0190	1.0187	1.0181	1.0177	1.0171	1.0162	1.0148	1.0139
100	1.0203	1.0203	1.0201	1.0196	1.0193	1.0186	1.0181	1.0175	1.0165	1.0150	1.0141
105	1.0210	1.0210	1.0208	1.0203	1.0199	1.0191	1.0186	1.0178	1.0168	1.0153	1.0144
110	1.0216	1.0216	1.0213	1.0207	1.0203	1.0194	1.0188	1.0180	1.0169	1.0154	1.0146
115	1.0223	1.0222	1.0219	1.0212	1.0207	1.0197	1.0191	1.0182	1.0170	1.0155	1.0148
120	1.0228	1.0227	1.0224	1.0215	1.0209	1.0198	1.0191	1.0182	1.0170	1.0156	1.0149
125	1.0234	1.0233	1.0229	1.0219	1.0212	1.0199	1.0192	1.0182	1.0170	1.0156	1.0151
130	1.0237	1.0236	1.0231	1.0219	1.0212	1.0198	1.0190	1.0180	1.0168	1.0156	1.0152
135	1.0242	1.0241	1.0235	1.0221	1.0212	1.0197	1.0188	1.0178	1.0167	1.0156	1.0152
140	1.0245	1.0243	1.0236	1.0219	1.0209	1.0193	1.0184	1.0175	1.0164	1.0155	1.0153
145	1.0249	1.0247	1.0237	1.0217	1.0205	1.0188	1.0180	1.0171	1.0162	1.0154	1.0153
150	1.0251	1.0248	1.0235	1.0211	1.0199	1.0182	1.0174	1.0166	1.0158	1.0153	1.0154
155	1.0254	1.0250	1.0232	1.0204	1.0191	1.0175	1.0168	1.0161	1.0155	1.0152	1.0154
160	1.0256	1.0249	1.0225	1.0192	1.0180	1.0166	1.0161	1.0156	1.0152	1.0151	1.0154
165	1.0255	1.0243	1.0210	1.0177	1.0167	1.0157	1.0154	1.0151	1.0149	1.0150	1.0154
170	1.0268	1.0241	1.0193	1.0163	1.0157	1.0151	1.0149	1.0148	1.0147	1.0149	1.0154
175	1.0188	1.0164	1.0149	1.0145	1.0144	1.0144	1.0144	1.0144	1.0145	1.0149	1.0154
180	1.0142	1.0142	1.0142	1.0143	1.0143	1.0143	1.0144	1.0144	1.0145	1.0149	1.0154

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN AL, Z=13

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9997
10	1.0015	1.0015	1.0015	1.0015	1.0015	1.0014	1.0014	1.0014	1.0013	1.0011	1.0009
15	1.0024	1.0024	1.0024	1.0024	1.0024	1.0023	1.0023	1.0023	1.0022	1.0020	1.0017
20	1.0040	1.0040	1.0040	1.0040	1.0039	1.0039	1.0039	1.0038	1.0037	1.0034	1.0030
25	1.0053	1.0053	1.0053	1.0053	1.0052	1.0052	1.0051	1.0051	1.0049	1.0046	1.0042
30	1.0069	1.0069	1.0069	1.0069	1.0068	1.0067	1.0067	1.0066	1.0064	1.0060	1.0055
35	1.0083	1.0083	1.0083	1.0083	1.0082	1.0081	1.0080	1.0079	1.0077	1.0072	1.0067
40	1.0099	1.0099	1.0098	1.0098	1.0097	1.0096	1.0095	1.0093	1.0091	1.0085	1.0080
45	1.0113	1.0113	1.0112	1.0111	1.0111	1.0109	1.0108	1.0106	1.0103	1.0097	1.0091
50	1.0127	1.0127	1.0127	1.0126	1.0125	1.0123	1.0122	1.0119	1.0116	1.0108	1.0101
55	1.0141	1.0140	1.0140	1.0139	1.0138	1.0135	1.0134	1.0131	1.0127	1.0119	1.0111
60	1.0154	1.0154	1.0153	1.0152	1.0150	1.0148	1.0146	1.0143	1.0138	1.0129	1.0120
65	1.0166	1.0166	1.0166	1.0164	1.0162	1.0159	1.0157	1.0153	1.0148	1.0137	1.0129
70	1.0178	1.0178	1.0177	1.0175	1.0174	1.0170	1.0167	1.0163	1.0157	1.0145	1.0136
75	1.0190	1.0190	1.0189	1.0186	1.0184	1.0180	1.0177	1.0173	1.0165	1.0153	1.0143
80	1.0201	1.0201	1.0199	1.0196	1.0194	1.0189	1.0186	1.0181	1.0173	1.0159	1.0149
85	1.0211	1.0211	1.0210	1.0206	1.0204	1.0198	1.0194	1.0189	1.0180	1.0165	1.0154
90	1.0221	1.0221	1.0219	1.0215	1.0212	1.0206	1.0201	1.0195	1.0185	1.0170	1.0159
95	1.0231	1.0230	1.0228	1.0224	1.0220	1.0213	1.0208	1.0201	1.0190	1.0174	1.0163
100	1.0239	1.0238	1.0236	1.0231	1.0227	1.0219	1.0213	1.0206	1.0194	1.0177	1.0167
105	1.0247	1.0247	1.0244	1.0238	1.0234	1.0225	1.0218	1.0210	1.0198	1.0180	1.0170
110	1.0254	1.0254	1.0251	1.0244	1.0239	1.0228	1.0222	1.0212	1.0199	1.0182	1.0173
115	1.0262	1.0261	1.0258	1.0250	1.0244	1.0232	1.0225	1.0215	1.0201	1.0184	1.0175
120	1.0268	1.0267	1.0263	1.0253	1.0246	1.0234	1.0225	1.0215	1.0201	1.0184	1.0177
125	1.0275	1.0274	1.0269	1.0257	1.0249	1.0235	1.0226	1.0215	1.0201	1.0185	1.0179
130	1.0279	1.0278	1.0272	1.0259	1.0249	1.0234	1.0224	1.0213	1.0199	1.0185	1.0180
135	1.0285	1.0283	1.0276	1.0260	1.0249	1.0232	1.0222	1.0211	1.0197	1.0184	1.0181
140	1.0288	1.0286	1.0277	1.0258	1.0246	1.0228	1.0218	1.0207	1.0194	1.0183	1.0182
145	1.0293	1.0290	1.0279	1.0256	1.0242	1.0223	1.0213	1.0202	1.0191	1.0183	1.0182
150	1.0296	1.0292	1.0277	1.0249	1.0235	1.0215	1.0206	1.0197	1.0188	1.0181	1.0183
155	1.0299	1.0294	1.0273	1.0240	1.0225	1.0207	1.0199	1.0191	1.0184	1.0180	1.0183
160	1.0302	1.0293	1.0265	1.0227	1.0213	1.0197	1.0191	1.0185	1.0180	1.0179	1.0183
165	1.0301	1.0286	1.0248	1.0210	1.0198	1.0187	1.0183	1.0179	1.0177	1.0178	1.0183
170	1.0314	1.0283	1.0227	1.0193	1.0186	1.0179	1.0177	1.0175	1.0175	1.0178	1.0184
175	1.0228	1.0198	1.0178	1.0172	1.0171	1.0171	1.0171	1.0172	1.0173	1.0177	1.0183
180	1.0169	1.0169	1.0169	1.0169	1.0169	1.0170	1.0170	1.0171	1.0173	1.0177	1.0183

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN SI, Z=14

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9998	0.9997	0.9997
10	1.0017	1.0017	1.0017	1.0017	1.0016	1.0016	1.0016	1.0015	1.0015	1.0013	1.0009
15	1.0027	1.0027	1.0027	1.0027	1.0027	1.0027	1.0027	1.0026	1.0025	1.0023	1.0019
20	1.0046	1.0046	1.0046	1.0045	1.0045	1.0045	1.0044	1.0043	1.0042	1.0039	1.0034
25	1.0061	1.0061	1.0061	1.0061	1.0060	1.0060	1.0059	1.0058	1.0057	1.0053	1.0048
30	1.0080	1.0080	1.0080	1.0079	1.0079	1.0078	1.0077	1.0076	1.0074	1.0069	1.0063
35	1.0096	1.0096	1.0096	1.0095	1.0095	1.0094	1.0093	1.0091	1.0089	1.0083	1.0077
40	1.0114	1.0114	1.0114	1.0113	1.0112	1.0111	1.0110	1.0108	1.0105	1.0098	1.0091
45	1.0131	1.0130	1.0130	1.0129	1.0128	1.0126	1.0125	1.0123	1.0119	1.0112	1.0104
50	1.0147	1.0147	1.0147	1.0145	1.0144	1.0142	1.0141	1.0138	1.0134	1.0125	1.0117
55	1.0163	1.0163	1.0162	1.0161	1.0160	1.0157	1.0155	1.0152	1.0147	1.0138	1.0128
60	1.0178	1.0178	1.0178	1.0176	1.0174	1.0171	1.0169	1.0166	1.0160	1.0149	1.0139
65	1.0193	1.0193	1.0192	1.0190	1.0188	1.0185	1.0182	1.0178	1.0171	1.0159	1.0149
70	1.0207	1.0207	1.0206	1.0203	1.0201	1.0197	1.0194	1.0190	1.0182	1.0169	1.0158
75	1.0221	1.0220	1.0219	1.0216	1.0214	1.0209	1.0206	1.0201	1.0192	1.0178	1.0166
80	1.0233	1.0233	1.0232	1.0228	1.0226	1.0220	1.0216	1.0210	1.0201	1.0185	1.0173
85	1.0245	1.0245	1.0244	1.0240	1.0237	1.0230	1.0226	1.0219	1.0209	1.0192	1.0180
90	1.0257	1.0256	1.0254	1.0250	1.0246	1.0239	1.0234	1.0227	1.0216	1.0198	1.0185
95	1.0268	1.0267	1.0265	1.0260	1.0256	1.0248	1.0242	1.0234	1.0222	1.0203	1.0191
100	1.0277	1.0277	1.0275	1.0269	1.0264	1.0255	1.0248	1.0239	1.0226	1.0207	1.0195
105	1.0287	1.0287	1.0284	1.0277	1.0272	1.0261	1.0254	1.0244	1.0230	1.0210	1.0199
110	1.0296	1.0295	1.0292	1.0284	1.0277	1.0266	1.0258	1.0247	1.0233	1.0213	1.0202
115	1.0305	1.0304	1.0300	1.0290	1.0283	1.0270	1.0262	1.0250	1.0235	1.0215	1.0205
120	1.0311	1.0310	1.0306	1.0295	1.0287	1.0272	1.0263	1.0251	1.0235	1.0216	1.0207
125	1.0319	1.0318	1.0313	1.0299	1.0290	1.0274	1.0264	1.0251	1.0235	1.0216	1.0209
130	1.0325	1.0323	1.0317	1.0301	1.0290	1.0272	1.0262	1.0249	1.0233	1.0216	1.0211
135	1.0331	1.0329	1.0321	1.0303	1.0291	1.0271	1.0259	1.0246	1.0231	1.0216	1.0212
140	1.0335	1.0333	1.0323	1.0301	1.0287	1.0266	1.0254	1.0242	1.0228	1.0215	1.0213
145	1.0341	1.0338	1.0325	1.0298	1.0283	1.0260	1.0249	1.0237	1.0224	1.0214	1.0214
150	1.0344	1.0340	1.0322	1.0291	1.0274	1.0251	1.0241	1.0230	1.0220	1.0213	1.0215
155	1.0348	1.0342	1.0319	1.0281	1.0263	1.0242	1.0232	1.0224	1.0216	1.0212	1.0215
160	1.0351	1.0341	1.0309	1.0266	1.0249	1.0230	1.0223	1.0217	1.0212	1.0210	1.0216
165	1.0350	1.0334	1.0289	1.0245	1.0232	1.0219	1.0214	1.0210	1.0208	1.0209	1.0216
170	1.0364	1.0329	1.0265	1.0226	1.0217	1.0210	1.0207	1.0206	1.0205	1.0209	1.0216
175	1.0273	1.0234	1.0209	1.0202	1.0201	1.0201	1.0201	1.0201	1.0203	1.0208	1.0216
180	1.0198	1.0198	1.0198	1.0198	1.0199	1.0199	1.0200	1.0201	1.0203	1.0208	1.0216

RATIO OF MOTT TO MCKINLEY-PESHBACH SCATTERING IN K, Z=19

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996
10	1.0026	1.0026	1.0026	1.0025	1.0025	1.0024	1.0024	1.0023	1.0021	1.0016	1.0009
15	1.0046	1.0046	1.0046	1.0046	1.0045	1.0045	1.0044	1.0043	1.0040	1.0035	1.0026
20	1.0079	1.0079	1.0079	1.0078	1.0078	1.0077	1.0076	1.0074	1.0071	1.0063	1.0052
25	1.0109	1.0108	1.0108	1.0107	1.0107	1.0105	1.0104	1.0102	1.0099	1.0090	1.0078
30	1.0143	1.0142	1.0142	1.0141	1.0140	1.0138	1.0137	1.0134	1.0130	1.0120	1.0106
35	1.0174	1.0174	1.0173	1.0172	1.0171	1.0169	1.0167	1.0164	1.0159	1.0147	1.0133
40	1.0207	1.0207	1.0206	1.0205	1.0204	1.0201	1.0199	1.0195	1.0189	1.0176	1.0160
45	1.0238	1.0238	1.0237	1.0235	1.0234	1.0231	1.0228	1.0224	1.0217	1.0202	1.0185
50	1.0270	1.0269	1.0269	1.0266	1.0264	1.0260	1.0257	1.0253	1.0244	1.0228	1.0210
55	1.0299	1.0299	1.0298	1.0295	1.0293	1.0288	1.0285	1.0279	1.0270	1.0251	1.0232
60	1.0328	1.0328	1.0327	1.0324	1.0321	1.0316	1.0312	1.0305	1.0294	1.0274	1.0253
65	1.0356	1.0356	1.0354	1.0351	1.0348	1.0341	1.0336	1.0329	1.0317	1.0294	1.0273
70	1.0383	1.0382	1.0381	1.0376	1.0373	1.0365	1.0360	1.0352	1.0338	1.0313	1.0291
75	1.0408	1.0408	1.0406	1.0401	1.0397	1.0388	1.0382	1.0373	1.0357	1.0330	1.0307
80	1.0432	1.0432	1.0430	1.0424	1.0419	1.0409	1.0402	1.0392	1.0375	1.0346	1.0322
85	1.0456	1.0455	1.0452	1.0446	1.0440	1.0429	1.0421	1.0409	1.0391	1.0360	1.0336
90	1.0477	1.0476	1.0473	1.0465	1.0459	1.0447	1.0438	1.0425	1.0404	1.0372	1.0349
95	1.0498	1.0497	1.0494	1.0485	1.0477	1.0463	1.0453	1.0439	1.0417	1.0383	1.0360
100	1.0517	1.0516	1.0512	1.0501	1.0493	1.0477	1.0466	1.0450	1.0426	1.0391	1.0370
105	1.0536	1.0535	1.0530	1.0517	1.0508	1.0490	1.0478	1.0460	1.0435	1.0399	1.0379
110	1.0552	1.0550	1.0545	1.0531	1.0520	1.0500	1.0486	1.0467	1.0441	1.0405	1.0386
115	1.0568	1.0567	1.0560	1.0544	1.0531	1.0508	1.0493	1.0473	1.0445	1.0410	1.0394
120	1.0582	1.0580	1.0572	1.0553	1.0539	1.0513	1.0497	1.0475	1.0447	1.0414	1.0400
125	1.0596	1.0594	1.0585	1.0562	1.0546	1.0517	1.0499	1.0477	1.0448	1.0416	1.0405
130	1.0607	1.0605	1.0593	1.0566	1.0548	1.0516	1.0497	1.0474	1.0446	1.0417	1.0410
135	1.0619	1.0616	1.0602	1.0570	1.0549	1.0514	1.0494	1.0471	1.0444	1.0418	1.0414
140	1.0628	1.0624	1.0606	1.0568	1.0544	1.0506	1.0486	1.0463	1.0439	1.0418	1.0418
145	1.0638	1.0632	1.0610	1.0563	1.0536	1.0497	1.0477	1.0455	1.0433	1.0417	1.0421
150	1.0644	1.0636	1.0607	1.0552	1.0522	1.0482	1.0463	1.0444	1.0426	1.0416	1.0423
155	1.0651	1.0640	1.0601	1.0534	1.0503	1.0465	1.0449	1.0433	1.0419	1.0414	1.0425
160	1.0656	1.0640	1.0585	1.0509	1.0478	1.0445	1.0432	1.0421	1.0412	1.0413	1.0427
165	1.0657	1.0629	1.0552	1.0473	1.0448	1.0424	1.0416	1.0409	1.0406	1.0412	1.0428
170	1.0676	1.0617	1.0506	1.0437	1.0421	1.0407	1.0403	1.0401	1.0402	1.0411	1.0429
175	1.0559	1.0472	1.0412	1.0395	1.0393	1.0392	1.0392	1.0394	1.0398	1.0410	1.0429
180	1.0385	1.0385	1.0386	1.0386	1.0387	1.0389	1.0390	1.0392	1.0397	1.0409	1.0429

RATIO OF MOTT TO MCKINLEY-PESHBACH SCATTERING IN TI, Z=22

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9994	0.9994	0.9994	0.9993	0.9993	0.9993	0.9993	0.9992	0.9991	0.9988	0.9984
10	1.0031	1.0031	1.0031	1.0030	1.0030	1.0029	1.0028	1.0026	1.0024	1.0016	1.0005
15	1.0059	1.0059	1.0058	1.0058	1.0057	1.0056	1.0055	1.0053	1.0050	1.0040	1.0026
20	1.0102	1.0102	1.0102	1.0101	1.0100	1.0098	1.0097	1.0094	1.0090	1.0078	1.0061
25	1.0142	1.0142	1.0141	1.0140	1.0139	1.0137	1.0135	1.0132	1.0127	1.0114	1.0095
30	1.0187	1.0187	1.0187	1.0185	1.0184	1.0181	1.0179	1.0176	1.0169	1.0154	1.0133
35	1.0230	1.0230	1.0229	1.0227	1.0226	1.0223	1.0220	1.0216	1.0209	1.0192	1.0169
40	1.0275	1.0275	1.0274	1.0272	1.0270	1.0266	1.0263	1.0258	1.0250	1.0231	1.0206
45	1.0317	1.0317	1.0316	1.0314	1.0311	1.0307	1.0303	1.0298	1.0288	1.0267	1.0241
50	1.0360	1.0360	1.0359	1.0356	1.0353	1.0348	1.0344	1.0337	1.0326	1.0302	1.0275
55	1.0401	1.0400	1.0399	1.0395	1.0392	1.0386	1.0381	1.0374	1.0361	1.0335	1.0306
60	1.0440	1.0440	1.0438	1.0434	1.0431	1.0423	1.0418	1.0409	1.0395	1.0366	1.0336
65	1.0478	1.0478	1.0476	1.0471	1.0467	1.0458	1.0452	1.0442	1.0426	1.0394	1.0364
70	1.0515	1.0514	1.0512	1.0506	1.0502	1.0492	1.0485	1.0473	1.0455	1.0421	1.0389
75	1.0550	1.0549	1.0547	1.0540	1.0534	1.0523	1.0515	1.0502	1.0482	1.0445	1.0413
80	1.0583	1.0582	1.0579	1.0571	1.0565	1.0552	1.0543	1.0529	1.0506	1.0467	1.0434
85	1.0615	1.0614	1.0610	1.0601	1.0594	1.0580	1.0569	1.0554	1.0529	1.0487	1.0454
90	1.0644	1.0643	1.0639	1.0629	1.0621	1.0604	1.0592	1.0575	1.0548	1.0504	1.0472
95	1.0673	1.0672	1.0667	1.0655	1.0646	1.0627	1.0614	1.0595	1.0566	1.0520	1.0489
100	1.0699	1.0698	1.0692	1.0678	1.0668	1.0647	1.0632	1.0611	1.0580	1.0533	1.0504
105	1.0724	1.0723	1.0717	1.0701	1.0689	1.0665	1.0649	1.0626	1.0592	1.0545	1.0517
110	1.0747	1.0745	1.0738	1.0719	1.0706	1.0679	1.0661	1.0636	1.0601	1.0554	1.0529
115	1.0769	1.0767	1.0759	1.0737	1.0721	1.0691	1.0672	1.0645	1.0609	1.0562	1.0540
120	1.0788	1.0786	1.0776	1.0751	1.0733	1.0699	1.0678	1.0649	1.0612	1.0568	1.0550
125	1.0808	1.0805	1.0793	1.0763	1.0742	1.0705	1.0682	1.0652	1.0615	1.0573	1.0559
130	1.0823	1.0820	1.0805	1.0770	1.0746	1.0705	1.0680	1.0650	1.0613	1.0576	1.0567
135	1.0840	1.0835	1.0817	1.0776	1.0748	1.0703	1.0677	1.0646	1.0611	1.0578	1.0574
140	1.0852	1.0846	1.0824	1.0774	1.0743	1.0694	1.0668	1.0637	1.0605	1.0578	1.0580
145	1.0865	1.0858	1.0829	1.0769	1.0734	1.0682	1.0656	1.0627	1.0598	1.0578	1.0585
150	1.0874	1.0864	1.0827	1.0754	1.0716	1.0663	1.0639	1.0613	1.0590	1.0577	1.0590
155	1.0884	1.0870	1.0819	1.0732	1.0692	1.0641	1.0619	1.0598	1.0581	1.0576	1.0594
160	1.0891	1.0870	1.0798	1.0699	1.0659	1.0615	1.0598	1.0583	1.0572	1.0575	1.0597
165	1.0892	1.0856	1.0756	1.0652	1.0619	1.0577	1.0577	1.0568	1.0564	1.0574	1.0599
170	1.0914	1.0839	1.0695	1.0604	1.0582	1.0565	1.0560	1.0557	1.0558	1.0573	1.0601
175	1.0786	1.0662	1.0574	1.0550	1.0546	1.0545	1.0545	1.0548	1.0554	1.0572	1.0602
180	1.0535	1.0535	1.0535	1.0536	1.0537	1.0540	1.0542	1.0545	1.0552	1.0571	1.0602

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN V, Z=23

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9993	0.9993	0.9993	0.9992	0.9992	0.9992	0.9991	0.9991	0.9990	0.9987	0.9981
10	1.0032	1.0032	1.0032	1.0031	1.0031	1.0030	1.0029	1.0027	1.0024	1.0016	1.0003
15	1.0063	1.0063	1.0062	1.0062	1.0061	1.0059	1.0058	1.0056	1.0052	1.0042	1.0026
20	1.0110	1.0110	1.0109	1.0108	1.0107	1.0105	1.0104	1.0101	1.0096	1.0083	1.0063
25	1.0153	1.0153	1.0153	1.0152	1.0150	1.0148	1.0146	1.0143	1.0137	1.0122	1.0100
30	1.0203	1.0203	1.0203	1.0201	1.0200	1.0197	1.0194	1.0190	1.0183	1.0166	1.0142
35	1.0250	1.0250	1.0249	1.0247	1.0246	1.0242	1.0239	1.0235	1.0227	1.0207	1.0182
40	1.0300	1.0299	1.0298	1.0296	1.0294	1.0290	1.0287	1.0281	1.0272	1.0250	1.0222
45	1.0346	1.0346	1.0345	1.0342	1.0340	1.0335	1.0331	1.0325	1.0314	1.0290	1.0261
50	1.0393	1.0393	1.0392	1.0388	1.0385	1.0379	1.0375	1.0368	1.0355	1.0329	1.0298
55	1.0438	1.0437	1.0436	1.0432	1.0429	1.0422	1.0416	1.0408	1.0394	1.0365	1.0333
60	1.0481	1.0481	1.0479	1.0475	1.0471	1.0463	1.0457	1.0447	1.0431	1.0399	1.0366
65	1.0523	1.0523	1.0521	1.0515	1.0511	1.0501	1.0495	1.0484	1.0466	1.0431	1.0396
70	1.0563	1.0563	1.0560	1.0554	1.0549	1.0538	1.0530	1.0518	1.0498	1.0460	1.0425
75	1.0602	1.0601	1.0598	1.0591	1.0585	1.0573	1.0564	1.0550	1.0528	1.0487	1.0451
80	1.0638	1.0637	1.0634	1.0626	1.0619	1.0605	1.0595	1.0580	1.0555	1.0512	1.0475
85	1.0673	1.0672	1.0669	1.0661	1.0651	1.0635	1.0624	1.0607	1.0580	1.0534	1.0497
90	1.0706	1.0705	1.0701	1.0689	1.0680	1.0662	1.0650	1.0631	1.0601	1.0554	1.0518
95	1.0737	1.0736	1.0731	1.0718	1.0708	1.0688	1.0674	1.0653	1.0621	1.0571	1.0536
100	1.0766	1.0765	1.0759	1.0744	1.0733	1.0710	1.0694	1.0671	1.0637	1.0586	1.0553
105	1.0794	1.0793	1.0786	1.0769	1.0756	1.0730	1.0712	1.0687	1.0651	1.0599	1.0569
110	1.0819	1.0817	1.0810	1.0789	1.0774	1.0745	1.0726	1.0699	1.0661	1.0610	1.0582
115	1.0844	1.0842	1.0833	1.0809	1.0792	1.0759	1.0738	1.0709	1.0670	1.0619	1.0595
120	1.0865	1.0862	1.0851	1.0824	1.0805	1.0768	1.0745	1.0714	1.0674	1.0626	1.0607
125	1.0886	1.0883	1.0870	1.0838	1.0816	1.0775	1.0750	1.0717	1.0677	1.0632	1.0617
130	1.0903	1.0900	1.0884	1.0846	1.0820	1.0775	1.0749	1.0716	1.0676	1.0635	1.0626
135	1.0922	1.0917	1.0897	1.0852	1.0823	1.0773	1.0745	1.0712	1.0673	1.0638	1.0634
140	1.0935	1.0929	1.0905	1.0851	1.0817	1.0764	1.0735	1.0703	1.0667	1.0639	1.0641
145	1.0950	1.0942	1.0911	1.0846	1.0808	1.0751	1.0723	1.0692	1.0660	1.0639	1.0648
150	1.0959	1.0949	1.0908	1.0830	1.0788	1.0731	1.0704	1.0677	1.0651	1.0639	1.0653
155	1.0970	1.0955	1.0900	1.0807	1.0762	1.0707	1.0684	1.0661	1.0642	1.0638	1.0657
160	1.0978	1.0955	1.0878	1.0770	1.0727	1.0679	1.0661	1.0644	1.0633	1.0637	1.0661
165	1.0980	1.0941	1.0833	1.0720	1.0684	1.0649	1.0637	1.0628	1.0624	1.0635	1.0664
170	1.1003	1.0922	1.0766	1.0667	1.0643	1.0624	1.0619	1.0616	1.0618	1.0634	1.0666
175	1.0871	1.0734	1.0636	1.0608	1.0604	1.0602	1.0603	1.0606	1.0613	1.0634	1.0667
180	1.0591	1.0591	1.0592	1.0593	1.0594	1.0597	1.0600	1.0604	1.0611	1.0633	1.0667

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN CR, Z=24

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9991	0.9991	0.9991	0.9991	0.9991	0.9990	0.9990	0.9990	0.9988	0.9984	0.9978
10	1.0034	1.0034	1.0033	1.0033	1.0032	1.0031	1.0030	1.0028	1.0024	1.0015	1.0001
15	1.0067	1.0067	1.0065	1.0065	1.0065	1.0063	1.0062	1.0059	1.0055	1.0043	1.0024
20	1.0118	1.0118	1.0117	1.0116	1.0115	1.0113	1.0111	1.0108	1.0102	1.0087	1.0065
25	1.0165	1.0165	1.0163	1.0162	1.0162	1.0159	1.0157	1.0154	1.0147	1.0130	1.0105
30	1.0220	1.0220	1.0219	1.0217	1.0216	1.0212	1.0210	1.0205	1.0197	1.0178	1.0150
35	1.0271	1.0271	1.0270	1.0268	1.0266	1.0262	1.0259	1.0254	1.0245	1.0223	1.0194
40	1.0325	1.0325	1.0324	1.0321	1.0319	1.0314	1.0311	1.0305	1.0294	1.0270	1.0239
45	1.0376	1.0376	1.0375	1.0372	1.0369	1.0363	1.0359	1.0352	1.0340	1.0314	1.0281
50	1.0427	1.0427	1.0426	1.0422	1.0419	1.0412	1.0408	1.0400	1.0386	1.0356	1.0322
55	1.0476	1.0476	1.0474	1.0470	1.0466	1.0459	1.0453	1.0444	1.0428	1.0396	1.0360
60	1.0524	1.0524	1.0522	1.0517	1.0513	1.0504	1.0497	1.0487	1.0469	1.0434	1.0397
65	1.0570	1.0569	1.0567	1.0561	1.0557	1.0546	1.0539	1.0527	1.0507	1.0469	1.0430
70	1.0614	1.0613	1.0611	1.0604	1.0598	1.0587	1.0578	1.0565	1.0543	1.0502	1.0462
75	1.0656	1.0656	1.0653	1.0645	1.0638	1.0625	1.0615	1.0600	1.0576	1.0531	1.0491
80	1.0696	1.0695	1.0692	1.0683	1.0675	1.0660	1.0649	1.0633	1.0606	1.0559	1.0518
85	1.0735	1.0734	1.0730	1.0719	1.0711	1.0694	1.0681	1.0663	1.0633	1.0583	1.0543
90	1.0771	1.0769	1.0765	1.0753	1.0743	1.0724	1.0710	1.0689	1.0657	1.0605	1.0565
95	1.0805	1.0804	1.0799	1.0785	1.0774	1.0752	1.0736	1.0714	1.0679	1.0625	1.0586
100	1.0837	1.0835	1.0829	1.0813	1.0801	1.0776	1.0759	1.0734	1.0697	1.0642	1.0605
105	1.0868	1.0866	1.0859	1.0840	1.0826	1.0798	1.0779	1.0752	1.0713	1.0657	1.0623
110	1.0895	1.0893	1.0885	1.0863	1.0847	1.0816	1.0795	1.0765	1.0724	1.0669	1.0639
115	1.0922	1.0920	1.0910	1.0885	1.0866	1.0831	1.0808	1.0777	1.0734	1.0679	1.0653
120	1.0945	1.0943	1.0931	1.0902	1.0880	1.0841	1.0816	1.0783	1.0739	1.0687	1.0666
125	1.0969	1.0966	1.0952	1.0917	1.0893	1.0849	1.0822	1.0787	1.0743	1.0694	1.0678
130	1.0988	1.0984	1.0967	1.0926	1.0898	1.0850	1.0821	1.0785	1.0742	1.0698	1.0688
135	1.1008	1.1003	1.0982	1.0933	1.0901	1.0848	1.0817	1.0781	1.0740	1.0702	1.0698
140	1.1023	1.1016	1.0990	1.0932	1.0896	1.0838	1.0807	1.0772	1.0734	1.0703	1.0706
145	1.1039	1.1030	1.0997	1.0927	1.0886	1.0825	1.0794	1.0760	1.0726	1.0704	1.0714
150	1.1050	1.1038	1.0995	1.0910	1.0865	1.0803	1.0774	1.0744	1.0717	1.0704	1.0720
155	1.1061	1.1045	1.0986	1.0885	1.0835	1.0778	1.0752	1.0727	1.0707	1.0703	1.0725
160	1.1070	1.1045	1.0962	1.0846	1.0799	1.0747	1.0727	1.0709	1.0697	1.0702	1.0730
165	1.1072	1.1031	1.0914	1.0791	1.0752	1.0715	1.0702	1.0692	1.0688	1.0701	1.0733
170	1.1096	1.1009	1.0841	1.0734	1.0708	1.0687	1.0682	1.0679	1.0681	1.0700	1.0735
175	1.0962	1.0810	1.0701	1.0670	1.0666	1.0664	1.0665	1.0668	1.0676	1.0699	1.0737
180	1.0651	1.0651	1.0652	1.0654	1.0655	1.0658	1.0661	1.0665	1.0674	1.0699	1.0737

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN FE, Z=26

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9989	0.9989	0.9989	0.9988	0.9988	0.9987	0.9987	0.9986	0.9984	0.9979	0.9971
10	1.0036	1.0036	1.0035	1.0035	1.0034	1.0032	1.0031	1.0029	1.0024	1.0013	0.9995
15	1.0075	1.0074	1.0074	1.0073	1.0072	1.0070	1.0068	1.0065	1.0060	1.0045	1.0021
20	1.0134	1.0134	1.0133	1.0132	1.0131	1.0128	1.0125	1.0122	1.0114	1.0096	1.0067
25	1.0190	1.0190	1.0189	1.0188	1.0186	1.0183	1.0180	1.0176	1.0167	1.0146	1.0113
30	1.0254	1.0254	1.0253	1.0251	1.0249	1.0245	1.0242	1.0236	1.0226	1.0202	1.0167
35	1.0315	1.0315	1.0314	1.0311	1.0309	1.0304	1.0300	1.0294	1.0283	1.0256	1.0219
40	1.0379	1.0378	1.0377	1.0374	1.0371	1.0366	1.0361	1.0354	1.0341	1.0311	1.0271
45	1.0439	1.0439	1.0438	1.0434	1.0431	1.0424	1.0419	1.0411	1.0396	1.0363	1.0322
50	1.0500	1.0500	1.0498	1.0494	1.0490	1.0483	1.0477	1.0467	1.0451	1.0414	1.0371
55	1.0558	1.0558	1.0556	1.0551	1.0547	1.0538	1.0531	1.0520	1.0502	1.0462	1.0417
60	1.0615	1.0615	1.0613	1.0607	1.0602	1.0591	1.0584	1.0571	1.0550	1.0508	1.0461
65	1.0670	1.0669	1.0667	1.0660	1.0654	1.0642	1.0634	1.0620	1.0596	1.0550	1.0502
70	1.0722	1.0722	1.0719	1.0711	1.0704	1.0691	1.0681	1.0665	1.0639	1.0589	1.0540
75	1.0773	1.0772	1.0769	1.0759	1.0752	1.0736	1.0725	1.0708	1.0679	1.0625	1.0576
80	1.0821	1.0820	1.0816	1.0805	1.0797	1.0779	1.0766	1.0747	1.0715	1.0659	1.0609
85	1.0867	1.0866	1.0861	1.0849	1.0839	1.0819	1.0804	1.0783	1.0748	1.0689	1.0639
90	1.0909	1.0908	1.0903	1.0889	1.0878	1.0855	1.0839	1.0815	1.0778	1.0716	1.0667
95	1.0951	1.0950	1.0943	1.0927	1.0914	1.0889	1.0871	1.0844	1.0804	1.0740	1.0693
100	1.0998	1.0987	1.0980	1.0961	1.0947	1.0918	1.0898	1.0869	1.0826	1.0761	1.0717
105	1.1026	1.1024	1.1016	1.0994	1.0977	1.0945	1.0923	1.0892	1.0846	1.0780	1.0739
110	1.1059	1.1056	1.1047	1.1022	1.1003	1.0967	1.0924	1.0909	1.0861	1.0796	1.0759
115	1.1091	1.1089	1.1077	1.1048	1.1027	1.0986	1.0959	1.0923	1.0873	1.0809	1.0778
120	1.1119	1.1116	1.1102	1.1069	1.1044	1.0999	1.0970	1.0931	1.0881	1.0820	1.0795
125	1.1147	1.1143	1.1127	1.1087	1.1059	1.1008	1.0977	1.0937	1.0885	1.0829	1.0810
130	1.1170	1.1165	1.1146	1.1099	1.1067	1.1011	1.0978	1.0936	1.0886	1.0835	1.0824
135	1.1193	1.1188	1.1164	1.1108	1.1071	1.1009	1.0974	1.0932	1.0884	1.0840	1.0837
140	1.1212	1.1204	1.1174	1.1108	1.1066	1.0999	1.0963	1.0922	1.0878	1.0843	1.0848
145	1.1230	1.1221	1.1183	1.1102	1.1055	1.0984	1.0948	1.0909	1.0870	1.0845	1.0858
150	1.1244	1.1231	1.1181	1.1084	1.1032	1.0960	1.0926	1.0891	1.0860	1.0846	1.0866
155	1.1258	1.1239	1.1171	1.1055	1.0999	1.0930	1.0901	1.0872	1.0849	1.0846	1.0874
160	1.1268	1.1240	1.1145	1.1010	1.0955	1.0895	1.0872	1.0851	1.0838	1.0845	1.0880
165	1.1272	1.1224	1.1089	1.0947	1.0901	1.0858	1.0843	1.0832	1.0828	1.0844	1.0884
170	1.1297	1.1198	1.1004	1.0879	1.0850	1.0826	1.0819	1.0816	1.0820	1.0844	1.0888
175	1.1359	1.0977	1.0844	1.0806	1.0801	1.0799	1.0800	1.0804	1.0814	1.0843	1.0890
180	1.0783	1.0783	1.0784	1.0786	1.0788	1.0792	1.0795	1.0801	1.0812	1.0843	1.0890

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN NI, Z=28

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9985	0.9985	0.9985	0.9985	0.9984	0.9984	0.9983	0.9982	0.9980	0.9973	0.9963
10	1.0037	1.0037	1.0037	1.0036	1.0035	1.0033	1.0031	1.0029	1.0023	1.0009	0.9987
15	1.0082	1.0082	1.0081	1.0080	1.0079	1.0076	1.0074	1.0070	1.0063	1.0044	1.0015
20	1.0150	1.0150	1.0149	1.0148	1.0146	1.0143	1.0140	1.0135	1.0126	1.0103	1.0066
25	1.0216	1.0216	1.0215	1.0213	1.0211	1.0207	1.0203	1.0198	1.0187	1.0161	1.0120
30	1.0290	1.0290	1.0289	1.0286	1.0284	1.0279	1.0275	1.0269	1.0256	1.0226	1.0182
35	1.0361	1.0361	1.0360	1.0357	1.0354	1.0348	1.0344	1.0336	1.0323	1.0289	1.0242
40	1.0436	1.0436	1.0434	1.0430	1.0427	1.0420	1.0415	1.0407	1.0391	1.0354	1.0304
45	1.0507	1.0507	1.0505	1.0501	1.0497	1.0489	1.0483	1.0473	1.0456	1.0416	1.0364
50	1.0579	1.0578	1.0576	1.0571	1.0567	1.0558	1.0551	1.0540	1.0520	1.0476	1.0422
55	1.0647	1.0647	1.0644	1.0638	1.0633	1.0623	1.0615	1.0602	1.0580	1.0533	1.0476
60	1.0714	1.0714	1.0711	1.0704	1.0698	1.0686	1.0677	1.0663	1.0638	1.0586	1.0529
65	1.0778	1.0778	1.0775	1.0767	1.0760	1.0746	1.0736	1.0720	1.0692	1.0637	1.0578
70	1.0840	1.0840	1.0836	1.0827	1.0819	1.0803	1.0792	1.0774	1.0743	1.0684	1.0624
75	1.0900	1.0899	1.0895	1.0884	1.0876	1.0858	1.0844	1.0824	1.0790	1.0727	1.0666
80	1.0956	1.0955	1.0951	1.0938	1.0928	1.0908	1.0893	1.0871	1.0834	1.0767	1.0706
85	1.1011	1.1009	1.1004	1.0990	1.0979	1.0956	1.0939	1.0914	1.0874	1.0804	1.0743
90	1.1061	1.1060	1.1054	1.1037	1.1025	1.0999	1.0980	1.0952	1.0909	1.0836	1.0778
95	1.1110	1.1109	1.1102	1.1083	1.1068	1.1039	1.1018	1.0988	1.0941	1.0866	1.0810
100	1.1155	1.1153	1.1145	1.1124	1.1107	1.1074	1.1051	1.1018	1.0968	1.0892	1.0839
105	1.1199	1.1197	1.1187	1.1163	1.1144	1.1107	1.1081	1.1045	1.0992	1.0915	1.0867
110	1.1238	1.1236	1.1224	1.1196	1.1174	1.1133	1.1105	1.1066	1.1011	1.0935	1.0892
115	1.1276	1.1273	1.1260	1.1227	1.1203	1.1156	1.1125	1.1084	1.1026	1.0952	1.0915
120	1.1310	1.1306	1.1291	1.1252	1.1224	1.1172	1.1139	1.1095	1.1036	1.0966	1.0937
125	1.1343	1.1338	1.1320	1.1275	1.1243	1.1185	1.1149	1.1102	1.1043	1.0978	1.0956
130	1.1370	1.1365	1.1343	1.1289	1.1253	1.1189	1.1151	1.1103	1.1045	1.0987	1.0974
135	1.1398	1.1391	1.1364	1.1301	1.1258	1.1188	1.1148	1.1099	1.1044	1.0994	1.0991
140	1.1419	1.1411	1.1377	1.1302	1.1254	1.1178	1.1136	1.1089	1.1038	1.0999	1.1005
145	1.1442	1.1431	1.1388	1.1296	1.1242	1.1161	1.1120	1.1075	1.1030	1.1002	1.1018
150	1.1458	1.1444	1.1387	1.1276	1.1216	1.1134	1.1095	1.1055	1.1019	1.1004	1.1030
155	1.1474	1.1453	1.1376	1.1244	1.1180	1.1101	1.1066	1.1034	1.1008	1.1005	1.1040
160	1.1487	1.1455	1.1347	1.1193	1.1130	1.1060	1.1034	1.1010	1.0995	1.1005	1.1048
165	1.1491	1.1438	1.1284	1.1121	1.1068	1.1018	1.1001	1.0988	1.0984	1.1005	1.1054
170	1.1518	1.1406	1.1186	1.1042	1.1008	1.0980	1.0973	1.0970	1.0975	1.1005	1.1058
175	1.1378	1.1163	1.1004	1.0959	1.0952	1.0950	1.0951	1.0956	1.0968	1.1005	1.1061
180	1.0930	1.0930	1.0931	1.0934	1.0936	1.0941	1.0945	1.0952	1.0966	1.1004	1.1062

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN CU, Z=29

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9983	0.9983	0.9983	0.9983	0.9982	0.9981	0.9981	0.9979	0.9977	0.9970	0.9959
10	1.0038	1.0038	1.0037	1.0036	1.0035	1.0033	1.0031	1.0028	1.0022	1.0006	0.9982
15	1.0085	1.0085	1.0085	1.0083	1.0082	1.0079	1.0077	1.0073	1.0065	1.0044	1.0011
20	1.0158	1.0158	1.0157	1.0155	1.0154	1.0150	1.0147	1.0142	1.0132	1.0106	1.0065
25	1.0229	1.0229	1.0228	1.0225	1.0223	1.0219	1.0215	1.0209	1.0200	1.0168	1.0123
30	1.0309	1.0308	1.0307	1.0304	1.0302	1.0296	1.0292	1.0285	1.0272	1.0238	1.0188
35	1.0386	1.0385	1.0384	1.0381	1.0378	1.0371	1.0366	1.0358	1.0343	1.0306	1.0254
40	1.0466	1.0465	1.0464	1.0460	1.0456	1.0449	1.0443	1.0434	1.0417	1.0376	1.0320
45	1.0543	1.0542	1.0540	1.0536	1.0532	1.0523	1.0517	1.0506	1.0487	1.0443	1.0385
50	1.0620	1.0619	1.0617	1.0612	1.0607	1.0597	1.0590	1.0577	1.0556	1.0508	1.0447
55	1.0694	1.0693	1.0691	1.0684	1.0679	1.0668	1.0659	1.0645	1.0621	1.0569	1.0507
60	1.0766	1.0766	1.0763	1.0755	1.0749	1.0736	1.0726	1.0711	1.0684	1.0628	1.0564
65	1.0836	1.0835	1.0832	1.0823	1.0816	1.0801	1.0790	1.0773	1.0743	1.0683	1.0617
70	1.0903	1.0902	1.0898	1.0888	1.0880	1.0863	1.0851	1.0831	1.0798	1.0734	1.0667
75	1.0967	1.0966	1.0962	1.0950	1.0941	1.0922	1.0908	1.0886	1.0849	1.0781	1.0714
80	1.1028	1.1027	1.1022	1.1009	1.0999	1.0977	1.0961	1.0936	1.0897	1.0825	1.0758
85	1.1087	1.1086	1.1080	1.1065	1.1053	1.1028	1.1010	1.0983	1.0940	1.0865	1.0798
90	1.1142	1.1141	1.1134	1.1117	1.1103	1.1075	1.1055	1.1026	1.0979	1.0901	1.0836
95	1.1195	1.1194	1.1186	1.1166	1.1151	1.1119	1.1097	1.1064	1.1014	1.0933	1.0871
100	1.1244	1.1242	1.1233	1.1210	1.1193	1.1158	1.1133	1.1098	1.1044	1.0962	1.0904
105	1.1291	1.1289	1.1279	1.1253	1.1232	1.1193	1.1166	1.1127	1.1070	1.0988	1.0934
110	1.1334	1.1331	1.1319	1.1289	1.1266	1.1222	1.1192	1.1150	1.1091	1.1010	1.0963
115	1.1375	1.1372	1.1358	1.1323	1.1297	1.1247	1.1215	1.1170	1.1109	1.1029	1.0988
120	1.1412	1.1408	1.1391	1.1350	1.1321	1.1265	1.1230	1.1183	1.1120	1.1045	1.1013
125	1.1447	1.1443	1.1423	1.1375	1.1341	1.1279	1.1241	1.1191	1.1128	1.1058	1.1035
130	1.1477	1.1472	1.1448	1.1392	1.1353	1.1284	1.1244	1.1192	1.1131	1.1069	1.1055
135	1.1507	1.1500	1.1471	1.1404	1.1359	1.1284	1.1241	1.1189	1.1130	1.1077	1.1073
140	1.1531	1.1522	1.1486	1.1406	1.1355	1.1273	1.1230	1.1179	1.1125	1.1083	1.1090
145	1.1555	1.1544	1.1497	1.1400	1.1342	1.1256	1.1212	1.1164	1.1117	1.1087	1.1105
150	1.1573	1.1557	1.1497	1.1380	1.1316	1.1228	1.1187	1.1144	1.1106	1.1090	1.1118
155	1.1590	1.1568	1.1486	1.1345	1.1277	1.1193	1.1156	1.1121	1.1093	1.1092	1.1129
160	1.1604	1.1570	1.1456	1.1291	1.1224	1.1150	1.1121	1.1096	1.1081	1.1092	1.1139
165	1.1609	1.1553	1.1389	1.1215	1.1158	1.1104	1.1086	1.1073	1.1069	1.1093	1.1146
170	1.1637	1.1518	1.1284	1.1130	1.1094	1.1064	1.1057	1.1054	1.1059	1.1092	1.1151
175	1.1497	1.1264	1.1091	1.1041	1.1034	1.1032	1.1034	1.1039	1.1053	1.1092	1.1154
180	1.1010	1.1010	1.1011	1.1014	1.1017	1.1022	1.1027	1.1035	1.1050	1.1092	1.1155

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN ZN, Z=30

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9981	0.9981	0.9981	0.9980	0.9980	0.9979	0.9978	0.9977	0.9974	0.9966	0.9955
10	1.0038	1.0038	1.0037	1.0036	1.0035	1.0033	1.0031	1.0027	1.0021	1.0003	0.9977
15	1.0088	1.0088	1.0088	1.0086	1.0085	1.0081	1.0079	1.0074	1.0066	1.0043	1.0006
20	1.0166	1.0166	1.0165	1.0163	1.0161	1.0157	1.0154	1.0148	1.0137	1.0108	1.0064
25	1.0242	1.0242	1.0241	1.0238	1.0236	1.0231	1.0227	1.0220	1.0207	1.0174	1.0125
30	1.0328	1.0327	1.0326	1.0323	1.0320	1.0314	1.0310	1.0302	1.0287	1.0250	1.0195
35	1.0410	1.0410	1.0409	1.0405	1.0402	1.0395	1.0389	1.0380	1.0364	1.0323	1.0265
40	1.0496	1.0496	1.0494	1.0490	1.0486	1.0478	1.0472	1.0462	1.0443	1.0398	1.0336
45	1.0579	1.0579	1.0577	1.0572	1.0567	1.0558	1.0551	1.0539	1.0518	1.0470	1.0406
50	1.0662	1.0662	1.0660	1.0653	1.0649	1.0638	1.0630	1.0617	1.0593	1.0540	1.0474
55	1.0742	1.0741	1.0739	1.0732	1.0726	1.0714	1.0705	1.0690	1.0663	1.0607	1.0538
60	1.0820	1.0820	1.0817	1.0808	1.0802	1.0788	1.0777	1.0761	1.0731	1.0670	1.0600
65	1.0895	1.0895	1.0891	1.0882	1.0874	1.0858	1.0846	1.0827	1.0795	1.0730	1.0657
70	1.0968	1.0967	1.0963	1.0952	1.0943	1.0925	1.0912	1.0891	1.0855	1.0785	1.0712
75	1.1037	1.1036	1.1032	1.1019	1.1009	1.0989	1.0974	1.0950	1.0911	1.0837	1.0763
80	1.1103	1.1102	1.1097	1.1083	1.1071	1.1048	1.1031	1.1005	1.0962	1.0884	1.0811
85	1.1167	1.1166	1.1160	1.1143	1.1131	1.1104	1.1085	1.1056	1.1010	1.0928	1.0855
90	1.1226	1.1225	1.1218	1.1199	1.1185	1.1155	1.1134	1.1102	1.1052	1.0967	1.0897
95	1.1284	1.1282	1.1274	1.1253	1.1236	1.1203	1.1179	1.1144	1.1090	1.1003	1.0936
100	1.1337	1.1335	1.1325	1.1301	1.1282	1.1245	1.1218	1.1180	1.1123	1.1035	1.0972
105	1.1388	1.1385	1.1375	1.1347	1.1325	1.1283	1.1254	1.1213	1.1152	1.1063	1.1005
110	1.1434	1.1431	1.1419	1.1386	1.1362	1.1315	1.1283	1.1239	1.1175	1.1088	1.1036
115	1.1479	1.1475	1.1461	1.1423	1.1395	1.1343	1.1308	1.1260	1.1195	1.1109	1.1065
120	1.1518	1.1514	1.1497	1.1453	1.1422	1.1363	1.1325	1.1275	1.1208	1.1127	1.1092
125	1.1557	1.1552	1.1531	1.1480	1.1444	1.1378	1.1337	1.1284	1.1217	1.1133	1.1117
130	1.1589	1.1583	1.1558	1.1498	1.1457	1.1384	1.1341	1.1286	1.1221	1.1155	1.1140
135	1.1622	1.1614	1.1584	1.1512	1.1465	1.1385	1.1339	1.1284	1.1221	1.1164	1.1160
140	1.1647	1.1638	1.1600	1.1515	1.1460	1.1374	1.1327	1.1273	1.1216	1.1177	1.1179
145	1.1673	1.1661	1.1613	1.1509	1.1448	1.1356	1.1309	1.1258	1.1208	1.1177	1.1196
150	1.1693	1.1677	1.1613	1.1488	1.1420	1.1327	1.1283	1.1237	1.1196	1.1180	1.1211
155	1.1712	1.1688	1.1602	1.1452	1.1380	1.1289	1.1250	1.1213	1.1184	1.1183	1.1224
160	1.1726	1.1691	1.1569	1.1395	1.1323	1.1244	1.1214	1.1187	1.1171	1.1184	1.1234
165	1.1733	1.1673	1.1499	1.1314	1.1253	1.1195	1.1176	1.1162	1.1158	1.1185	1.1243
170	1.1760	1.1636	1.1387	1.1223	1.1184	1.1153	1.1145	1.1142	1.1148	1.1185	1.1249
175	1.1621	1.1371	1.1183	1.1129	1.1121	1.1118	1.1120	1.1126	1.1141	1.1185	1.1253
180	1.1095	1.1095	1.1096	1.1099	1.1102	1.1108	1.1113	1.1122	1.1139	1.1184	1.1253

RATIO OF MOTT TO MCKINLEY-PESHBACH SCATTERING IN GE, Z=32

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9976	0.9976	0.9976	0.9975	0.9975	0.9973	0.9972	0.9972	0.9967	0.9958	0.9945
10	1.0038	1.0038	1.0037	1.0035	1.0034	1.0031	1.0029	1.0025	1.0017	0.9996	0.9965
15	1.0094	1.0094	1.0094	1.0092	1.0090	1.0086	1.0083	1.0077	1.0067	1.0039	0.9995
20	1.0182	1.0182	1.0181	1.0178	1.0176	1.0171	1.0167	1.0160	1.0147	1.0112	1.0058
25	1.0268	1.0268	1.0267	1.0264	1.0261	1.0255	1.0250	1.0242	1.0227	1.0187	1.0126
30	1.0366	1.0366	1.0364	1.0361	1.0357	1.0350	1.0345	1.0335	1.0317	1.0272	1.0205
35	1.0461	1.0461	1.0459	1.0455	1.0451	1.0443	1.0436	1.0426	1.0406	1.0357	1.0285
40	1.0560	1.0560	1.0558	1.0552	1.0548	1.0539	1.0531	1.0519	1.0497	1.0443	1.0368
45	1.0655	1.0655	1.0653	1.0647	1.0642	1.0631	1.0623	1.0609	1.0584	1.0526	1.0448
50	1.0751	1.0751	1.0748	1.0741	1.0735	1.0723	1.0713	1.0698	1.0670	1.0607	1.0526
55	1.0843	1.0843	1.0840	1.0832	1.0825	1.0811	1.0800	1.0783	1.0752	1.0685	1.0601
60	1.0934	1.0933	1.0930	1.0920	1.0913	1.0897	1.0884	1.0865	1.0831	1.0759	1.0673
65	1.1021	1.1020	1.1016	1.1005	1.0997	1.0978	1.0964	1.0943	1.0905	1.0828	1.0741
70	1.1105	1.1104	1.1099	1.1087	1.1077	1.1056	1.1041	1.1016	1.0975	1.0893	1.0805
75	1.1185	1.1184	1.1179	1.1165	1.1154	1.1130	1.1113	1.1086	1.1041	1.0954	1.0865
80	1.1262	1.1261	1.1255	1.1239	1.1226	1.1199	1.1180	1.1150	1.1101	1.1010	1.0922
85	1.1336	1.1334	1.1328	1.1309	1.1295	1.1265	1.1243	1.1210	1.1157	1.1062	1.0975
90	1.1405	1.1403	1.1396	1.1375	1.1358	1.1324	1.1300	1.1264	1.1207	1.1109	1.1024
95	1.1472	1.1470	1.1461	1.1437	1.1418	1.1380	1.1353	1.1314	1.1252	1.1152	1.1071
100	1.1534	1.1531	1.1521	1.1493	1.1472	1.1430	1.1400	1.1357	1.1292	1.1190	1.1114
105	1.1593	1.1590	1.1578	1.1547	1.1523	1.1475	1.1442	1.1395	1.1327	1.1224	1.1155
110	1.1647	1.1644	1.1630	1.1593	1.1566	1.1513	1.1477	1.1427	1.1355	1.1255	1.1193
115	1.1699	1.1695	1.1679	1.1637	1.1606	1.1546	1.1507	1.1453	1.1379	1.1281	1.1222
120	1.1745	1.1741	1.1721	1.1673	1.1637	1.1571	1.1528	1.1471	1.1396	1.1304	1.1262
125	1.1790	1.1785	1.1762	1.1704	1.1664	1.1590	1.1544	1.1484	1.1408	1.1323	1.1292
130	1.1828	1.1822	1.1794	1.1727	1.1680	1.1599	1.1550	1.1488	1.1414	1.1339	1.1321
135	1.1866	1.1858	1.1824	1.1744	1.1690	1.1600	1.1549	1.1486	1.1415	1.1352	1.1347
140	1.1896	1.1886	1.1844	1.1748	1.1687	1.1590	1.1537	1.1476	1.1411	1.1362	1.1371
145	1.1926	1.1913	1.1859	1.1743	1.1674	1.1571	1.1518	1.1461	1.1404	1.1370	1.1392
150	1.1949	1.1931	1.1860	1.1721	1.1645	1.1539	1.1489	1.1438	1.1392	1.1375	1.1411
155	1.1971	1.1945	1.1849	1.1681	1.1600	1.1498	1.1454	1.1412	1.1379	1.1379	1.1428
160	1.1988	1.1949	1.1814	1.1617	1.1537	1.1447	1.1413	1.1383	1.1365	1.1382	1.1441
165	1.1997	1.1930	1.1736	1.1527	1.1458	1.1393	1.1371	1.1355	1.1351	1.1384	1.1452
170	1.2025	1.1887	1.1609	1.1424	1.1379	1.1344	1.1335	1.1332	1.1341	1.1385	1.1459
175	1.1890	1.1601	1.1382	1.1318	1.1308	1.1305	1.1308	1.1315	1.1333	1.1385	1.1465
180	1.1277	1.1277	1.1279	1.1283	1.1286	1.1293	1.1299	1.1310	1.1330	1.1385	1.1466

RATIO OF MOTT TO MCKINLEY-PESHBACH SCATTERING IN RB, Z=37

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9959	0.9959	0.9959	0.9958	0.9957	0.9955	0.9954	0.9951	0.9946	0.9933	0.9916
10	1.0031	1.0031	1.0030	1.0028	1.0026	1.0022	1.0018	1.0012	1.0001	0.9970	0.9927
15	1.0104	1.0104	1.0103	1.0099	1.0097	1.0091	1.0086	1.0078	1.0061	1.0018	0.9954
20	1.0218	1.0218	1.0217	1.0213	1.0209	1.0201	1.0195	1.0185	1.0164	1.0110	1.0029
25	1.0334	1.0334	1.0332	1.0327	1.0323	1.0314	1.0307	1.0295	1.0271	1.0209	1.0115
30	1.0466	1.0465	1.0463	1.0457	1.0453	1.0442	1.0434	1.0420	1.0392	1.0323	1.0218
35	1.0596	1.0595	1.0593	1.0586	1.0581	1.0569	1.0559	1.0543	1.0513	1.0437	1.0325
40	1.0731	1.0730	1.0728	1.0720	1.0714	1.0700	1.0689	1.0671	1.0638	1.0555	1.0437
45	1.0863	1.0862	1.0859	1.0851	1.0843	1.0828	1.0816	1.0796	1.0759	1.0671	1.0547
50	1.0996	1.0995	1.0991	1.0981	1.0973	1.0955	1.0942	1.0920	1.0879	1.0784	1.0656
55	1.1124	1.1123	1.1119	1.1108	1.1099	1.1079	1.1063	1.1039	1.0994	1.0893	1.0762
60	1.1250	1.1249	1.1245	1.1232	1.1221	1.1199	1.1182	1.1154	1.1105	1.0998	1.0864
65	1.1372	1.1371	1.1366	1.1351	1.1339	1.1314	1.1295	1.1264	1.1211	1.1098	1.0961
70	1.1490	1.1489	1.1483	1.1466	1.1453	1.1424	1.1403	1.1369	1.1311	1.1192	1.1054
75	1.1604	1.1602	1.1595	1.1576	1.1561	1.1529	1.1505	1.1468	1.1405	1.1280	1.1142
80	1.1712	1.1711	1.1703	1.1681	1.1664	1.1628	1.1602	1.1561	1.1493	1.1362	1.1225
85	1.1817	1.1815	1.1806	1.1781	1.1762	1.1722	1.1692	1.1647	1.1574	1.1438	1.1304
90	1.1915	1.1913	1.1903	1.1875	1.1853	1.1808	1.1775	1.1727	1.1648	1.1509	1.1379
95	1.2010	1.2008	1.1996	1.1964	1.1939	1.1889	1.1853	1.1799	1.1716	1.1573	1.1449
100	1.2098	1.2095	1.2082	1.2045	1.2017	1.1961	1.1922	1.1864	1.1775	1.1633	1.1517
105	1.2183	1.2179	1.2163	1.2122	1.2090	1.2027	1.1984	1.1922	1.1829	1.1686	1.1579
110	1.2260	1.2256	1.2238	1.2191	1.2155	1.2085	1.2037	1.1970	1.1874	1.1734	1.1640
115	1.2335	1.2330	1.2308	1.2254	1.2213	1.2135	1.2083	1.2011	1.1912	1.1777	1.1696
120	1.2401	1.2396	1.2370	1.2307	1.2261	1.2174	1.2118	1.2043	1.1942	1.1815	1.1750
125	1.2465	1.2458	1.2428	1.2354	1.2301	1.2205	1.2144	1.2065	1.1964	1.1848	1.1800
130	1.2521	1.2512	1.2477	1.2390	1.2329	1.2223	1.2159	1.2077	1.1979	1.1877	1.1847
135	1.2574	1.2563	1.2520	1.2417	1.2347	1.2230	1.2163	1.2080	1.1986	1.1901	1.1891
140	1.2619	1.2606	1.2551	1.2428	1.2350	1.2223	1.2153	1.2073	1.1987	1.1921	1.1932
145	1.2661	1.2644	1.2575	1.2426	1.2337	1.2202	1.2133	1.2056	1.1982	1.1938	1.1968
150	1.2695	1.2672	1.2581	1.2402	1.2303	1.2164	1.2099	1.2031	1.1971	1.1952	1.2001
155	1.2726	1.2693	1.2570	1.2354	1.2247	1.2113	1.2055	1.1999	1.1958	1.1962	1.2029
160	1.2750	1.2701	1.2528	1.2273	1.2167	1.2049	1.2003	1.1964	1.1942	1.1970	1.2052
165	1.2765	1.2681	1.2432	1.2156	1.2065	1.1978	1.1950	1.1929	1.1927	1.1976	1.2071
170	1.2794	1.2620	1.2262	1.2019	1.1960	1.1914	1.1903	1.1900	1.1914	1.1980	1.2084
175	1.2685	1.2287	1.1975	1.1882	1.1868	1.1864	1.1868	1.1879	1.1906	1.1983	1.2094
180	1.1822	1.1823	1.1825	1.1831	1.1836	1.1847	1.1856	1.1872	1.1902	1.1982	1.2096

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN ZR, Z=40

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9946	0.9946	0.9946	0.9945	0.9944	0.9941	0.9939	0.9936	0.9930	0.9914	0.9896
10	1.0023	1.0023	1.0022	1.0019	1.0017	1.0011	1.0007	1.0000	0.9985	0.9948	0.9898
15	1.0105	1.0105	1.0103	1.0099	1.0096	1.0088	1.0082	1.0072	1.0052	0.9998	0.9920
20	1.0237	1.0236	1.0234	1.0229	1.0225	1.0215	1.0207	1.0194	1.0168	1.0101	1.0000
25	1.0372	1.0371	1.0369	1.0363	1.0358	1.0347	1.0337	1.0322	1.0292	1.0214	1.0096
30	1.0526	1.0526	1.0523	1.0516	1.0510	1.0497	1.0486	1.0468	1.0434	1.0346	1.0213
35	1.0680	1.0679	1.0676	1.0668	1.0661	1.0646	1.0635	1.0615	1.0577	1.0481	1.0338
40	1.0841	1.0840	1.0837	1.0827	1.0819	1.0802	1.0789	1.0767	1.0725	1.0620	1.0469
45	1.0998	1.0997	1.0994	1.0983	1.0974	1.0955	1.0940	1.0916	1.0870	1.0758	1.0601
50	1.1157	1.1156	1.1151	1.1139	1.1129	1.1108	1.1091	1.1064	1.1013	1.0894	1.0731
55	1.1311	1.1310	1.1305	1.1291	1.1280	1.1256	1.1237	1.1207	1.1152	1.1026	1.0858
60	1.1463	1.1461	1.1456	1.1440	1.1428	1.1400	1.1380	1.1346	1.1287	1.1153	1.0981
65	1.1610	1.1608	1.1602	1.1584	1.1570	1.1540	1.1517	1.1480	1.1415	1.1274	1.1099
70	1.1752	1.1750	1.1743	1.1723	1.1707	1.1673	1.1648	1.1607	1.1537	1.1389	1.1213
75	1.1890	1.1888	1.1879	1.1857	1.1839	1.1801	1.1772	1.1728	1.1652	1.1497	1.1321
80	1.2021	1.2019	1.2010	1.1984	1.1964	1.1921	1.1890	1.1841	1.1759	1.1598	1.1424
85	1.2148	1.2145	1.2135	1.2106	1.2083	1.2035	1.2001	1.1947	1.1859	1.1693	1.1522
90	1.2268	1.2265	1.2253	1.2220	1.2195	1.2142	1.2103	1.2045	1.1951	1.1781	1.1615
95	1.2383	1.2380	1.2366	1.2329	1.2300	1.2241	1.2198	1.2135	1.2035	1.1862	1.1703
100	1.2490	1.2487	1.2471	1.2429	1.2396	1.2330	1.2284	1.2216	1.2111	1.1937	1.1789
105	1.2593	1.2589	1.2571	1.2523	1.2486	1.2413	1.2362	1.2288	1.2178	1.2005	1.1868
110	1.2688	1.2684	1.2662	1.2607	1.2566	1.2484	1.2429	1.2350	1.2236	1.2068	1.1946
115	1.2779	1.2773	1.2748	1.2685	1.2638	1.2547	1.2487	1.2403	1.2285	1.2123	1.2018
120	1.2861	1.2854	1.2825	1.2752	1.2699	1.2598	1.2533	1.2445	1.2326	1.2174	1.2088
125	1.2938	1.2930	1.2896	1.2811	1.2750	1.2638	1.2568	1.2476	1.2357	1.2218	1.2153
130	1.3007	1.2998	1.2957	1.2857	1.2787	1.2664	1.2589	1.2495	1.2379	1.2257	1.2216
135	1.3072	1.3060	1.3010	1.2892	1.2812	1.2677	1.2598	1.2502	1.2392	1.2291	1.2273
140	1.3127	1.3113	1.3050	1.2909	1.2819	1.2672	1.2592	1.2498	1.2397	1.2320	1.2327
145	1.3179	1.3159	1.3080	1.2910	1.2807	1.2651	1.2571	1.2482	1.2395	1.2340	1.2376
150	1.3221	1.3195	1.3092	1.2886	1.2772	1.2611	1.2535	1.2456	1.2387	1.2364	1.2420
155	1.3259	1.3222	1.3082	1.2833	1.2710	1.2554	1.2486	1.2422	1.2374	1.2381	1.2457
160	1.3289	1.3232	1.3035	1.2742	1.2619	1.2461	1.2428	1.2383	1.2358	1.2393	1.2489
165	1.3309	1.3213	1.2928	1.2609	1.2503	1.2401	1.2368	1.2345	1.2343	1.2403	1.2515
170	1.3337	1.3140	1.2730	1.2448	1.2379	1.2326	1.2313	1.2311	1.2330	1.2409	1.2533
175	1.3256	1.2783	1.2405	1.2291	1.2274	1.2270	1.2275	1.2289	1.2322	1.2414	1.2545
180	1.2218	1.2219	1.2221	1.2229	1.2235	1.2249	1.2260	1.2279	1.2317	1.2414	1.2549

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN NB, Z=41

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9942	0.9941	0.9941	0.9940	0.9939	0.9936	0.9934	0.9931	0.9924	0.9908	0.9889
10	1.0020	1.0020	1.0018	1.0015	1.0013	1.0007	1.0002	0.9994	0.9979	0.9940	0.9887
15	1.0104	1.0104	1.0103	1.0098	1.0095	1.0086	1.0080	1.0069	1.0047	0.9990	0.9908
20	1.0242	1.0241	1.0239	1.0234	1.0229	1.0219	1.0210	1.0196	1.0169	1.0096	0.9988
25	1.0384	1.0383	1.0381	1.0374	1.0369	1.0357	1.0347	1.0330	1.0298	1.0214	1.0087
30	1.0546	1.0546	1.0543	1.0535	1.0529	1.0514	1.0503	1.0484	1.0447	1.0352	1.0210
35	1.0709	1.0708	1.0705	1.0696	1.0689	1.0673	1.0660	1.0638	1.0598	1.0494	1.0341
40	1.0878	1.0877	1.0874	1.0864	1.0855	1.0837	1.0823	1.0799	1.0754	1.0641	1.0478
45	1.1045	1.1044	1.1040	1.1029	1.1019	1.0999	1.0983	1.0957	1.0907	1.0787	1.0617
50	1.1213	1.1212	1.1207	1.1194	1.1184	1.1161	1.1143	1.1114	1.1060	1.0931	1.0754
55	1.1376	1.1375	1.1370	1.1355	1.1343	1.1318	1.1298	1.1266	1.1207	1.1071	1.0889
60	1.1537	1.1536	1.1530	1.1513	1.1500	1.1471	1.1449	1.1414	1.1350	1.1206	1.1020
65	1.1693	1.1692	1.1685	1.1666	1.1651	1.1619	1.1595	1.1555	1.1486	1.1335	1.1146
70	1.1844	1.1843	1.1835	1.1814	1.1797	1.1761	1.1734	1.1691	1.1616	1.1457	1.1267
75	1.1991	1.1989	1.1980	1.1956	1.1937	1.1897	1.1867	1.1820	1.1738	1.1573	1.1382
80	1.2131	1.2128	1.2119	1.2092	1.2070	1.2025	1.1992	1.1940	1.1853	1.1681	1.1492
85	1.2265	1.2263	1.2252	1.2221	1.2197	1.2147	1.2110	1.2054	1.1960	1.1783	1.1597
90	1.2393	1.2390	1.2378	1.2343	1.2316	1.2260	1.2220	1.2159	1.2059	1.1878	1.1698
95	1.2516	1.2513	1.2498	1.2459	1.2429	1.2366	1.2322	1.2255	1.2149	1.1965	1.1793
100	1.2631	1.2627	1.2610	1.2566	1.2532	1.2463	1.2414	1.2342	1.2231	1.2046	1.1884
105	1.2740	1.2736	1.2717	1.2666	1.2628	1.2550	1.2497	1.2419	1.2303	1.2119	1.1971
110	1.2842	1.2837	1.2815	1.2757	1.2713	1.2628	1.2570	1.2487	1.2366	1.2187	1.2055
115	1.2938	1.2932	1.2906	1.2840	1.2791	1.2695	1.2632	1.2544	1.2420	1.2247	1.2133
120	1.3026	1.3019	1.2989	1.2912	1.2856	1.2751	1.2682	1.2589	1.2464	1.2303	1.2209
125	1.3108	1.3100	1.3064	1.2975	1.2911	1.2794	1.2720	1.2623	1.2498	1.2351	1.2280
130	1.3182	1.3172	1.3129	1.3025	1.2952	1.2823	1.2745	1.2645	1.2523	1.2394	1.2348
135	1.3251	1.3239	1.3186	1.3063	1.2980	1.2838	1.2755	1.2655	1.2539	1.2431	1.2410
140	1.3311	1.3295	1.3230	1.3083	1.2988	1.2835	1.2750	1.2652	1.2546	1.2460	1.2470
145	1.3365	1.3345	1.3263	1.3085	1.2978	1.2814	1.2730	1.2637	1.2545	1.2491	1.2523
150	1.3411	1.3384	1.3276	1.3061	1.2941	1.2773	1.2693	1.2610	1.2538	1.2514	1.2571
155	1.3451	1.3412	1.3266	1.3007	1.2878	1.2714	1.2643	1.2576	1.2525	1.2533	1.2612
160	1.3483	1.3424	1.3219	1.2912	1.2783	1.2639	1.2583	1.2536	1.2510	1.2547	1.2648
165	1.3505	1.3405	1.3108	1.2774	1.2662	1.2555	1.2520	1.2496	1.2495	1.2559	1.2676
170	1.3532	1.3328	1.2900	1.2604	1.2532	1.2476	1.2463	1.2461	1.2481	1.2566	1.2696
175	1.3464	1.2965	1.2562	1.2440	1.2423	1.2418	1.2423	1.2438	1.2473	1.2572	1.2709
180	1.2363	1.2363	1.2366	1.2374	1.2381	1.2396	1.2408	1.2428	1.2468	1.2572	1.2713

RATIO OF MOTT TO MCKINLPY-FESHBACH SCATTERING IN MO, Z=42

ENERGY(MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9936	0.9936	0.9936	0.9934	0.9933	0.9930	0.9928	0.9925	0.9918	0.9910	0.9882
10	1.0016	1.0016	1.0014	1.0011	1.0008	1.0002	0.9997	0.9989	0.9972	0.9931	0.9876
15	1.0103	1.0103	1.0101	1.0097	1.0093	1.0084	1.0077	1.0065	1.0042	0.9981	0.9894
20	1.0246	1.0246	1.0244	1.0238	1.0233	1.0222	1.0213	1.0198	1.0168	1.0090	0.9975
25	1.0396	1.0395	1.0392	1.0385	1.0379	1.0366	1.0356	1.0338	1.0303	1.0213	1.0078
30	1.0566	1.0565	1.0562	1.0554	1.0547	1.0532	1.0520	1.0499	1.0460	1.0357	1.0204
35	1.0737	1.0736	1.0733	1.0724	1.0716	1.0699	1.0685	1.0662	1.0618	1.0507	1.0342
40	1.0916	1.0915	1.0911	1.0901	1.0892	1.0872	1.0857	1.0831	1.0783	1.0662	1.0486
45	1.1092	1.1091	1.1087	1.1075	1.1065	1.1043	1.1026	1.0998	1.0945	1.0816	1.0632
50	1.1270	1.1269	1.1264	1.1250	1.1239	1.1214	1.1195	1.1164	1.1106	1.0968	1.0777
55	1.1443	1.1442	1.1436	1.1421	1.1408	1.1381	1.1360	1.1325	1.1262	1.1117	1.0920
60	1.1613	1.1612	1.1606	1.1588	1.1574	1.1543	1.1520	1.1482	1.1414	1.1260	1.1059
65	1.1779	1.1777	1.1770	1.1750	1.1735	1.1700	1.1674	1.1633	1.1559	1.1397	1.1193
70	1.1939	1.1938	1.1930	1.1907	1.1890	1.1851	1.1823	1.1777	1.1697	1.1527	1.1321
75	1.2095	1.2093	1.2083	1.2058	1.2038	1.1996	1.1964	1.1914	1.1828	1.1650	1.1444
80	1.2244	1.2241	1.2231	1.2203	1.2180	1.2133	1.2097	1.2043	1.1950	1.1766	1.1562
85	1.2387	1.2384	1.2372	1.2341	1.2315	1.2262	1.2223	1.2164	1.2065	1.1875	1.1674
90	1.2523	1.2520	1.2506	1.2470	1.2442	1.2383	1.2341	1.2276	1.2170	1.1977	1.1782
95	1.2653	1.2650	1.2635	1.2594	1.2562	1.2496	1.2449	1.2379	1.2267	1.2070	1.1884
100	1.2776	1.2772	1.2754	1.2708	1.2672	1.2599	1.2548	1.2472	1.2354	1.2158	1.1983
105	1.2892	1.2888	1.2868	1.2815	1.2774	1.2693	1.2637	1.2555	1.2432	1.2237	1.2076
110	1.3001	1.2995	1.2972	1.2912	1.2866	1.2776	1.2715	1.2628	1.2501	1.2310	1.2166
115	1.3103	1.3097	1.3070	1.3001	1.2949	1.2849	1.2782	1.2690	1.2559	1.2376	1.2251
120	1.3197	1.3190	1.3158	1.3078	1.3020	1.2909	1.2837	1.2740	1.2607	1.2436	1.2334
125	1.3285	1.3276	1.3239	1.3146	1.3079	1.2956	1.2879	1.2777	1.2645	1.2489	1.2410
130	1.3364	1.3354	1.3309	1.3200	1.3124	1.2989	1.2906	1.2802	1.2674	1.2537	1.2485
135	1.3437	1.3424	1.3370	1.3241	1.3154	1.3005	1.2919	1.2814	1.2692	1.2577	1.2553
140	1.3501	1.3485	1.3417	1.3264	1.3165	1.3004	1.2915	1.2812	1.2701	1.2614	1.2618
145	1.3559	1.3538	1.3452	1.3267	1.3155	1.2984	1.2895	1.2798	1.2701	1.2644	1.2675
150	1.3608	1.3580	1.3468	1.3244	1.3118	1.2942	1.2858	1.2772	1.2695	1.2670	1.2729
155	1.3651	1.3611	1.3459	1.3188	1.3053	1.2881	1.2807	1.2736	1.2683	1.2691	1.2774
160	1.3685	1.3624	1.3410	1.3090	1.2955	1.2803	1.2745	1.2695	1.2668	1.2708	1.2813
165	1.3709	1.3605	1.3295	1.2946	1.2829	1.2716	1.2679	1.2654	1.2653	1.2721	1.2843
170	1.3736	1.3524	1.3078	1.2767	1.2692	1.2633	1.2620	1.2618	1.2639	1.2729	1.2865
175	1.3682	1.3154	1.2727	1.2597	1.2578	1.2573	1.2579	1.2594	1.2632	1.2736	1.2880
180	1.2514	1.2515	1.2518	1.2526	1.2533	1.2549	1.2562	1.2584	1.2627	1.2737	1.2885

RATIO OF MOTT TO MCKINLPY-FESHBACH SCATTERING IN AG, Z=47

ENERGY(MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9906	0.9906	0.9905	0.9904	0.9902	0.9899	0.9896	0.9891	0.9882	0.9863	0.9845
10	0.9989	0.9988	0.9987	0.9982	0.9978	0.9970	0.9964	0.9953	0.9931	0.9878	0.9816
15	1.0089	1.0088	1.0086	1.0080	1.0074	1.0062	1.0053	1.0036	1.0004	0.9923	0.9815
20	1.0262	1.0261	1.0258	1.0250	1.0243	1.0227	1.0215	1.0194	1.0153	1.0046	0.9895
25	1.0447	1.0446	1.0443	1.0433	1.0425	1.0406	1.0392	1.0367	1.0318	1.0192	1.0010
30	1.0661	1.0660	1.0656	1.0645	1.0635	1.0614	1.0597	1.0569	1.0513	1.0369	1.0158
35	1.0880	1.0879	1.0874	1.0861	1.0851	1.0827	1.0808	1.0776	1.0714	1.0557	1.0326
40	1.1110	1.1109	1.1103	1.1089	1.1076	1.1049	1.1028	1.0993	1.0925	1.0754	1.0505
45	1.1339	1.1337	1.1331	1.1315	1.1301	1.1272	1.1248	1.1209	1.1135	1.0953	1.0691
50	1.1570	1.1568	1.1561	1.1543	1.1528	1.1495	1.1469	1.1426	1.1346	1.1151	1.0878
55	1.1797	1.1796	1.1788	1.1767	1.1751	1.1714	1.1685	1.1638	1.1552	1.1346	1.1064
60	1.2022	1.2020	1.2011	1.1988	1.1970	1.1929	1.1897	1.1846	1.1752	1.1536	1.1247
65	1.2241	1.2239	1.2230	1.2204	1.2183	1.2137	1.2103	1.2047	1.1946	1.1719	1.1425
70	1.2455	1.2452	1.2442	1.2413	1.2389	1.2339	1.2301	1.2240	1.2132	1.1895	1.1597
75	1.2662	1.2659	1.2647	1.2615	1.2589	1.2533	1.2491	1.2424	1.2308	1.2062	1.1764
80	1.2861	1.2858	1.2845	1.2809	1.2779	1.2718	1.2672	1.2599	1.2476	1.2221	1.1925
85	1.3054	1.3050	1.3035	1.2994	1.2962	1.2893	1.2843	1.2764	1.2632	1.2371	1.2079
90	1.3237	1.3234	1.3216	1.3170	1.3134	1.3058	1.3003	1.2918	1.2779	1.2513	1.2229
95	1.3413	1.3409	1.3389	1.3337	1.3297	1.3213	1.3152	1.3061	1.2914	1.2645	1.2372
100	1.3579	1.3574	1.3552	1.3494	1.3448	1.3356	1.3290	1.3192	1.3038	1.2769	1.2511
105	1.3737	1.3731	1.3706	1.3640	1.3589	1.3486	1.3414	1.3309	1.3148	1.2883	1.2644
110	1.3885	1.3879	1.3850	1.3774	1.3717	1.3603	1.3526	1.3414	1.3248	1.2990	1.2774
115	1.4024	1.4017	1.3983	1.3897	1.3832	1.3706	1.3622	1.3504	1.3334	1.3087	1.2897
120	1.4153	1.4144	1.4105	1.4006	1.3933	1.3794	1.3704	1.3579	1.3409	1.3178	1.3019
125	1.4272	1.4262	1.4216	1.4101	1.4018	1.3865	1.3767	1.3638	1.3469	1.3258	1.3132
130	1.4382	1.4369	1.4314	1.4180	1.4086	1.3917	1.3814	1.3682	1.3517	1.3333	1.3243
135	1.4481	1.4465	1.4399	1.4241	1.4133	1.3949	1.3840	1.3707	1.3551	1.3398	1.3345
140	1.4570	1.4551	1.4468	1.4280	1.4158	1.3958	1.3847	1.3717	1.3575	1.3458	1.3443
145	1.4649	1.4629	1.4519	1.4293	1.4154	1.3942	1.3831	1.3708	1.3586	1.3508	1.3531
150	1.4717	1.4683	1.4547	1.4273	1.4119	1.3900	1.3794	1.3668	1.3588	1.3533	1.3612
155	1.4775	1.4727	1.4543	1.4211	1.4045	1.3831	1.3737	1.3648	1.3582	1.3590	1.3682
160	1.4822	1.4749	1.4490	1.4097	1.3929	1.3739	1.3666	1.3604	1.3570	1.3620	1.3742
165	1.4859	1.4734	1.4357	1.3924	1.3777	1.3635	1.3589	1.3558	1.3558	1.3644	1.3789
170	1.4880	1.4626	1.4084	1.3699	1.3605	1.3532	1.3516	1.3515	1.3544	1.3660	1.3823
175	1.4921	1.4239	1.3669	1.3494	1.3468	1.3460	1.3468	1.3489	1.3538	1.3672	1.3845
180	1.3381	1.3382	1.3386	1.3398	1.3407	1.3429	1.3447	1.3476	1.3533	1.3675	1.3854

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN SN, Z=50

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9885	0.9884	0.9884	0.9882	0.9880	0.9876	0.9873	0.9868	0.9858	0.9838	0.9823
10	0.9966	0.9965	0.9964	0.9958	0.9954	0.9945	0.9937	0.9924	0.9900	0.9841	0.9777
15	1.0072	1.0071	1.0069	1.0061	1.0055	1.0040	1.0029	1.0010	0.9972	0.9878	0.9759
20	1.0262	1.0262	1.0258	1.0248	1.0240	1.0221	1.0207	1.0181	1.0132	1.0007	0.9834
25	1.0471	1.0470	1.0465	1.0454	1.0444	1.0422	1.0404	1.0374	1.0316	1.0166	0.9954
30	1.0713	1.0712	1.0707	1.0694	1.0682	1.0657	1.0636	1.0602	1.0535	1.0362	1.0113
35	1.0964	1.0962	1.0957	1.0941	1.0928	1.0900	1.0877	1.0838	1.0764	1.0574	1.0299
40	1.1227	1.1226	1.1220	1.1202	1.1188	1.1155	1.1130	1.1087	1.1005	1.0798	1.0499
45	1.1492	1.1491	1.1484	1.1464	1.1448	1.1412	1.1384	1.1337	1.1248	1.1027	1.0711
50	1.1760	1.1758	1.1751	1.1729	1.1711	1.1671	1.1640	1.1589	1.1492	1.1256	1.0924
55	1.2025	1.2024	1.2015	1.1990	1.1970	1.1927	1.1893	1.1837	1.1733	1.1484	1.1140
60	1.2288	1.2286	1.2276	1.2249	1.2226	1.2178	1.2141	1.2080	1.1968	1.1705	1.1351
65	1.2545	1.2543	1.2532	1.2501	1.2477	1.2423	1.2382	1.2316	1.2196	1.1921	1.1560
70	1.2796	1.2793	1.2781	1.2747	1.2720	1.2661	1.2616	1.2544	1.2415	1.2129	1.1763
75	1.3040	1.3037	1.3023	1.2986	1.2955	1.2890	1.2841	1.2762	1.2625	1.2327	1.1960
80	1.3276	1.3273	1.3257	1.3215	1.3181	1.3109	1.3055	1.2971	1.2824	1.2517	1.2151
85	1.3504	1.3500	1.3482	1.3435	1.3397	1.3318	1.3259	1.3167	1.3011	1.2697	1.2335
90	1.3722	1.3717	1.3698	1.3645	1.3603	1.3515	1.3451	1.3352	1.3188	1.2868	1.2515
95	1.3930	1.3925	1.3903	1.3843	1.3797	1.3700	1.3630	1.3523	1.3350	1.3027	1.2688
100	1.4129	1.4123	1.4098	1.4031	1.3979	1.3872	1.3796	1.3682	1.3501	1.3179	1.2857
105	1.4316	1.4310	1.4281	1.4205	1.4147	1.4029	1.3946	1.3825	1.3637	1.3318	1.3019
110	1.4494	1.4486	1.4453	1.4367	1.4302	1.4172	1.4083	1.3954	1.3760	1.3451	1.3179
115	1.4659	1.4650	1.4612	1.4515	1.4441	1.4298	1.4201	1.4064	1.3862	1.3571	1.3330
120	1.4814	1.4804	1.4760	1.4648	1.4565	1.4407	1.4303	1.4160	1.3962	1.3685	1.3480
125	1.4956	1.4944	1.4893	1.4763	1.4669	1.4495	1.4384	1.4236	1.4039	1.3787	1.3621
130	1.5088	1.5074	1.5012	1.4861	1.4755	1.4564	1.4446	1.4295	1.4104	1.3883	1.3759
135	1.5206	1.5189	1.5114	1.4937	1.4816	1.4607	1.4484	1.4331	1.4151	1.3967	1.3887
140	1.5314	1.5292	1.5201	1.4990	1.4852	1.4626	1.4499	1.4350	1.4187	1.4045	1.4010
145	1.5408	1.5380	1.5264	1.5010	1.4854	1.4614	1.4488	1.4348	1.4206	1.4111	1.4121
150	1.5491	1.5453	1.5302	1.4995	1.4821	1.4573	1.4453	1.4329	1.4217	1.4172	1.4224
155	1.5560	1.5507	1.5302	1.4931	1.4743	1.4501	1.4394	1.4293	1.4216	1.4221	1.4313
160	1.5617	1.5536	1.5248	1.4807	1.4617	1.4401	1.4318	1.4247	1.4209	1.4263	1.4389
165	1.5664	1.5562	1.5105	1.4616	1.4449	1.4287	1.4234	1.4199	1.4199	1.4295	1.4449
170	1.5678	1.5399	1.4796	1.4361	1.4254	1.4171	1.4153	1.4152	1.4186	1.4317	1.4493
175	1.5800	1.5013	1.4343	1.4134	1.4103	1.4093	1.4102	1.4126	1.4182	1.4334	1.4521
180	1.4000	1.4002	1.4006	1.4020	1.4031	1.4057	1.4077	1.4111	1.4177	1.4338	1.4533

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN CS, Z=55

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9843	0.9843	0.9842	0.9839	0.9837	0.9833	0.9829	0.9823	0.9813	0.9793	0.9787
10	0.9916	0.9916	0.9914	0.9907	0.9902	0.9890	0.9881	0.9865	0.9836	0.9770	0.9710
15	1.0028	1.0027	1.0024	1.0014	1.0006	0.9987	0.9973	0.9948	0.9901	0.9787	0.9656
20	1.0246	1.0245	1.0240	1.0227	1.0217	1.0192	1.0173	1.0140	1.0077	0.9918	0.9713
25	1.0493	1.0492	1.0487	1.0471	1.0458	1.0429	1.0405	1.0366	1.0290	1.0095	0.9833
30	1.0786	1.0785	1.0778	1.0760	1.0745	1.0711	1.0684	1.0638	1.0549	1.0321	1.0004
35	1.1094	1.1092	1.1085	1.1064	1.1047	1.1009	1.0978	1.0927	1.0828	1.0575	1.0218
40	1.1421	1.1419	1.1411	1.1387	1.1368	1.1325	1.1291	1.1234	1.1124	1.0846	1.0452
45	1.1753	1.1751	1.1742	1.1716	1.1695	1.1647	1.1610	1.1547	1.1428	1.1130	1.0708
50	1.2091	1.2089	1.2079	1.2050	1.2026	1.1974	1.1932	1.1864	1.1735	1.1416	1.0969
55	1.2429	1.2426	1.2415	1.2383	1.2357	1.2299	1.2254	1.2180	1.2041	1.1704	1.1238
60	1.2765	1.2762	1.2749	1.2714	1.2685	1.2621	1.2572	1.2491	1.2342	1.1987	1.1504
65	1.3096	1.3093	1.3078	1.3039	1.3007	1.2937	1.2884	1.2796	1.2636	1.2264	1.1769
70	1.3421	1.3417	1.3401	1.3358	1.3322	1.3246	1.3187	1.3093	1.2922	1.2534	1.2030
75	1.3738	1.3734	1.3716	1.3668	1.3629	1.3544	1.3481	1.3378	1.3196	1.2794	1.2285
80	1.4046	1.4041	1.4022	1.3968	1.3925	1.3832	1.3763	1.3653	1.3460	1.3045	1.2536
85	1.4343	1.4338	1.4316	1.4257	1.4209	1.4107	1.4031	1.3913	1.3709	1.3284	1.2779
90	1.4631	1.4625	1.4600	1.4534	1.4481	1.4369	1.4287	1.4160	1.3945	1.3513	1.3018
95	1.4905	1.4899	1.4871	1.4796	1.4738	1.4615	1.4526	1.4390	1.4164	1.3729	1.3249
100	1.5168	1.5161	1.5130	1.5046	1.4981	1.4847	1.4750	1.4605	1.4370	1.3936	1.3478
105	1.5416	1.5408	1.5373	1.5279	1.5206	1.5059	1.4954	1.4800	1.4557	1.4128	1.3698
110	1.5653	1.5644	1.5603	1.5498	1.5417	1.5255	1.5142	1.4979	1.4730	1.4313	1.3917
115	1.5873	1.5862	1.5816	1.5696	1.5605	1.5427	1.5306	1.5134	1.4881	1.4482	1.4127
120	1.6081	1.6069	1.6015	1.5878	1.5776	1.5581	1.5452	1.5272	1.5018	1.4645	1.4336
125	1.6270	1.6256	1.6193	1.6036	1.5921	1.5707	1.5569	1.5383	1.5132	1.4792	1.4534
130	1.6448	1.6431	1.6357	1.6174	1.6045	1.5810	1.5665	1.5475	1.5232	1.4933	1.4729
135	1.6606	1.6585	1.6495	1.6282	1.6135	1.5879	1.5728	1.5538	1.5309	1.5057	1.4912
140	1.6752	1.6726	1.6617	1.6363	1.6197	1.5921	1.5765	1.5580	1.5372	1.5175	1.5087
145	1.6877	1.6844	1.6706	1.6402	1.6214	1.5921	1.5766	1.5592	1.5413	1.5247	1.5247
150	1.6991	1.6946	1.6767	1.6400	1.6190	1.5888	1.5740	1.5585	1.5442	1.5370	1.5395
155	1.7083	1.7020	1.6779	1.6335	1.6107	1.5811	1.5680	1.5554	1.5456	1.5447	1.5524
160	1.7159	1.7064	1.6725	1.6196	1.5965	1.5701	1.5598	1.5510	1.5460	1.5514	1.5635
165	1.7227	1.7065	1.6566	1.5975	1.5770	1.5571	1.5505	1.5460	1.5458	1.5566	1.5723
170	1.7227	1.6903	1.6189	1.5663	1.5533	1.5432	1.5410	1.5409	1.5450	1.5602	1.5788
175	1.7528	1.6540	1.5675	1.5400	1.5358	1.5344	1.5343	1.5383	1.5451	1.5628	1.5828
180	1.5227	1.5228	1.5234	1.5252	1.5266	1.5298	1.5323	1.5366	1.5447	1.5637	1.5845

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN ND, Z=60

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9794	0.9794	0.9793	0.9790	0.9788	0.9783	0.9780	0.9774	0.9763	0.9748	0.9753
10	0.9852	0.9851	0.9849	0.9849	0.9835	0.9821	0.9810	0.9792	0.9759	0.9690	0.9644
15	0.9961	0.9960	0.9956	0.9944	0.9934	0.9911	0.9893	0.9863	0.9807	0.9676	0.9545
20	1.0203	1.0202	1.0196	1.0180	1.0166	1.0135	1.0111	1.0070	0.9991	0.9799	0.9572
25	1.0489	1.0488	1.0480	1.0460	1.0444	1.0406	1.0376	1.0326	1.0229	0.9988	0.9682
30	1.0834	1.0833	1.0824	1.0800	1.0781	1.0736	1.0701	1.0642	1.0528	1.0239	0.9855
35	1.1205	1.1203	1.1193	1.1167	1.1144	1.1094	1.1055	1.0988	1.0859	1.0533	1.0090
40	1.1603	1.1600	1.1589	1.1559	1.1534	1.1478	1.1433	1.1359	1.1215	1.0854	1.0355
45	1.2013	1.2010	1.1998	1.1964	1.1936	1.1874	1.1825	1.1743	1.1587	1.1196	1.0654
50	1.2432	1.2429	1.2416	1.2378	1.2347	1.2279	1.2225	1.2136	1.1966	1.1546	1.0965
55	1.2855	1.2852	1.2837	1.2796	1.2762	1.2687	1.2628	1.2531	1.2348	1.1902	1.1290
60	1.3279	1.3275	1.3258	1.3213	1.3175	1.3093	1.3029	1.2924	1.2727	1.2256	1.1617
65	1.3699	1.3695	1.3677	1.3626	1.3585	1.3495	1.3426	1.3312	1.3102	1.2607	1.1947
70	1.4114	1.4109	1.4089	1.4034	1.3988	1.3890	1.3814	1.3691	1.3467	1.2951	1.2274
75	1.4521	1.4516	1.4493	1.4432	1.4382	1.4274	1.4192	1.4059	1.3821	1.3285	1.2598
80	1.4918	1.4913	1.4888	1.4820	1.4765	1.4647	1.4558	1.4415	1.4163	1.3610	1.2918
85	1.5303	1.5297	1.5269	1.5194	1.5133	1.5004	1.4908	1.4755	1.4489	1.3922	1.3232
90	1.5677	1.5670	1.5639	1.5556	1.5489	1.5348	1.5244	1.5080	1.4801	1.4224	1.3543
95	1.6035	1.6027	1.5992	1.5899	1.5826	1.5671	1.5559	1.5384	1.5092	1.4510	1.3847
100	1.6380	1.6371	1.6333	1.6229	1.6148	1.5979	1.5858	1.5672	1.5369	1.4788	1.4188
105	1.6705	1.6696	1.6652	1.6536	1.6446	1.6261	1.6130	1.5934	1.5621	1.5047	1.4443
110	1.7018	1.7007	1.6957	1.6827	1.6727	1.6526	1.6385	1.6179	1.5858	1.5300	1.4736
115	1.7307	1.7294	1.7238	1.7091	1.6980	1.6760	1.6609	1.6392	1.6067	1.5532	1.5020
120	1.7584	1.7569	1.7504	1.7338	1.7213	1.6973	1.6812	1.6587	1.6261	1.5759	1.5303
125	1.7834	1.7817	1.7741	1.7551	1.7411	1.7148	1.6978	1.6746	1.6425	1.5965	1.5576
130	1.8072	1.8052	1.7963	1.7743	1.7586	1.7299	1.7120	1.6884	1.6574	1.6165	1.5843
135	1.8280	1.8256	1.8149	1.7893	1.7716	1.7405	1.7219	1.6982	1.6691	1.6344	1.6097
140	1.8478	1.8447	1.8317	1.8015	1.7814	1.7479	1.7288	1.7058	1.6793	1.6515	1.6341
145	1.8643	1.8603	1.8441	1.8080	1.7855	1.7500	1.7310	1.7094	1.6865	1.6665	1.6566
150	1.8796	1.8744	1.8534	1.8098	1.7846	1.7480	1.7299	1.7106	1.6923	1.6804	1.6773
155	1.8918	1.8845	1.8563	1.8036	1.7764	1.7405	1.7244	1.7087	1.6959	1.6921	1.6956
160	1.9021	1.8910	1.8513	1.7886	1.7608	1.7287	1.7160	1.7049	1.6982	1.7021	1.7113
165	1.9117	1.8928	1.8342	1.7634	1.7386	1.7142	1.7060	1.7003	1.6994	1.7101	1.7238
170	1.9097	1.8725	1.7888	1.7260	1.7102	1.6979	1.6951	1.6948	1.6994	1.7157	1.7330
175	1.9638	1.8417	1.7317	1.6960	1.6904	1.6883	1.6893	1.6925	1.7003	1.7196	1.7387
180	1.6740	1.6741	1.6749	1.6770	1.6787	1.6826	1.6856	1.6907	1.7001	1.7210	1.7409

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN TB, Z=65

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9740	0.9740	0.9739	0.9736	0.9734	0.9729	0.9725	0.9720	0.9711	0.9703	0.9722
10	0.9772	0.9771	0.9768	0.9760	0.9753	0.9737	0.9725	0.9706	0.9671	0.9606	0.9586
15	0.9870	0.9869	0.9863	0.9849	0.9837	0.9810	0.9789	0.9754	0.9690	0.9549	0.9435
20	1.0129	1.0127	1.0120	1.0100	1.0083	1.0045	1.0016	0.9966	0.9872	0.9651	0.9418
25	1.0451	1.0449	1.0440	1.0415	1.0394	1.0347	1.0310	1.0248	1.0129	0.9841	0.9504
30	1.0848	1.0846	1.0835	1.0805	1.0780	1.0725	1.0680	1.0606	1.0463	1.0110	0.9666
35	1.1287	1.1284	1.1272	1.1237	1.1209	1.1145	1.1095	1.1010	1.0847	1.0441	0.9913
40	1.1761	1.1758	1.1744	1.1706	1.1673	1.1601	1.1545	1.1449	1.1266	1.0809	1.0201
45	1.2259	1.2256	1.2240	1.2197	1.2161	1.2082	1.2019	1.1914	1.1713	1.1214	1.0541
50	1.2772	1.2769	1.2751	1.2703	1.2664	1.2576	1.2507	1.2391	1.2172	1.1631	1.0900
55	1.3296	1.3292	1.3273	1.3220	1.3176	1.3080	1.3004	1.2879	1.2642	1.2065	1.1285
60	1.3823	1.3818	1.3797	1.3739	1.3691	1.3585	1.3503	1.3367	1.3112	1.2499	1.1677
65	1.4351	1.4346	1.4322	1.4258	1.4206	1.4090	1.4001	1.3854	1.3581	1.2935	1.2078
70	1.4875	1.4869	1.4843	1.4773	1.4715	1.4589	1.4492	1.4333	1.4042	1.3365	1.2481
75	1.5391	1.5385	1.5356	1.5279	1.5215	1.5078	1.4972	1.4802	1.4493	1.3788	1.2883
80	1.5899	1.5892	1.5861	1.5775	1.5705	1.5555	1.5442	1.5259	1.4932	1.4203	1.3285
85	1.6393	1.6385	1.6351	1.6256	1.6179	1.6016	1.5893	1.5697	1.5352	1.4603	1.3682
90	1.6876	1.6867	1.6828	1.6724	1.6640	1.6462	1.6329	1.6120	1.5758	1.4995	1.4078
95	1.7338	1.7328	1.7285	1.7169	1.7077	1.6883	1.6740	1.6518	1.6140	1.5369	1.4470
100	1.7787	1.7777	1.7729	1.7600	1.7499	1.7287	1.7134	1.6898	1.6506	1.5734	1.4860
105	1.8211	1.8199	1.8145	1.8002	1.7890	1.7660	1.7495	1.7246	1.6842	1.6079	1.5245
110	1.8621	1.8607	1.8546	1.8386	1.8263	1.8013	1.7836	1.7575	1.7162	1.6416	1.5629
115	1.8999	1.8983	1.8915	1.8735	1.8598	1.8326	1.8138	1.7865	1.7448	1.6732	1.6008
120	1.9364	1.9346	1.9268	1.9065	1.8913	1.8616	1.8417	1.8133	1.7716	1.7040	1.6383
125	1.9692	1.9672	1.9581	1.9350	1.9181	1.8859	1.8648	1.8357	1.7946	1.7324	1.6751
130	2.0009	1.9984	1.9878	1.9613	1.9423	1.9073	1.8852	1.8556	1.8159	1.7601	1.7110
135	2.0283	2.0253	2.0127	1.9820	1.9607	1.9229	1.9000	1.8706	1.8333	1.7853	1.7457
140	2.0546	2.0510	2.0356	1.9996	1.9755	1.9349	1.9115	1.8828	1.8488	1.8094	1.7787
145	2.0764	2.0718	2.0526	2.0099	1.9829	1.9404	1.9168	1.8899	1.8605	1.8309	1.8098
150	2.0970	2.0909	2.0662	2.0147	1.9847	1.9404	1.9182	1.8942	1.8704	1.8509	1.8382
155	2.1131	2.1046	2.0716	2.0096	1.9770	1.9337	1.9104	1.8943	1.8773	1.8709	1.8679
160	2.1268	2.1140	2.0678	1.9937	1.9605	1.9216	1.9059	1.8919	1.8823	1.8827	1.8852
165	2.1399	2.1181	2.0497	1.9657	1.9357	1.9058	1.8956	1.8881	1.8857	1.8944	1.9027
170	2.1357	2.0931	1.9959	1.9213	1.9022	1.8871	1.8835	1.8827	1.8871	1.9028	1.9156
175	2.2197	2.0709	1.9332	1.8874	1.8801	1.8768	1.8777	1.8810	1.8892	1.9084	1.9234
180	1.8600	1.8602	1.8611	1.8635	1.8655	1.8699	1.8734	1.8790	1.8893	1.9105	1.9260

RATIO OF MOTT TO MCKINLEY-PESHBACH SCATTERING IN YB, Z=70

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9681	0.9681	0.9680	0.9678	0.9676	0.9672	0.9669	0.9664	0.9659	0.9661	0.9692
10	0.9678	0.9677	0.9674	0.9665	0.9657	0.9644	0.9628	0.9609	0.9575	0.9523	0.9538
15	0.9751	0.9750	0.9744	0.9727	0.9714	0.9683	0.9660	0.9621	0.9551	0.9411	0.9334
20	1.0018	1.0016	1.0007	0.9983	0.9963	0.9919	0.9884	0.9826	0.9718	0.9477	0.9259
25	1.0370	1.0367	1.0356	1.0326	1.0301	1.0244	1.0199	1.0125	0.9984	0.9656	0.9308
30	1.0818	1.0815	1.0802	1.0765	1.0734	1.0665	1.0611	1.0520	1.0346	0.9930	0.9443
35	1.1326	1.1323	1.1307	1.1264	1.1229	1.1150	1.1087	1.0982	1.0781	1.0291	0.9688
40	1.1884	1.1880	1.1862	1.1814	1.1773	1.1683	1.1612	1.1492	1.1263	1.0703	0.9989
45	1.2479	1.2475	1.2455	1.2401	1.2355	1.2255	1.2175	1.2043	1.1790	1.1169	1.0360
50	1.3099	1.3094	1.3072	1.3011	1.2961	1.2850	1.2762	1.2616	1.2338	1.1658	1.0765
55	1.3739	1.3733	1.3709	1.3642	1.3587	1.3464	1.3368	1.3208	1.2907	1.2174	1.1208
60	1.4388	1.4382	1.4355	1.4281	1.4220	1.4086	1.3981	1.3807	1.3482	1.2699	1.1669
65	1.5044	1.5037	1.5008	1.4926	1.4859	1.4712	1.4598	1.4410	1.4061	1.3231	1.2146
70	1.5699	1.5692	1.5659	1.5576	1.5497	1.5336	1.5212	1.5010	1.4636	1.3763	1.2631
75	1.6349	1.6341	1.6306	1.6207	1.6127	1.5952	1.5818	1.5600	1.5202	1.4289	1.3122
80	1.6993	1.6984	1.6945	1.6837	1.6749	1.6559	1.6414	1.6180	1.5759	1.4810	1.3617
85	1.7622	1.7612	1.7568	1.7449	1.7353	1.7146	1.6990	1.6740	1.6296	1.5318	1.4112
90	1.8240	1.8229	1.8181	1.8050	1.7945	1.7720	1.7552	1.7285	1.6819	1.5818	1.4608
95	1.8834	1.8822	1.8768	1.8624	1.8508	1.8264	1.8083	1.7800	1.7314	1.6300	1.5104
100	1.9415	1.9402	1.9342	1.9182	1.9056	1.8791	1.8597	1.8297	1.7792	1.6774	1.5599
105	1.9963	1.9948	1.9882	1.9705	1.9566	1.9278	1.9071	1.8755	1.8235	1.7226	1.6096
110	2.0497	2.0480	2.0406	2.0209	2.0056	1.9745	1.9523	1.9192	1.8661	1.7669	1.6591
115	2.0990	2.0971	2.0887	2.0667	2.0499	2.0161	1.9926	1.9581	1.9045	1.8089	1.7086
120	2.1469	2.1447	2.1352	2.1105	2.0918	2.0552	2.0303	1.9946	1.9409	1.8501	1.7576
125	2.1899	2.1874	2.1764	2.1485	2.1278	2.0882	2.0620	2.0255	1.9728	1.8887	1.8063
130	2.2316	2.2287	2.2159	2.1840	2.1609	2.1181	2.0906	2.0536	2.0025	1.9262	1.8537
135	2.2676	2.2641	2.2490	2.2123	2.1866	2.1406	2.1123	2.0755	2.0275	1.9610	1.9002
140	2.3025	2.2982	2.2800	2.2371	2.2082	2.1588	2.1300	2.0941	2.0502	1.9943	1.9444
145	2.3312	2.3258	2.3033	2.2526	2.2204	2.1685	2.1399	2.1063	2.0681	2.0245	1.9864
150	2.3586	2.3515	2.3226	2.2618	2.2259	2.1724	2.1452	2.1151	2.0838	2.0524	2.0247
155	2.3799	2.3701	2.3317	2.2586	2.2198	2.1674	2.1431	2.1183	2.0954	2.0765	2.0593
160	2.3980	2.3833	2.3297	2.2425	2.2029	2.1557	2.1362	2.1183	2.1044	2.0977	2.0887
165	2.4158	2.3907	2.3112	2.2118	2.1757	2.1391	2.1262	2.1161	2.1110	2.1145	2.1126
170	2.4092	2.3606	2.2480	2.1597	2.1367	2.1180	2.1132	2.1113	2.1145	2.1267	2.1302
175	2.5281	2.3492	2.1794	2.1217	2.1122	2.1072	2.1076	2.1105	2.1182	2.1346	2.1408
180	2.0883	2.0885	2.0895	2.0921	2.0943	2.0991	2.1027	2.1085	2.1188	2.1375	2.1440

RATIO OF MOTT TO MCKINLEY-PESHBACH SCATTERING IN HF, Z=72

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9657	0.9657	0.9656	0.9654	0.9652	0.9648	0.9646	0.9642	0.9638	0.9645	0.9680
10	0.9637	0.9636	0.9632	0.9623	0.9616	0.9599	0.9587	0.9568	0.9535	0.9491	0.9523
15	0.9699	0.9695	0.9689	0.9672	0.9657	0.9626	0.9602	0.9562	0.9491	0.9355	0.9298
20	0.9962	0.9960	0.9951	0.9925	0.9904	0.9857	0.9821	0.9760	0.9647	0.9402	0.9197
25	1.0324	1.0321	1.0310	1.0277	1.0250	1.0189	1.0142	1.0062	0.9913	0.9571	0.9227
30	1.0791	1.0788	1.0773	1.0733	1.0700	1.0626	1.0568	1.0470	1.0284	0.9843	0.9346
35	1.1327	1.1323	1.1306	1.1260	1.1221	1.1135	1.1067	1.0954	1.0737	1.0214	0.9585
40	1.1919	1.1915	1.1896	1.1843	1.1798	1.1700	1.1622	1.1492	1.1244	1.0641	0.9888
45	1.2556	1.2551	1.2530	1.2470	1.2421	1.2311	1.2224	1.2079	1.1803	1.1131	1.0269
50	1.3222	1.3216	1.3192	1.3126	1.3071	1.2949	1.2853	1.2693	1.2389	1.1649	1.0690
55	1.3913	1.3907	1.3880	1.3807	1.3746	1.3612	1.3506	1.3331	1.3000	1.2200	1.1155
60	1.4616	1.4610	1.4581	1.4499	1.4433	1.4285	1.4170	1.3979	1.3621	1.2762	1.1643
65	1.5330	1.5322	1.5290	1.5201	1.5127	1.4966	1.4841	1.4634	1.4249	1.3336	1.2151
70	1.6045	1.6037	1.6001	1.5903	1.5823	1.5647	1.5510	1.5287	1.4875	1.3912	1.2672
75	1.6756	1.6748	1.6708	1.6600	1.6512	1.6320	1.6173	1.5933	1.5494	1.4485	1.3201
80	1.7463	1.7453	1.7410	1.7291	1.7195	1.6986	1.6827	1.6569	1.6104	1.5054	1.3735
85	1.8154	1.8143	1.8096	1.7965	1.7860	1.7633	1.7461	1.7185	1.6694	1.5610	1.4273
90	1.8836	1.8824	1.8771	1.8627	1.8512	1.8266	1.8081	1.7787	1.7271	1.6160	1.4813
95	1.9491	1.9478	1.9419	1.9261	1.9135	1.8868	1.8669	1.8357	1.7819	1.6691	1.5356
100	2.0134	2.0119	2.0054	1.9880	1.9742	1.9452	1.9239	1.8909	1.8350	1.7214	1.5900
105	2.0741	2.0725	2.0652	2.0459	2.0308	1.9993	1.9766	1.9419	1.8844	1.7716	1.6447
110	2.1334	2.1315	2.1235	2.1020	2.0854	2.0513	2.0271	1.9906	1.9319	1.8209	1.6992
115	2.1881	2.1860	2.1769	2.1531	2.1347	2.0979	2.0722	2.0343	1.9750	1.8679	1.7541
120	2.2414	2.2391	2.2287	2.2020	2.1817	2.1418	2.1146	2.0754	2.0160	1.9139	1.8083
125	2.2893	2.2866	2.2747	2.2446	2.2222	2.1791	2.1505	2.1104	2.0521	1.9573	1.8626
130	2.3358	2.3326	2.3189	2.2845	2.2595	2.2130	2.1831	2.1425	2.0859	1.9995	1.9155
135	2.3760	2.3722	2.3560	2.3165	2.2888	2.2389	2.2081	2.1678	2.1146	2.0389	1.9675
140	2.4150	2.4104	2.3909	2.3448	2.3136	2.2603	2.2289	2.1896	2.1408	2.0766	2.0169
145	2.4470	2.4412	2.4172	2.3629	2.3283	2.2722	2.2412	2.2044	2.1618	2.1110	2.0641
150	2.4776	2.4701	2.4393	2.3743	2.3358	2.2780	2.2484	2.2153	2.1803	2.1427	2.1071
155	2.5015	2.4911	2.4503	2.3723	2.3306	2.2740	2.2476	2.2203	2.1943	2.1706	2.1460
160	2.5218	2.5062	2.4493	2.3563	2.3137	2.2627	2.2415	2.2216	2.2054	2.1946	2.1791
165	2.5417	2.5152	2.4308	2.3245	2.2857	2.2459	2.2318	2.2202	2.2136	2.2138	2.2061
170	2.5343	2.4831	2.3637	2.2692	2.2444	2.2240	2.2185	2.2159	2.2182	2.2279	2.2260
175	2.6679	2.4763	2.2925	2.2294	2.2188	2.2129	2.2130	2.2156	2.2227	2.2369	2.2379
180	2.1935	2.1937	2.1946	2.1973	2.1995	2.2043	2.2079	2.2137	2.2236	2.2402	2.2444

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN TA, Z=73

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9645	0.9645	0.9644	0.9642	0.9640	0.9637	0.9634	0.9631	0.9628	0.9628	0.9624
10	0.9615	0.9615	0.9611	0.9602	0.9594	0.9578	0.9566	0.9547	0.9516	0.9476	0.9516
15	0.9668	0.9666	0.9660	0.9642	0.9628	0.9596	0.9571	0.9531	0.9460	0.9327	0.9281
20	0.9932	0.9930	0.9920	0.9894	0.9872	0.9824	0.9787	0.9725	0.9610	0.9363	0.9167
25	1.0298	1.0295	1.0283	1.0249	1.0221	1.0159	1.0110	1.0028	0.9875	0.9527	0.9186
30	1.0774	1.0771	1.0756	1.0714	1.0680	1.0603	1.0542	1.0441	1.0249	0.9797	0.9296
35	1.1324	1.1320	1.1302	1.1254	1.1214	1.1124	1.1054	1.0935	1.0711	1.0171	0.9531
40	1.1933	1.1929	1.1909	1.1853	1.1807	1.1705	1.1624	1.1488	1.1230	1.0606	0.9834
45	1.2591	1.2586	1.2564	1.2502	1.2450	1.2335	1.2245	1.2094	1.1806	1.1107	1.0219
50	1.3281	1.3275	1.3250	1.3181	1.3123	1.2996	1.2895	1.2728	1.2410	1.1639	1.0648
55	1.3999	1.3992	1.3965	1.3888	1.3824	1.3683	1.3573	1.3390	1.3044	1.2208	1.1123
60	1.4731	1.4724	1.4693	1.4608	1.4538	1.4384	1.4263	1.4063	1.3688	1.2790	1.1625
65	1.5474	1.5467	1.5433	1.5339	1.5262	1.5093	1.4962	1.4745	1.4342	1.3386	1.2149
70	1.6221	1.6213	1.6175	1.6072	1.5988	1.5804	1.5661	1.5427	1.4995	1.3984	1.2687
75	1.6965	1.6956	1.6915	1.6802	1.6709	1.6508	1.6353	1.6102	1.5641	1.4581	1.3236
80	1.7705	1.7695	1.7649	1.7525	1.7424	1.7205	1.7038	1.6768	1.6279	1.5175	1.3791
85	1.8429	1.8418	1.8368	1.8231	1.8121	1.7883	1.7703	1.7414	1.6898	1.5757	1.4351
90	1.9144	1.9132	1.9077	1.8927	1.8806	1.8548	1.8354	1.8045	1.7503	1.6332	1.4944
95	1.9833	1.9819	1.9758	1.9593	1.9461	1.9180	1.8972	1.8645	1.8079	1.6890	1.5482
100	2.0509	2.0494	2.0426	2.0244	2.0099	1.9795	1.9572	1.9226	1.8638	1.7440	1.6050
105	2.1147	2.1130	2.1055	2.0854	2.0695	2.0366	2.0128	1.9764	1.9159	1.7968	1.6624
110	2.1772	2.1753	2.1668	2.1445	2.1271	2.0915	2.0661	2.0279	1.9661	1.8488	1.7196
115	2.2349	2.2327	2.2232	2.1984	2.1792	2.1408	2.1139	2.0741	2.0117	1.8984	1.7773
120	2.2911	2.2886	2.2779	2.2500	2.2289	2.1873	2.1588	2.1177	2.0552	1.9469	1.8344
125	2.3416	2.3388	2.3265	2.2951	2.2718	2.2269	2.1970	2.1550	2.0936	1.9930	1.8916
130	2.3907	2.3874	2.3731	2.3374	2.3114	2.2630	2.2317	2.1891	2.1296	2.0377	1.9473
135	2.4331	2.4293	2.4125	2.3715	2.3426	2.2907	2.2585	2.2163	2.1603	2.0796	2.0023
140	2.4743	2.4696	2.4494	2.4016	2.3693	2.3137	2.2810	2.2398	2.1884	2.1196	2.0545
145	2.5082	2.5022	2.4774	2.4212	2.3853	2.3270	2.2946	2.2561	2.2112	2.1533	2.1045
150	2.5406	2.5328	2.5010	2.4338	2.3939	2.3338	2.3029	2.2683	2.2311	2.1901	2.1500
155	2.5659	2.5551	2.5131	2.4324	2.3893	2.3304	2.3028	2.2742	2.2465	2.2199	2.1913
160	2.5873	2.5713	2.5127	2.4166	2.3724	2.3193	2.2971	2.2762	2.2587	2.2455	2.2264
165	2.6083	2.5811	2.4941	2.3842	2.3439	2.3025	2.2876	2.2754	2.2678	2.2661	2.2550
170	2.6006	2.5480	2.4250	2.3273	2.3015	2.2802	2.2743	2.2713	2.2731	2.2812	2.2762
175	2.7417	2.5435	2.3524	2.2865	2.2753	2.2690	2.2689	2.2713	2.2780	2.2908	2.2888
180	2.2493	2.2495	2.2505	2.2532	2.2554	2.2601	2.2637	2.2694	2.2790	2.2942	2.2924

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN W, Z=74

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9633	0.9633	0.9632	0.9630	0.9628	0.9625	0.9623	0.9620	0.9618	0.9630	0.9668
10	0.9594	0.9593	0.9589	0.9580	0.9573	0.9556	0.9544	0.9526	0.9496	0.9461	0.9509
15	0.9638	0.9636	0.9630	0.9612	0.9597	0.9565	0.9540	0.9499	0.9428	0.9298	0.9265
20	0.9900	0.9898	0.9888	0.9861	0.9839	0.9790	0.9751	0.9688	0.9571	0.9324	0.9137
25	1.0270	1.0267	1.0254	1.0220	1.0191	1.0126	1.0076	0.9992	0.9835	0.9482	0.9145
30	1.0754	1.0751	1.0735	1.0692	1.0657	1.0577	1.0514	1.0410	1.0212	0.9749	0.9245
35	1.1318	1.1314	1.1296	1.1245	1.1204	1.1111	1.1037	1.0915	1.0682	1.0126	0.9476
40	1.1945	1.1940	1.1919	1.1862	1.1814	1.1707	1.1623	1.1482	1.1214	1.0567	0.9777
45	1.2624	1.2619	1.2596	1.2531	1.2477	1.2357	1.2263	1.2105	1.1805	1.1079	1.0166
50	1.3338	1.3333	1.3306	1.3234	1.3174	1.3040	1.2935	1.2760	1.2429	1.1626	1.0602
55	1.4083	1.4077	1.4048	1.3967	1.3910	1.3754	1.3638	1.3447	1.3085	1.2212	1.1088
60	1.4845	1.4838	1.4805	1.4717	1.4643	1.4482	1.4355	1.4146	1.3753	1.2814	1.1603
65	1.5619	1.5612	1.5576	1.5478	1.5398	1.5221	1.5083	1.4856	1.4433	1.3432	1.2143
70	1.6399	1.6390	1.6351	1.6243	1.6155	1.5962	1.5812	1.5567	1.5114	1.4054	1.2699
75	1.7177	1.7167	1.7124	1.7006	1.6909	1.6698	1.6536	1.6272	1.5788	1.4676	1.3267
80	1.7951	1.7940	1.7893	1.7763	1.7657	1.7428	1.7253	1.6969	1.6456	1.5295	1.3884
85	1.8710	1.8698	1.8646	1.8503	1.8388	1.8138	1.7949	1.7646	1.7104	1.5904	1.4427
90	1.9461	1.9448	1.9390	1.9233	1.9106	1.8836	1.8633	1.8309	1.7740	1.6506	1.5014
95	2.0184	2.0169	2.0105	1.9933	1.9794	1.9501	1.9283	1.8939	1.8345	1.7092	1.5607
100	2.0894	2.0878	2.0808	2.0617	2.0466	2.0148	1.9914	1.9551	1.8933	1.7669	1.6201
105	2.1566	2.1548	2.1470	2.1259	2.1094	2.0750	2.0500	2.0118	1.9482	1.8225	1.6802
110	2.2224	2.2204	2.2116	2.1883	2.1701	2.1329	2.1063	2.0662	2.0012	1.8772	1.7402
115	2.2831	2.2809	2.2710	2.2451	2.2252	2.1850	2.1568	2.1151	2.0495	1.9285	1.8009
120	2.3424	2.3399	2.3287	2.2997	2.2777	2.2342	2.2044	2.1613	2.0955	1.9808	1.8608
125	2.3957	2.3928	2.3800	2.3474	2.3231	2.2762	2.2450	2.2010	2.1364	2.0296	1.9212
130	2.4475	2.4441	2.4293	2.3922	2.3652	2.3147	2.2820	2.2374	2.1747	2.0769	1.9799
135	2.4924	2.4883	2.4710	2.4284	2.3984	2.3443	2.3108	2.2665	2.2075	2.1214	2.0379
140	2.5359	2.5310	2.5101	2.4605	2.4270	2.3692	2.3350	2.2919	2.2376	2.1639	2.0931
145	2.5717	2.5655	2.5398	2.4817	2.4444	2.3838	2.3500	2.3096	2.2622	2.2030	2.1459
150	2.6059	2.5979	2.5651	2.4956	2.4542	2.3917	2.3595	2.3232	2.2838	2.2390	2.1941
155	2.6327	2.6216	2.5782	2.4949	2.4502	2.3890	2.3602	2.3301	2.3006	2.2708	2.2379
160	2.6554	2.6389	2.5785	2.4792	2.4334	2.3782	2.3550	2.3329	2.3140	2.2982	2.2751
165	2.6776	2.6496	2.5600	2.4464	2.4045	2.3614	2.3457	2.3326	2.3240	2.3202	2.3055
170	2.6695	2.6156	2.4889	2.3877	2.3610	2.3386	2.3323	2.3289	2.3300	2.3364	2.3279
175	2.8181	2.6132	2.4147	2.3459	2.3342	2.3273	2.3270	2.3291	2.3353	2.3466	2.3413
180	2.3074	2.3077	2.3086	2.3113	2.3135	2.3182	2.3217	2.3272	2.3365	2.3502	2.3551

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN AU, Z=79

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9572	0.9572	0.9571	0.9570	0.9569	0.9567	0.9567	0.9566	0.9569	0.9593	0.9636
10	0.9480	0.9479	0.9476	0.9467	0.9460	0.9446	0.9435	0.9420	0.9398	0.9392	0.9484
15	0.9472	0.9471	0.9464	0.9445	0.9430	0.9397	0.9371	0.9331	0.9264	0.9162	0.9198
20	0.9715	0.9713	0.9702	0.9672	0.9647	0.9593	0.9551	0.9483	0.9361	0.9233	0.9001
25	1.0095	1.0092	1.0077	1.0037	1.0004	0.9930	0.9873	0.9779	0.9605	0.9237	0.8947
30	1.0616	1.0612	1.0593	1.0543	1.0501	1.0407	1.0334	1.0213	0.9986	0.9479	0.8987
35	1.1245	1.1241	1.1219	1.1158	1.1108	1.0997	1.0910	1.0765	1.0492	0.9861	0.9181
40	1.1960	1.1954	1.1929	1.1858	1.1800	1.1671	1.1569	1.1399	1.1079	1.0327	0.9465
45	1.2751	1.2744	1.2716	1.2636	1.2570	1.2423	1.2308	1.2115	1.1752	1.0890	0.9859
50	1.3593	1.3586	1.3553	1.3464	1.3389	1.3224	1.3095	1.2880	1.2474	1.1506	1.0324
55	1.4485	1.4477	1.4440	1.4340	1.4258	1.4075	1.3932	1.3694	1.3246	1.2181	1.0855
60	1.5406	1.5397	1.5357	1.5246	1.5154	1.4952	1.4794	1.4533	1.4044	1.2885	1.1435
65	1.6352	1.6342	1.6298	1.6176	1.6075	1.5853	1.5680	1.5395	1.4865	1.3618	1.2053
70	1.7313	1.7302	1.7254	1.7119	1.7008	1.6765	1.6577	1.6268	1.5696	1.4366	1.2701
75	1.8280	1.8268	1.8214	1.8065	1.7944	1.7678	1.7474	1.7140	1.6528	1.5122	1.3372
80	1.9249	1.9236	1.9177	1.9013	1.8880	1.8591	1.8370	1.8011	1.7359	1.5882	1.4060
85	2.0206	2.0191	2.0125	1.9946	1.9801	1.9487	1.9248	1.8863	1.8172	1.6637	1.4765
90	2.1157	2.1141	2.1069	2.0872	2.0713	2.0372	2.0115	1.9704	1.8976	1.7389	1.5479
95	2.2079	2.2061	2.1981	2.1765	2.1591	2.1222	2.0946	2.0510	1.9748	1.8127	1.6211
100	2.2989	2.2969	2.2881	2.2643	2.2454	2.2054	2.1759	2.1296	2.0504	1.8858	1.6946
105	2.3853	2.3832	2.3734	2.3472	2.3265	2.2834	2.2519	2.2033	2.1216	1.9572	1.7701
110	2.4703	2.4679	2.4570	2.4281	2.4054	2.3588	2.3253	2.2743	2.1906	2.0274	1.8454
115	2.5491	2.5464	2.5343	2.5023	2.4775	2.4273	2.3919	2.3390	2.2543	2.0957	1.9227
120	2.6263	2.6232	2.6095	2.5738	2.5466	2.4925	2.4551	2.4003	2.3154	2.1624	1.9991
125	2.6959	2.6923	2.6768	2.6369	2.6070	2.5490	2.5098	2.4540	2.3705	2.2269	2.0769
130	2.7637	2.7596	2.7416	2.6965	2.6634	2.6010	2.5602	2.5037	2.4224	2.2894	2.1527
135	2.8226	2.8178	2.7969	2.7455	2.7090	2.6425	2.6006	2.5446	2.4679	2.3492	2.2284
140	2.8797	2.8739	2.8489	2.7895	2.7488	2.6779	2.6354	2.5808	2.5098	2.4060	2.3003
145	2.9270	2.9198	2.8944	2.8200	2.7750	2.7010	2.6590	2.6078	2.5452	2.4592	2.3699
150	2.9721	2.9627	2.9241	2.8416	2.7918	2.7157	2.6756	2.6293	2.5765	2.5080	2.4334
155	3.0076	2.9947	2.9440	2.8455	2.7919	2.7173	2.6813	2.6426	2.6018	2.5517	2.4944
160	3.0376	3.0186	2.9483	2.8312	2.7763	2.7087	2.6795	2.6504	2.6225	2.5893	2.5408
165	3.0668	3.0345	2.9304	2.7960	2.7456	2.6922	2.6720	2.6538	2.6384	2.6198	2.5813
170	3.0580	2.9962	2.8490	2.7287	2.6961	2.6676	2.6587	2.6522	2.6486	2.6423	2.6112
175	3.2423	3.0030	2.7654	2.6810	2.6659	2.6558	2.6539	2.6540	2.6565	2.6561	2.6291
180	2.6361	2.6363	2.6372	2.6395	2.6414	2.6454	2.6483	2.6525	2.6586	2.6607	2.6339

RATIO OF MOTT TO MCKINLEY-FESHBACH SCATTERING IN PB, Z=82

ENERGY(MEV) ANGLE(DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9536	0.9536	0.9535	0.9535	0.9534	0.9534	0.9534	0.9536	0.9542	0.9573	0.9614
10	0.9409	0.9408	0.9405	0.9397	0.9391	0.9378	0.9369	0.9357	0.9342	0.9358	0.9474
15	0.9363	0.9361	0.9354	0.9335	0.9320	0.9287	0.9263	0.9225	0.9163	0.9086	0.9171
20	0.9584	0.9581	0.9570	0.9539	0.9513	0.9457	0.9414	0.9344	0.9222	0.9001	0.8932
25	0.9961	0.9958	0.9942	0.9899	0.9864	0.9786	0.9725	0.9626	0.9446	0.9081	0.8837
30	1.0497	1.0493	1.0473	1.0417	1.0372	1.0270	1.0191	1.0061	0.9820	0.9295	0.8832
35	1.1157	1.1157	1.1133	1.1066	1.1011	1.0889	1.0793	1.0635	1.0339	0.9671	0.8993
40	1.1928	1.1921	1.1893	1.1815	1.1750	1.1606	1.1493	1.1306	1.0955	1.0143	0.9257
45	1.2788	1.2781	1.2748	1.2659	1.2585	1.2420	1.2291	1.2077	1.1674	1.0731	0.9644
50	1.3712	1.3704	1.3667	1.3566	1.3482	1.3296	1.3151	1.2909	1.2455	1.1385	1.0117
55	1.4699	1.4690	1.4649	1.4536	1.4442	1.4235	1.4073	1.3804	1.3300	1.2111	1.0669
60	1.5727	1.5717	1.5671	1.5545	1.5441	1.5211	1.5032	1.4735	1.4181	1.2879	1.1284
65	1.6790	1.6779	1.6728	1.6589	1.6474	1.6221	1.6024	1.5699	1.5096	1.3685	1.1946
70	1.7876	1.7863	1.7807	1.7653	1.7527	1.7249	1.7034	1.6680	1.6028	1.4515	1.2649
75	1.8973	1.8959	1.8911	1.8728	1.8589	1.8285	1.8051	1.7668	1.6967	1.5359	1.3384
80	2.0080	2.0064	1.9996	1.9810	1.9657	1.9326	1.9072	1.8659	1.7909	1.6213	1.4143
85	2.1175	2.1159	2.1084	2.0879	2.0712	2.0351	2.0077	1.9634	1.8838	1.7067	1.4927
90	2.2270	2.2252	2.2169	2.1944	2.1761	2.1370	2.1074	2.0600	1.9759	1.7921	1.5725
95	2.3334	2.3313	2.3222	2.2975	2.2776	2.2352	2.2035	2.1531	2.0649	1.8766	1.6549
100	2.4388	2.4366	2.4265	2.3993	2.3776	2.3317	2.2977	2.2443	2.1523	1.9604	1.7380
105	2.5393	2.5367	2.5256	2.4957	2.4721	2.4226	2.3863	2.3302	2.2353	2.0428	1.8238
110	2.6382	2.6354	2.6230	2.5900	2.5642	2.5107	2.4721	2.4132	2.3158	2.1240	1.9098
115	2.7303	2.7272	2.7134	2.6770	2.6487	2.5913	2.5505	2.4894	2.3908	2.2036	1.9984
120	2.8205	2.8169	2.8014	2.7609	2.7300	2.6681	2.6251	2.5618	2.4627	2.2814	2.0864
125	2.9021	2.8981	2.8806	2.8355	2.8015	2.7353	2.6904	2.6259	2.5283	2.3572	2.1763
130	2.9817	2.9770	2.9569	2.9060	2.8685	2.7974	2.7506	2.6853	2.5901	2.4306	2.2643
135	3.0511	3.0457	3.0224	2.9646	2.9234	2.8478	2.7998	2.7352	2.6451	2.5015	2.3524
140	3.1183	3.1118	3.0840	3.0174	2.9716	2.8912	2.8425	2.7794	2.6957	2.5687	2.4365
145	3.1742	3.1662	3.1324	3.0551	3.0046	2.9208	2.8728	2.8135	2.7393	2.6322	2.5180
150	3.2273	3.2169	3.1743	3.0826	3.0268	2.9408	2.8948	2.8411	2.7779	2.6904	2.5926
155	3.2694	3.2553	3.1995	3.0903	3.0303	2.9460	2.9047	2.8594	2.8007	2.7429	2.6608
160	3.3050	3.2841	3.2071	3.0774	3.0160	2.9394	2.9056	2.8711	2.8359	2.7880	2.7191
165	3.3390	3.3038	3.1899	3.0409	2.9843	2.9235	2.8998	2.8774	2.8562	2.8247	2.7668
170	3.3309	3.2638	3.1022	2.9683	2.9313	2.8981	2.8871	2.8778	2.8698	2.8520	2.8023
175	3.5335	3.2730	3.0106	2.9159	2.8984	2.8857	2.8826	2.8807	2.8796	2.8685	2.8234
180	2.8674	2.8675	2.8683	2.8702	2.8717	2.8747	2.8768	2.8796	2.8823	2.8738	2.8293

RATIO OF MOTT TO MCKINLEY-PFESHBACH SCATTERING IN Fe, Z=87

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9478	0.9478	0.9478	0.9479	0.9480	0.9482	0.9484	0.9489	0.9501	0.9539	0.9572
10	0.9290	0.9289	0.9287	0.9281	0.9277	0.9269	0.9264	0.9258	0.9259	0.9315	0.9461
15	0.9165	0.9164	0.9157	0.9140	0.9126	0.9096	0.9075	0.9043	0.8997	0.8976	0.9146
20	0.9333	0.9330	0.9318	0.9286	0.9260	0.9203	0.9160	0.9092	0.8978	0.8805	0.8846
25	0.9689	0.9685	0.9668	0.9621	0.9583	0.9499	0.9435	0.9331	0.9149	0.8812	0.8678
30	1.0233	1.0228	1.0205	1.0143	1.0092	0.9979	0.9892	0.9749	0.9491	0.8962	0.8586
35	1.0947	1.0940	1.0913	1.0836	1.0773	1.0633	1.0524	1.0345	1.0016	0.9306	0.8673
40	1.1790	1.1783	1.1750	1.1658	1.1582	1.1414	1.1283	1.1066	1.0665	0.9772	0.8883
45	1.2765	1.2757	1.2718	1.2611	1.2523	1.2328	1.2175	1.1923	1.1453	1.0384	0.9237
50	1.3831	1.3822	1.3778	1.3655	1.3554	1.3331	1.3156	1.2867	1.2329	1.1092	0.9707
55	1.4991	1.4980	1.4930	1.4792	1.4678	1.4426	1.4229	1.3904	1.3298	1.1898	1.0279
60	1.6214	1.6201	1.6145	1.5990	1.5863	1.5581	1.5361	1.4999	1.4326	1.2770	1.0940
65	1.7495	1.7481	1.7418	1.7246	1.7104	1.6791	1.6549	1.6149	1.5408	1.3701	1.1670
70	1.8817	1.8801	1.8732	1.8541	1.8384	1.8039	1.7772	1.7333	1.6526	1.4675	1.2461
75	2.0166	2.0149	2.0072	1.9861	1.9687	1.9308	1.9016	1.8539	1.7665	1.5679	1.3302
80	2.1538	2.1519	2.1434	2.1201	2.1010	2.0596	2.0277	1.9760	1.8820	1.6706	1.4184
85	2.2908	2.2887	2.2793	2.2537	2.2328	2.1876	2.1531	2.0973	1.9970	1.7745	1.5107
90	2.4285	2.4262	2.4159	2.3877	2.3648	2.3156	2.2782	2.2184	2.1118	1.8792	1.6057
95	2.5634	2.5608	2.5494	2.5184	2.4935	2.4401	2.4000	2.3362	2.2241	1.9840	1.7048
100	2.6976	2.6948	2.6822	2.6481	2.6209	2.5631	2.5200	2.4522	2.3347	2.0883	1.8057
105	2.8264	2.8233	2.8094	2.7720	2.7423	2.6800	2.6341	2.5626	2.4410	2.1923	1.9109
110	2.9535	2.9501	2.9346	2.8935	2.8611	2.7938	2.7489	2.6698	2.5445	2.2948	2.0170
115	3.0728	3.0689	3.0518	3.0065	2.9712	2.8990	2.8474	2.7694	2.6422	2.3967	2.1273
120	3.1896	3.1852	3.1661	3.1158	3.0772	2.9995	2.9451	2.8643	2.7359	2.4963	2.2376
125	3.2963	3.2914	3.2698	3.2141	3.1719	3.0890	3.0322	2.9498	2.8229	2.5948	2.3511
130	3.3998	3.3942	3.3695	3.3069	3.2606	3.1718	3.1126	3.0291	2.9049	2.6899	2.4628
135	3.4913	3.4848	3.4563	3.3858	3.3350	3.2408	3.1803	3.0976	2.9794	2.7831	2.5753
140	3.5791	3.5713	3.5377	3.4606	3.4006	3.3008	3.2394	3.1584	3.0479	2.8713	2.6833
145	3.6532	3.6437	3.6032	3.5098	3.4481	3.3443	3.2838	3.2075	3.1085	2.9557	2.7883
150	3.7228	3.7105	3.6598	3.5497	3.4819	3.3755	3.3175	3.2479	3.1622	3.0330	2.8851
155	3.7788	3.7622	3.6963	3.5659	3.4931	3.3888	3.3364	3.2771	3.2077	3.1034	2.9737
160	3.8259	3.8016	3.7112	3.5567	3.4822	3.3871	3.3437	3.2973	3.2455	3.1639	3.0499
165	3.8695	3.8289	3.6957	3.5183	3.4493	3.3730	3.3417	3.3100	3.2752	3.2135	3.1123
170	3.8658	3.7879	3.5980	3.4365	3.3905	3.3470	3.3309	3.3150	3.2960	3.2506	3.1589
175	4.0877	3.7920	3.4869	3.3377	3.3515	3.3332	3.3268	3.3201	3.3096	3.2725	3.1866
180	3.3199	3.3200	3.3202	3.3208	3.3211	3.3214	3.3211	3.3197	3.3136	3.2793	3.1950

RATIO OF MOTT TO MCKINLEY-PESHBACH SCATTERING IN U, Z=92

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9426	0.9427	0.9427	0.9429	0.9431	0.9436	0.9440	0.9447	0.9464	0.9504	0.9522
10	0.9177	0.9177	0.9175	0.9173	0.9171	0.9170	0.9170	0.9174	0.9192	0.9288	0.9447
15	0.8958	0.8957	0.8951	0.8937	0.8926	0.8903	0.8887	0.8866	0.8845	0.8896	0.9146
20	0.9046	0.9043	0.9032	0.9001	0.8976	0.8923	0.8883	0.8823	0.8730	0.8633	0.8801
25	0.9353	0.9349	0.9331	0.9283	0.9244	0.9159	0.9095	0.8993	0.8821	0.8549	0.8565
30	0.9879	0.9874	0.9849	0.9782	0.9727	0.9606	0.9514	0.9364	0.9102	0.8609	0.8376
35	1.0620	1.0613	1.0582	1.0496	1.0425	1.0270	1.0150	0.9955	0.9604	0.8890	0.8367
40	1.1527	1.1519	1.1481	1.1375	1.1288	1.1097	1.0949	1.0706	1.0263	0.9321	0.8496
45	1.2610	1.2600	1.2555	1.2430	1.2327	1.2100	1.1924	1.1634	1.1101	0.9932	0.8786
50	1.3821	1.3809	1.3757	1.3611	1.3492	1.3228	1.3023	1.2685	1.2062	1.0673	0.9225
55	1.5163	1.5150	1.5090	1.4924	1.4787	1.4486	1.4251	1.3865	1.3152	1.1544	0.9790
60	1.6602	1.6587	1.6519	1.6331	1.6176	1.5836	1.5571	1.5136	1.4332	1.2513	1.0477
65	1.8131	1.8114	1.8037	1.7826	1.7653	1.7271	1.6975	1.6490	1.5595	1.3569	1.1258
70	1.9728	1.9709	1.9623	1.9388	1.9194	1.8770	1.8442	1.7905	1.6919	1.4693	1.2127
75	2.1376	2.1354	2.1259	2.0997	2.0783	2.0314	1.9952	1.9363	1.8287	1.5871	1.3070
80	2.3067	2.3043	2.2938	2.2647	2.2410	2.1894	2.1498	2.0854	1.9687	1.7089	1.4075
85	2.4771	2.4745	2.4628	2.4308	2.4047	2.3482	2.3050	2.2353	2.1099	1.8339	1.5144
90	2.6497	2.6468	2.6338	2.5985	2.5699	2.5081	2.4612	2.3860	2.2519	1.9606	1.6256
95	2.8200	2.8168	2.8025	2.7637	2.7324	2.6653	2.6147	2.5342	2.3923	2.0893	1.7432
100	2.9904	2.9868	2.9711	2.9283	2.8941	2.8212	2.7667	2.6808	2.5314	2.2179	1.8640
105	3.1552	3.1513	3.1339	3.0870	3.0497	2.9710	2.9129	2.8221	2.6667	2.3477	1.9910
110	3.3182	3.3139	3.2946	3.2430	3.2022	3.1172	3.0552	2.9594	2.7985	2.4760	2.1207
115	3.4726	3.4677	3.4464	3.3897	3.3453	3.2542	3.1886	3.0889	2.9249	2.6051	2.2561
120	3.6235	3.6181	3.5942	3.5315	3.4830	3.3850	3.3158	3.2123	3.0461	2.7314	2.3930
125	3.7629	3.7568	3.7301	3.6607	3.6080	3.5034	3.4312	3.3255	3.1605	2.8578	2.5342
130	3.8975	3.8906	3.8602	3.7825	3.7247	3.6130	3.5378	3.4305	3.2680	2.9799	2.6708
135	4.0181	4.0100	3.9752	3.8881	3.8250	3.7068	3.6299	3.5233	3.3678	3.1009	2.8166
140	4.1326	4.1231	4.0822	3.9829	3.9134	3.7884	3.7103	3.6058	3.4592	3.2156	2.9543
145	4.2311	4.2195	4.1706	4.0567	3.9807	3.8509	3.7739	3.6748	3.5420	3.3264	3.0880
150	4.3220	4.3074	4.2466	4.1131	4.0299	3.8970	3.8230	3.7320	3.6152	3.4279	3.2125
155	4.3967	4.3770	4.2985	4.1442	4.0521	3.9217	3.8544	3.7758	3.6788	3.5211	3.3263
160	4.4592	4.4306	4.3236	4.1379	4.0465	3.9270	3.8706	3.8077	3.7317	3.6013	3.4250
165	4.5147	4.4673	4.3106	4.0977	4.0128	3.9159	3.8740	3.8290	3.7738	3.6673	3.5057
170	4.5209	4.4297	4.2038	4.0066	3.9485	3.8904	3.8668	3.8406	3.8044	3.7170	3.5661
175	4.7389	4.4095	4.0615	3.9281	3.9003	3.8742	3.8628	3.8482	3.8228	3.7460	3.6523
180	3.8712	3.8710	3.8704	3.8684	3.8666	3.8620	3.8576	3.8491	3.8286	3.7548	3.6146

RATIO OF MOTT TO MCKINLEY-FEISHBACH SCATTERING IN PU, Z=94

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9407	0.9408	0.9408	0.9411	0.9413	0.9419	0.9423	0.9432	0.9450	0.9488	0.9500
10	0.9135	0.9135	0.9134	0.9133	0.9133	0.9134	0.9137	0.9145	0.9171	0.9282	0.9439
15	0.8875	0.8874	0.8869	0.8856	0.8847	0.8828	0.8815	0.8800	0.8790	0.8874	0.9151
20	0.8923	0.8921	0.8910	0.8880	0.8856	0.8806	0.8769	0.8714	0.8633	0.8575	0.8795
25	0.9202	0.9198	0.9180	0.9132	0.9093	0.9010	0.8947	0.8848	0.8685	0.8551	0.8535
30	0.9711	0.9706	0.9681	0.9612	0.9556	0.9434	0.9341	0.9191	0.8932	0.8467	0.8307
35	1.0455	1.0447	1.0415	1.0326	1.0253	1.0093	0.9971	0.9771	0.9416	0.8714	0.8254
40	1.1381	1.1372	1.1332	1.1222	1.1131	1.0931	1.0777	1.0525	1.0070	0.9120	0.8343
45	1.2503	1.2492	1.2445	1.2313	1.2204	1.1965	1.1779	1.1475	1.0920	0.9722	0.8599
50	1.3770	1.3758	1.3702	1.3547	1.3420	1.3140	1.2923	1.2565	1.1910	1.0468	0.9016
55	1.5188	1.5173	1.5109	1.4931	1.4785	1.4463	1.4213	1.3801	1.3045	1.1358	0.9569
60	1.6718	1.6702	1.6628	1.6426	1.6260	1.5894	1.5610	1.5144	1.4286	1.2363	1.0258
65	1.8354	1.8335	1.8253	1.8025	1.7837	1.7426	1.7107	1.6584	1.5624	1.3467	1.1053
70	2.0072	2.0052	1.9959	1.9703	1.9494	1.9034	1.8679	1.8098	1.7035	1.4651	1.1948
75	2.1853	2.1830	2.1727	2.1442	2.1209	2.0699	2.0307	1.9667	1.8501	1.5901	1.2929
80	2.3689	2.3663	2.3548	2.3232	2.2974	2.2411	2.1980	2.1279	2.0010	1.7200	1.3981
85	2.5546	2.5518	2.5390	2.5040	2.4756	2.4139	2.3667	2.2906	2.1539	1.8541	1.5109
90	2.7432	2.7401	2.7259	2.6873	2.6560	2.5884	2.5371	2.4548	2.3081	1.9905	1.6289
95	2.9301	2.9266	2.9110	2.8685	2.8342	2.7606	2.7052	2.6169	2.4614	2.1297	1.7541
100	3.1173	3.1134	3.0962	3.0494	3.0118	2.9318	2.8721	2.7776	2.6134	2.2692	1.8835
105	3.2991	3.2949	3.2758	3.2245	3.1835	3.0971	3.0333	2.9333	2.7621	2.4106	2.0200
110	3.4790	3.4743	3.4532	3.3966	3.3519	3.2585	3.1903	3.0848	2.9071	2.5506	2.1599
115	3.6502	3.6449	3.6215	3.5594	3.5108	3.4106	3.3384	3.2284	3.0469	2.6921	2.3064
120	3.8173	3.8114	3.7853	3.7166	3.6635	3.5558	3.4795	3.3652	3.1809	2.8306	2.4552
125	3.9725	3.9659	3.9367	3.8608	3.8030	3.6881	3.6085	3.4916	3.3082	2.9699	2.6088
130	4.1219	4.1144	4.0812	3.9964	3.9332	3.8104	3.7275	3.6087	3.4278	3.1045	2.7626
135	4.2566	4.2479	4.2100	4.1151	4.0460	3.9163	3.8314	3.7132	3.5395	3.2384	2.9176
140	4.3840	4.3736	4.3292	4.2212	4.1454	4.0082	3.9221	3.8060	3.6418	3.3653	3.0689
145	4.4943	4.4818	4.4289	4.3052	4.2223	4.0800	3.9949	3.8848	3.7352	3.4485	3.2157
150	4.5956	4.5798	4.5142	4.3697	4.2790	4.1334	4.0515	3.9500	3.8177	3.6013	3.3530
155	4.6793	4.6582	4.5738	4.4038	4.3067	4.1638	4.0891	4.0009	3.8899	3.7053	3.4785
160	4.7494	4.7188	4.6040	4.4035	4.3040	4.1726	4.1096	4.0384	3.9502	3.7948	3.5876
165	4.8104	4.7599	4.5922	4.3625	4.2700	4.1630	4.1159	4.0640	3.9982	3.8685	3.6768
170	4.8228	4.7252	4.4821	4.2678	4.2036	4.1381	4.1105	4.0789	4.0335	3.9242	3.7437
175	5.0301	4.6878	4.3229	4.1810	4.1505	4.1204	4.1064	4.0876	4.0541	3.9565	3.7839
180	4.1235	4.1233	4.1221	4.1187	4.1157	4.1082	4.1016	4.0892	4.0607	3.9664	3.7981

RATIO OF MOTT TO MCKINLEY-FEISHBACH SCATTERING IN ES, Z=99

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
0	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
5	0.9364	0.9365	0.9366	0.9370	0.9373	0.9380	0.9386	0.9396	0.9414	0.9445	0.9442
10	0.9044	0.9044	0.9045	0.9049	0.9052	0.9062	0.9071	0.9090	0.9135	0.9275	0.9409
15	0.8675	0.8674	0.8672	0.8665	0.8661	0.8654	0.8651	0.8654	0.8679	0.8845	0.9170
20	0.8607	0.8605	0.8595	0.8571	0.8552	0.8513	0.8487	0.8450	0.8408	0.8463	0.8809
25	0.8788	0.8785	0.8768	0.8723	0.8687	0.8611	0.8556	0.8472	0.8346	0.8234	0.8507
30	0.9227	0.9222	0.9196	0.9127	0.9071	0.8950	0.8860	0.8718	0.8482	0.8125	0.8186
35	0.9949	0.9942	0.9907	0.9813	0.9736	0.9570	0.9443	0.9240	0.8890	0.8261	0.8013
40	1.0899	1.0889	1.0845	1.0724	1.0625	1.0409	1.0244	0.9976	0.9503	0.8581	0.7985
45	1.2101	1.2089	1.2035	1.1887	1.1765	1.1498	1.1292	1.0958	1.0359	0.9128	0.8130
50	1.3500	1.3486	1.3421	1.3244	1.3098	1.2778	1.2531	1.2129	1.1401	0.9862	0.8465
55	1.5104	1.5087	1.5012	1.4804	1.4633	1.4258	1.3968	1.3495	1.2634	1.0779	0.8962
60	1.6871	1.6852	1.6765	1.6525	1.6328	1.5895	1.5561	1.5015	1.4021	1.1854	0.9631
65	1.8793	1.8771	1.8671	1.8397	1.8172	1.7679	1.7299	1.6678	1.5547	1.3066	1.0439
70	2.0842	2.0816	2.0704	2.0393	2.0139	1.9583	1.9154	1.8456	1.7186	1.4398	1.1381
75	2.2993	2.2965	2.2838	2.2489	2.2204	2.1581	2.1103	2.0325	1.8916	1.5829	1.2443
80	2.5235	2.5203	2.5061	2.4671	2.4353	2.3660	2.3129	2.2269	2.0719	1.7339	1.3606
85	2.7529	2.7494	2.7335	2.6901	2.6548	2.5783	2.5199	2.4257	2.2571	1.8921	1.4875
90	2.9876	2.9836	2.9660	2.9178	2.8788	2.7945	2.7305	2.6278	2.4455	2.0547	1.6225
95	3.2225	3.2182	3.1986	3.1454	3.1025	3.0103	2.9408	2.8301	2.6351	2.2228	1.7674
100	3.4590	3.4542	3.4325	3.3737	3.3265	3.2259	3.1506	3.0314	2.8241	2.3923	1.9194
105	3.6911	3.6858	3.6618	3.5972	3.5456	3.4366	3.3557	3.2290	3.0115	2.5662	2.0808
110	3.9211	3.9151	3.8886	3.8173	3.7609	3.6427	3.5560	3.4216	3.1945	2.7391	2.2488
115	4.1423	4.1356	4.1063	4.0280	3.9666	3.8395	3.7476	3.6069	3.3735	2.9157	2.4252
120	4.3578	4.3504	4.3177	4.2312	4.1641	4.0273	3.9299	3.7832	3.5449	3.0892	2.6071
125	4.5606	4.5523	4.5158	4.4204	4.3474	4.2015	4.0996	3.9490	3.7103	3.2652	2.7950
130	4.7547	4.7452	4.7039	4.5976	4.5179	4.3619	4.2557	4.1021	3.8652	3.4359	2.9857
135	4.9324	4.9215	4.8744	4.7558	4.6690	4.5042	4.3953	4.2418	4.0124	3.6070	3.1780
140	5.0984	5.0857	5.0309	4.8966	4.8014	4.6274	4.5167	4.3654	4.1469	3.7698	3.3679
145	5.2453	5.2300	5.1650	5.0118	4.9081	4.7275	4.6178	4.4732	4.2717	3.8287	3.5521
150	5.3778	5.3585	5.2786	5.1007	4.9877	4.8029	4.6970	4.5627	4.3819	4.0748	3.7262
155	5.4896	5.4641	5.3620	5.1535	5.0326	4.8508	4.7535	4.6352	4.4799	4.2100	3.8851
160	5.5827	5.5461	5.4080	5.1629	5.0388	4.8707	4.7874	4.6896	4.5619	4.3269	4.0244
165	5.6599	5.6003	5.3999	5.1200	5.0043	4.8658	4.8019	4.7279	4.6276	4.4233	4.1383
170	5.6945	5.5778	5.2829	5.0156	4.9326	4.8433	4.8027	4.7530	4.6771	4.4966	4.2238
175	5.8452	5.4727	5.0660	4.9015	4.8631	4.8204	4.7976	4.7646	4.7041	4.5388	4.2758
180	4.8455	4.8449	4.8419	4.8334	4.8260	4.8087	4.7943	4.7684	4.7135	4.5524	4.2958

DIFFERENTIAL RUTHERFORD SCATTERING WITHOUT Z SQUARED FACTOR (BARN PER STERADIAN)

ENERGY (MEV) ANGLE (DEG.)	100.	10.	4.	2.	1.5	1.0	0.8	0.6	0.4	0.2	0.1
2	.553D 01	.508D 03	.282D 04	.965D 04	.158D 05	.312D 05	.452D 05	.728D 05	.143D 06	.473D 06	.166D 07
4	.346D 00	.318D 02	.176D 03	.603D 03	.988D 03	.195D 04	.283D 04	.455D 04	.896D 04	.296D 05	.104D 06
6	.684D-01	.628D 01	.348D 02	.119D 03	.195D 03	.386D 03	.559D 03	.901D 03	.177D 04	.585D 04	.205D 05
8	.217D-01	.199D 01	.110D 02	.378D 02	.619D 02	.122D 03	.177D 03	.285D 03	.562D 03	.185D 04	.649D 04
10	.889D-02	.817D 00	.453D 01	.155D 02	.254D 02	.502D 02	.727D 02	.117D 03	.230D 03	.760D 03	.266D 04
12	.430D-02	.395D 00	.219D 01	.750D 01	.123D 02	.243D 02	.351D 02	.566D 02	.111D 03	.368D 03	.129D 04
14	.233D-02	.214D 00	.119D 01	.406D 01	.664D 01	.131D 02	.190D 02	.306D 02	.603D 02	.199D 03	.697D 03
16	.137D-02	.126D 00	.697D 00	.239D 01	.391D 01	.772D 01	.112D 02	.180D 02	.354D 02	.117D 03	.410D 03
18	.857D-03	.787D-01	.437D 00	.149D 01	.245D 01	.483D 01	.700D 01	.113D 02	.222D 02	.733D 02	.257D 03
20	.564D-03	.519D-01	.288D 00	.984D 00	.161D 01	.318D 01	.461D 01	.743D 01	.146D 02	.483D 02	.169D 03
22	.387D-03	.356D-01	.197D 00	.675D 00	.111D 01	.218D 01	.316D 01	.510D 01	.100D 02	.331D 02	.116D 03
24	.275D-03	.252D-01	.140D 00	.479D 00	.784D 00	.155D 01	.224D 01	.362D 01	.712D 01	.235D 02	.823D 02
26	.200D-03	.184D-01	.102D 00	.349D 00	.572D 00	.113D 01	.164D 01	.264D 01	.519D 01	.171D 02	.600D 02
28	.150D-03	.138D-01	.763D-01	.261D 00	.428D 00	.845D 00	.122D 01	.197D 01	.388D 01	.128D 02	.449D 02
30	.114D-03	.105D-01	.583D-01	.199D 00	.326D 00	.645D 00	.935D 00	.151D 01	.296D 01	.978D 01	.343D 02
32	.889D-04	.817D-02	.453D-01	.155D 00	.254D 00	.502D 00	.727D 00	.117D 01	.230D 01	.760D 01	.266D 02
34	.702D-04	.645D-02	.358D-01	.122D 00	.201D 00	.396D 00	.574D 00	.925D 00	.182D 01	.600D 01	.210D 02
36	.563D-04	.517D-02	.287D-01	.981D-01	.161D 00	.318D 00	.460D 00	.741D 00	.146D 01	.481D 01	.169D 02
38	.457D-04	.420D-02	.233D-01	.796D-01	.130D 00	.258D 00	.373D 00	.601D 00	.118D 01	.391D 01	.137D 02
40	.375D-04	.345D-02	.191D-01	.654D-01	.107D 00	.212D 00	.306D 00	.494D 00	.972D 00	.321D 01	.112D 02
42	.311D-04	.286D-02	.159D-01	.543D-01	.888D-01	.176D 00	.254D 00	.410D 00	.806D 00	.266D 01	.932D 01
44	.261D-04	.239D-02	.133D-01	.454D-01	.744D-01	.147D 00	.213D 00	.343D 00	.675D 00	.223D 01	.781D 01
46	.220D-04	.202D-02	.112D-01	.384D-01	.629D-01	.124D 00	.180D 00	.290D 00	.571D 00	.188D 01	.660D 01
48	.188D-04	.172D-02	.955D-02	.327D-01	.535D-01	.106D 00	.153D 00	.247D 00	.486D 00	.160D 01	.562D 01
50	.161D-04	.148D-02	.820D-02	.281D-01	.459D-01	.808D-01	.131D 00	.212D 00	.417D 00	.138D 01	.482D 01
52	.139D-04	.128D-02	.708D-02	.242D-01	.397D-01	.784D-01	.114D 00	.183D 00	.360D 00	.119D 01	.416D 01
54	.121D-04	.111D-02	.615D-02	.211D-01	.345D-01	.682D-01	.987D-01	.159D 00	.313D 00	.103D 01	.362D 01
56	.106D-04	.971D-03	.538D-02	.184D-01	.302D-01	.596D-01	.863D-01	.139D 00	.274D 00	.903D 00	.316D 01
58	.929D-05	.853D-03	.473D-02	.162D-01	.265D-01	.524D-01	.759D-01	.122D 00	.241D 00	.794D 00	.278D 01
60	.821D-05	.754D-03	.418D-02	.143D-01	.234D-01	.463D-01	.671D-01	.108D 00	.213D 00	.702D 00	.246D 01
62	.729D-05	.670D-03	.372D-02	.127D-01	.208D-01	.411D-01	.596D-01	.960D-01	.189D 00	.624D 00	.218D 01
64	.651D-05	.598D-03	.332D-02	.113D-01	.186D-01	.367D-01	.532D-01	.857D-01	.169D 00	.556D 00	.195D 01
66	.583D-05	.536D-03	.297D-02	.102D-01	.167D-01	.329D-01	.477D-01	.768D-01	.151D 00	.499D 00	.175D 01
68	.525D-05	.482D-03	.267D-02	.915D-02	.150D-01	.296D-01	.429D-01	.691D-01	.136D 00	.449D 00	.157D 01
70	.474D-05	.436D-03	.242D-02	.827D-02	.135D-01	.267D 01	.387D-01	.624D-01	.123D 00	.405D 00	.142D 01
72	.430D-05	.395D-03	.219D-02	.750D-02	.123D-01	.243D-01	.351D-01	.566D-01	.111D 00	.368D 00	.129D 01
74	.391D-05	.359D-03	.199D-02	.682D-02	.112D-01	.221D-01	.320D-01	.515D-01	.101D 00	.334D 00	.117D 01
76	.357D-05	.328D-03	.182D-02	.623D-02	.102D-01	.202D-01	.292D-01	.470D-01	.926D-01	.305D 00	.107D 01
78	.327D-05	.301D-03	.167D-02	.571D-02	.934D-02	.185D-01	.267D-01	.431D-01	.848D-01	.280D 00	.980D 00
80	.301D-05	.276D-03	.153D-02	.524D-02	.858D-02	.170D-01	.246D-01	.396D-01	.779D-01	.257D 00	.901D 00
82	.277D-05	.255D-03	.141D-02	.483D-02	.791D-02	.156D-01	.226D-01	.365D-01	.718D-01	.237D 00	.830D 00
84	.256D-05	.235D-03	.130D-02	.446D-02	.731D-02	.144D-01	.209D-01	.337D-01	.663D-01	.219D 00	.767D 00
86	.237D-05	.218D-03	.121D-02	.414D-02	.677D-02	.134D-01	.194D-01	.312D-01	.615D-01	.203D 00	.711D 00
88	.220D-05	.202D-03	.112D-02	.384D-02	.629D-02	.124D-01	.180D-01	.290D-01	.571D-01	.188D 00	.660D 00
90	.205D-05	.189D-03	.105D-02	.358D-02	.586D-02	.116D-01	.168D-01	.270D-01	.532D-01	.176D 00	.615D 00
92	.192D-05	.176D-03	.976D-03	.334D-02	.547D-02	.108D-01	.157D-01	.252D-01	.497D-01	.164D 00	.574D 00
94	.179D-05	.165D-03	.914D-03	.313D-02	.512D-02	.101D-01	.147D-01	.236D-01	.465D-01	.153D 00	.537D 00
96	.168D-05	.155D-03	.857D-03	.293D-02	.480D-02	.949D-02	.138D-01	.222D-01	.436D-01	.144D 00	.504D 00
98	.158D-05	.145D-03	.806D-03	.276D-02	.452D-02	.892D-02	.129D-01	.208D-01	.410D-01	.135D 00	.474D 00
100	.149D-05	.137D-03	.759D-03	.260D-02	.425D-02	.841D-02	.122D-01	.196D-01	.386D-01	.127D 00	.446D 00
102	.141D-05	.129D-03	.717D-03	.245D-02	.402D-02	.794D-02	.115D-01	.185D-01	.365D-01	.120D 00	.421D 00
104	.133D-05	.122D-03	.678D-03	.232D-02	.380D-02	.751D-02	.109D-01	.175D-01	.345D-01	.114D 00	.399D 00
106	.126D-05	.116D-03	.643D-03	.220D-02	.360D-02	.712D-02	.103D-01	.166D-01	.327D-01	.108D 00	.378D 00
108	.120D-05	.110D-03	.610D-03	.209D-02	.342D-02	.676D-02	.979D-02	.158D-01	.310D-01	.102D 00	.359D 00
110	.114D-05	.105D-03	.581D-03	.199D-02	.325D-02	.643D-02	.931D-02	.150D-01	.295D-01	.975D-01	.341D 00
112	.109D-05	.998D-04	.553D-03	.189D-02	.310D-02	.613D-02	.888D-02	.143D-01	.282D-01	.929D-01	.325D 00
114	.104D-05	.953D-04	.528D-03	.181D-02	.296D-02	.585D-02	.848D-02	.137D-01	.269D-01	.887D-01	.311D 00
116	.992D-06	.912D-04	.505D-03	.173D-02	.283D-02	.560D-02	.811D-02	.131D-01	.257D-01	.848D-01	.297D 00
118	.951D-06	.873D-04	.484D-03	.166D-02	.271D-02	.536D-02	.777D-02	.125D-01	.246D-01	.813D-01	.285D 00
120	.912D-06	.838D-04	.465D-03	.159D-02	.260D-02	.515D-02	.746D-02	.120D-01	.236D-01	.780D-01	.273D 00
122	.877D-06	.806D-04	.447D-03	.153D-02	.250D-02	.495D-02	.717D-02	.115D-01	.227D-01	.750D-01	.263D 00
124	.844D-06	.776D-04	.430D-03	.147D-02	.241D-02	.476D-02	.690D-02	.111D-01	.219D-01	.722D-01	.253D 00
126	.814D-06	.748D-04	.415D-03	.142D-02	.232D-02	.459D-02	.665D-02	.107D-01	.211D-01	.696D-01	.244D 00
128	.786D-06	.722D-04	.401D-03	.137D-02	.225D-02	.444D-02	.643D-02	.104D-01	.204D-01	.672D-01	.236D 00
130	.761D-06	.699D-04	.388D-03	.133D-02	.217D-02	.429D-02	.622D-02	.100D-01	.197D-01	.650D-01	.228D 00
132	.737D-06	.677D-04	.375D-03	.128D-02	.210D-02	.416D-02	.602D-02	.970D-02	.191D-01	.630D-01	.221D 00
134	.715D-06	.657D-04	.364D-03	.125D-02	.204D-02	.403D-02	.584D-02	.941D-02	.185D-01	.611D-01	.214D 00
136	.694D-06	.638D-04	.354D-03	.121D-02	.198D-02	.392D-02	.568D-02	.914D-02	.180D-01	.594D-01	.208D 00
138	.676D-06	.621D-04	.344D-03	.118D-02	.193D-02	.381D-02	.552D-02	.889D-02	.175D-01	.578D-01	.202D 00
140	.658D-06	.605D-04	.335D-03	.115D-02	.188D-02	.371D-02	.538D-02	.867D-02	.171D-01	.563D-01	.197D 00
142	.642D-06	.590D-04	.327D-03	.112D-02	.183D-02	.362D-02	.525D-02	.845D-02	.166D-01	.549D-01	.192D 00
144	.627D-06	.576D-04	.320D-03	.109D-02	.179D-02	.354D-02	.513D-02	.826D-02	.163D-01	.536D-01	.188D 00
146	.614D-06	.564D-04	.313D-03	.107D-02	.175D-02	.346D-02	.501D-02	.808D-02	.159D-01	.525D-01	.184D 00
148	.601D-06	.552D-04	.306D-03	.105D-02	.172D-02	.339D-02	.491D-02	.791D-02	.156D-01	.514D-01	.180D 00
150	.590D-06	.542D-04	.300D-03	.103D-02	.168D-02	.333D-02	.482D-02	.776D-02	.153D-01	.504D-01	.177D 00
152	.579D-06	.532D-04	.295D-03	.101D-02	.165D-02	.327D-02	.473D-02	.762D-02	.150D-01	.495D-01	.173D 00
154	.569D-06	.523D-04	.290D-03	.993D-03	.163D-02	.321D-02	.465D-02	.750D-02	.148D-01	.487D-01	.171D 00
156	.561D-06	.515D-04	.286D-03	.978D-03	.160D-02	.316D-02	.458D-02	.738D-02	.145D-01	.479D-01	.168D 00
158	.553D-06	.508D-04	.282D-03	.964D-03	.158D-02	.312D-02	.452D-02	.728D-02	.143D-01	.473D-01	.166D 00
160	.546D-06	.501D-04	.278D-03	.951D-03	.156D-02	.308D-02	.446D-02	.718D-02	.141D-01	.466D-01	.163D 00
162	.539D-06	.495D-04	.275D-03	.940D-03	.154D-02	.304D-02	.441D-02	.710D-02	.140D-01	.461D-01	.162D 00
164	.534D-06	.490D-04	.272D-03	.931D-03	.152D-02	.301D-02	.436D-02	.703D-02	.138D-01	.456D-01	.160D 00
166	.529D-06	.486D-04	.269D-03	.922D-03	.151D-02	.298D-02	.432D-02	.696D-02	.137D-01	.452D-01	.158D 00
168	.525D-06	.482D-04	.267D-03	.915D-03	.150D-02	.296D-02	.429D-02	.691D-02	.136D-01	.449D-01	.157D 00

INTERNAL DISTRIBUTION

- | | |
|-----------------------|--|
| 1. R. G. Alsmiller | 23-52. O. S. Oen |
| 2. B. R. Appleton | 53. S. M. Ohr |
| 3. E. T. Arakawa | 54. J. C. Pigg |
| 4. D. S. Billington | 55. R. H. Ritchie |
| 5. R. D. Birkhoff | 56. M. T. Robinson |
| 6. E. E. Bloom | 57. O. E. Schow |
| 7. Y. Chen | 58. M. J. Skinner |
| 8. J. W. Cleland | 59. E. Sonder |
| 9. R. R. Coltman | 60. J. O. Stiegler |
| 10. T. F. Connolly | 61. J. E. Turner |
| 11. F. L. Culler | 62. A. M. Weinberg |
| 12. S. Datz | 63. F. W. Wiffen |
| 13. K. Farrell | 64. M. K. Wilkinson |
| 14. J. A. Harvey | 65. J. M. Williams |
| 15. R. F. Hibbs | 66. R. F. Wood |
| 16. L. H. Jenkins | 67. Man H. Yoo |
| 17. C. E. Klabunde | 68. F. W. Young |
| 18. W. C. Koehler | 69. A. Zucker |
| 19. F. C. Maienschein | 70-72. Central Research Library |
| 20. C. D. Moak | 73. ORNL-Y-12 Technical Library,
Document Reference Section |
| 21. J. Narayan | 74-123. Laboratory Records |
| 22. T. S. Noggle | 124. Laboratory Records, ORNL, RC |

EXTERNAL DISTRIBUTION

125. S. Amelinckx, Solid State Physics Department, C.E.N., Mol-Donk, Belgium
126. H. H. Andersen, Danish Atomic Energy Commission Research Establishment Risö, DK-4000, Roskilde, Denmark
127. G. W. Arnold, Sandia Corporation, Albuquerque, New Mexico 87115
128. R. W. Balluffi, Materials Science and Engineering, 228 Bard Hall, Cornell University, Ithaca, New York 14850
129. P. C. Banbury, University of Reading, Reading, England
130. P. Baruch, Laboratoire de Physique, Ecole Normale Supérieure, Paris V, France
131. R. Bauerlein, Forschungslaboratorium, Siemens-Schuckertwerke AG, Erlangen, W. Germany
132. J. R. Beeler, Nuclear Engineering Department, North Carolina State University, P. O. Box 5636, State College Station, Raleigh, North Carolina 27607
133. R. Behrisch, Abteilung Oberflächenphysik, Max-Planck-Institut für Plasmaphysik, D-8046 Garching bei München, Germany
134. T. H. Blewitt, Argonne National Laboratory, Argonne, Illinois 60439
135. F. Brown, Solid State Sciences Branch, Chemical and Materials Division, Chalk River NUCLEAR Laboratory, Chalk River, Ontario, Canada

136. W. L. Brown, Bell Telephone Laboratories, Murray Hill, New Jersey 07974
137. R. L. Chaplin, Department of Physics, Clemson College, Clemson, South Carolina 29631
138. W. D. Compton, Director, Scientific Research Staff, 20000 Rotunda Drive, Dearborn, Michigan 48121
139. J. W. Corbett, Physics Department, New York State University, Albany, New York 12203
140. A. Cordier, Laboratoire D'Optique Electronique Du Centre National de la Recherche Scientifique, Toulouse, France
141. A. F. J. Cox, Physics Department, The University, Hull, East Yorkshire, England
142. James H. Crawford, Jr., Chairman, Department of Physics, University of North Carolina, Chapel Hill, North Carolina 27514
143. O. L. Curtis, Jr., Northrop-Ventura, Newbury Park, California 91320
144. D. Dautreppe, Head, Solid State Physics, Centre D'Etude Nucleaires de Grenoble, P. O. Box 269, Grenoble, France
145. J. Diehl, Max Planck Institut für Metallforschung, Seestrass 75, Stuttgart, Germany
146. D. G. Doran, Battelle Memorial Institute, Pacific Northwest Laboratories, P. O. Box 999, Richland, Washington 99352
147. H. Ehrenreich, Department of Engineering and Applied Physics, Harvard University, Cambridge, Massachusetts 02138
148. B. D. Evans, Naval Research Laboratory (Code 6440), Washington, D. C. 20390
149. M. J. Fluss, Argonne National Laboratory, Argonne, Illinois 60439
150. Konrad Gartner, Technisch-Physikalisches Institut der Friedrich-Schiller-Universität, DDR 69 Jena, Helmholtzweg 3, Germany
151. A. N. Goland, Brookhaven National Laboratory, Upton, New York 11973
152. C. Gomez, Max-Planck-Institut für Metallforschung, 7000 Stuttgart 1, Seestrass 92, Germany
153. Walter Green, Los Alamos Scientific Laboratory, P. O. Box 1663, Los Alamos, New Mexico 97544
154. Mike Guinan, L-503, Lawrence Livermore Laboratory, Livermore, California 94550
155. R. Hanada, The Research Institute for Iron, Steel and Other Metals, Tohoku University, Sendai, Japan
156. P. L. F. Hemment, United Kingdom Atomic Energy Authority, Aldermaston, Berkshire, England
157. Peter Jung, Institut für Festkörperforschung, Kernforschungsanlage Jülich, D-517 Jülich, Postfach 365, Germany
158. Edward A. Kenik, Case-Western Reserve University, Division of Metallurgy and Material Science, University Circle, Cleveland, Ohio 44106
159. J. S. Koehler, Physics Department, University of Illinois, Urbana, Illinois 60801
160. C. Lehmann, Institut für Festkörperforschung, Kernforschungsanlage Jülich, D-517 Jülich, Postfach 365, Germany
161. G. Leibfried, Institut für Festkörperforschung, Kernforschungsanlage Jülich, D-517 Jülich, Postfach 365, Germany
162. J. Lindhard, Institute of Physics, University of Aarhus, Aarhus, Denmark

163. J. Lomer, University of Reading, Reading, England
164. P. Lucasson, Laboratoire de Chimie Physique, Centre D'Orsay, Orsay, France
165. J. W. MacKay, Purdue University, Lafayette, Indiana 46207
166. M. J. Makin, Atomic Energy Research Establishment, Harwell, Didcot, Berks., England
167. A. Merlini, Solid State Physics Department, C.C.R.-EURATOM, Ispra (Varese), Italy
168. E. W. J. Mitchell, University of Reading, Reading, England
169. Terry E. Mitchell, Case Western Reserve University, University Circle, Cleveland, Ohio 44106
170. V. A. Molchanov, Scientific Institute of Nuclear Physics, Moscow State University, Moscow B-234, U.S.S.R.
171. G. L. Montet, Building 200, A157, Argonne National Laboratory, Argonne, Illinois 60439
172. R. S. Nelson, Atomic Energy Research Establishment, Harwell, Didcot, Berks., England
173. D. I. R. Norris, Berkeley Nuclear Laboratories, Berkeley, Gloucestershire, United Kingdom
174. B. Perovic, Institute "Boris Kidrich," P. O. Box 522, Belgrade, Yugoslavia
175. M. O. Ruault, Service de Physique des Solides, Faculte des Science D'Orsay, 91-Orsay, France
176. W. F. Schilling, Institut für Festkörperforschung, Kernforschungsanlage Jülich, D-517 Jülich, Postfach 365, Germany
177. C. G. Shull, Department of Physics, Massachusetts Institute of Technology, Cambridge, Massachusetts 02139
178. W. A. Sibley, Department of Physics, Oklahoma State University, Stillwater, Oklahoma 74074
179. P. Sigmund, H. C. Ørsted Institute, DK-2100 Copenhagen, Denmark
180. R. Sizmann, Sektion Physik, Universität München, 8 München 13, Amalienstrasse 54/111, Germany
181. A. Sosin, University of Utah, Salt Lake City, Utah 84102
182. J. T. Stanley, Arizona State University, Tempe, Arizona 85281
183. P. R. C. Stevens, United Kingdom Atomic Energy Authority, Aldermaston, Berkshire, England
184. M. L. Swanson, Atomic Energy of Canada Ltd., Chalk River, Ontario, Canada
185. J. A. Swartout, Union Carbide Corporation, New York, N. Y. 10017
186. D. O. Thompson, North American Aviation Science Center, Thousand Oaks, California 91360
187. M. W. Thompson, University of Sussex, Brighton, Sussex, England
188. M. S. Wechsler, Department of Metallurgy, Iowa State University, Ames, Iowa 50010
189. H. F. Wenzl, Institut für Festkörperforschung, Kernforschungsanlage, D-517 Jülich, Postfach 365, Germany
190. K. B. Winterbon, Chalk River Nuclear Laboratories, Chalk River, Ontario, Canada
191. Alan Wolfenden, Physics and Engineering Laboratory, Private Bag, Lower Hutt, New Zealand

192. H. Wollenberger, Institute für Festkörperforschung, Kernforschungsanlage Jülich, D-517 Jülich, Post Fach 365, Germany
193. P. Vajda, Laboratoire de Chimie Physique, Centre D'Orsay, Orsay, France
194. F. L. Vook, Sandia Corporation, Albuquerque, N. M. 87115
195. G. D. Watkins, General Electric Company, Research and Development Center, P. O. Box 8, Schenectady, New York 12301
196. V. E. Yurasova, Physical Department, Moscow State University, Moscow, U.S.S.R.
197. Research and Technical Support Division, A.E.C., ORO
198. Patent Office, A.E.C., ORO
- 199-338. Given distribution as shown in TID-4500 under Physics Category (25 copies - NTIS)