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1984
BIBLIOGRAPHY OF ATOMIC AND MOLECULAR PROCESSES

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ABSTRACT

This annotated bibliography includes papers on atomic and molecular processes published during 1984. Sources include scientific journals, conference proceedings, and books. Each entry is designated by one or more of the 114 categories of atomic and molecular processes used by the Controlled Fusion Atomic Data Center, Oak Ridge National Laboratory to classify data. Also indicated is whether the work was experimental or theoretical, what energy range was covered, what reactants were investigated, and the country of origin of the first author. Following the bibliographical listing, the entries are indexed according to the categories and according to reactants within each subcategory.

INTRODUCTION

This annotated bibliography on atomic and molecular processes reported in open literature during 1984 has been compiled as a part of the activities of the Controlled Fusion Atomic Data Center. Each entry is labeled by one or more of the 10 major categories and 114 subcategories of atomic and molecular processes given on page 2. Grouping according to specific categories is found in the reactants index. Each entry indicates whether the work was experimental (E) or theoretical (T), what energy range was covered, and what reactants were investigated. The classification scheme relates principally to atomic collisions and in particular does not specifically contain atomic structure information (energy levels or wavelength). Structure data are compiled by the National Bureau of Standards and information on atomic structure may be solicited from W. L. Wiese, NBS, Rm. A267, Bldg. 221, Washington, DC 20234.

The following remarks are offered to facilitate the use of the bibliography:

1. Sequencing of reactants in the index follows the order N, N* (excited state), N⁺, N₂, N⁻, NO, Na, Ne, etc.
2. Many papers do not refer to a particular collision system. Reactants in these cases are listed as undefined, denoted as Undef. Review papers are labeled Review rather than listing all reactants discussed in the paper. The abbreviation Seq, preceded by an atom, indicates all members of the iso-electronic sequence for that particular atom. PERT symbolizes "periodic table"; this notation is used when reactions involving a large number of the elements are covered by a publication. All of these codes are used in a general sense to avoid handling thousands of additional reactants at every stage in the production of these bibliographies.
3. The country listed at the end of each bibliographic entry is derived from the address of the first author given in the original publication.

Beginning in 1982 the Data Center adopted a revised categorization scheme in which some categories have been dropped and molecular reactants have been severely limited. This reduced categorization scheme reflects more precisely magnetic fusion interests but is still quite broad. Molecular species covered include H₂, H₃, HeH, N₂, O₂, CO, CO₂, OH, H₂O, CH₂, CH₃, CH₄, their ions and dissociated fragments.

ATOMIC COLLISIONS BIBLIOGRAPHY CATEGORIZATIONS LIST

Controlled Fusion Atomic Data Center, ORNL

A. HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS

1. General
2. Elastic Scattering Coefficients
3. Excitation
4. Dissociation
5. Fluorescence
6. Electron Capture
7. Ionization
8. Stripping
9. Recombination or Mutual Neutralization leading to Neutral Products (ion-ion)
10. Collisional De-Excitation
11. Collisional Line Broadening
12. Heavy Particle Interchange (must involve some form of hydrogen or helium)
13. Electron Detachment (from Negative Ions and Continuum)
14. Interaction Intensity
15. Angular Scattering
16. Attenuation Coefficients

B. INTERACTIONS OF ATOMS WITH LIQUIDS AND GASES

1. Interaction of Individual Atoms or Molecules with Either of Fields
2. Collisions in Liquids - Static or Time-varying Fields

C. PARTICLE PENETRATION IN MACROSCOPIC MATTER (IONS, NEUTRALS, AND ELECTRONS)

1. General
2. Energy Loss and Stopping Power
3. Particle Range
4. Multiple Scattering
5. Charge State Population
6. Excited State Population

D. PARTICLE INTERACTIONS WITH SOLID SURFACES

1. General
2. Sputtering by Electrons, Neutrons, and Heavy Particles (only total removal coefficients)
3. Sputtered Particle Charge and Quantum (Excited) State Distribution
4. Secondary Electron Ejection by Heavy Particle and Electron
5. Photoelectric Ejection of Electrons (coefficients only)
6. Reflection of Electrons from Surfaces (coefficients only)
7. Reflection of Heavy Particles from Surfaces (total reflection coefficients only)
8. Charge and Quantum State Distributions of reflected Heavy Particles
9. De-Excitation, Neutralization, Ionization, or Dissociation of Particles Interacting with Surfaces

E. STICKING COEFFICIENTS, THERMAL ENERGIES AND ABSORPTION

10. Sticking Coefficients, Thermal Energies and Absorption
11. Electromagnetic Radiation Induced by Electron or Heavy Magnetic Impact on Surfaces
12. Desorption of Gases from Surfaces
13. Electron-, Ion-, and Photon-Induced Chemical Changes to Surfaces
14. Trapping and Reemission of Hydrogen (all forms) and Helium

F. ELECTRON-PARTICLE INTERACTION

1. General
2. Elastic Collisions
3. Excitation
4. Dissociation
5. Ionization
6. Recombination (electron-electron)
7. Collisional De-Excitation
8. Collisional Line Broadening
9. Negative Ion Formation
10. Free-Free Transitions (bremsstrahlung)
11. Electron Attainment from Neutral or Ions
12. Fluorescence
13. Angular Scattering
14. Momentum Transfer

G. PHOTON COLLISIONS WITH HEAVY PARTICLES AND ELECTRONS ($\nu < 100$ keV)

1. General
2. Total Absorption
3. Elastic Scattering
4. Excitation
5. Dissociation
6. Ionization
7. Photodetachment
8. Fluorescence
9. Free-Free Absorption or Inverse Bremsstrahlung

H. DATA COMPILATION

1. Heavy Particle
2. Electrons
3. Photons
4. Particles on Surfaces and Solids
5. Transport
6. Structure

I. REVIEWS AND BOOKS

1. Heavy Particle
2. Electrons
3. Photons
4. Particles on Surfaces and Solids
5. Transport
6. Structure
7. General
8. Use of Atomic Data for Plasma Studies

L. BIBLIOGRAPHIES

1. Heavy Particle
2. Electrons
3. Photons
4. Particles on Surfaces and Solids
5. Transport
6. Structure

ABBREVIATIONS:

L1 Seq - sequence (LI)

PERT - periodic table

Undef - undefined

No molecules except H₂, H₃, HeH, N₂, O₂, CO, CO₂, OH, H₂O, CH₄, CH₃, CH₂, and their ions

H or "Hydrogen" also includes D and T

COUNTRY CODE:

- | | |
|--------------------|-----------------------|
| 1. United States | 24. Brazil |
| 2. United Kingdom | 25. Australia |
| 3. Soviet Union | 26. East Germany |
| 4. Japan | 27. Sweden |
| 5. West Germany | 28. Greece |
| 6. France | 29. South Africa |
| 7. Canada | 30. Taiwan |
| 8. Mexico | 31. Argentina |
| 9. The Netherlands | 32. People's Republic |
| 10. Denmark | of China |
| 11. Finland | 33. Saudi Arabia |
| 12. Norway | 34. Algeria |
| 13. Switzerland | 35. People's Republic |
| 14. India | of Singapore |
| 15. Israel | 36. Malaysia |
| 16. Italy | 37. Nigeria |
| 17. Czechoslovakia | 38. Egypt |
| 18. Yugoslavia | 39. Jordan |
| 19. Romania | 40. New Zealand |
| 20. Poland | 41. Chile |
| 21. Austria | 42. Turkey |
| 22. Hungary | 43. Bulgaria |
| 23. Belgium | 44. Pakistan |
| 24. Spain | 45. Portugal |

Controlled Fusion Atomic Data Center

Ref. No.	Reactants	Energy Range	Reference
01763 T	E30: He + Co ⁶⁰ ; He + Si ²⁸	Unref	Benson, J. E.; Beusken, A.J.J.; Sylings, P.B.B. Calculations of transition probabilities for forbidden line in the 3d ⁷ ground configurations of Co III and Si IV. <i>Astrophys. J., Part I</i> 277, 635 (1982) The Netherlands
01764 T	E30: e + D ₂	20-500 eV	Poeker, L.; McConkey, J. R. Absolute cross sections for D ₂ lysis and Derner band excitation by controlled electron impact. <i>Can. J. Phys.</i> 62, 1 (1984) Canada
01765 E-T	E32: e + Li E19: e + Li	5-200 eV	Tayal, S. S.; Tripathi, A. B. Total cross sections for electron-lithium scattering. <i>Can. J. Phys.</i> 62, 198 (1984) India
01766 E-T	A36: He + Be ⁺	50-100 keV	Datta, S.; Mandal, C. B.; Mukherjee, S. C. Charge transfer in H ⁺ - Be ⁺ (1s) collisions. <i>Can. J. Phys.</i> 62, 337 (1984) India
01767 T	E36: e + C ²⁴ ; e + C ²⁰	135-8x10 ³ eV	Somers, E. P. Recombination. <i>Comments At. Mol. Phys.</i> 14, 147 (1980) United Kingdom
01768 E	E35: e + Ag	0.33-10 ³ keV	Genz, H. Inner-shell ionization by relativistic electron impact. <i>Comments At. Mol. Phys.</i> 14, 173 (1980) West Germany
01769 E-T	E33: e + Sr; e + Sm; e + Yb; e + U; e + Pt; e + Au; e + Pb	Threshold-30 keV	Shina, K.; Okada, S.; Suzuki, E.; Taschiba, T.; Mikamo, T. X-ray production efficiency from Z = 50-82 thick target elements by electron impacts from threshold energy to 30 keV. <i>J. Appl. Phys.</i> 54, 1232 (1983) Japan
01770 E	D07: He ⁺ + Al; He ⁺ + Si; He ⁺ + Al ₂ O ₃ ; He ⁺ + Al + Si	0.6-2.3 keV	MacDonald, J. R.; Davies, J. A.; Jackson, T. R.; Feldman, L. C. How well does ³ He backscattering from low-Z nuclei obey the Rutherford formula? <i>J. Appl. Phys.</i> 54, 1633 (1983) Canada
01771 T	E33: e + Ba ⁺	Threshold-5 keV	Ganes, P. S.; Gately, L. P. Excitation of Ba ⁺ by electron impact. <i>J. Appl. Phys.</i> 54, 2167 (1983) United States
01772 T	E33: e + Kr ⁸⁶	1-3x10 ³ eV	Feldman, U.; Shatilo, A. E.; Suckewer, S. Short wavelength laser calculations for electron passing in neon-like krypton (Kr XXVII). <i>J. Appl. Phys.</i> 54, 2188 (1983) United States
01773 E-T	D32: U ²³⁸ + U; U + U D33: U ²³⁸ + U; U + U D37: U ²³⁸ + U; U + U D38: U ²³⁸ + U; U + U	0.1-5 keV	Robinson, R. T. Computer simulation of the self-sputtering of uranium. <i>J. Appl. Phys.</i> 54, 2653 (1983) United States
01774 E-T	D32: He ⁺ + Si; He ⁺ + Ne; Ar ⁺ + Si; Ar ⁺ + Ne; Kr ⁺ + Si; Kr ⁺ + Ne; Xe ⁺ + Si; Xe ⁺ + Ne	0.1-20 keV	Zeln, P. C. Energy dependence of the sputtering yield of silicon bombarded with neon, argon, krypton, and xenon ions. <i>J. Appl. Phys.</i> 54, 2663 (1983) The Netherlands
01775 E	C32: He ⁺ + GaAs C33: He ⁺ + GaAs	990-1020 keV	Bond, A. H.; Parayathal, P. H.; Pollak, P. H.; Woodall, J. B. Direct measurement of proton straggling in GaAs for nuclear profiling. <i>J. Appl. Phys.</i> 55, 3433 (1984) United States
01776 T	C34: S ³² + Si	40-600 keV	Bilson, B. G. Depth distributions of sulfur implanted into silicon as a function of ion energy, ion fluence, and anneal temperature. <i>J. Appl. Phys.</i> 55, 3493 (1984) United States
01777 T	A14: O + H ₂ A17: O + H ₂	Unref	Donaldson, D. J.; Bright, J. S. Singlet-triplet surface crossings and low-temperature rate enhancement for O(³ P) + H ₂ + H. <i>J. Chem. Phys.</i> 80, 223 (1984) Canada
01778 T	A17: F + H ₂	Unref	Treichler, D. G.; Garrett, B. C.; Blais, B. C. Two new potential energy surfaces for the F + H ₂ reaction. <i>J. Chem. Phys.</i> 80, 232 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
01779 T	A19; $\gamma + \text{D}_2$	3.0-4.5 kcal/mol	Barker, R. E.; Bleis, N. C.; Truhlar, D. G. Dependence of reaction attributes, including differential cross sections and resonance features, on changes in the potential energy surface for the $\text{F} + \text{D}_2$ reaction. <i>J. Chem. Phys.</i> 80, 246 (1984) United States
01780 T	A17; H_2	Undef	Cima, J. R.; Harris, R. K. An electron gas treatment of the potential curve and polarizability tensor of the lowest $^1\text{S}(\text{Mg}^+)$ state of H_2 . <i>J. Chem. Phys.</i> 63, 329 (1975) United States
01781 T	A17; $\text{Li}^+ + \text{He}; \text{Li}^+ + \text{Be}; \text{Be}^+ + \text{He};$ $\text{Be}^+ + \text{He}; \text{K}^+ + \text{He}; \text{K}^+ + \text{Be}; \text{Be}^+ + \text{ne};$ $\text{Ne}^+ + \text{He}; \text{Ca}^+ + \text{He}; \text{Ca}^+ + \text{Be};$ $\text{Cl}^+ + \text{He}; \text{Cl}^+ + \text{Be}; \text{Br}^+ + \text{He};$ $\text{Br}^+ + \text{He}$	Undef	Viehland, L. A.; Mason, T. A. Repulsive interactions of closed-shell ions with He and Be atoms: comparison of beam and transport measurements. <i>J. Chem. Phys.</i> 63, 416 (1975) United States
01782 E	A17; $\text{Be}^+ + \text{C}_2; \text{Be}^+ + \text{C}_2; \text{Ar}^+ + \text{O}_2;$ $\text{Ar}^+ + \text{O}_2$	30-1000 eV	Alvarino, J. B.; Hupp, C.; Kreisselmeier, R.; Vecchicattivani, F.; Seppelt, V. The competition of Penning ionization and ion pair formation in fast collisions of metastable rare gas atoms with C_2 and Cl_2 molecules. <i>J. Chem. Phys.</i> 80, 765 (1984) West Germany
01783 T	A36; $\text{B}_2^+ + \text{H}_2$	16-833 eV	Lee, C. Y.; DePinto, J. E. Semiclassical investigations of vibrational state and molecular orientation effects in electron transfer reactions for the H_2^+-H_2 collision. <i>J. Chem. Phys.</i> 82, 1116 (1985) United States
01784 T	A17; $\text{He} + \text{He}; \text{Ar} + \text{Ar}; \text{Kr} + \text{Kr}; \text{Xe} + \text{Xe};$ $\text{Xe} + \text{Rn}$	Undef	Ramazza, R. C.; Costic, E. A.; Fernandez, P. E. Interaction energies between noble gas atoms from a trial density function in the Thomas-Fermi-Hundt-Dittrich formulation. <i>J. Chem. Phys.</i> 83, 1179 (1985) Argentina
01785 T	A18; $\text{H} + \text{O}_2$	20-90 kcal/mol	Steinonen, K.; Schinke, R. Dynamics of $\text{H} + \text{O}_2 \rightarrow \text{CH} + \text{O}$ at high collision energies. <i>J. Chem. Phys.</i> 83, 1483 (1985) West Germany
01786 T	A36; Undef A07; Undef A08; Undef	Undef	Boyd, B. E.; Kingston, T. E.; Breton, A. G.; Beynon, J. B. Angle-dependence of ion kinetic energy spectra obtained by using mass spectrometers. I. Theoretical consequences of conservation laws for collisions. <i>Proc. R. Soc. London Ser. A</i> 392, 59 (1984) Canada
01787 F	A06; $\text{Ar}^+ + \text{He}; \text{Ar}^+ + \text{H}_2; \text{Ar}^+ + \text{Ac};$ $\text{Ar}^+ + \text{Kr}$ A37; $\text{Ar}^+ + \text{He}; \text{Ar}^+ + \text{H}_2; \text{Ar}^+ + \text{Ac};$ $\text{Ar}^+ + \text{Kr}$ A38; $\text{Ar}^+ + \text{He}; \text{Ar}^+ + \text{H}_2; \text{Ar}^+ + \text{Ac};$ $\text{Ar}^+ + \text{Kr}$	6 keV	Boyd, B. E.; Kingston, T. E.; Breton, A. G.; Beynon, J. B. Angle-dependence of ion kinetic energy spectra obtained by using mass spectrometers. II. Experimental considerations and preliminary results on atom-fragmenting systems. <i>Proc. R. Soc. London Ser. A</i> 392, 69 (1984) Canada
01788 E	A36; $\text{He}^+ + \text{H}_2; \text{He}^+ + \text{Ne}; \text{He}^+ + \text{Ar}$ A38; $\text{He}^+ + \text{H}_2; \text{He}^+ + \text{He}; \text{He}^+ + \text{Ar}$	66-130 keV	Satojima, I.; Berg, G.-P.A.; Burlinnes, W.; Martin, S. A.; Neinstadtgr, J.; Celari, M.; Rogge, R.; Boset, J.G.N.; Tsai, J. L.; Zemla, L.; Gaul, G. High-energy electron capture and stripping in gas targets. <i>J. Phys. B</i> 17, L23 (1984) West Germany
01789 T	F32; $e + \text{H}_2; e + \text{CO}$ E17; $e + \text{H}_2; e + \text{CO}$	50-633 eV	Jain, A.; Freitas, L.C.G.; Hu-Tao, L.; Tayal, S. S. Elastic scattering of intermediate and high energy electrons with H_2 and CO molecules. <i>J. Phys. B</i> 17, L29 (1984) United Kingdom
01790 T	E33; $e + \text{O}_{2+}; e + \text{Ng}^{10+}; e + \text{Ca}^{2+};$ $e + \text{Fe}^{2+}$	Undef	Steenzen-Clark, L.; Fouquet, P. The effect of resonances on the forbidden line of He-like ions. <i>J. Phys. B</i> 17, 73 (1984) France
01791 E	H36; $h\nu + \text{Kr}$	5-75 eV	Degenbach, R.; Scheidt, V. Angular distribution of Kr $4s - 7p_{3/2}$ photoionizations. <i>J. Phys. B</i> 17, 63 (1984) West Germany
01792 E	A35; $\text{He} + \text{Au}$ A37; $\text{He} + \text{Au}$ A38; $\text{He} + \text{Au}$	1-14.2 keV	Falinakis, J.; Sakkas, L.; Schlein, B.; Totok, I.; Kalman, J.; Ecker, C.; Frankoff, R.; Grabske, D.; Heijer, C.; Budzik, B.; Thomas, M. J. Study of the L-channel ionization of gold by 1.1-14.2 keV electron-ica bombardment. <i>J. Phys. B</i> 17, 131 (1984) Hungary

Ref. No.	Reactants	Energy Range	Reference
31793 T	A32: He ⁺ + E A10: He ⁺ + E	100-2500 keV	Saha, N. Proton-hydrogen elastic scattering at high energies. J. Phys. B 17, 231 (1984) India
31794 E	A33: Fe ²⁺ + He; Fe ²⁺ + H ₂ ; Fe ²⁺ + He; Fe ²⁺ + Ar A36: Fe ²⁺ + He; Fe ²⁺ + H ₂ ; Fe ²⁺ + He; Fe ²⁺ + Ar	400 MeV	Jelly, A.; Scheret, E.; Chetouani, A.; Bozat, J. P.; Stephan, C.; Kubo, L. J. Total charge transfer cross sections for 400 MeV late Fe ²⁺ ions colliding with Ne, H ₂ , He and Ar targets. J. Phys. B 17, 235 (1984) France
31795 E	E33: e + He ⁺ E17: e + He ⁺	15-30 eV	Muller-Piedler, B.; Schleesener, P.; Jung, K.; Rotop, M.; Riehdorf, E. Inelastic differential electron scattering from metastable He(2P ₁) atoms. J. Phys. B 17, 259 (1984) West Germany
31796 T	A33: O ²⁺ + He	Undef	Bell, F. The alignment of hydrogen-like fast projectile ions after excitation by ion-atom collisions. J. Phys. B 17, L65 (1984) West Germany
31797 E	A33: Ne ²⁺ + He A36: Ne ²⁺ + He A37: Ne ²⁺ + He	400 eV	Huter, B. A.; Rahlgert, H. J. On the importance of metastable ne ²⁺ (1S ₀) ions in charge-changing Ne ²⁺ -He collisions. J. Phys. B 17, 169 (1984) West Germany
31798 T	E33: Undef	Undef	Sau, A.B.P. Direct excitation of states of high l by electron impact. J. Phys. E 17, L75 (1984) India
31799 E	E37: e + Kr ²⁺ ; e + Xe ⁺	0-0.2 eV	Elagov, A. E.; Mishchenko, T. N.; Popov, I. K. Superelastic collisions between slow electrons and excited Kr and Xe atoms. Feasible reaction mechanism for rare-gas atoms. J. Phys. E 17, 435 (1984) Bulgaria
CIECO T	H06: hv + E	71-64 ns	Bencic, B.; Greene, J. P.; Beckovitz, J. Photoionisatics of atomic fluorine. J. Phys. E 17, L79 (1984) United States
31801 T	A16: H ⁻ + E ⁺	1-100 keV	Pussen, D.; Claeys, B. Electron detachment in H ⁻ -H ⁺ collisions. J. Phys. B 17, L69 (1984) Belgium
31802 E	A36: Si ¹⁺ + He; Si ²⁺ + He; Kr ²⁺ + He; Kr ³⁺ + He; Kr ⁴⁺ + He; Kr ¹⁺ + He; Kr ²⁺ + He; Kr ³⁺ + He; Kr ⁴⁺ + He; Kr ⁵⁺ + He; Kr ⁶⁺ + He; Kr ⁷⁺ + He; Kr ⁸⁺ + He; Kr ⁹⁺ + He; Kr ¹⁰⁺ + He; Kr ¹¹⁺ + He; Kr ¹²⁺ + He; Kr ¹³⁺ + He; Kr ¹⁴⁺ + He; Kr ¹⁵⁺ + He; Kr ¹⁶⁺ + He;	7-25 keV	Iwai, T.; Kaneko, T.; Saito, N.; Kotayashi, S.; Matsusaka, A.; Chatani, S.; Chuno, K.; Takagi, S.; Tawara, H.; Tsurutachi, S. The dependence on R(=R ₁ /R ₂) of cross sections for one-electron capture by Si ¹⁺ , Si ²⁺ and Kr ^{(q+1)+} (q = 7-15) ions from He atoms. J. Phys. B 17, 195 (1984) Japan
31803 E	H06: hv + Ta; hv + Au; hv + Pb; hv + Os H36: hv + Ta; hv + Au; hv + Pb; hv + Os	17-60 keV	Gorn, R. L.; Singh, J.; Verma, H. S.; Singh, N.; Bansal, P. C.; Tsekhan, F. N. Relative intensity measurements of L-shell x-rays for Ta, Au, Os, and Ir in the energy range 17-60 keV. J. Phys. B 17, L77 (1984) India
31804 T	A33: U + Ca; U + Sm; U + G; PD + Se; Pb + Te; Pr + Pt	1.6-8.5 keV/ns	de Souza, T.R.J.; Peichardt, J.; Muller, E.; Germer, W.; Seiff, G.; Muller, G. The influence of electron-electron interaction on inner-shell excitation processes in heavy-ion collisions. J. Phys. B 17, 615 (1984) West Germany
31805 T	A06: K ⁺ + Ne; R ⁺ + C	0.6-1.5 keV	Sivaguru, B. D.; Salin, A. K-shell one-electron capture in asymmetric collisions at intermediate and high energies. J. Phys. B 17, 659 (1984) Argentina
31806 T	A06: Ne ²⁺ + Ne; Ne ²⁺ + He; Ne ²⁺ + Ar	0.5-3.0 keV	Passe, W.; Kikuchi, A.; Tagashita, A.; Makai, T. Single- and double-electron capture cross sections for Ne ²⁺ in Ne, He and Ar. J. Phys. B 17, 671 (1984) Japan
31807 T	H02: hv + Ba; hv + Rg	Undef	Niski-Pakkonen, G.; Materlik, G.; Sonnag, B.; Tuukki, J. The L-level x-ray absorption spectra of atomic parus and secondary. J. Phys. B 17, L21 (1984) West Germany

Ref. No.	Reactants	Energy Range	Reference
31038 E	A36: e^+ + He; H^{+} + He A37: H^{+} + He; H^{+} + He	4.9 keV/amu	Bordeneuve-Moutoussamy, A.; Besson-Cattin, F.; Gleizes, A.; Berrakchi, S. I.; Bouillon, S.; Hitz, B. Autionisation de $H^{+}(n)$ ($n \geq 2$, 4 and 6) greater than or equal to a measured by electron spectrometry in collisions of H^{+} with He and H_2 at 4.9 keV amu^{-1} . <i>J. Phys. B</i> 17, L127 (1984) France
31039 E	A16: H^- + CO_2	250-1000 eV	Team, V. N.; Esanov, V.; Gulyaev, J. P. Charge exchange to a shape resonance in H^- - CO_2 collisions: evidence of a non-Franck-Condon behaviour. <i>J. Phys. B</i> 17, L133 (1984) France
31040 E	A03: Ar^{+} + He; Ar^{+} + Ar A26: Ar^{+} + He; Ar^{+} + Ar	100-1000 eV	Nielsen, R. R.; Anderson, L. H.; Barany, A.; Cedergquist, B.; Hoelgaard, F.; Knudsen, B.; Sorensen, J. Energy-gain spectroscopy: measurements of single-electron capture by Ar^{+} in He and Ar. <i>J. Phys. B</i> 17, L639 (1984) Denmark
31041 E	E93: e^- + C^{6+} ; e^- + Hg^{100+}	15-137 eV	Taylor, S. S.; Kingstock, D. E. Electron impact excitation of the ground state of C V and Mg II to the 2^3S and 2^3P states. <i>J. Phys. B</i> 17, L195 (1984) United Kingdom
31042 E	A32: He^{+} + He A33: He^{+} + He	25-57 eV	Von Busch, F.; Hornez, J.; Lienau, D. A study of low-energy differential ion-atom scattering: III. He^{+} -He. <i>J. Phys. E</i> 17, 763 (1984) West Germany
31043 E	A34: H_2 + He; H_2^{+} + He; H_2^{+} + He A36: H_2 + He; H_2^{+} + He; H_2^{+} + He	2.5-100 keV	Williams, I. D.; Geddes, J.; Gilbody, L. B. Collisional destruction of fast H_2 , H_2^{+} and H_2^{++} in He. <i>J. Phys. B</i> 17, 811 (1984) United Kingdom
31044 E	A07: H^+ + Ar; H_2^{+} + Ar; He^+ + Ar	0.0-3 keV	Serey, D.; Csanyi, I.; Kadar, I.; Kovar, A.; Bicz, S.; Sarkadi, I.; Varga, I.; Vegh, J. Ion-induced Lyman-shield alignment of argon. <i>J. Phys. B</i> 17, 829 (1984) Hungary
31045 T	A03: He^{+} + I A36: He^{+} + I	19-50 keV/amu	Morrison, R. C.; Optis, U. Attempts to improve the accuracy, and results on He^{+} -I collisions. <i>J. Phys. B</i> 17, 857 (1984) United Kingdom
31046 E	A36: C^{6+} + CH_4 ; C^{6+} + C; C^{6+} + C A39: C^{6+} + CH_4 ; C^{6+} + CH_3 ; C^{6+} + C; C^{6+} + C C36: C^{6+} + C; C^{6+} + C; C^{6+} + C	36 Ref	Beeda, C. J.; Sofield, C. J.; Cowan, W. I. B.; Barrell, B.; Draper, J. Comparisons of charge-changing cross sections in gaseous and solid targets. <i>J. Phys. E</i> 17, 867 (1984) United Kingdom
31047 E	E33: e^- + He; e^- + Ne; e^- + Ar; e^- + Kr; e^- + Xe E17: e^- + He; e^- + Ne; e^- + Ar; e^- + Kr; e^- + Xe	12-200 eV	Shpenik, O. E.; Zavilopulo, A. N.; Smeyersky, A. V.; Fabrikant, I. I. Excitation of metastable levels of noble-gas atoms in crossed electron and gas dynamical atomic beams. <i>J. Phys. B</i> 17, 887 (1984) Soviet Union
31048 T	E33: e^- + H_2^{+}	0-1 Ry	Tessyson, J.; Hoble, C. J.; Salvini, S. Low-energy $e collisions using the R-matrix method. J. Phys. B 17, 905 (1984)United Kingdom$
31049 T	H06: $h\nu$ + Si ⁺	75-50 nm	Taylor, R. J.; Zeippen, C. J.; Le Dourneuf, R. The photoionisation of the Si ⁺ (F ⁺) ground state: a combined application of the R-matrix and quantum defect theories. <i>J. Phys. B</i> 17, L157 (1984) United Kingdom
31050 T	A36: He^+ + I	13-50 keV	Crothers, D. J. P.; McCann, J. P. A second-order continuous distorted-wave theory of charge transfer at high energy. <i>J. Phys. E</i> 17, L177 (1984) United Kingdom
31051 E	E95: e^- + CO_2 E17: e^- + CC_4	500-1000 eV	Igo, I.; Roqueira, J. C.; Hu-Tao, L. Elastic scattering of electrons from CO_2 in the intermediate energy range. <i>J. Phys. E</i> 17, L185 (1984) Brazil
31052 T	E72: e^- + Ca E03: e^- + Ca	0-3 eV	Scott, R. S.; Bertachat, R.; Burke, P. G.; Kissner, R. F.; Nagy, O. Low-energy scattering of electrons by caesium atoms. <i>J. Phys. E</i> 17, L191 (1984) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
01E23 T	H06: $\text{hv} + \text{He}^+$; $\text{hv} + \text{Sr}^{+}$	0-10 eV	Aymar, R.; Achour, O.; Name, S. Central-field calculations of photoionization cross sections of excited states of Ba and Sr ⁺ and analysis of photoionization cross sections of excited alkali atoms using quantum defect theory. <i>J. Phys. B</i> 17, 993 (1984) France
01E24 T	H06: $\text{hv} + \text{R}_2$	15-65 eV	Richards, J. A.; Larkins, P. P. Molecular photoionization calculations with numerical continuum wavefunctions: application to the hydrogen molecule. <i>J. Phys. B</i> 17, 1315 (1984) Australia
01E25 T	A03: $\text{He}^+ + \text{He}$	70-2000 eV	Bonangton, J. L.; Crowder, J. P. Oscillatory total cross sections in the (He-He) ⁺ collision system: II. Optical study of direct excitation of five He (2P ^{3/2}) levels between 70 eV and 2 keV. <i>J. Phys. B</i> 17, 1363 (1984) France
01E26 T	A06: $\text{H}^+ + \text{Li}$	0.5-116 keV	Ermolaev, A. N. Charge transfer in collisions between protons and lithium atoms. <i>J. Phys. B</i> 17, 1369 (1984) United Kingdom
01E27 T	A03: $\text{He}^{2+} + \text{Li}$ A26: $\text{He}^{2+} + \text{Li}$	1.9-1600 keV	Ermolaev, A. N.; Bratoden, B. B. Charge transfer in He ²⁺ + Li collisions. <i>J. Phys. B</i> 17, 1383 (1984) United Kingdom
01E28 T	B07: $\text{Bb}^+ + \text{R}_2$		Sivana, S.; Spagnolo, B.; Ferrante, G. Charge transfer in the presence of a magnetic field. <i>J. Phys. B</i> 17, 1093 (1984) Italy
01E29 E	E02: $e^- + \text{R}_1; e^- + \text{R}_2$ E17: $e^- + \text{R}_3; e^- + \text{R}_4$	10-360 eV	Hollenkamp, B.; Bubker, B.; Berger, C.; Jant, K.; Kessler, J. Elastic scattering of polarized electrons from mercury and xenon to obtain the complete information on the scattering process. <i>J. Phys. B</i> 17, 1137 (1984) West Germany
01E30 T	E03: $e^- + \text{R}_2^+$	50-1000 eV	Gien, T. T. Inelastic excitation of He ⁺ by electron impact in modified Glauber approximation. <i>J. Phys. B</i> 17, 1123 (1984) Canada
01E31 E	A03: $\text{He}^+ + \text{R}_2; \text{He}^+ + \text{R}_3$ A26: $\text{He}^+ + \text{R}_2; \text{He}^+ + \text{R}_3$ A27: $\text{He}^+ + \text{R}_2; \text{He}^+ + \text{R}_3$	0.2 keV/amu	Bordeneuve-Bautzquier, A.; Benoit-Cattin, F.; Gleizes, A.; Barakat, B. J.; Boussac, S.; Blitz, D. Two-electron capture into autoionization: configurations He ⁿ (1s ⁿ⁻¹ l ¹) with n = 2,3,4 and n' greater than or equal to n, observed by electron spectroscopy in collisions of He ⁿ (1s) with He and He ₂ at 0.2 keV amu ⁻¹ . <i>J. Phys. B</i> 17, 1223 (1984) France
01E32 E	A06: $\text{R}_2^+ + \text{Cs}; \text{R}_2^+ + \text{Cs}$ A16: $\text{R}_2^+ + \text{Cs}$ C36: $\text{R}_2^+ + \text{Cs}$	400 eV	Anderson, L. W.; Kaplan, S. B.; Kyle, B. V.; Ruby, L.; Schlachter, J. S.; Stearns, J. W. Spin-dependent charge transfer in a polarized target. <i>J. Phys. B</i> 17, 1229 (1984) United States
01E33 T	E03: $e^- + \text{R}$	1.00-4 Ry	Collino, L. A.; Schneider, B. I. Electronic excitation of atoms and molecules by electron impact in a linear algebraic, separable potential approach. <i>J. Phys. B</i> 17, 1235 (1984) United States
01E34 T	B01: R		Forster, R.; Strupat, H.; Bosser, H.; Budde, H.; Berold, H. Hydrogen atom in arbitrary magnetic fields: II. Bound-bound transitions. <i>J. Phys. B</i> 17, 1301 (1984) West Germany
01E35 T	H06: $\text{hv} + \text{R}_2$	60-120 eV	Scott, P.; Burke, F. G. Analysis of the photoionisation of an atom in a 1S(3p ² 1 ⁰) state leaving an ion in a 1P ⁰ state. Application to helium. <i>J. Phys. B</i> 17, 1321 (1984) United Kingdom
01E36 E-T	A03: $\text{Kr}^+ + \text{R}_2; \text{Kr}^+ + \text{R}_3$ A07: $\text{Kr}^+ + \text{R}_2; \text{Kr}^+ + \text{R}_3$	0.7-3.0 keV	Shanker, R.; Bille, G.; Bissel, B.; Scherzer, R. R.; Lutz, R. O. 4f sigma excitation in slow Kr-He and Kr-Xe collisions. <i>J. Phys. B</i> 17, 1353 (1984) West Germany
01E37 E	A03: $\text{C}^{2+} + \text{R}; \text{C}^{2+} + \text{R}$ A26: $\text{C}^{2+} + \text{R}; \text{C}^{2+} + \text{R}$	3.6-18 keV	McCalough, B. W.; Wilkie, F. G.; Gilbody, B. G. State-selective electron capture by slow C ²⁺ and C ³⁺ ions in atomic hydrogen. <i>J. Phys. B</i> 17, 1373 (1984) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
31638 T	E03: e + O ⁺	0.1-62 eV	Tayal, S. S.; Kingdon, A. E. Electron impact excitation of the ground state of O VI to the n = 2 and 3 states. <i>J. Phys. B</i> 17, 1383 (1984) United Kingdom
31639 T	E03: e + Be; e + Be; e + Ar E05: e + Be; e + Be; e + Ar	20-5000 eV	Grosswendt, E. Statistical fluctuations of the ionization yields of low-energy electrons in Be, Ne and Ar. <i>J. Phys. B</i> 17, 1391 (1984) West Germany
31640 T	E05: e + Xe ⁺ ; e + Xe ²⁺ ; e + Xe ³⁺ ; e + Xe ⁴⁺	43-633 eV	Achenbach, C.; Müller, L.; Salzborg, E.; Becker, R. Single ionization of multiply charged xenon ions by electron impact. <i>J. Phys. B</i> 17, 1435 (1984) West Germany
31641 T	E05: e + Xe ⁺ ; e + Xe ²⁺ ; e + Xe ³⁺ ; e + Xe ⁴⁺	43-733 eV	Müller, L.; Achenbach, C.; Salzborg, E.; Becker, R. Multiple ionization of multiply charged xenon ions by electron impact. <i>J. Phys. B</i> 17, 1427 (1984) West Germany
31642 T	H36: hv + CO ₂	10-18.7 eV	Bonnstorg, B.; Veenhuizen, H.; Battiston, L.; Ingelli, R. E.; Battiston, L.; Singhal, K. High-resolution angle-resolved photoelectron spectra of the 2P(3/2) u ⁺ state in CO ₂ . <i>J. Phys. B</i> 17, L259 (1984) Sweden
31643 T	E03: e + Ne	53-83 eV	Beijers, J. F. M.; Van Eck, J.; Heideman, R. G. P. Orbital angular momentum transfer in the excitation of the 2P state of helium by electrons. <i>J. Phys. B</i> 17, L265 (1984) The Netherlands
31644 T	S06: hv + Br	100-90 nm	Bascic, V.; Greene, J. P.; Berkowitz, J. Photoionisation of atomic bromine. <i>J. Phys. B</i> 17, 1593 (1984) United Kingdom
31645 T	E06: hv + Br ₂	0-1 keV	Levin, V. G.; Nedatchina, V. G.; Pavlitcheskaya, A. V.; Smirnov, I. P. A study of the electron correlations in the Br ₂ molecule using the double photoionization process (gamma, 2e). <i>J. Phys. B</i> 17, 1525 (1984) Soviet Union
31646 T	H35: hv + BeF ⁺ H36: hv + BeF ⁺	130-32 nm	Basu, D.; Barua, A. K. Photodissociation of BeF ⁺ molecular ion. <i>J. Phys. B</i> 17, 1537 (1984) India
31647 T	A03: R + O; R + O ₂ ; R ⁺ + O; R ⁺ + O ₂ , A06: R ⁺ + C; R ⁺ + C ₂ ; R + C; R + O ₂ ; R ⁺ + C ₂ ; R ⁺ + C A08: R + O; R ⁺ + C A11: R ⁺ + C; R ⁺ + C ₂ A16: R ⁺ + C; R ⁺ + C ₂	2.5-25 keV	Willis, I. D.; Geddes, J.; Gilbody, B. R. Electron capture, loss and excitation in collisions of e ⁻ , R(Li), H(2s) and H-18 atomic oxygen. <i>J. Phys. B</i> 17, 1547 (1984) United Kingdom
31648 T	A03: Li + He	5 keV	Beitzke, H. P.; Andersen, T. Complete determination of scattering amplitudes for a collisionally excited D state (3s1/2 - 3d) excitation in Li-He collisions. <i>J. Phys. B</i> 17, 1559 (1984) Denmark
31649 T	A06: Fe ²⁺ +Ar; Fe ²⁺ +Kr; Fe ²⁺ +Zr; Fe ²⁺ +Ag; Fe ²⁺ +Sn	400 keV	Bobars, K.; Chetouani, A.; Roget, J. P.; Jolly, A.; Stephan, C. E- ² transfer cross sections in near-symmetric Fe ²⁺ ion-atom collisions at intermediate velocity. <i>J. Phys. B</i> 17, 1575 (1984) France
31650 T	D12: R ⁺ + Sb; R ⁺ + Te; R ⁺ + Na; R ⁺ + Ta; R ⁺ + U; R ⁺ + Pt; R ⁺ + Bi	1.5-3.0 keV	Brezievicz, J.; Rajek, M.; Brezievicz, E.; Ploszajka, J.; Czetyński, G. R. Electron-induced L-shell x-ray production cross sections and their ratios. <i>J. Phys. B</i> 17, 1585 (1984) Poland
31651 T	A11: Ne ²⁺ +He; Ne ²⁺ +X ₂ ⁺	113 keV	Barbara, F. Collisional quenching of np states of 110 keV H-like He ions in gaseous targets. <i>J. Phys. B</i> 17, 1599 (1984) Japan
31652 T	A05: R ⁺ + P	5-2300 eV	Szocs, S.; Borrmann, R.; Texier, R.; Trouillard, P. Experimental study of the mutual neutralization of H ⁺ and H ⁻ between 5 and 2300 eV. <i>J. Phys. B</i> 17, 1613 (1984) Belgium

Ref. No.	Reactants	Energy Range	Reference
01053 T	A06: Li ⁺ + E; Li ⁺⁺ + He	3.13-18 keV	Casenave, J. I.; Piancastini, R. D. Charge exchange by fully stripped lithium ions on metastable and ground-state hydrogen atoms at low energies. <i>J. Phys. B</i> 17, 1623 (1984) Argentina
01054 E	A06: Li ⁺ + Li ⁺ A07: Li ⁺ + Li ⁺	53-200 keV	Batts, A. P.; Angel, G. C.; Dunn, K. F.; Gilley, D. B. Charge transfer and ionization in collisions between Li ⁺ ions. <i>J. Phys. A</i> 17, 1631 (1984) United Kingdom
01055 T	E02: e + He; e + Ne E07: e + He; e + Ne	10-150 eV	Fritzsche, L.; Boffke, J.; Gollisch, B. A new local exchange potential for low-energy electron scattering by atoms based on first principles. <i>J. Phys. B</i> 17, 1637 (1984) West Germany
01056 T	E05: e + Ar	1233 eV	Sitton, J.; Atrens, K.; Horzinek, J. The (e, e) spectra of argon. <i>J. Phys. B</i> 17, 1659 (1984) Australia
01057 E	A11: Bb ⁺ + He; Bb ⁺ + Ne; Bb ⁺ + Ar; Bb ⁺ + Kr; Bb ⁺ + Xe; Ca ⁺ + He; Ca ⁺ + Ne; Ca ⁺ + Ar; Ca ⁺ + Kr; Ca ⁺ + Xe A12: Bb ⁺ + He; Bb ⁺ + Ne; Bb ⁺ + Ar; Bb ⁺ + Kr; Bb ⁺ + Xe; Ca ⁺ + He; Ca ⁺ + Ne; Ca ⁺ + Ar; Ca ⁺ + Kr; Ca ⁺ + Xe	300 K	Ishayevskii, E.; Jacobovskii, I. Level-crossing study of depolarizing collisions in 6P _{3/2} state of rubidium and 7P _{3/2} state of cesium. <i>Opt. Commun.</i> 46, 85 (1983) Soviet Union
01058 T	A02: Ar + Ar A17: Ar + Ar	500-8000 eV	Boson, E. A.; Van der Beijdenberg, C.J.B. On the direct inversion of total scattering cross sections in the gassy region. <i>Physica A</i> 117, 139 (1983) The Netherlands
01059 T	A02: Ar + Ar A17: Ar + Ar	0.5-40 fm/s	Boson, E. A.; Bernans, R. H.; Van der Beijdenberg, C.J.B. On the direct inversion of total scattering cross sections beyond the gassy regions. <i>Physica A</i> 117, 163 (1983) The Netherlands
01060 E-T	A03: He ⁺ + Ar; He ⁺⁺ + Ar A07: He ⁺ + Ar; He ⁺⁺ + Ar	100-700 keV	Shanker, R. Ar 1-shell excitation in slow He + Ar collisions in terms of the statistical model. <i>Physica B+C</i> 123, 257 (1980) West Germany
01061 E-T	B02: he + Ce; he + Ni; he + Fe; he + Co; he + Ni; he + Cu; he + Zn; he + Se; he + Sc; he + Sr; he + Mo; he + Ag; he + Cd; he + In; he + Sn; he + Sb; he + Te; he + I; he + Ba; he + B; he + Bg; he + Pb; he + Bi; he + Th; he + U	30-280 keV	Dagupan Bac, A. S.; Peresalle, A.; Krishna Rao, G. Photon cross section measurements in compounds and elements in the energy range 30-60 keV. <i>Physica B+C</i> 124, 96 (1980) India
01062 E-T	A07: R ⁺ + Cr; R ⁺ + D; R ⁺ + Mg; R ⁺ + Al; R ⁺ + Fe; R ⁺ + Co; R ⁺ + Cu; R ⁺ + Zn	10-2x10 ³ keV	Srivastava, S. K.; Basar, A.; Roy, B. N. Proton impact K-shell ionization of atoms in binary encounter approximation. <i>Physica B+C</i> 124, 127 (1980) India
01063 E	C06: Si + Fe; Si + C; Si + Mg; Si + Al; Si + Ti; Si + Ni; Si + Cu; Si + Ag; Si + Mn; Si + Sn; Si + Yb; Si + Am; Si + Pb; Si + Pt; Si + Cr; Si + Fe; Si + Zn; Si + Ba; Si + KCl; Si + Ge; Si + Se; Si + Ye; Cl + Be; Cl + C; Cl + Mg; Cl + Al; Cl + Ti; Cl + Ni; Cl + Co; Cl + Ag; Cl + Sr; Cl + Se; Cl + Vb; Cl + Au; Cl + Pb; Cl + Al; Cl + Cr; Cl + Fe; Cl + Zr; Cl + Mo; Cl + KCl; Cl + Ge; Cl + Se; Cl + Te	30-110 keV	Shima, K.; Ishihara, T.; Nosou, T.; Miyoshi, T.; Funata, K.; Akiba, T. Z. oscillation of mean charge states of fast Si and Cl ions after passage through thin foils. <i>Phys. Lett. A</i> 90, 136 (1983) Japan
01064 E	A23: Rb ⁺ + Ne; Rb ⁺ + Ar	40-300 meV	Isheldon, J. B.; Brady, R. A. Velocity dependent total scattering cross sections for metastable helium on Ne, Ar, and Kr. <i>Phys. Lett. A</i> 98, 332 (1983) United States
10e5 T	A06: Rb ⁺⁺ + Ne	5-33 keV/amu	Itlich, P.; Lude, H. J.; Dreizler, R. W. Time-dependent Hartree-Fock description of one and two-electron capture in collisions of (Ne-Ne) ⁺⁺ . <i>Phys. Lett. A</i> 99, 41 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
31866 E-T	C02: U + C; U + Mg; U + Ti; U + V; U + Cu; U + Hf; U + Ir; U + Bo; U + Ag; U + Sn; U + Hf; U + Au; U + Pb; Pb + C; Pb + Ag; Pb + Ti; Pb + V; Pb + Cu; Pb + Bi; Pb + Zr; Pb + Mo; Pb + Ag; Pb + Sn; Pb + Bf; Pb + Au; Pb + Pb; U + C; U + Ag; U + Ti; U + Bo; U + Ag; U + Sn; U + Bf; U + Au; U + Pb; U + Cu; Xe + Ag; Xe + Ti; Xe + V; Xe + Cu; Xe + Bi; Xe + Zr; Xe + Bo; Xe + Ag; Xe + Sn; Xe + Bf; Xe + Au; Xe + Pb; Kr + C; Kr + Eg; Kr + Ti; Kr + V; Kr + Cu; Kr + Bi; Kr + Zr; Kr + Bo; Kr + Ag; Kr + Sn; Kr + Bf; Kr + Au; Kr + Pb	0.5-10 keV/u	Gissel, H.; Leichter, Y.; Schneider, K. F. B.; Arbrecter, E. On the effective charge from stopping powers of 0.5-10 keV/u heavy ions. <i>Phys. Lett.</i> A 99, 77 (1983) West Germany
31867 T	C02: e + Xe	15-4500 eV	Dayashankar; Unnikrishnan, K. Ionization-yield fluctuations in xenon due to energy degradation of electrons. <i>Phys. Lett.</i> A 95, 81 (1983) India
31868 E	A07: Xe ⁺ + Xe ⁺ A17: Xe ⁺ + Xe ⁺	Thermal	Bulgakov, A. B.; Bistcaov, T. N.; Popov, T. K. Interactions between metastable Kr atoms in the afterglow plasma. <i>Phys. Lett.</i> A 99, 221 (1983) Bulgaria
31869 E	A15: D ₂ ⁺ + Ar HC2: h ⁺ + D ₂ + Ar	1-4 μm	McLeary, R. Collision-induced fluorescence in D ₂ : Ar mixtures. <i>Phys. Lett.</i> A 99, 363 (1983) Australia
31870 T	E05: e + R E17: e + R	250 eV	Byron, P. B., Jr.; Jachan, C. J.; Piroux, L. Triple differential cross sections for the ionization of atomic hydrogen by fast electrons. <i>Phys. Lett.</i> A 99, 427 (1983) United States
31871 E-T	A06: Rg ⁺ + Sr; Rg ⁺ + Ba	50-1000 eV	Pacev, G. S. Total charge-transfer cross sections in collisions of Rg ⁺ ions with Sr and Ba atoms. <i>Phys. Lett.</i> A 101, 91 (1984) Soviet Union
31872 T	E03: e + Rg ⁺	Thermal	Genes, P. S.; Gately, L. P. Excitation of Rg III by electron impact. <i>Phys. Lett.</i> A 101, 124 (1984) United States
31873 E	E02: e + He ⁺ ; e + Ne ⁺ E08: e + He ⁺ ; e + Ne ⁺	3-400 Ry	Bonon, J.; Echenique, R.; Nguyen, H. Line broadening by electrons in hot plasmas. <i>Phys. Lett.</i> A 101, 134 (1984) France
31874 E	A03: C ²⁺ + Li; C ²⁺ + Li; C ²⁺ + Li; C ²⁺ + Li; C ²⁺ + Li A06: C ²⁺ + Li; C ²⁺ + Li; C ²⁺ + Li; C ²⁺ + Li; C ²⁺ + Li	1.5-6.8 keV/u	Frassek, A.; Kinter, B.; Dijkkamp, D.; Boellaard, A.; de Baer, P. J.; Prentjes, A. G. Absolute emission cross sections for detection of plasma impurity ions with active neutral lithium beam diagnostics. <i>Phys. Lett.</i> A 101, 139 (1984) Austria
31875 E	I08: He + He; He + Ne; He + Ar; He + Kr; He + Xe; He ⁺ + He; He ⁺ + Ne; He ⁺ + Ar; He ⁺ + Kr; He ⁺ + Xe	0.8-1.5 keV	Yanagori, T.; Haruyama, Y.; Kido, T.; Fukuzawa, T. Single and double electron-loss cross sections of metastable- and ground-state neutral helium. <i>Phys. Lett.</i> A 101, 391 (1984) Japan
31876 E	E03: e + Cd ⁺ E17: e + Cd ⁺	75 eV	Chutjian, A. Experimental electron energy-loss spectra and cross sections for the 5 ² S - 5 ² P ₀ transition in Cd II. <i>J. Phys. Rev.</i> A 25, 69 (1984) United States
31877 E	A07: H ⁺ + He; H ⁺ + Ne; H ⁺ + Ar; H ⁺ + Kr; H ⁺ + Xe; He ⁺ + Ne; He ⁺ + Ar; He ⁺ + Kr	10-4000 keV	Fubols, R. C.; Tchiburek, L. H.; Rudd, S. E. Multiple ionization of rare gases by H ⁺ and He ⁺ impact. <i>Phys. Rev.</i> A 29, 7C (1984) United States
31878 E	A03: He ⁺ + R ₂ ; He ⁺ + D ₂	1.5 keV	Geldkerger, A. L.; Jocke, D. H.; Mataczjan, H.; Forney, I. Isotope effects in inelastic 1.5-keV He ⁺ (R ₂ , D ₂) collisions. <i>Phys. Rev.</i> A 29, 77 (1984) United States
31879 E	A06: F ₂ ⁺ + He; F ₂ ⁺ + Ne	6-15 keV	Newcomb, J.; Dillingham, T. R.; Hall, J. S.; Varghese, S. L.; Fenniller, F. L.; Richard, P. Electron capture by metastable projectiles on He and Ne. <i>Phys. Rev.</i> A 29, 12 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
01680 T	E02: e + H ₂	40 eV	Bitchie, B. Use of two-potential theory in electron-molecule scattering: application to wide-angle e-H ₂ scattering at 40 eV. Phys. Rev. A 29, 92 (1984) United States
01681 T	E04: e + H ₂ * E03: e + H ₂ *	0.2-5.0 eV	Kadoma, J. P. Dissociative attachment to vibrationally excited H ₂ . Phys. Rev. A 29, 136 (1984) United States
01682 E	E03: e + Cd	10-200 eV	Goto, Y.; Name, K.; Matorri, S. Emission cross sections for spectral lines transitioning from the Cd II 4d ⁹ 5s5p states and high-lying 4d ¹⁰ nl states excited by single-electron impact on Cd atoms. Phys. Rev. A 29, 111 (1984) Japan
01683 E	D30: Be ⁺ + Br; Be ⁺ + Al; Be ⁺ + Si	0.8-5.0 keV	Zampieri, G.; Meier, F.; Marangola, R. Formation of autoionizing states of Be in collisions with surfaces. Phys. Rev. A 29, 116 (1984) Argentina
01684 E	E02: hv + Ba	39000-2222 Å	Kelly, J. P. Observations of induced transitions in the uv absorption spectra of Ba. Phys. Rev. A 29, 104 (1984) United States
01685 T	H03: hv + Al; hv + Pt	0.15-8633 keV	Foxley, J. C.; Pratt, R. E. Validity of various assumptions for excitation scattering. Phys. Rev. A 29, 152 (1984) United States
01686 T	H07: hv + F-	5-25 e.u.	Betenske, S.; Pasco, U.; Greene, C. H. Spin correlations in photoelectron detachment. Phys. Rev. A 29, 177 (1984) France
01687 T	H06: hv + Br	0.45-0.73 e.u.	Bei Bassler, E.; Lambropoulos, P. Theory of two-photon autoionization of Br. Phys. Rev. A 29, 181 (1984) United States
01688 E	H06: hv + Ne; hv + Ar	666-874 eV	Kotrin, R. N.; Southworth, S.; Traendale, C. B.; Lindle, D. W.; Becke, U.; Shirley, D. A. Threshold measurements of the K-shell photoelectrons satellites in Ne and Ar. Phys. Rev. A 29, 196 (1984) United States
01689 E	A03: Ne ⁺ + Xe A11: Ne ⁺ + Xe	300 K	McIntire, J. P.; McMillian, G. S.; Smith, R. A.; Dunning, F. B.; Stebbings, R. P. State-changing in Ne(ne, np)-Ne collisions. Phys. Rev. A 29, 361 (1984) United States
01690 T	H07: Undef		Shakeshaft, R. Electron scattering from a potential in a radiative field: II. Phys. Rev. A 29, 383 (1984) United States
01691 T	E03: e + H ₂	0-10 eV	Feldt, A. R.; Morrissey, R. A. Scaled adiabatic-nuclear-rotation theory for near-threshold rotational excitation in electron-molecule scattering. Phys. Rev. A 29, 401 (1984) United States
01692 T	E05: e + He	0-0.5 keV	Elser, H.; Jung, K.; Erhardt, H. Electron-impact ionization of helium by fast electrons at small momentum transfer: a quantum-defect analysis of experimental data. Phys. Rev. A 29, 435 (1984) West Germany
01693 T	A03: O ²⁺ + He A06: C ²⁺ + H; C ²⁺ + He	0.5 keV/amu	Bianstock, S.; Neil, T. G.; Dalgarven, A. Distorted-wave theory of heavy-particle collisions at intermediate energies. Phys. Rev. A 29, 593 (1984) United States
01694 T	E11: e + Hg	0-6 eV	Coulter, P. H.; Bian, S. H.; Bitchie, B. Polarization effects in one-photon free-free absorption. Phys. Rev. A 29, 569 (1984) United States
01695 E	A16: H ⁻ + Ne; H ⁻ + Ne; H ⁻ + Ar	0.8-1.5 keV	Becek, J.; Esenbeck, R. G.; Duncan, R. H. Target dependence of doubly differential electron-detachment cross sections. Phys. Rev. A 29, 516 (1984) United States
01696 E	A02: H ⁺ + R A18: H ⁺ + R	25-60 keV	Bille, E.; Feacher, J. L.; Redd, E.; Euale, T. J.; Seely, C. G.; Blankenship, D. H.; Cleon, R. E.; Park, J. T. Elastic differential cross sections for small-angle scattering of 25-, 45-, and 60-keV protons by atomic hydrogens. Phys. Rev. A 29, 521 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
01897 T	A06: H ⁺ + Be; Li ²⁺ + Be; Be ²⁺ + Be; C ²⁺ + Be; C ³⁺ + Be	1-10 ³ keV/amu	Suzuki, S.; Sajikawa, Y.; Yoshino, S.; Suyabu, K.; Matsubara, I. Electron-capture cross sections from Be in collisions with bare nuclear ions. Phys. Rev. A 29, 525 (1984) Japan
01898 T	A03: Be ²⁺ + H; Li ²⁺ + H; Be ²⁺ + H; Be ³⁺ + H; C ²⁺ + H A36: Be ²⁺ + H; Li ²⁺ + H; Be ²⁺ + H; Be ³⁺ + H; C ²⁺ + H	10-1-10 ² keV	Suzuki, S.; Yoshino, S.; Matsubara, I.; Suyabu, K. Expectation distorted-wave approximation for charge transfer in collisions of multicharged ions with atomic hydrogen. Phys. Rev. A 29, 529 (1984) Japan
01899 T	A31: Undef	Undef	Tanoda, T. Semiclassical approach to the theory of static excitation processes associated with heavy-ion collisions. Phys. Rev. A 29, 536 (1984) West Germany
01900 T	A16: Undef	Undef	Bang, T. S.; Delos, J. B. Electron detachment in negative-ion collisions: I. Time-dependent theory and models for a propagator. Phys. Rev. A 29, 542 (1984) United States
01901 T	A16: Undef	Undef	Bang, T. S.; Delos, J. B. Electron detachment in negative-ion collisions: II. The dynamical coupling potential. Phys. Rev. A 29, 552 (1984) United States
01902 E	E03: e + Ba E05: e + Ba	50-120 eV	Bentz, B. N.; Karstensen, F. Absolute cross sections for excited Ba III states produced by single-electron impact from Ba I. Phys. Rev. A 29, 561 (1984) West Germany
01903 T	A03: H ⁺ + B A36: H ⁺ + P	1-30 keV	Sinatra, J. G.; Lin, C. D. Triple-center treatment of electron transfer and excitation in p-B collisions. Phys. Rev. A 29, 567 (1984) West Germany
01904 E	E01: H ⁺ ; He ⁺ C07: H ⁺ + C; H ₂ ⁺ + C; Be ⁺ + C; HeH ⁺ + C; He ⁺ + C; Si ²⁺ + C	0.5-125 keV	Fanter, E. E.; Schneider, D.; Vager, Z.; Gemmill, C. S.; Zabransky, B. J.; Yeau-zheng, G.; Accant, F.; Koch, F. E.; Mariati, L. R.; Van de Water, B. Ionization of fast cool-excited ion beams in electromagnetic fields. Phys. Rev. A 29, 583 (1984) United States
01905 T	A03: H ₂ + Be	77-292 eV	Bitatam, G.; Chu, S. I.; Balcerio, A.; Franshold, L.; Wright, E. L. Theory of collision-induced translatics-rotation spectra: H ₂ -Be. Phys. Rev. A 29, 595 (1984) United States
01906 T	A06: Undef A16: Undef	Undef	Shakeshaft, A.; Sprach, L. Angular-distribution peak at 630 in electron capture from a heavy atom by a fast light ion. Phys. Rev. A 29, 605 (1984) United States
01907 T	A03: H ⁺ + K; H ⁺ + Na A36: H ⁺ + K; H ⁺ + Na	3.5-2.5 keV	Berkowitz, J. K.; Zorn, J. C. Charge transfer into the metastable 2S level of hydrogen by protons colliding with K and Na. Phys. Rev. A 29, 611 (1984) United States
01908 E	A03: Rb ⁺ + Sr	300 K	Father, J. B.; Schaussler, R. A.; Hill, S. R., Jr.; Zollaca, B. G. Fine-structure-changing collision cross sections within the low-lying n/2D states of rubidium induced by ground-state rubidium atoms. Phys. Rev. A 29, 617 (1984) United States
01909 E	E03: e + H ₂	15-350 eV	Ajello, J. S.; Shemansky, E.; Kvok, T. L.; Yang, Y. L. Studies of extreme-ultraviolet emission from Rydberg series of H ₂ by electron impact. Phys. Rev. A 29, 636 (1984) United States
01910 E	B01: H		Chen, R. C.; Friedrich, W. Narrow near-threshold resonances of the hydrogen atom in strong magnetic fields. Phys. Rev. A 29, 675 (1984) United States
01911 T	E06: e + O ²⁺ ; e + Ar ¹⁸⁺ ; e + Fe ²⁹⁺ ; e + Fe ³⁰⁺	0.07-0.6 keV	McLaughlin, C. J.; Hahn, F. Dielectronic-recombination rate coefficients for the lithium isoelectronic sequence. Phys. Rev. A 29, 712 (1984) United States
01912 E	A03: Li ⁺ + Li; Li ⁺ + Ne; Li ⁺ + Ar	853-933 eV	Derevli, B.; Chalard, C. 470 - 670 eV excitation transfer in Li induced by collisions with Li, Ne, and Ar ground-state atoms. Phys. Rev. A 29, 958 (1984) France

Ref. No.	Reactants	Energy Range	Reference
31513 T	E35: e + Be E17: e + Be	20-337 eV	Iacob-Banasi, A. <i>Kinematical correction to the impulse approximation for high-energy binary (e, 2e) collisions in Be</i> . Phys. Rev. A 29, 962 (1984) France
31514 E	B36: hv + Bg	1850-1200 keV	Fraser, J. R.; Burkhardt, C. L.; Garver, W. S.; Leventhal, J. J. <i>Photoionization of magnesium near threshold</i> . Phys. Rev. A 29, 965 (1984) United States
31515 E-T	B36: hv + Bg	Uncat	Schonhense, G.; Reitzmann, U. <i>Evidence of strong interchannel coupling in Bg 5d photoionization of "experimental" transition series elements</i> . Phys. Rev. A 29, 987 (1984) West Germany
31516 E	A36: Kr* + Kr; Kr* + Xe A10: Kr* + Kr; Kr* + Xe	3.25-3.3 MeV	Antar, A. A.; Kassel, Q. C. <i>Differential measurements of ionization and inelastic energy losses in 3.25-3.3-MeV collisions of Kr ions with Kr and Xe targets</i> . Phys. Rev. A 29, 1075 (1984) United States
31517 E	A33: B* + Bg A36: B* + Bg A37: B* + Bg	30-80 keV	Lebois, R. E.; Giene, J. P.; Cocke, C. L. <i>Contribution of electron capture to 2p-vacancy production in Bg-Bg collisions</i> . Phys. Rev. A 29, 1279 (1984) United States
31518 E	A36: H + Bg A38: H + Bg C06: H -> Bg	1-25 keV	Wald, A. E.; Niemi, R. E.; Allen, J. S.; Anderson, L. S.; Lit, C. <i>Charge-changing cross sections for 1-25-keV B(1s) incident on a Bg-vapor target</i> . Phys. Rev. A 29, 1363 (1984) United States
31519 E	A36: Be2+ + Be; Be3+ + Be; Be4+ + Be; Be5+ + Be; Be6+ + Be; Be7+ + Be; Be8+ + Be; Ar2+ + Be; Ar3+ + Be; Ar4+ + Be; Ar5+ + Be; Ar6+ + Be; Ar7+ + Be; Ar8+ + Be; Kr2+ + Be; Kr3+ + Be; Kr4+ + Be; Kr5+ + Be; Kr6+ + Be; Kr7+ + Be; Kr8+ + Be; Kr9+ + Be; Kr10+ + Be; Kr11+ + Be; Kr12+ + Be; Kr13+ + Be; Kr14+ + Be; Xe2+ + Be; Xe3+ + Be; Xe4+ + Be; Xe5+ + Be; Xe6+ + Be; Xe7+ + Be; Xe8+ + Be; Xe9+ + Be; Xe10+ + Be; Xe11+ + Be; Xe12+ + Be; Xe13+ + Be; Xe14+ + Be; Xe15+ + Be; A37: Be2+ + Be; Be3+ + Be; Be4+ + Be; Be5+ + Be; Be6+ + Be; Be7+ + Be; Be8+ + Be; Ar2+ + Be; Ar3+ + Be; Ar4+ + Be; Ar5+ + Be; Kr2+ + Be; Kr3+ + Be; Kr4+ + Be; Kr5+ + Be; Kr6+ + Be; Kr7+ + Be; Kr8+ + Be; Kr9+ + Be; Kr10+ + Be; Kr11+ + Be; Kr12+ + Be; Kr13+ + Be; Kr14+ + Be; Xe2+ + Be; Xe3+ + Be; Xe4+ + Be; Xe5+ + Be; Xe6+ + Be; Xe7+ + Be; Xe8+ + Be; Xe9+ + Be; Xe10+ + Be; Xe11+ + Be; Xe12+ + Be; Xe13+ + Be; Xe14+ + Be; Xe15+ + Be;	0.5-14 keV	Justiniiano, F.; Cocke, C. L.; Gray, T. J.; Lebois, R. E.; Cas, C.; Baggoner, B.; Schuch, R.; Schmidt-Rohling, R.; Jaegermes, R. <i>Total cross sections for electron capture and transfer ionization by highly stripped, slow Be, Ar, Kr, and Xe projectiles on bales</i> . Phys. Rev. A 29, 1286 (1984) United States
31520 T	C02: H* + PENT C05: H* + PENT	Uncat	Peak, J. A.; Fitchford, L. C.; Shipsey, R. J. <i>Method for predicting stopping and straggling mean excitation energies</i> . Phys. Rev. A 25, 1056 (1982) United States
31521 E	C36: CH* + C	3.25 keV	Plesser, I.; Renter, E. P.; Vager, Z. <i>Post-foil interaction in the foil-induced dissociation of 3.25-MeV CH*</i> . Phys. Rev. A 29, 1103 (1984) United States
31522 T	E32: e + Hg; e + Bg H03: hv + Bg; hv + Bg	Uncat	Shukla, A. J.; Tripathi, A. S.; Smith, D. M., Jr. <i>Molecular x-ray- and electron-scattering intensities</i> . Phys. Rev. A 29, 1120 (1984) Canada
31523 E	A33: H* + Hg; Fe + Bg A36: H* + Hg; Fe + Bg	49 keV	Waite, B. J.; Lundeen, S. R.; Pickin, F. N. <i>Measurement of excited-state charge exchange reactions</i> . Phys. Rev. A 25, 1114 (1982) United States

Ref. No.	Reactants	Energy Range	Reference
01920 T	A33: F + He A34: F + He A35: F + He A36: F + He	0.05-0.3 eV	Imons, R. E.; Klein, C. B.; Sack Salk, S. B. Variations of direct-process contribution with collision energy in reactive scattering. <i>Phys. Rev. A</i> 29, 1131 (1984) United States
01925 T	A33: F + He A34: F + He A35: F + He A36: F + He	0.05-0.3 eV	Sack Salk, S. B.; Imons, R. E.; Klein, C. B. Role of angular momentum match in state-to-state reactive scattering and gauntlet rotational state distributions. <i>Phys. Rev. A</i> 29, 1135 (1984) United States
01926 T	A32: He ⁺ + Ti; F ⁺ + Cu A37: He ⁺ + Ti; F ⁺ + Cu	43-1333 keV	Sheth, C. V. Relativistic corrections in 5-shell ionization cross sections. <i>Phys. Rev. A</i> 29, 1151 (1984) Zambia
01927 T	B34: Undef	Undef	Bioe, P. T.; Ebberg, J. B. Multiple-laser excitation of multilevel atoms. <i>Phys. Rev. A</i> 29, 1164 (1984) United States
01928 E	B26: 2Be + Ne; 3Be + Ne	Undef	Chenorge, R.; Biedrich, F.; Leuchs, G.; Elliott, L. S.; Walther, R. Influence of the dynamic Stark effect on photoelectron angular distributions in multichannel ionization. <i>Phys. Rev. A</i> 29, 1181 (1984) West Germany
01929 T	B37: Undef	Undef	Shaley, R. E.; Light, J. C. Rotating-frame transformations: a new approximation for multiphoton absorption and dissociation in laser fields. <i>Phys. Rev. A</i> 29, 1188 (1984) United States
01930 E	A11: He ⁺ + Ne	333 K	Kramdenberger, J. B. Lifetimes and collision cross sections in the 1s ² 5s and 1s ² 5d states of Ne ⁺ . <i>Phys. Rev. A</i> 29, 1208 (1984) United States
01931 T	B26: he + B; he + Be ⁺	0-1.0 a.u.	Le Poerz, H.; Bassey, G. Finite-volume variational method: first application to direct molecular photoionization. <i>Phys. Rev. A</i> 29, 1216 (1984) United States
01932 T	B05: Undef B06: Undef	Undef	Bonham, R. A.; Lively, R. L. Photo- and electron-impact ionization and ejected-electron angular distributions from molecules including retardation effects: nonrelativistic theory. <i>Phys. Rev. A</i> 29, 1224 (1984) United States
01933 E	A06: F ⁺ + Be; F ⁺ + Be; F ⁺ + Be; Be ⁺ + Be; Be ⁺ + Be; Be ⁺ + Be	6-9 keV	Tanaka, H.; Imai, T.; Kaneko, Y.; Kimura, M.; Kobayashi, S.; Matsunoto, A.; Ohtani, S.; Okuno, K.; Takagi, S.; Isorubuchi, S. Energy-spectroscopic studies of electron-capture processes of low-energy, highly stripped F and Be ions in collisions with Be atoms. <i>Phys. Rev. A</i> 29, 1229 (1984) Japan
01934 T	A03: RF + B A36: RF + B	30-500 keV	Chen, P. T.; Lieber, R. Influence of the linear Stark effect on electron exchange in the eikonal calculations. <i>Phys. Rev. A</i> 29, 1333 (1984) United States
01935 T	A11: Ba ⁺ + Xe A16: Ba ⁺ + Xe	0.04-0.06 eV	Devries, P. L. Calculation of total differential cross section: Ba(7F) + Xe. <i>Phys. Rev. A</i> 29, 1335 (1984) United States
01936 T	E33: e + Li	3-2000 eV	Ieyal, S. S.; Tripathi, A. B. Generalized oscillator strengths and excitation cross sections for forster transitions in lithium. <i>Phys. Rev. A</i> 29, 1336 (1984) India
01937 E	A16: F ⁺ + Ne; F ⁺ + Ne; F ⁺ + Ar; F ⁺ + Kr; F ⁺ + Xe	25-125 keV	Nird, B.; Rehman, F. Double-electron detachment from F ⁻ ions in rare-gas collisions. <i>Phys. Rev. A</i> 29, 1341 (1984) Canada
01938 E	E33: e + Fe ²⁺ ; e + Fe ³⁺ ; e + Fe ⁴⁺	102-167 eV	Wang, J. S.; Dotla, F. U.; Gries, R. B. Collisional-excitation-rate coefficients for iron ions Fe VIII, Fe IX, and Fe X. <i>Phys. Rev. A</i> 29, 1351 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
01939 T	E06: hv + Ca ⁺	0-2.5 eV	Hoozane, L. I.; Babcock, S. T. Photoionization of the Ca 6d excited state. <i>Phys. Rev. A</i> 29, 1596 (1984) United States
01940 T	E06: hv + N ₂ ; hv + N ₂ ; hv + NO; hv + CO ₂	0.3-50 eV	Collins, L. A.; Schneider, B. I. Molecular photoionization in the linear algebraic approach: N ₂ , N ₂ O, NO, and CO ₂ . <i>Phys. Rev. A</i> 29, 1695 (1984) United States
01941 E	F03: e + N ₂	10-400 eV	Pilippelli, J. R.; Cheng, S.; Lin, C. C. Electron-impact excitation of the 0 ^1D(m=0) and c^1I(m=0) Rydberg states of N ₂ . <i>Phys. Rev. A</i> 29, 1709 (1984) United States
01942 E-T	E06: e + Ne ⁺ ; e + Ne ²⁺ ; e + Ne ³⁺ e + Ne ⁴⁺ ; e + Ne ⁵⁺	23-2000 eV	Griffin, D. C.; Bottcher, C.; Pindzola, R. S.; Younger, E. H.; Gregory, D. C.; Crandall, B. H. Electron-impact ionization in the noble isomeric sequence. <i>Phys. Rev. A</i> 25, 1727 (1982) United States
01943 T	E02: e + N ₂ ; e + N ₂	3-10 eV	Radial, D. I.; Borrmann, B. B. Parameter-free model of the correlation-polarization potential for electron-molecule collisions. <i>Phys. Rev. A</i> 29, 1742 (1984) United States
01944 E-T	E05: e + Ar ²⁺ ; e + Kr ²⁺ ; e + Xe ²⁺ e + Xe ³⁺ ; e + Xe ⁴⁺ ; e + Xe ⁵⁺	50-1800 eV	Pindzola, R. S.; Griffin, D. C.; Bottcher, C.; Crandall, B. H.; Phaneuf, R. A.; Gregory, D. C. Electron-impact double ionization of rare-gas ions. <i>Phys. Rev. A</i> 29, 1749 (1984) United States
01945 T	C02: hv + PEET	3-1500 keV	Sakai, J. E.; Oddershede, J. Electronic stopping powers for low projectile velocities. <i>Phys. Rev. A</i> 29, 1757 (1984) Denmark
01946 E	C06: Fe ⁺⁺ + PEET; Fe ⁺⁺ + PEET	29-108 keV	Shima, K.; Ishihara, T.; Miyoshi, T.; Bonoi, T.; Kitane, I. Equilibrium charge states of swift Fe ions after passage through thin foils: projectile-velocity dependence and target-atomic-center dependence. <i>Phys. Rev. A</i> 29, 1763 (1984) Japan
01947 T	E03: Undef	Undef	Barker, G. S.; Biller, T. R.; Schegeltab, R. D.; Gildes, D. L. Theory of angular-correlation experiments in electron scattering, including fine structure. <i>Phys. Rev. A</i> 29, 1770 (1984) United States
01948 E	E02: e + Ne E17; e + Se E19; e + He	5-10 eV	Register, D. F.; Trajmar, S. Differential, integral, and momentum-transfer cross sections for elastic electron scattering by neon: 5 to 100 eV. <i>Phys. Rev. A</i> 29, 1785 (1984) United States
01949 E	E03: e + Ne E17; e + He	15-130 eV	Register, D. F.; Trajmar, S.; Steffensen, G.; Cartwright, D. C. Electron-impact-excitation cross sections for electronic levels in neon for incident energies between 25 and 130 eV. <i>Phys. Rev. A</i> 29, 1793 (1984) United States
01950 T	E03: e + Ne E17; e + He	29-120 eV	Bachelder, L. E.; Leal, E. P.; Casals, G. Electron-impact excitation of some low-lying levels of neon. <i>Phys. Rev. A</i> 29, 1811 (1984) United States
01951 E	F07: R ⁺ + C; R ₂ ⁺ + C; R ₃ ⁺ + C	0.015-1.1 keV	Baudinet-Botinet, Y.; Dumont, P. D. Populations of 2p and 3p terms in hydrogen excited by R ⁺ , R ₂ ⁺ , and R ₃ ⁺ ions passing through thin carbon foils. <i>Phys. Rev. A</i> 29, 1825 (1984) Belgium
01952 E	A11: Ag ⁺ + He	300 eV	Soltamolkotaki, R.; Gupta, S. Measurement of the collisional depolarization cross section of the silver 5^2P _{1/2} state by helium. <i>Phys. Rev. A</i> 29, 1832 (1984) United States
01953 T	C02: He ⁺ + C; Br ⁺ + Al	50-230 keV	Jahas, M. H.; Lastochka, G. N.; Schagdt, J. C.; Ponco, V. H. Study on the angular dependence of the average energy loss for ions in sodium. <i>Phys. Rev. A</i> 29, 1838 (1984) Argentina
01954 E	A03: He ⁺ + He	0.06-0.16 eV	Krause, J. Electronic energy transfer in He ⁽²⁺³⁾ + He collisions: propensity for odd-J levels of He ⁰ (5s, 5s', 4d). <i>Phys. Rev. A</i> 29, 1846 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
01955 T	A33: Be ⁺ + H	13-4333 keV	Singhal, R. S. Excitation of the projectile helices for impacting on hydrogen. Phys. Rev. A 29, 1857 (1984) India
01956 T	A36: $\text{hv} + \text{He}$	Undef	Smith, E. E.; Lecchese, E. E.; McKoy, V. Schrödinger variational principle applied to long-range potentials. Phys. Rev. A 29, 187 (1984) United States
01957 T	E32: $e + \text{He}^+; e + \text{Li}; e + \text{Be}^+; e + \text{B}^{3+}$	Undef	Tanis, B. P.; Chung, K. Y. Saddle-point complex-rotations method for the $(1s1s2s)1S$ resonance in He ⁺ , Li ⁺ , Be ⁺⁺ , and B ³⁺ . Phys. Rev. A 29, 1878 (1984) United States
01958 E	A36: $\text{hv} + \text{He}$	59-67 eV	Bergen, R. L.; Edeler, D. L. Photoionization cross sections of helices for photon energies 59-67 eV: the $(\text{sp}, 2s +)^{1S_0}$ Rydberg series of autoionizing resonances. Phys. Rev. A 29, 1931 (1984) United States
01959 E	A03: $\text{Ar}^{10+} + \text{He}; \text{Ar}^{19+} + \text{He}; \text{Ar}^{17+} + \text{He}$ A36: $\text{Ar}^{10+} + \text{He}; \text{Ar}^{19+} + \text{He}; \text{Ar}^{17+} + \text{He}$ A37: $\text{Ar}^{10+} + \text{He}; \text{Ar}^{19+} + \text{He}; \text{Ar}^{17+} + \text{He}$	160-180 keV	Tanis, J. A.; Bernstein, I. B.; Stockli, R. F.; Graham, W. G.; Berkner, K. B.; Backovich, D. J.; McFarland, R. B.; Tyle, R. V.; Stearns, J. B.; Billis, J. L. Correlations between charge-changing interactions and projectile K Alpha x-ray emission in Ar + He collisions. Phys. Rev. A 29, 2232 (1984) United States
01960 T	E32: $e + \text{H}_2$	0.08-10 eV	Sun, S.; Ghosh, A. S. Rotational excitation of hydrogen molecules by electron and positron impact. Phys. Rev. A 29, 2236 (1984) India
01961 T	A36: $\text{vHe} + \text{H}$	3.3-5333 eV	Bienstock, S.; Delgarcio, A.; Neil, T. G. Charge transfer of B ³⁺ ions in collisions with atomic hydrogen. Phys. Rev. A 29, 2235 (1984) United States
01962 T	E02: $e + \text{H}$	6-9.5 eV	Christensen-Clausgaard, B. L. Combined hyperspherical and close-coupling descriptions of two-electron wave functions: application to e-H elastic-scattering phase shifts. Phys. Rev. A 29, 2262 (1984) United States
01963 T	R06: $\text{hv} + \text{He}; \text{hv} + \text{Li}^+$	2-10 Ry	Tashiro, N.; Ghosh, A. S. Photoionization of He and Li ⁺ . Phys. Rev. A 29, 2261 (1984) India
01964 T	A36: Undef	Undef	Spruch, L.; Shakeshaft, R. Simple heuristic derivation of some charge-transfer probabilities at asymptotically high incident velocities. Phys. Rev. A 29, 2263 (1984) United States
01965 T	E05: $e + \text{H}$	1-8 Ry	Callaway, J.; Oza, D. H. Total and ionization cross sections in a simplified model of electron-hydrogen scattering. Phys. Rev. A 29, 2266 (1984) United States
01966 T	R07: Undef	Undef	Engelking, F. C.; Berwick, D. R. Effects of rotational doubling on the anomalous photo-detachment thresholds resulting from electron-dipole interaction. Phys. Rev. A 29, 2425 (1984) United States
01967 T	E05: $e + \text{He}; e + \text{Ne}; e + \text{Ar}$	100-6000 eV	Killer, J. R.; Hansson, S. T. Differential cross sections for ionization of helium, neon, and argon by fast electrons. Phys. Rev. A 29, 2435 (1984) United States
01968 E	A07: $\text{H}^+ + \text{Ca}; \text{H}^+ + \text{Ne}; \text{H}^+ + \text{Ar}; \text{O}^+ + \text{Cu};$ $\text{O}^+ + \text{Zn}; \text{C}^+ + \text{Ag}; \text{O}^+ + \text{Pb}$	0.6-10 keV	Horozumi, T.; Asholt, R.; Andriamananjara, S. A.; Meyerhof, B. E. Angular dependence of K-shell ionization in Cs-Atm collisions. Phys. Rev. A 29, 2441 (1984) United States
01969 T	A36: $\text{He}^{10+} + \text{P}; \text{He}^{10+} + \text{Ne}; \text{He}^{10+} + \text{Li};$ $\text{He}^{10+} + \text{Cs}; \text{He}^{10+} + \text{O}; \text{He}^{10+} + \text{C};$ $\text{He}^{10+} + \text{Ne}; \text{He}^{10+} + \text{He}; \text{He}^{10+} + \text{Rb};$ $\text{He}^{10+} + \text{Ar}; \text{He}^{10+} + \text{K}; \text{He}^{10+} + \text{Ca};$ $\text{He}^{10+} + \text{Cs}; \text{Li}^{10+} + \text{H}; \text{Li}^{10+} + \text{He};$ $\text{Li}^{10+} + \text{Li}; \text{Li}^{10+} + \text{Be}; \text{Li}^{10+} + \text{B};$ $\text{Li}^{10+} + \text{C}; \text{Li}^{10+} + \text{Ne}; \text{Li}^{10+} + \text{Na};$ $\text{Li}^{10+} + \text{Rb}; \text{Li}^{10+} + \text{Ar}; \text{Li}^{10+} + \text{K};$ $\text{Li}^{10+} + \text{Ca}; \text{Li}^{10+} + \text{Cs}$	127-128 ke/sec	Stollberg, R. T.; Lee, H. L. Charge transfer in low-energy collisions of He ¹⁰⁺ and Li ¹⁰⁺ with various neutral atoms. Phys. Rev. A 29, 2460 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
31573 E	A36: He ⁺ + Li; Be ⁺ + Li; Be ⁺⁺ + Li	0.257-8.2 keV	Varghese, S. L.; Baggot, R.; Coche, C. L. Electron capture from lithium by deuterium and helium ions. Phys. Rev. A 29, 2453 (1984) United States
31571 E	A36: He ⁺⁺ + Li; He ⁺⁺ + Li; He ⁺⁺ + Li; He ⁺⁺ + Li; He ⁺⁺ + Li; He ⁺⁺ + Li; Ar ⁺⁺ + Li; Ar ⁺⁺ + Li; Ar ⁺⁺ + Li; Ar ⁺⁺ + Li; Ar ⁺⁺ + Li; Ar ⁺⁺ + Li; Ar ⁺⁺ + Li; Ar ⁺⁺ + Li; Ar ⁺⁺ + Li; Ar ⁺⁺ + Li; Kr ⁺⁺ + Li; Kr ⁺⁺ + Li; Kr ⁺⁺ + Li; Kr ⁺⁺ + Li; Kr ⁺⁺ + Li; Kr ⁺⁺ + Li; Kr ⁺⁺ + Li; Kr ⁺⁺ + Li; Xe ⁺⁺ + Li; Xe ⁺⁺ + Li; Xe ⁺⁺ + Li; Xe ⁺⁺ + Li; Xe ⁺⁺ + Li; Xe ⁺⁺ + Li; Xe ⁺⁺ + Li; Xe ⁺⁺ + Li; Xe ⁺⁺ + Li	0.2-10 keV	Baggot, R.; Coche, C. L.; Varghese, S. L.; Stockli, H. Experimental cross sections for electron capture from lithium by slow, highly charged, rare-gas projectiles. Phys. Rev. A 29, 2457 (1984) United States
31572 F	A36: B ⁺ + B ⁺	0.01-10 eV	Jones, B. R.; Jonchain, C. J.; Bodenkovic, B. B. Resonant electron transfer in slow collisions of protons with hydrogen atoms. Phys. Rev. A 29, 2463 (1984) United Kingdom
31573 F	B37: Sr ⁺ + Ca		Yaginuma, H.; Yaginuma, K. New approach to the multistate profiles and its application to the laser-induced transition process: Sr(5s ² 1P ⁰) + Ca(4p ² 1S) + h bar Omega - Sr(5s ² 1S) + Ca(4p ² 1S). Phys. Rev. A 29, 2475 (1984) Japan
31574 T	E02: e + B ₂	0-8 eV	Torres, B.; Deache, B. Projectile-operator calculations for sharp resonances: a new method based on the many-body optical-potential approach. Phys. Rev. A 29, 2485 (1984) West Germany
31575 T	E02: e + B ₂ , E03: e + B ₂	0-10 eV	Citron, T. I.; Morrison, R. A. Ab initio nonadiabatic polarization potentials for electron-azobenzene scattering: the e-B ₂ system. Phys. Rev. A 29, 2497 (1984) United States
31576 T	A33: Ba + He; F + Xe; F + B ⁺	0.18-18 eV	Iee, R. W.; George, T. P. Analytic solutions to two-state collisions problems for the case of exponential coupling. Phys. Rev. A 29, 2539 (1984) United States
31577 T	E33: e + B ₂ , E17: e + B ₂	0.34-13 eV	Morrison, R. A.; Feldt, A. M.; Austin, D. Atiabatic approximations for the nuclear excitation of molecules by low-energy electron impact: rotational excitation of B ₂ . Phys. Rev. A 29, 2548 (1984) United States
31578 E	R36: he + Ca	Undef	Sertite, G.; Fabre, F.; Agostini, P.; Crance, R.; Aymer, H. Nonresonant multiphoton ionization of cesium in strong fields: angular distributions and above-threshold ionization. Phys. Rev. A 29, 2677 (1984) France
31579 T	X03: He ⁺ + B ₂ , A16: He ⁺ + B ₂	Undef	Seck Salk, S. H.; Munson, B. W. Preferential angular resonances transfer in state-to-state reactive scattering. Phys. Rev. A 29, 2936 (1984) United States
31580 E	E36: e + Ca ⁺	1-10 eV	Williams, J. V. Dielectronic recombination for Ca ⁺ via 4s - 4p excitation. Phys. Rev. A 29, 2936 (1984) Australia
31581 E	A36: C ⁶⁰ + Ne; C ⁶⁰ + Ne; C ⁶⁰ + Ar; C ⁶⁰ + Kr; C ⁶⁰ + Kr; C ⁶⁰ + Ne; C ⁶⁰ + Ar; C ⁶⁰ + Ar; C ⁶⁰ + Ne; C ⁶⁰ + Ne; C ⁶⁰ + Ar; C ⁶⁰ + Kr; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ar; Ne ⁺ + Kr; Ne ⁺ + Kr; Ne ⁺ + Ne; Ne ⁺ + Ar; Ne ⁺ + Kr; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Kr; Ne ⁺ + Kr; Ne ⁺ + Kr; Ne ⁺ + Ne; Ne ⁺ + Ar; Ne ⁺ + Kr; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Kr; Ne ⁺ + Kr; Ne ⁺ + Kr; Ne ⁺ + Ne; Ne ⁺ + Ar; Ne ⁺ + Kr; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Kr; Ne ⁺ + Kr; Ne ⁺ + Kr; Ne ⁺ + Ne; Ne ⁺ + Ar; Ne ⁺ + Kr; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Kr; Ne ⁺ + Kr; Ne ⁺ + Kr; Ne ⁺ + Ne;	0.25-3.46 keV/amu	Fillingham, T. R.; Newcomb, J.; Hall, J.; Ferriller, P. L.; Bichard, P. Projectile K-Auger-electron production by bare, one-, and two-electron ions. Phys. Rev. A 29, 3225 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
	$\text{O}^{+} + \text{He}; \text{O}^{+} + \text{He}; \text{O}^{+} + \text{Ar};$ $\text{O}^{+} + \text{Kr}; \text{O}^{+} + \text{He}; \text{O}^{+} + \text{Ne};$ $\text{O}^{+} + \text{Ar}; \text{O}^{+} + \text{Kr}; \text{O}^{+} + \text{He};$ $\text{O}^{+} + \text{He}; \text{O}^{+} + \text{Ar}; \text{O}^{+} + \text{Kr};$ $\text{F}^{+} + \text{He}; \text{F}^{+} + \text{He}; \text{F}^{+} + \text{Ar};$ $\text{F}^{+} + \text{Kr}; \text{F}^{+} + \text{He}; \text{F}^{+} + \text{Ar};$ $\text{F}^{+} + \text{Ar}; \text{F}^{+} + \text{He}; \text{F}^{+} + \text{Ar};$ $\text{F}^{+} + \text{He}; \text{F}^{+} + \text{Ar}; \text{F}^{+} + \text{Kr}$		
21582 T	A36: $\text{He}^{+} + \text{H}; \text{He}^{+} + \text{H}; \text{He}^{+} + \text{H}; \text{C}^{+} + \text{H};$ $\text{N}^{+} + \text{H}; \text{C}^{+} + \text{H}$	0.1-80 keV/amu	Fritsch, W.; Lin, C. D. Atomic-orbital-expansion studies of electron transfer in bare-nucleus ($Z = 2, 4, 6$) -hydrogen-atom collisions. <i>Phys. Rev. A</i> 29, 3039 (1984) West Germany
21583 E	A36: $\text{C}^{+} + \text{C}^{+}$	50-110 keV	Stelzer, K. L.; Eckert, R. B.; Pyle, R. V. Measurements of inelastic collisions between C^{+} ions by a plasma-target technique. <i>Phys. Rev. A</i> 29, 3051 (1984) United States
21584 T	A33: $\text{Li}^{+} + \text{He}; \text{Li} + \text{He}^{+}$ A36: $\text{Li}^{+} + \text{He}; \text{Li} + \text{He}^{+}$ A18: $\text{Li}^{+} + \text{He}; \text{He}^{+} + \text{Li}$	0.1-5.0 keV	Suzuki, S.; Nakamura, H.; Ishiguro, F. Semiclassical scattering theory based on the dynamical-state representation: application to the $\text{Li}^{+} + \text{He}$ and $\text{Li} + \text{He}^{+}$ collisions. <i>Phys. Rev. A</i> 29, 3363 (1984) Japan
21585 T	A37: $\text{H}^{+} + \text{H}$	1.5-15 keV	Bister, T. G.; Lin, C. D. Triple-center treatment of ionization in $\text{p}-\text{H}$ collisions. <i>Phys. Rev. A</i> 29, 3071 (1984) United States
21586 T	E32: $e + \text{He}; e + \text{He}; e + \text{Ar}$ E17: $e + \text{He}; e + \text{He}; e + \text{Ar}$	40-800 eV	Staszewska, G.; Schweske, D. W.; Tremler, L. G. Investigation of the shape of the imaginary part of the optical-model potential for electron scattering by rare gases. <i>Phys. Rev. A</i> 29, 3276 (1984) United States
21587 E-T	A33: $\text{K}^{+} + \text{Rb}$	75 eV	Bapper, B.; Birn, Z.; Scheiner, S.; Schreiber, D.; Van Bijsterveld, H. A.; Zeng, X. Polarization of the nuclear spins of noble-gas atoms by spin exchange with optically pumped alkali-metal atoms. <i>Phys. Rev. A</i> 29, 3392 (1984) United States
01588 T	A07: Undef	Undef	Becker, B. L.; Ford, A. L.; Readings, J. F. Multiple-vacancy production in the independent-particle model. <i>Phys. Rev. A</i> 29, 3111 (1984) United States
31589 E	A36: $\text{D}_2^{+} + \text{Ar}; \text{D}_2^{+} + \text{R}_2$ A36: $\text{D}_2^{+} + \text{Ar}; \text{D}_2^{+} + \text{R}_2$ C36: $\text{D}_2^{+} + \text{Ar}; \text{D}_2^{+} + \text{R}_2$	300-600 keV	Abgarian, S.; Bir, E.; Besser, P. Correlations between channel probabilities in collisional dissociation of D_2^{+} . <i>Phys. Rev. A</i> 29, 3122 (1984) Israel
21590 T	E32: $e + \text{Rb}$ E17: $e + \text{Rb}$	0.1-50 eV	Phan, P.; Datta, S. P.; Bhattacharyya, D.; Ghosh, A. S. Elastic $e-\text{He}$ scattering with the use of the model-potential method. <i>Phys. Rev. A</i> 29, 3125 (1984) India
31591 T	E32: $e + \text{H}$ E17: $e + \text{H}$	0.05-1.0 keV	Phan, S. P.; Datta, S. Elastic scattering of intermediate-energy electrons and positrons by the hydrogen atom. <i>Phys. Rev. A</i> 29, 3137 (1984) India
21592 E	H36: $\text{he} + \text{Cs}^{+}$	543 nm	Gilbert, S. L.; Bochner, M. C.; Wagner, C. E. Absolute measurement of the photoionization cross section of the excited 7S state of cesium. <i>Phys. Rev. A</i> 29, 3150 (1984) United States
21593 T	R36: $\text{Zn}^{+} + \text{Sr}; \text{Jn}^{+} + \text{Sr}$	17600-17850 cm ⁻¹	Kio, Y. S.; Lambropoulos, P. Multiphoton autoionization under strong laser radiation: three-photon autoionization of strontium as a test case. <i>Phys. Rev. A</i> 29, 3159 (1984) United States
21594 T	R36: $\text{he} + \text{He}; \text{he} + \text{Ar}; \text{he} + \text{Kr}; \text{he} + \text{Xe}$	0.5-0.7 e.u.	Patpia, P. A.; Johnson, W. B.; Radajevic, V. Application of the relativistic local-density approximation to photoionization of the outer shells of neon, argon, krypton, and xenon. <i>Phys. Rev. A</i> 29, 3173 (1984) United States
01595 T	A02: $\text{He} + \text{He}$ A18: $\text{He} + \text{He}$	25-100 keV	Nakayoshi, S.; Ishihara, T. Elastic proton-helium scattering in the Glauber approximation. <i>Phys. Rev. A</i> 29, 3417 (1984) Japan

Ref. No.	Reactants	Energy Range	Reference
21596 E	C32; H ⁺ + H ₂ ; H ⁺ + C ₂ ; H ⁺ + H ₂ O	40-2500 keV	Iz, L. J.; Ebandewal, C. S.; Bilsen, J. W. Low-energy proton stopping power of H ₂ , O ₂ , and water vapor, and deviations from Fano's rule. <i>Phys. Rev. A</i> 29, 3619 (1984) United States
21597 T	B37; e + e E02; e + e E17; e + e	Undef	Unnikrishnan, K.; Prasad, R. R. Electron-hydrogen scattering in an intense laser field. <i>Phys. Rev. A</i> 25, 3023 (1982) India
21598 T	A37; H ⁺ + Li ⁺ ; H ⁺ + C ⁺ ; H ⁺ + Be ⁺	0.1-2.0 MeV	McGaire, E. J. Photoionization of Li ⁺ , C ⁺ , and Be ⁺ . <i>Phys. Rev. A</i> 25, 3025 (1982) United States
21599 T	E36; hv + Na ⁺ ; hv + Ne ⁺ ; hv + Ar ⁺ ; hv + Ca ⁺	Undef	Pearcey, A. Z. Photoionization of excited atomic states: effects of the initial wave functions. <i>Phys. Rev. A</i> 29, 3431 (1984) United States
22000 E	E33; e + Zr	3-253 eV	Pchenov, A. N.; Smirnov, V. M. Measurement of electron-impact excitation cross sections for zirconium atoms. <i>J. Appl. Spectrosc.</i> 39, 751 (1983) Soviet Union
22001 E	E03; e + Ce	0-250 eV	Kolesov, P. A.; Seimov, I. M. Measurement of the electron-impact excitation cross sections of some quartet states of the cerium atom. <i>J. Appl. Spectrosc.</i> 39, 883 (1983) Soviet Union
22002 E	E02; hv + C ₂	210-230 nm	Deshin, V. P.; Zabelinskii, I. Z.; Shatalov, G. P. Effective C ₂ UV absorptio cross sections over a wide temperature range. <i>J. Appl. Spectrosc.</i> 35, 1351 (1980) Soviet Union
22003 E-T	J04; Chemical changes K04; Chemical changes	Undef	Estra, I. P.; Kleinman, L. Chemisorption of oxygen on aluminum surfaces. <i>J. Electron. Spectrosc. Relat. Phenom.</i> 33, 175, (1980) United States
22004 F	J02; Branching ratio J03; Branching ratio	16-83 eV	Fries, C. E.; Thomasson, J. P. Compilation of valence shell molecular photoelectron branching ratios as a function of energy. <i>J. Electron. Spectrosc. Relat. Phenom.</i> 33, 267 (1980) Canada
22005 E	J02; oscillator strengths J03; Oscillator strengths	5-153 eV	Fries, C. E.; Thomasson, J. P. Compilation of dipole oscillator strengths (cross sections) for the photoabsorption, photoionization and ionic fragmentation of molecules. <i>J. Electron. Spectrosc. Relat. Phenom.</i> 33, 321 (1980) Canada
22006 F	A12; C ₂ + C ₂ ; C ₂ + C ₃ ; H ₂ + O ₂ ; Air + O ₂	240-293 K	Colmert, J. P.; Bonnecoulli, B. Measurements of H ₂ -, C ₂ -, and Air-broadened linewidths of ozone in the millimeter region: temperature dependence of the linewidths. <i>J. Mol. Spectrosc.</i> 104, 122 (1984) France
22007 E	C32; O ⁺ + Al; H ⁺ + Al	160-800 keV	Talyshko, S. V. Stopping cross section of ¹⁰⁹ Pt ions in aluminum with energies up to 30 keV/nucleon. <i>Sov. At. Energy</i> 55, 555 (1983) Soviet Union
22008 T	C32; e + C; e + Al; e + Cu CO4; e + C; e + Al; e + Cu	1 MeV	Geiko, V. I.; Gorbatcov, E. A.; Evstigneev, V. V. Absorption of energy from an intense electron beam by a solid. <i>Sov. J. Plasma Phys.</i> 9, 441 (1983) Soviet Union
22009 T	PIRA; H + He; H + Ti; H + Ta	Undef	Shirley, A. J.; Hall, C. K. Trapping of hydrogen by metallic substitutional impurities in molybdenum, vanadium, and tantalum. <i>Acta Metall.</i> 32, 95 (1984) United States
22010 T	PIRA; H + TiC + Ta	Undef	Iee, H. G.; Iee, J. Y. Hydrogen trapping by TiC particles in steels. <i>Acta Metall.</i> 32, 131 (1984) South Korea
22011 F	A14; HC ⁻ + I ₂ ; CO ⁻ + F ₂ ; HC ⁻ + HD; DO ⁻ + F ₂ ; HO ⁻ + C ₂ O ₂ ; DO ⁻ + H ₂ C	299 K	Grabowski, J. J.; Defay, C. B.; Bierkamp, V. F. Gas-phase hydrogen-deuterium exchange reactions of HC ⁻ and DC ⁻ with weakly acidic neutrals. <i>J. Am. Chem. Soc.</i> 105, 2767 (1983) United States

Ref. No.	Reactants	Energy Range	Reference
02012 T	Li^+ ; $\text{Fe}^{+2} + \text{H}_2$	2-22 eV	Belle, L. P.; Klein, P. S.; Beauchamp, J. L. Properties and reactions of organometallic fragments in the gas phase. I. Ion beam studies of Fe^{+2} . <i>J. Am. Chem. Soc.</i> , 106 , 2561 (1984)
02013 E	Li^+ ; $\text{He} + \text{O} + \text{H}; \text{H}_2\text{O} + \text{O} + \text{H}$	Thermal	Lepage, J.; Beria, A.; Paulmier, D. Adsorption and recombination of atomic nitrogen - consequences on the kinetics of adsorption of molecular nitrogen on tungsten. <i>J. Chim. Phys.</i> , 63 , 633 (1983) France
02014 E	Li^+ ; $\text{O}_2 + \text{Nb} + \text{He}$	1200 K	Baton, P.; Pichotin, D.; Focia, M.; Weber, R. Interactions of oxygen with niobium-silicon alloys at high temperature. <i>J. Chim. Phys.</i> , 63 , 755 (1983) France
02015 T	Al^+ ; $\text{He} + \text{H}; \text{H}_2\text{O} + \text{H}$	0.3-5.625 keV/amu	Fujimura, K.; Yoshida, T. Close-coupling calculation of charge transfer cross sections at high energies. <i>J. Phys. Soc. Jpn.</i> , 52 , 6116 (1983) Japan
02016 E	Al^+ ; $\text{He}^{+2} + \text{He}; \text{He}^{+2} + \text{H}_2; \text{He}^{+2} + \text{He}; \text{He}^{+2} + \text{H}_2; \text{He}^{+2} + \text{H}_2; \text{He}^{+2} + \text{H}_2; \text{He}^{+2} + \text{H}_2$	3-60 keV	Kosakabe, T.; Nagai, H.; Matsuki, T.; Sasaki, H. Charge transfer cross sections for slow He^{+2} ions on He and H. <i>J. Phys. Soc. Jpn.</i> , 53 , 4122 (1984) Japan
02017 T	Li^+ ; $\text{Li}^+ + \text{He}$	Undef	Toshida, J.; Gohara, K. Collisions for $\text{Li}^+ + \text{He}$ systems. I. Potential curves and non-adiabatic coupling matrix elements. <i>J. Phys. Soc. Jpn.</i> , 53 , 554 (1984) Japan
02018 E	Al^+ ; $\text{K}^{+2} + \text{He}; \text{Y}^{+2} + \text{Ar}$	0.01-2 eV	Bozreski, T.; Chano, Y.; Manoto, T. Drift tube study of ion-electron capture reactions between double-charged ions and rare gas atoms. <i>J. Phys. Soc. Jpn.</i> , 53 , 567 (1984) Japan
02019 E	Al^+ ; $\text{C}^+ + \text{He}; \text{N}^+ + \text{He}; \text{O}^+ + \text{He}; \text{Ne}^+ + \text{He}$	0.3-1.3 keV	Cotaka, A.; Kawatawa, K.; Fujimoto, T.; Komaki, K.; Ozawa, K.; Teranishi, K. Single and double K-shell ionization cross sections of beryllium by C, N, O and Ne ions bombardments. <i>J. Phys. Soc. Jpn.</i> , 53 , 1921 (1984) Japan
02020 T	Al^+ ; $\text{He} + \text{H}_2$	Undef	Zehrt, C. Investigation of time-dependent semiclassical methods for scattering calculations. <i>Nucl. Phys.</i> , 51 , 241 (1964) West Germany
02021 T	Al^+ ; $\text{H} + \text{H}$	2.0-8.0 keV	Ling, B.-S.B.; Bigby, R. Towards an intermolecular potential for nitrogen. <i>Nucl. Phys.</i> , 51 , 655 (1964) United Kingdom
02022 T	D^+ ; $\text{N}_2^+ + \text{C}$	Thermal	Talbot, J.; Tildesley, D. J.; Steele, R. A. A molecular dynamics simulation of nitrogen adsorbed on graphite. <i>Nucl. Phys.</i> , 51 , 133 (1964) United Kingdom
02023 T	Al^+ ; $\text{H} + \text{H}_2$	1-15x10 ⁻² K	Izotov, T. I. Collision-induced dissociation of molecular hydrogen in a rarefied gas. <i>Sov. Astron. Lett.</i> , 9 , 233 (1983) Soviet Union
02024 E-T	Si^+ ; Undef; K^+ ; Ionization; Excited States; K^{+2} ; Ionization	Undef	Delone, N. E.; Krainev, B. P.; Shegelyantskii, E. L. Highly-excited states in the electrosensitive field. <i>Sov. Phys.-Usp.</i> , 26 , 551 (1983) Soviet Union
02025 E	Al^+ ; $\text{Ca} + \text{He}; \text{Ca} + \text{Ar}; \text{Ca} + \text{Kr}$	100 K	Siegling, P.; Bleser, K. Low-pressure noble gas broadening of the Ca resonance lines. <i>Z. Naturforsch.</i> , A 39 , 467 (1984) West Germany
02026 E	Al^+ ; $\text{Ca} + \text{Ar}; \text{Ca} + \text{Kr}$	300 K	Siegling, P.; Bleser, K. High-pressure noble gas broadening of the Ca resonance lines. <i>Z. Naturforsch.</i> , A 39 , 611 (1984) West Germany
02027 T	Si^+ ; Undef	Undef	Friedmann, R.; Rabkin, A.; Thielertzer, I. The influence of an electric field on a hydrogen atom confined to boxes of different shapes. <i>Z. Phys.</i> , A 214 , 1 (1976) Israel
02028 P	Al^+ ; $\text{Si}^{+2} + \text{He}; \text{Si}^{+2} + \text{He}; \text{Br}^{+2} + \text{Kr}; \text{Si}^{+2} + \text{Ar}; \text{Ca} + \text{Ti}; \text{He} + \text{Rb}$	0-150 keV	Schuch, R.; Hoffmann, R.; Müller, R.; Fries, F.; Schmid-Rockstroh, P.; Specht, R. J. Systematic study of impact parameter dependent K-vacancy probabilities in near symmetric gas- and solid-target collisions systems. <i>Z. Phys.</i> , A 316 , 5 (1984) West Germany

Ref. No.	Reactants	Energy Range	Reference
	$\text{Br} + \text{V}$; $\text{Br} + \text{Ge}$; $\text{Br} + \text{Se}$		
A107:	$\text{Si}^{2+} + \text{Be}$; $\text{Si}^{2+} + \text{Be}$; $\text{Si}^{2+} + \text{Be}$;		
	$\text{Si}^{2+} + \text{Be}$; $\text{Si}^{2+} + \text{Be}$; $\text{Si}^{2+} + \text{Be}$;		
	$\text{Si}^{2+} + \text{Be}$; $\text{Si}^{2+} + \text{Be}$; $\text{Si}^{2+} + \text{Be}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Si}^{2+} + \text{Al}$; $\text{Co} + \text{Ti}$; $\text{Br} + \text{V}$; $\text{Br} + \text{Be}$;		
	$\text{Br} + \text{V}$; $\text{Br} + \text{Ge}$; $\text{Br} + \text{Se}$		
A108:	$\text{Si}^{2+} + \text{Be}$; $\text{Si}^{2+} + \text{Be}$; $\text{Si}^{2+} + \text{Be}$;		
	$\text{Si}^{2+} + \text{Be}$; $\text{Si}^{2+} + \text{Be}$; $\text{Si}^{2+} + \text{Be}$;		
	$\text{Si}^{2+} + \text{Be}$; $\text{Si}^{2+} + \text{Be}$; $\text{Si}^{2+} + \text{Be}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$; $\text{Be}^{2+} + \text{K}$;		
	$\text{Si}^{2+} + \text{Al}$; $\text{Co} + \text{Ti}$; $\text{Br} + \text{V}$; $\text{Br} + \text{Be}$;		
	$\text{Br} + \text{V}$; $\text{Br} + \text{Ge}$; $\text{Br} + \text{Se}$		
02029 E	D33: $e + \text{Rg}$	0-10 eV	Bach, L.; Heindorff, J.; Beichert, E. Resonances in the electron impact excitation of metastable states of mercury. Z. Phys. A 316, 127 (1980) Best Germany
02030 T	D01: Ca		Van Leeuwen, K.A.M.; Hoogenvoort, W. Stark effect, hyperfine structure and isotope shifts in highly excited states of Ba I and Ca I. Z. Phys. A 316, 149 (1980) The Netherlands
02031 T	A06: $\text{He} + \text{Ar}$ A108: $\text{He} + \text{Ar}$	0.2-16 keV	Jahnsen-Aarsundsen, L. R. On the effect of off-shell wavefunctions on K and L shell charge transfer in fast, asymmetric collisions. Z. Phys. A 316, 161 (1980) Best Germany
02032 E	D32: $\text{Sr} + \text{Ar}$	100 keV	Röfer, B. C.; Besocke, K.; Stitzitzer, B. A search for a thermal spike effect in sputtering. II. Temperature dependence of the yield for heavy atomic and molecular ion bombardment. Appl. Phys. (Germany) A 33, E1 (1983) Best Germany
02033 E	D37: $\text{Ne}^+ + \text{Rb}$ D108: $\text{Rb}^+ + \text{Rb}$	1-25 keV	Chen, C. K.; Eckstein, P.; Scherzer, O.H.O. Trapping and reflection coefficients for Rb^+ in Rb at oblique incidence. Appl. Phys. (Germany) A 31, 37 (1983) Best Germany
02034 T	D34: $\text{Se}^+ + \text{Ar}$	10-200 keV	Hegyi, I.; Loszlo, J.; Giber, J. Inelastic energy loss in solids. II. Calculations of the number of ejected electrons on the base of the expectation value of the inelastic energy loss. Appl. Phys. (Germany) A 31, 153 (1983) Hungary
02035 T	C32: $e + \text{Al}$; $e + \text{Si}$; $e + \text{Cu}$; $e + \text{Au}$	1-10 keV	Tolkilahti, S.; Niessinen, L. A. Monte-Carlo calculations of electron and positron slowing down in solids. Appl. Phys. (Germany) A 32, 95 (1983) Finland
02036 E-T	C13: $\text{H}_2 + \text{RbTl}$	670 K	Schleopach, L.; Biesterer, T. The activation of RbTl for hydrogen absorption. Appl. Phys. (Germany) A 32, 165 (1983) Switzerland
02037 T	D32: $\text{Ar}^+ + \text{Ar}$; $\text{C}^+ + \text{Zr}$; $\text{Rb}^+ + \text{Zr}$ D33: $\text{Rb}^+ + \text{Ar}$; $\text{C}^+ + \text{Zr}$; $\text{Rb}^+ + \text{Zr}$	0.1-15 keV	Pelizzetti, G.; Oliva, A. Energy spectra of atoms sputtered by low light-ion bombardment. Appl. Phys. (Germany) A 32, 231 (1983) Italy
02038 E	D32: $\text{Ar}^+ + \text{Vi}$	0.1 keV	Fedrysi, B.; Gakla, L. Photos emissions from sputtered nickel atoms as a function of target temperature near the cubic point. Appl. Phys. (Germany) A 32, 221 (1983) Poland
02039 T	C32: $\text{Rb}^+ + \text{Rb}$; $\text{Rb}^+ + \text{Rb}$ D37: $\text{Rb}^+ + \text{Rb}$; $\text{Rb}^+ + \text{Rb}$	1-10 keV	Hou, H.; Verguts, C. Surface channeling of swift light ion. Measurements and simulations. Appl. Phys. (Germany) A 33, 121 (1984) Best Germany

Ref. No.	Reactants	Energy Range	Reference
22343 T	D32: Zr ⁺ + Ag	8-45 keV	Sigmund, P.; Suyoshi, H. Temperature-dependent sputtering of metals and insulators. <i>Appl. Phys. (Germany)</i> 8, 33, 161 (1984) Bensack
22341 E	D33: Re ⁺ + Ir	8 keV	Berres, W.; Bay, R. L. The velocity distribution of scattered Ir atoms for irradiation at normal and oblique angle of incidence. <i>Appl. Phys. (Germany)</i> 8, 33, 235 (1984) West Germany
22342 E	D37: D ⁺ + C D18: D ⁺ + C	3.0-10 keV	Chen, C. K.; Scherzer, F.H.G.; Eckstein, B. Trapping and reflection coefficients for deuterium in graphite at oblique incidence. <i>Appl. Phys. (Germany)</i> 8, 33, 265 (1984) West Germany
22343 T	D32: Be + Ni; Zr + Ni; Be + Ni; Al + Ni	50-100 eV	Sieracki, J. F.; Eckstein, B. Scattering studies with the Monte Carlo program TRIM-SE. <i>Appl. Phys. (Germany)</i> 8, 33, 73 (1984) West Germany
22344 E	A18: R + R ₂ O	Thermal	Kleinermanns, E.; Wolfson, J. R + R ₂ O reaction dynamics: state distributions for the O ₂ product. <i>Appl. Phys. (Germany)</i> 8, 33, 5 (1984) West Germany
22345 E	J31: Excitations; Ionization		Sobbi, R. S.; Cranford, E. Experimental 1-shell x-ray production and ionization cross sections for proton impact. <i>At. Data Nucl. Data Tables</i> 30, 49 (1984) United Kingdom
02C46 T	J01: Energy loss; Stopping power J02: Energy loss; Stopping power		Stansbie, R. M.; Berger, R. J.; Seltzer, S. M. Density effect for the ionization losses of charged particles in various substances. <i>At. Data Nucl. Data Tables</i> 30, 261 (1984) United States
22347 T	E32: Scattering		Harrison, B. A. The physics of low-energy electron-molecule collisions: a guide for the perplexed and the uninitiated. <i>Aust. J. Phys.</i> 36, 739 (1983) Australia
22348 E	E35: e + Sn; e + Cd	20-150 keV	Baxter, G. B.; Spicer, E. R. L-shell ionization of Sn and Cd by 20-150 keV electron impact. <i>Aust. J. Phys.</i> 36, 287 (1983) Australia
C2C49 E	E03: e + CO E19: e + CC	1-4 eV	Baddad, G. S.; Gilroy, R. E. Cross sections for electron-carbon monoxide collisions in the range 1-4 eV. <i>Aust. J. Phys.</i> 36, 47 (1983) Australia
22350 T	E33: e + Ba ⁺	6-5000 eV	Gomes, P. S.; Aryafar, M.; Gately, L. F. Electron impact excitation cross sections for Ba ⁺ . <i>Aust. J. Phys.</i> 36, 659 (1983) United States
02C51 T	E32: e + R E03: e + R E17: e + R	50 eV	McCarthy, I. E.; Stelcovics, A. T. Study of approximations for electron-atom direct reactions. <i>Aust. J. Phys.</i> 36, 665 (1983) Australia
22352 E	A36: Cs + O ₂ ; Cs + NO A37: Cs + C ₂ ; Cs + NO	30-3000 eV	Klemp, U. C.; Los, J. Production of stable and autoionizing O ₂ ⁻ and NO ⁻ ions in Cs-O ₂ and CsNO collisions. <i>Chem. Phys.</i> 63, 19 (1984) The Netherlands
02C53 T	A17: Hg + N ₂	Undef	Feldstova, I.; Vojtik, J. Diatomic-in-molecules model for Penning ionization in the He(2 ¹ S)-N ₂ system. <i>Chem. Phys.</i> 63, 225 (1984) Czechoslovakia
02C54 T	A06: Hg ⁺ + Hg	5 keV	Sidis, V.; de Brujja, D. P. Theory of near-resonant charge exchange in atom-molecule collisions. dissociative NSCI in the H ₂ ⁺ + Hg collision. <i>Chem. Phys.</i> 65, 235 (1984) France
02C55 T	A31: CO ⁺ + Re	100-800 eV	Jolicard, G.; Billing, G. D. Semiclassical treatment of ro-vibrational relaxation in the large j limit. Applications to CO + ⁴⁰ Ca collisions. <i>Chem. Phys.</i> 65, 253 (1984) France
02C56 E	A02: Li ⁺ + N ₂	500-1200 eV	Pelinin, A. F.; Bijlsma, Van Rossum, P. W.; Khromov, V. B.; Sleys, A. W.; Los, J.; Leonas, V. B. Differential cross sections for Li ⁺ scattering by N ₂ molecules. <i>Chem. Phys.</i> 65, 301 (1984) The Netherlands

Ref. No.	Reactants	Energy Range	Reference
02C57 T	A112: CO + Pt	0.14-8.6 eV	Killing, G. E. Inelastic scattering and chemisorption of CO on a Pt(111) surface. <i>Chem. Phys.</i> 86, 369 (1984) Denmark
02C58 T	A142: D + H ₂ *	300 K	Sorozhkin, V. N.; Gersbenzon, Y. A.; Ivanov, A. V.; Rechavyavil, S. I. Experimental study of the D + H ₂ (v = 1) reaction. <i>Chem. Phys. Lett.</i> 135, 423 (1985) Soviet Union
02C59 T	A142: D + H ₂ *	0.3-3.7 eV	Khanshi, B.; Bouri, D. J.; Shina, T.; Soen, R. Integral and state-to-state cross sections for the reaction D + H ₂ (v sub 1) -> H ₂ (v sub 2) + D: a quantum mechanical study within the infinite order sudden approximation. <i>Chem. Phys. Lett.</i> 135, 472 (1985) United States
02C60 T	A112: H ₂ O + H ₂ *	82 K	Teitelbaum, B. A rate constant for the F-F exchange in hydrogen. H ₂ (v = 1) + H ₂ (v = 3) -> H ₂ (v = 2). <i>Chem. Phys. Lett.</i> 126, 69 (1986) Canada
02C61 T	A112: CN** + He	98-298 K	Natayama, D. B.; Welsh, J. A. The effect of temperature on the collisional deactivation of electronically excited CN*. <i>Chem. Phys. Lett.</i> 136, 74 (1986) United States
02C62 T	A142: OBr + C ₂ ; OBr + Br; OBr + Ar; OBr + H ₂ ; OBr + H ₂ *; OBr + CO; OBr + H ₂ O; OBr + D ₂ O; OBr + CH ₄ ;	300 K	Pinalayson-Pitts, B. J.; Itokey, D. W.; Esell, B. J. Relative rate constants for removal of vibrationally excited OH(v sub 2=1) by various small molecules at room temperature. <i>Int. J. Chem. Kinet.</i> 15, 151 (1983) United States
02C63 T	A142: O + CH ₄	400-1100 K	Michael, J. V.; Neil, D. G.; Kless, J. B. Theoretical rate constant calculations for O(³ P) with saturated hydrocarbons. <i>Int. J. Chem. Kinet.</i> 15, 735 (1983) United States
02C64 T	A142: H ₂ + CH	2700-3500 K	Szakely, L.; Benson, B. R.; Novak, C. T. High-temperature characteristics of the rate coefficient for the reaction H ₂ + CH -> HCO. <i>Int. J. Chem. Kinet.</i> 15, 915 (1983) United States
02C65 T	A022: He + Ne*; He + Ar*; He + Kr*; He + Xe*; He + Ne*; Ar* + He; Ar* + Ne; Ar* + Kr; Ar* + Xe; Ar* + CO; Ar* + H ₂ ; Ar* + Ar; Xe* + He; Kr* + He; Ne* + Ne	30-820 eV	Bastilton, P. A.; Eganstubb, P. F. Integral cross-section measurement for rare gas ion-atom collisions. <i>Int. J. Mass Spectrom. Ion Phys.</i> 57, 329 (1984) United Kingdom
02C66 T	D132: hv + H ₂ + H	Undef	Brachsel, W.; Hashigaki, S.; Ernst, W.; Block, J. H. Photoinduced field desorption of hydrogen H*, H ₂ ', H ₂ * cross sections. <i>Int. J. Mass Spectrom. Ion Processes</i> 46, 297 (1983) West Germany
02C67 T	D132: hv + C + Ti; hv + O + Br; hv + C + H; hv + CO + Br; hv + H ₂ O + Ti	20-110 eV	Stockbauer, B.; Rausch, G. H.; Flodstrom, S. A.; Bertel, E.; Hadley, T. F. Photo stimulated desorption of ions: a new probe of surface bonding and structure. <i>Int. J. Mass Spectrom. Ion Processes</i> 47, 51 (1983) United States
02C68 T	A332: He* + Ar	1-8000 eV	Borwarkar, P.; Kuda, I.; Federer, B. Excited state formatics in the interaction of mass resolved ion beams with molecular and atomic targets (1-8000 eV, 220-820 nm). <i>Int. J. Mass Spectrom. Ion Processes</i> 47, 151 (1983) Austria
02C69 T	A022: Ar ²⁺ + Ne A332: Ar ²⁺ + Ne A362: Ar ²⁺ + Ne	540 eV	Leibler, P. T.; Heated, J. E. Charge exchange reactions of Ar ²⁺ in rare gas atoms. <i>Int. J. Mass Spectrom. Ion Processes</i> 47, 163 (1983) United Kingdom
02C70 T	A362: He* + H ₂	Undef	Giscard-Ain, R.; Gorrieri, T. E.; Levy, B.; Billie, P. Theoretical study of the He* + H ₂ -> He + H ₂ * (C) reaction. <i>Int. J. Mass Spectrom. Ion Processes</i> 47, 167 (1983) France
02C71 T	A112: H ₂ ** + O ₂ ; H ₂ ** + NO	0.3-2.0 eV	Cotter, B.; Villinger, H.; Borwarkar, P.; Lindinger, W. Energy dependence of reactive and quenching collisions of H ₂ * (B, v c) with O ₂ and NO. <i>Int. J. Mass Spectrom. Ion Processes</i> 47, 171 (1983) Austria

Ref. No.	Reactants	Energy Range	Reference
02C72 E	A06: He ⁺ + H ₂ ; He ⁺ + C ₂ ; He ⁺ + CO	3.05-15.0 eV	Villinger, R.; Petrelli, J. R.; Richter, S.; Sauer, A.; Niccolini, S.; Lindinger, W. Energy dependences of the product distributions in ion-neutral reactions. Int. J. Mass Spectrom. Ion Processes 47, 175 (1983) Austria
02C73 E	E04: e + H ₂ O E09: e + H ₂ O	5-70 eV	Inoue, B. Negative ion formation by attachment of electrons to radicals studied by ion cyclotron resonance spectrometry. Int. J. Mass Spectrom. Ion Processes 47, 239 (1983) Japan
02C74 E	K36: Surface ionization		Kawano, H.; Sage, P. S. Experimental methods and techniques for negative-ion production by surface ionization. Part I. Fundamental aspects of surface ionization. Int. J. Mass Spectrom. Ion Processes 56, 1 (1983) United Kingdom
02C75 E	K36: Surface ionization		Kawano, H.; Bidaka, T.; Sage, P. S. Experimental methods and techniques for negative-ion production by surface ionization. Part II. Instrumentation and operation. Int. J. Mass Spectrom. Ion Processes 56, 35 (1983) United Kingdom
02C76 E	K36: Surface ionization		Kawano, H.; Bidaka, T.; Sage, H.; Page, F. S. Experimental methods and techniques for negative-ion production by surface ionization. Part III. Compilation and criticism of experimental data on negative surface ionization. Int. J. Mass Spectrom. Ion Processes 56, 77 (1983) United Kingdom
02C77 T	K36: Desorption	Undef	Kreuzer, H. J. Desorption kinetics. Int. J. Mass Spectrom. Ion Processes 51, 273 (1983) Canada
02C78 E	A18: He + He	0.5-1.0 keV	Abraham, R. A.; Peterson, B. C. Differential cross-section measurement for He ⁺ - He ⁺ collisions. Int. J. Mass Spectrom. Ion Processes 54, 61 (1983) United States
02C79 E	*03: e + He	20-800 eV	Shaw, B.; Borge, M.J.G.; Campos, J. Experimental excitation cross sections by electron impact of n ¹ (1/2) + n = 3,4,5 levels of He. J. Chem. Phys. 80, 1882 (1984) Spain
02C80 F	A14: CO ₂ ⁺ + H	0.06-0.18 eV	Tosi, P.; Iannotta, S.; Facci, D.; Villinger, R.; Dotter, B.; Lindinger, W. The reaction of CO ₂ ⁺ with atomic hydrogen. J. Chem. Phys. 83, 1935 (1984) Italy
02C81 E	H06: hv + CO; hv + CC ₂	160-680 eV	Truesdale, C. E.; Lindle, D. W.; Robbins, P. F.; Becker, G. Z.; Berkhoff, B. C.; Reissman, P. A.; Farrett, T. A.; Shirley, D. A. Core-level photoelectron and Auger shape-resonance phenomena in CO, CO ₂ , CT, and CCS. J. Chem. Phys. 80, 2375 (1984) United States
02C82 F	A06: Ar ⁺ + H ₂	1.7-4.0 eV	Friedrich, E.; Traetta, W.; Rockwood, A.; Howard, S.; Petrelli, J. R. A crossed beam study of the charge-transfer reactions of Ar ⁺ with H ₂ at low and intermediate energies. J. Chem. Phys. 80, 2537 (1984) United States
02C83 F	A14: C ⁺ + H ₂	0.1-2.5 eV	Ervin, K. R.; Armentrout, P. B. Threshold behavior of endothermic reactions: C ^{+(PP)} + H ₂ → CH ⁺ + H. J. Chem. Phys. 80, 2970 (1984) United States
02C84 T	A14: F + D ₂	3.04-3.23 eV	Atusabbi, R.; Shoemaker, C. L.; Knorr, D. J.; Jellinek, J.; Baer, R. Quantum mechanical treatment of the F + D ₂ → DF + D reaction. J. Chem. Phys. 83, 3210 (1984) United States
02C85 T	A14: O + H ₂	333-933 K	Broida, R.; Ierny, A. Quasiclassical trajectory study of the reaction O(3P) + H ₂ → OH + H. The effects of the location of the potential energy barrier, vibrational excitation and isotopic substitution on the dynamics. J. Chem. Phys. 80, 3687 (1984) Israel
02C86 T	A17: O ₂	Undef	Takada, T.; Freed, K. F. Tests of using large valence spaces in quasidegenerate many-body perturbation theory: calculations of C ₂ potential curves. J. Chem. Phys. 80, 3656 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
02367 E	A16: H + D ₂	1.3 eV	Maximo, F. M.; Bettner, C. T.; Zare, R. K. H + Be reaction dynamics. Determination of the product state distributions at a collision energy of 1.3 eV. <i>J. Chem. Phys.</i> 60, 4142 (1974) United States
02388 T	A16: O ₂ ⁺ + Be	0.338-8.1 eV	Butler, S. E.; Neil, T. G.; Dalgarno, A. Charge transfer of O ₂ ⁺ in helium at thermal energies. <i>J. Chem. Phys.</i> 60, 4986 (1974) United States
02389 T	A17: He + Be	Undef	Jordan, S. E.; Sista, P. L. Potential energy curves for the a 'F ₂ (mb n) ⁺ ' and C ₂ (mb g) ⁺ states of Be, obtained by combining scattering, spectroscopy and ab initio theory. <i>J. Chem. Phys.</i> 60, 5227 (1974) United States
02490 T	A17: B ₂ + Be	Undef	Fauilly, B.; Longfield, T. W.; Jacksy, D. S. On the Bg(3P)-Be(1S) interaction using SA-HCSCF/ICF-CI wave functions. <i>J. Chem. Phys.</i> 60, 5389 (1974) United States
02491 T	A16: B ₂ ⁺ + Be	1-4 eV	Joseph, I.; Sathyamurthy, B. Three-dimensional quasiclassical trajectory study of the reaction He + B ₂ ⁺ -> B ₂ ⁺ + He on an accurate ab initio potential-energy surface. <i>J. Chem. Phys.</i> 60, 5332 (1974) India
02492 T	A17: H ₂ + CO	Undef	Schinke, R.; Meyer, H.; Beck, U.; Diercksen, G.H.F. A new rigid-rotor B ₂ -CO potential energy surface from accurate ab initio calculations and rotationally inelastic scattering data. <i>J. Chem. Phys.</i> 60, 5318 (1974) West Germany
02493 T	A17: H ₂ + Be A18: H ₂ + Be	27 meV	McCourt, F.S.W.; Fuchs, B. R.; Thakker, A. J. A comparison of the predictions of various model He-Be potential energy surfaces with experiment. <i>J. Chem. Phys.</i> 60, 5561 (1974) Canada
02494 E-T	A12: D ₂ + Ar A17: D ₂ + Ar	85 meV	Fuck, U.; Meyer, H.; Leroy, R. J. Determining the anisotropic interaction potential of D ₂ /Ar from rotationally inelastic cross sections. <i>J. Chem. Phys.</i> 60, 5589 (1974) West Germany
02495 T	A17: H ⁺ + H ₂ O; H ⁺ + CH ₄ A18: H ⁺ + H ₂ O; H ⁺ + CH ₄	3.5-4.2 keV	Wilson, B. E.; Miller, J. N.; Tokures, L. B.; Hanson, S. T. Differential cross sections for ionization of methane, ammonia, and water vapor by high velocity ions. <i>J. Chem. Phys.</i> 60, 5631 (1974) United States
02496 E	A11: H ₂ ⁺ + O ₂ ⁺ ; H ₂ ⁺ + NO ⁺	300 K	Pergason, L. E.; Adams, B. G.; Smith, D.; Alge, E. Rate coefficients at 300 K for the vibrational energy transfer reactions from H ₂ (v = 1) to C ₂ (v = 0) and NC(v = 0). <i>J. Chem. Phys.</i> 60, 4695 (1974) United States
02497 T	A12: He + H ₂ ⁺ A13: He + H ₂ ⁺ A15: He + H ₂ ⁺ A18: He + H ₂ ⁺	64 meV	Betropoulos, A. Rotational energy transfer in the He-H ₂ collision system. <i>J. Phys. Chem.</i> 68, 1 (1964) United States
02498 T	A03: H + CO; E + CO	1-4 eV	Geiger, L. C.; Schatz, G. C. A quasiclassical trajectory study of collisional excitation in H + CO. <i>J. Phys. Chem.</i> 68, 210 (1964) United States
02499 T	A11: He ⁺ + H ₂ ; He ⁺ + C ₂	298 K	Eemo, H. P.; Firestone, R. F. Bimolecular and 'three-body' quenching of gases (1s) atoms atoms by H ₂ and O ₂ . <i>J. Phys. Chem.</i> 68, 1559 (1964) United States
02500 T	A17: H ₂ + He	Undef	Fuchs, R. R.; McCourt, F.S.W.; Thakker, A. J.; Grein, F. Two new anisotropic potential energy surfaces for B ₂ -He: the use of Hartree-Fock SCF calculations and a combining rule for anisotropic long-range dispersion coefficients. <i>J. Phys. Chem.</i> 68, 2036 (1964) Canada
02501 T	A06: U ⁹²⁺ + Cu; U ⁹²⁺ + Ta; U ⁹²⁺ + Cu; U ⁹²⁺ + Ta A07: U ⁹²⁺ + Cu; U ⁹²⁺ + Ta; U ⁹²⁺ + Cu; U ⁹²⁺ + Ta C06: U + Cu; U + Ta	437-962 keV	Gould, H.; Greiner, F.; Lindstrom, P.; Symons, T.J.H.; Crawford, R. Electron capture by U ⁹²⁺ and U ⁹³⁺ and ionization of U ⁹²⁺ and U ⁹³⁺ . <i>Phys. Rev. Lett.</i> 52, 103 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
02102 E	A06; Ar ¹⁺ + Be A37; Ar ¹⁺ + Be	20 keV	Andersen, L. R.; Frost, R.; Hvelplund, P.; Knudsen, N.; Letz, S. Correlated two-electron effects in highly charged ion-atom collisions: transfer ionization and transfer excitation in 20-keV Ar ¹⁺ + Be collisions. <i>Phys. Rev. Lett.</i> 52, 518 (1984) Denmark
02103 E	A08; B + Be A10; B + Be	135 keV	Beckbach, H.; Vidal, R.; Focke, P.; Benitezky, I. B.; Gonzalez Lopez, R. Double-differential distributions produced by collisional electron loss into the continua for the B-Be system. <i>Phys. Rev. Lett.</i> 52, 621 (1984) Argentina
02108 E	A18; CBr ⁺ + B ₂	13 K	Burke, S. E.; Dunn, G. H.; Schauer, B. Radiative association of CBr ⁺ and B ₂ at 13 K. <i>Phys. Rev. Lett.</i> 52, 922 (1984) United States
02105 T	B31;		Bergman, I. Relativistically enhanced ionization rates in Stark-effect level crossings in hydrogen. <i>Phys. Rev. Lett.</i> 52, 1625 (1984) United States
02106 E	A36; O ⁺ + B; CO ⁺ + B A14; O ⁺ + B ₂ ; CO ⁺ + B ₂ ; CB ⁺ + B; CB ⁺ + B ₂	0.36 eV	Federer, U.; Willinger, B.; Nowotka, F.; Lindner, W.; Tosi, E.; Bassi, D.; Ferguson, R. Reaction of O ⁺ , CO ⁺ , and CB ⁺ ions with atomic hydrogen. <i>Phys. Rev. Lett.</i> 54, 1384 (1984) Switzerland
02107 E	A36; H ⁺ + Ne; B ⁺ + Ar; H ⁺ + Kr; He ⁺ + Ne; He ⁺ + Ar; He ⁺ + Kr A37; H ⁺ + Ne; B ⁺ + Ar; H ⁺ + Kr; He ⁺ + Ne; He ⁺ + Ar; He ⁺ + Kr	15-100 keV	LeBois, R. L. Electron production in collisions between light ions and rare gases: the importance of the charge-transfer and direct-ionization channels. <i>Phys. Rev. Lett.</i> 52, 2348 (1984) United States
02108 E	D33;	10 keV	Okajima, Y. Formation of BO ⁺ ions from metal oxides bombarded by 10-keV Ar ⁺ ions. <i>J. Appl. Phys.</i> 55, 230 (1984) Japan
02109 E-T	D37; H ⁺ + BO ₂ ; B ⁺ + Si; H ⁺ + Ti; B ⁺ + TiC; H ⁺ + TiC ₂ ; B ⁺ + Au; B ⁺ + C	2-50 keV	Morita, S.; Tabata, T. Reflection of very light ions from compound targets. <i>J. Appl. Phys.</i> 55, 776 (1984) Japan
02110 E-T	D02; Ar ⁺ + Si; Kr ⁺ + Si; H ⁺ + Si; B ₂ ⁺ + Si	0.1-15 keV	Zahn, P. C.; Beckers, L. J. Consequences of sputtering with molecular ions. <i>J. Appl. Phys.</i> 56, 223 (1984) The Netherlands
02111 E	B08; Cl ⁻ + Ne; Cl ⁻ + Na; Cl ⁻ + Ar; Cl ⁻ + Kr; Cl ⁻ + Xe A16; Cl ⁻ + Ne; Cl ⁻ + Ne; Cl ⁻ + Ar; Cl ⁻ + Kr; Cl ⁻ + Xe	12.5-122.5 keV	Tiedt, B.; Betman, Y. Positive ion production in single collisions of Cl ⁻ with rare gas atoms. <i>Can. J. Phys.</i> 62, 544 (1984) Canada
02112 T	A17; Li + F; Li + Cl; Li + Br; Li + I; Na + F; Na + Cl; Na + Br; Na + I; K + F; K + Cl; K + Br; K + I; Rb + F; Rb + Cl; Rb + Br; Rb + I; Cs + F; Cs + Cl; Cs + Br; Cs + I	Undef	Szymanski, J. Z.; Battarov, J.-A.B. Empirical interionic potentials for alkali halide molecules. <i>Can. J. Phys.</i> 62, 553 (1984) United Kingdom
02113 E-T	D05; hv + T; hv + Gd; hv + Dy; hv + Er D02;	31-105 keV	Lingam, S. C.; Babu, K. S.; Reddy, D.V.R. Total and photoelectric cross sections in some rare-earth elements. <i>Can. J. Phys.</i> 62, 668 (1984) India
02114 E-T	K08; Surfaces		Basano, B.; Lundqvist, B. J. Surface reaction dynamics. <i>Comments At. Mol. Phys.</i> 10, 229 (1984) Sweden
02115 E-T	K01; Excitation; Ionization		Bille, U.; Hippel, R. Mechanisms for L-shell and M-shell vacancy production in s-wave ion-atom collisions. <i>Comments At. Mol. Phys.</i> 14, 255 (1984) West Germany

Ref. No.	Reactants	Energy Range	Reference
02116 E	D08: Li ⁺ + H + Cs	25-433 keV	Groeninx, J.J.C.; Ion, J. Li ⁺ formation by scattering Li ⁺ ions from ionized H(113). Phys. Lett. A 102, 234 (1984) The Netherlands
02117 T	A36: C ⁰⁺ + H; C ⁰⁺ + He; C ⁰⁺ + Be; C ⁰⁺ + H; C ⁰⁺ + He; C ⁰⁺ + Be; C ⁰⁺ + H; C ⁰⁺ + Be; C ⁰⁺ + He; C ⁰⁺ + H; C ⁰⁺ + Be; C ⁰⁺ + He; H ⁰⁺ + H; H ⁰⁺ + He; H ⁰⁺ + Be; H ⁰⁺ + H; H ⁰⁺ + He; H ⁰⁺ + Be; H ⁰⁺ + H; H ⁰⁺ + He; H ⁰⁺ + Be; H ⁰⁺ + H; H ⁰⁺ + He; H ⁰⁺ + Be; O ⁰⁺ + H; O ⁰⁺ + He; O ⁰⁺ + Be; O ⁰⁺ + H; O ⁰⁺ + He; O ⁰⁺ + Be; O ⁰⁺ + H; O ⁰⁺ + He; O ⁰⁺ + Be; O ⁰⁺ + H; O ⁰⁺ + He; O ⁰⁺ + Be; O ⁰⁺ + H; O ⁰⁺ + He; O ⁰⁺ + Be; A37: C ⁰⁺ + H; C ⁰⁺ + He; C ⁰⁺ + Be; C ⁰⁺ + Bo; C ⁰⁺ + H; C ⁰⁺ + He; C ⁰⁺ + Be; C ⁰⁺ + Bo; C ⁰⁺ + H; C ⁰⁺ + He; C ⁰⁺ + Be; C ⁰⁺ + Bo; H ⁰⁺ + H; H ⁰⁺ + He; H ⁰⁺ + Be; H ⁰⁺ + Bo; H ⁰⁺ + H; H ⁰⁺ + He; H ⁰⁺ + Be; H ⁰⁺ + Bo; H ⁰⁺ + H; H ⁰⁺ + He; H ⁰⁺ + Be; H ⁰⁺ + Bo; H ⁰⁺ + H; H ⁰⁺ + He; H ⁰⁺ + Be; H ⁰⁺ + Bo; O ⁰⁺ + H; O ⁰⁺ + He; O ⁰⁺ + Be; O ⁰⁺ + Bo; O ⁰⁺ + H; O ⁰⁺ + He; O ⁰⁺ + Be; O ⁰⁺ + Bo; O ⁰⁺ + H; O ⁰⁺ + He; O ⁰⁺ + Be; O ⁰⁺ + Bo;	50-100 keV/amu	Jones, R. K.; McDowell, B.R.C. Electron removal from H and He atoms in collisions with C(nef q) ⁺ , H(nef q) ⁺ and C(nef q) ⁺ ions. Phys. Lett. A 102, 405 (1984) United Kingdom
02118 T	A20: Undef C02: Undef	Undef	Sayarov, Y. S. Swift ion energy losses in dense plasmas. J. Phys. [Orsay] Colloq. 44, C8-1 (1983) West Germany
02119 E-T	C02: B ⁺ + Al; B ⁺ + Al-Plasma; H ⁺ + Au; B ⁺ + Au-Plasma	1-13 keV	Abelhorn, T. A.; Post, J. M.; McGuire, R. J.; Glass, J. R.; Young, P. C. Current status of calculations and measurements of ion stopping power in ICF plasmas. J. Phys. [Orsay] Colloq. 44, C8-19 (1983) United States
02120 T	C02: He ²⁺ + Au	0.03-3.15 keV	Deutsch, C.; Bayard, G.; Kinoo, H. Ions stopping in dense and hot matter. J. Phys. [Orsay] Colloq. 44, C8-47 (1983) France
02121 T	A37: B ⁺ + Al A38: C + Li; Al + C; C + Be; U + Be; Cu + Cu, C02: D ⁺ + Ce; Al + C; Al + Li; C + C; C + Li C06: C + Li; Al + C; C + Be; U + Be; Cu + Cu, D12: B ⁺ + Al	1-50 keV	Bardis, E.; Zinamon, Z. Plasma effects in ion beam target interaction. J. Phys. [Orsay] Colloq. 44, C8-93 (1983) Israel
02122 E-T	C06: C07 + C	3 MeV/amu	Covens, H.E.S. Effective charge of energetic heavy ions in gases, solids and glasses. J. Phys. [Orsay] Colloq. 44, C8-1C7 (1983) United Kingdom
02123 T	C02: D ⁺ + Cd _x	1 keV	Bardis, E.; Zinamon, Z. Diagnostic techniques for intense particle beam-target interaction using K sub Alpha radiation. J. Phys. [Orsay] Colloq. 44, C8-167 (1983) Israel
02124 E	D12: e + Au; e + Cu; e + Al	4-13 keV	Sevall, D. A.; Bell, J. L.; Love, G.; Partridge, J. S.; Scott, V. E. X-ray studies related to coating thickness measurements. J. Phys. [Orsay] Colloq. 45, C2-33 (1984) United Kingdom
02125 E-T	D12: e + Al; e + Si; e + Pb; e + Au; e + Ir	6-36 keV	Pylekheast, S. L. An evaluation of x-ray loss due to electron backscatter. J. Phys. [Orsay] Colloq. 45, C7-41 (1984) United States
02126 E-T	A37: Kr ⁺ + Kr; Kr ⁺ + Be; O ⁰⁺ + Cu A12: Kr ⁺ + Kr; Kr ⁺ + Be A17: Kr ⁺ + Kr; Kr ⁺ + Be	5-50 keV	Afrosimov, V. V.; Bokhi, G. G.; Tsarev, V. I.; Shergis, B. P. Auger spectroscopy of quasi-molecules. Sov. Phys.-JETP 57, 263 (1983) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
32127 E	E35: e + Yb E16: e + Yb	8-500 eV	Bazakov, S. N.; Khristoforov, O. V. Electron spectroscopy of autoionizing states of ytterbium. Sov. Phys.-JETP 57, 253 (1983) Soviet Union
32128 T	E31: H		Zetts, P. A. On the theory of the quadratic Zeeman effect for the highly excited states of the hydrogen atom. Sov. Phys.-JETP 57, 492 (1983) Soviet Union
32129 T	E31: H		Alekseev, A. I.; Basharov, A. N.; Beloborodov, V. N. Quantum tests of the coherent radiation emitted by atoms in a magnetic field. Sov. Phys.-JETP 57, 707 (1983) Soviet Union
32130 T	E37: Undef E11: Undef	Undef	Praisov, V. F.; Bushchepkin, S. P. Bremsstrahlung of a slow electron at a Coulomb center in an external electromagnetic field. Sov. Phys.-JETP 57, 754 (1983) Soviet Union
32131 E-T	A33: He ⁺ + Rg A36: He ⁺ + Rg A37: He ⁺ + Rg	Undef	Cetkovsky, V. S. Charge exchange involving ion excitation. Sov. Phys.-JETP 57, 766 (1983) Soviet Union
32132 T	E31: H		Turbiner, A. V. A hydrogen atom in weak electric and magnetic fields. Sov. Phys.-JETP 57, 770 (1983) Soviet Union
32133 T	C32: H ⁺ + Be; H ⁺ + Al	10-10 ⁴ cm/sec	Takayev, D. G.; Ketzelmikov, S. S. Ion stopping in a degenerate electron gas. Sov. Phys.-JETP 57, 781 (1983) Soviet Union
32134 E-T	A11: Rg ⁺ + Be	0.03-0.3 eV	Iatedev, V. S.; Marchenko, V. S. Transitions between highly excited states of an atom when a neutral particle never near its core. Sov. Phys.-JETP 57, 946 (1983) Soviet Union
32135 E	A37: He ⁺ + He ⁺ ; He ⁺ + Be ⁺ A38: He ⁺ + He ⁺ ; He ⁺ + Be ⁺	18-16 eV	Deydariani, A. Z.; Demidov, V. I.; Klichko, B. D.; Retskov, V. I. Electron spectra from slow collisions of excited noble gas atoms. Sov. Phys.-JETP 57, 563 (1983) Soviet Union
32136 E-T	A36: He ⁺ + Be; He ⁺ + H ₂ ; He ⁺ + Ne; He ⁺ + Ar; He ⁺ + Ed; He ⁺ + H ₂ ; He ⁺ + Ne; He ⁺ + Ar; He ⁺ + Fe; He ⁺ + H ₂ ; He ⁺ + Be; He ⁺ + Ar; He ⁺ + Rb; He ⁺ + Ed; A38: He ⁺ + Be; He ⁺ + H ₂ ; He ⁺ + Ne; He ⁺ + Ar; He ⁺ + Ed; He ⁺ + H ₂ ; He ⁺ + Ne; He ⁺ + Ar	0.8-2x10 ⁶ cm/sec	Budtsev, I. S.; Verch'ev, N. V.; Konovalova, Z. N.; Nikolichev, V. S.; Novozhilova, V. B. Loss and capture of electrons by fast ions and atoms of helium in various media. Sov. Phys.-JETP 57, 1117 (1983) Soviet Union
32137 E-T	A16: H ⁻ + Be	1-6 eV	Deydariani, A. Z. Detachment of electrons from negative ions in slow collisions with atoms. Sov. Phys.-JETP 57, 1175 (1983) Soviet Union
32138 E	A16: H ⁻ + CR ₂	300 K	Bohland, J.; Temp, P. Direct determinations of the rate constant for the reaction CR ₂ + H → CR + H ₂ . Ber. Bunsenges. Phys. Chem. 88, 459 (1984) West Germany
32139 T	E05: e + Zn; e + Cd	5-100 eV	Ts. Ven, T. The plasma parameters of the positive column helium-metallic vapour lasers: I. The semi-empirical formula of the electron-impact ionization cross-section for the zinc and cadmium atoms. Rev. Phys. Appl. (Paris) 19, 603 (1984) France
32140 E	D11: Rb + Cu	Thermal	Zhiglinshii, A. G.; Isayilov, A. M.; Kochiashvili, V. V.; Pressakhina, I. P.; Sukhadilov, V. S. Spectral probe determinants of metal-atom condensation coefficients in a plasma. Sov. Phys. J. 26, 667 (1983) Soviet Union
32141 E	E02: e + He; e + Ar; e + O	1-10 eV	Sokolov, V. P.; Sokolova, T. A.; Khalimullina, V. D. Frequency of collisions between electrons and gas and vapor atoms and molecules. Sov. Phys. J. 16, 669 (1983) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
02142 T	E33: e + S ²⁺	Undef	Bo, Y. K.; Henry, R.J.B. Oscillator strengths and collision strengths for S III. Astrophys. J., Part 1 282, 816 (1984) United States
02143 T	E34: hv + Al ⁺ ; hv + Si ²⁺ ; hv + Sc ⁺	Undef	Setler, L.; Bendoza, C.; Zeippen, C. J. Oscillator strengths and photoionization cross-sections for positive ions in the magnesium iso-electronic sequence. Rec. Natl. Inst. Astron. Soc. 23, 363 (1980) United Kingdom
02144 T	A33: Ar + N ₂	350-768 eV	Favlev, V. A.; Dobrovskaya, I. S.; Makhmutyanov, R. E. Cross sections and rate constants of rotational excitation for the Ar-N ₂ system. High Temp. 21, 633 (1983) Soviet Union
02145 T	A17: K ⁺ + N ₂ ; K ⁺ + O ₂ ; K ⁺ + N ₂ O; K ⁺ + CO ₂ ; K ⁺ + CO; K ⁺ + NO; K ⁺ + N ₂ O ₂ ; K ⁺ + O ₃ ; O ⁺ + N ₂ ; O ⁺ + O ₂ ; O ⁺ + N ₂ O; O ⁺ + CO ₂ ; O ⁺ + CO; C ⁺ + N ₂ O; O ⁻ + N ₂ O ₂ ; C ⁻ + CO ₂ ; O ⁻ + CO ₂ ; O ⁻ + N ₂ O; O ⁻ + CO; C ⁻ + NO; O ⁻ + N ₂ O ₂ ; C ⁻ + CO; O ⁻ + CO; C ⁻ + O ₂	300-8000 K	Basileva, N. E.; Polishchuk, A. I. Collision integrals for ions and electrons with neutral particles in the combustion products of coals. High Temp. 21, 666 (1983) Soviet Union
02146 T	E32: e + He	200 eV	Kroha, C.H.C.; Desai, H. S. σ -He elastic scattering in the two-potential RHO approximation. Indian J. Pure Appl. Phys. 11, 731 (1973) India
02147 E	A03: D ₂ ⁺ + CO Al ¹³ D ₂ ⁺ + CC	293 K	Petitjean, L.; Gremaud, F.; Fournier, P. R. Population of rubidium Rydberg states of CO molecules: an experimental and theoretical study. Phys. Rev. A 30, 71 (1984) Mexico
02148 E	C32: H ⁺ + Be; H ⁺ + Al; H ⁺ + Ca; H ⁺ + Ag; H ⁺ + Ta	7 MeV	Ishizaki, R.; Shioiri, H.; Sakamoto, S. Geometrical effect on the measurement of stopping powers: angle-dependent energy loss of 7-MeV protons in Be, Al, Cu, Ag, and Ta. Phys. Rev. A 33, 82 (1986) Japan
02149 E-T	A06: H ⁺ + N ₂ ; H ⁺ + He A16: H ⁺ + N ₂ ; H ⁺ + He	2.82-7.0 MeV	McGehee, J. R.; Stockli, B.; Cocke, C. L.; Hørstdal-Pedersen, B.; Sil, B. C. Study of the Thomas peak in electron capture. Phys. Rev. A 32, 65 (1984) United States
02150 T	E32: e + N ₂	0.02-0.2 eV	Schaeffer, R. L.; Collins, L. A. Comparative study of low-energy $\pi^-(sub g)^0$ and $\pi^+(sub g)$ scattering in molecular nitrogen. Phys. Rev. A 36, 55 (1982) United States
02151 T	E33: e + Ca ²⁺	1.25-137 eV	Fradkin, A. B. Resonance and intermediate-coupling effects in electron scattering with highly charged ions. III. Calc. Phys. Rev. A 33, 103 (1984) India
02152 E	A03: F ₂ ⁺ + Ne; F ₂ ⁺ + He; F ₂ ⁺ + He; F ₂ ⁺ + Ne; F ₂ ⁺ + He; F ₂ ⁺ + He; F ₂ ⁺ + Ne; F ₂ ⁺ + He; F ₂ ⁺ + He; F ₂ ⁺ + Ne; F ₂ ⁺ + He; F ₂ ⁺ + He; F ₂ ⁺ + Ne; F ₂ ⁺ + He; F ₂ ⁺ + He; A26: F ₂ ⁺ + Ne; F ₂ ⁺ + He; F ₂ ⁺ + He; F ₂ ⁺ + Ne; F ₂ ⁺ + He; F ₂ ⁺ + He; F ₂ ⁺ + Ne; F ₂ ⁺ + He; F ₂ ⁺ + He; F ₂ ⁺ + Ne; F ₂ ⁺ + He; F ₂ ⁺ + He; F ₂ ⁺ + Ne; F ₂ ⁺ + He; F ₂ ⁺ + He;	6-15 MeV	Newcomb, J.; Dillingham, T. B.; Ball, J.; Verghese, S. L.; Fesqille, F. L.; Richard, P. Charge-state dependence of fluorine-projectile Auger-electron production. Phys. Rev. A 30, 106 (1984) United States
02153 E	A33: Rb ⁺ + N ₂ ; Rb ⁺ + Ne; Rb ⁺ + He; Rb ⁺ + Ar; Rb ⁺ + Kr; Rb ⁺ + Xe; Rb ⁺ + Rb	380 K	Sagunovicz, J.; Atkinson, J. B.; Krause, L. Fine-structure mixing in 7 ^{8D} and 8 ^{7S} Rb states, induced in collisions with ground-state atoms and molecules. Phys. Rev. A 30, 112 (1984) Canada
02154 T	E32: e + N ₂ E33: e + H ₂ E35: e + N ₂ E17: e + R ₂	40-100 eV	Shattacharyya, P. K.; Symsal, D. K. Rikonski amplitude for electron-molecule collisions with effective complex potential: an application to H ₂ . Phys. Rev. A 30, 126 (1984) India

Ref. No.	Reactants	Energy Range	Reference
32155 E	C36; C + Ne; C + Be; C ⁺ + Be; C ⁺ + Ne; C ⁺ + Ne; C ²⁺ + Ne; C ²⁺ + Ne; C ²⁺ + Ne; Ne + Ne; Ne + O ₂ ; Ne + Ne; Ne + Ar; Ne + Ne; Ne + O ₂ ; Ne + Ne; Ne + Ar; Ne + Ne; Ne + O ₂ ; Ne + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; O ⁺ + Ne; O ⁺ + Ne; C ⁺ + Ne; O ⁺ + O ₂ ; O ⁺ + Ar; Ne + Ne; Ne + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ²⁺ + Ne	0.5-1.0 keV	Boron, H.; Fennet, B. Charge-exchange processes in close atomic collisions. <i>Phys. Rev. A</i> 33, 132 (1986) Israel
32156 T	D36; Undef	Undef	Bosanac, S. E. Analysis of coalescent resonances in atom-surface scattering. <i>Phys. Rev. A</i> 30, 162 (1984) Yugoslavia
32157 T	D36; Undef	Undef	Bosanac, S. E. Coalescent resonances in atom-surface collisions. <i>Phys. Rev. A</i> 33, 148 (1986) Yugoslavia
32158 T	E32; Undef	Undef	Bosanac, S. E. Time-delay analysis of zero-angular-momentum resonances. <i>Phys. Rev. A</i> 33, 151 (1986) Yugoslavia
32159 T	F31; Undef		Picardillo, R.; Sittleman, K. M. Forces on atoms in a standing-wave laser field. <i>Phys. Rev. A</i> 33, 177 (1986) United States
32160 T	H06; Undef	Undef	Rosenberg, I. Final-state interactions in multiphoton-ionization theory. <i>Phys. Rev. A</i> 33, 245 (1986) United States
32161 T	H06; hv + Ne; hv + H; hv + O; hv + Ne; hv + Ne; hv + Ne	C-200 eV	Tanabe, B. B.; Basco, S. T. Photoionization of 5d and 4f subshells of high-Z elements. <i>Phys. Rev. A</i> 33, 256 (1986) United States
32162 E	H36; hv + Na ⁺	Undef	Fillet, F.; Van Linde van den Heuvel, H.; Smith, W. W.; Rechste, S.; Tran, N. N.; Gallagher, T. P. Microwave ionization of Na Rydberg atoms. <i>Phys. Rev. A</i> 30, 280 (1984) United States
32163 T	E36; e + Ar ²⁺ ; e + Fe ²⁺ ; e + Ni ²⁺	26-220 Ry	LaGattuta, R. J.; Hahn, T. Dielectronic recombination rates for ions of sodium sequence. <i>Phys. Rev. A</i> 33, 316 (1986) United States
32164 T	A36; Ne ⁺ + Ne Ar ⁺ Ne ⁺ + Ne	0.5-50 keV	Tenes, O.; Jaacks, D. B.; Bacak, J. Two-state charge-transfer calculation in H ⁺ -R ₂ collisions. <i>Phys. Rev. A</i> 33, 557 (1986) United States
32165 T	A36; He ²⁺ + Ne Ar ²⁺ Ne ²⁺ + Ne	30-250 keV	Sandhya Devi, K. R.; Garcia, J. D. Coriolis coupling effects in time-dependent Hartree-Fock calculations of ion-atom collisions. <i>Phys. Rev. A</i> 33, 633 (1986) United States
32166 T	A36; Li ⁺ + H; Li ²⁺ + H; Li ³⁺ + H	200-10000 keV	Enayard, E. E.; Shirtcliffe, G. B. Electron capture from hydrogen atoms by fast Li ^{+(1s²)} , Li ^{2+(1s)} , and Li ^{3+(1s)} ions. <i>Phys. Rev. A</i> 30, 634 (1984) United Kingdom
32167 E	H06; hv + Ba ⁺	5600-61000 A ⁰	Burkhardt, C. E.; Garver, B. P.; Kushavaha, V. S.; Leventhal, J. J. Ion formation in sodium vapor containing Rydberg atoms. <i>Phys. Rev. A</i> 33, 652 (1986) United States
32168 E	A16; H ⁺ + Ne; H ⁺ + Ar; D ⁺ + Ne; D ⁺ + Ar A18; H ⁺ + Ne; H ⁺ + Ar; D ⁺ + Ne; D ⁺ + Ar	0.3-0.7 keV	Lucas, R. P.; Hernandez, R. G.; Hopkins, J. L. Detachment of very-low-energy electrons from H ⁺ . <i>Phys. Rev. A</i> 33, 655 (1986) United States
32169 T	B31; Undef		Klar, R.; Zoller, P.; Pedotov, N. V. Laser-induced collective binding in two-electron systems. <i>Phys. Rev. A</i> 30, 658 (1984) Soviet Union
32170 E	E11; e + e; e + C	0.3 keV	Elaer, R.; Nakel, W. Photon linear polarization in the elementary process of electron-electron bremsstrahlung. <i>Phys. Rev. A</i> 30, 661 (1984) West Germany

Ref. No.	Reactants	Energy Range	Reference
32171 E	A36: Ar ¹⁷ + He; Pb ⁸² + He; Pb ⁸³ + He; Pb ⁸⁴ + He; Pb ⁸⁵ + He; Pb ⁸⁶ + He; Pb ⁸⁷ + He; Pb ⁸⁸ + He; Pb ⁸⁹ + He; Pb ⁹⁰ + He; Pb ⁹¹ + He; Pb ⁹² + He; Pb ⁹³ + He; Pb ⁹⁴ + He; Pb ⁹⁵ + He; Pb ⁹⁶ + He; Pb ⁹⁷ + He; Pb ⁹⁸ + He; C ¹² + He; Pb ⁸² + He; Pb ⁸³ + He; C ¹² + He; Pb ⁸⁴ + He; Ar ¹⁶ + He; Ar ¹⁷ + He; Pb ⁸⁵ + He; Pb ⁸⁶ + He; Pb ⁸⁷ + He; Pb ⁸⁸ + He; Pb ⁸⁹ + He; Ar ¹⁸ + He; Pb ⁹⁰ + He; Pb ⁹¹ + He; Pb ⁹² + He; Pb ⁹³ + He; Pb ⁹⁴ + He; Ar ¹⁹ + He; Pb ⁹⁵ + He; Pb ⁹⁶ + He; C ¹³ + He; Pb ⁹⁷ + He	310-8500 keV/nuc	Graham, R. G.; Berkner, L. H.; Pyle, B. V.; Schlesinger, B. S.; Stearns, J. S.; Taniai, J. A. Charge-transfer cross sections for multiply charged ions colliding with gaseous targets at energies from 310 keV/nuc to 6.5 MeV/nuc. Phys. Rev. A 33, 722 (1986) United States
32172 E-T	A33: H ₂ ⁺ + H A18: H ₂ ⁺ + H	25-150 keV	Hoover, J. L.; Martin, F. J.; Seely, D. G.; Alday, J. E.; Ewald, T. J.; Reid, E.; Blakeship, D.; Setcliffe, V. C.; Park, J. Y. Angular differential and total cross sections for the excitation of atomic hydrogen to its n = 2 level by 25-150-keV hydrogen molecular ions. Phys. Rev. A 33, 729 (1986)
32173 E	A41: He ²⁺ + H ₂	333 K	Settje, L.; Goenard, F.; Poirier, P. B. Thermal-energy collisions of rubidium Rydberg states with H ₂ molecules. Phys. Rev. A 33, 736 (1986) France
32174 T	A06: H + H ⁺ Seq	Undef	Thorson, R. S.; Chci, J. B. Long-range secondary couplings in H ^{(1s)sp 2} -H ^(1s) charge-transfer collisions. Phys. Rev. A 30, 743 (1984) Canada
32175 T	E02: Undef	Undef	Clark, C. B. Eigenphase sum in electron scattering by polar molecules. Phys. Rev. A 30, 753 (1984) United States
32176 E	E05: e + H E17: e + H	5-10 eV	Iohann, A.; McCarthy, I. E.; Stelcovics, A. I.; Neigold, E. Electron-impact ionization of atomic hydrogen: Comparison of asymmetric (e,2e) measurements with theories. Phys. Rev. A 30, 758 (1984) Australia
32177 T	H06: Undef	Undef	Baker, R. C. Non-Born-Oppenheimer quantum theory of multiphoton ionization. Phys. Rev. A 30, 771 (1984) United States
32178 T	S01: Undef	Undef	Raabini, A.; Lindberg, S. Transition probability of a two-level atom interacting with a time-symmetric pulse. Phys. Rev. A 30, 794 (1984) Finland
32179 E	H36: hv + He; hv + He ⁺	28-75 eV	Fahlman, A.; Krause, W. C.; Carlson, T. A.; Ivansson, B. He 5s, 5p correlation satellites in the region of strong interchannel interactions, 28-75 eV. Phys. Rev. A 30, 817 (1984) United States
32180 T	S37: Undef	Undef	Julienne, P. S.; Hines, P. M. Nonadiabatic theory of atomic line broadening: Final-state distributions and the polarization of redistributed radiation. Phys. Rev. A 30, 821 (1984) United States
32181 E	H05: hv + OH ⁺	10032-76033 cm ⁻¹	Belm, H.; Cosby, P. C.; Beutin, D. L. Photofragment spectroscopy of shape resonances in OH ⁺ . Phys. Rev. A 30, 851 (1984) United States
32182 T	H31: Undef	Undef	Barts, A.; Byatt, B. E. Theory of lesser-molecule interaction: the recursive-residue-generation method. Phys. Rev. A 30, 872 (1984) United States
32183 E	E36: e + CO ² ; e + C ₂ O ⁺	333 K	Morgan, R. L. Molecular-dynamics simulation of electron-ion recombination in a nonequilibrium, weakly ionized plasma. Phys. Rev. A 30, 879 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
02160 T	E03: e + Ce	Undef	Jain, A.; Thompson, L. C. Rotational excitation of Ce ₂ molecules by low-energy positrons. Phys. Rev. A 33, 1059 (1986) United Kingdom
02165 T	E02: e + E	1.0-3.5 Ry	Cox, D. R. Convergence of pseudostate expansions in electron-hydrogen scattering. Phys. Rev. A 13, 1131 (1976) United States
02166 T	A06: Be ⁺⁺ + E; B ⁺⁺ + E; C ⁺⁺ + E; D ⁺⁺ + E; O ⁺⁺ + E	102-154 keV	Bandal, C. S.; Datta, S.; Mukherjee, S. C. Electron capture from atomic hydrogen by fully stripped ions of Be ⁺⁺ , B ⁺⁺ , C ⁺⁺ , D ⁺⁺ , and O ⁺⁺ in the continuum intermediate-state approximation. Phys. Rev. A 35, 1134 (1982) India
02167 T	A06: B ⁺ + E A18: B ⁺ + E	1-10 keV	Sivacola, B. D. Resonant electron capture in B ⁺ + E(ls) collisions. Phys. Rev. A 35, 1122 (1982) Argentina
02168 E	C07: Si ⁺⁺ + C	127 keV	Fets, H. D.; Ketterson, J.; Boschenthaler, D. Comment on "Electric field ionization of foil-excited Rydberg states of fast heavy ions". Phys. Rev. A 30, 1125 (1984) West Germany
02169 E	A03: F ⁺ + Be A26: F ⁺ + Be	6-15 keV	Bowcock, J.; Billingham, T. B.; Hall, J.; Vargheese, S. L.; Seguillier, F. I.; Richard, P. "Orbitron: Electron capture by metastable projectiles on Be and Be (Phys. Rev. A 29, 82 (1984)). Phys. Rev. A 33, 1131 (1986) United States
02170 E	A26: Bb ⁺ + Bb	453 K	Cheret, R.; Faubert, L. Experimental evidence for negative-ice formation by the collisional reaction Bb ⁺ d ⁻) + Bb(5s) → Bb ⁺ + Bb. Phys. Rev. A 33, 1131 (1986) France
02171 T	A06: " + Ba; E ⁺ + E	0.2-20 keV	Fritsch, U. Atomic-basis study of electron transfer in E ⁺ + Ba and E ⁺ + E collisions. Phys. Rev. A 33, 1135 (1986) West Germany
02172 T	E08: e + Ne	5000 K	Dimitrijevic, M. S. The trajectory effect in calculations of the phaseshift for binary collisions and broadening of neutral atom lines. J. Phys. B 17, 1223 (1984) Yugoslavia
02173 T	E07: e + B		Byxon, F. W., Jr.; Jachanin, C. J. Electron-atom collisions in a strong laser field. J. Phys. B 17, 1295 (1984) Belgium
02174 T	E03: e + Ne	20-23 eV	Freitas, L.C.G.; Barrington, R. A.; Burke, P. G.; Rippert, A.; Kingston, A. Z.; Sinsteden, A. L. An eleven-state electrons-helium scattering calculation. J. Phys. B 17, 1333 (1984) United Kingdom
02175 E	H04: hv + Bb; hv + Bb; hv + Bb; hv + Bb; hv + Fd; hv + Ag; hv + Cd; hv + In; hv + Sn; hv + St	80 keV	Petila-Mantyla, P.; Chao, M.; Graeffe, G. L x-ray linewidths of the elements Bb to St I. J. Phys. B 17, 1735 (1984) Finland
02176 E	H03: hv + Bb; hv + Bb; hv + Bb; hv + Bb; hv + Fd; hv + Ag; hv + Cd; hv + In; hv + Sn; hv + St	40 keV	Chao, M.; Petila-Mantyla, P.; Graeffe, G. L x-ray linewidths of the elements Bb to St II. J. Phys. B 17, 1747 (1984) Finland
02177 E	H02: hv + Ne H04: hv + Ne	700-500 Å*	Baig, M. A.; Comerford, J. P. Centrifugal barrier effects in the high Rydberg states and autoionizing resonances of neon. J. Phys. B 17, 1745 (1984) West Germany
02178 T	H06: hv + Ne	0.04-0.40 Ry	Cjha, P. C. Photoionisation of helium above the N = 2 threshold. J. Phys. B 17, 1807 (1984) United Kingdom
02179 E	A12: Hg + Ar; Pg + Kr A17: Hg + Ar; Pg + Kr	191-1123 K	Bousquet, C.; Bras, L.; Majda, Y. Hg-Ar and Pg-Kr interaction potentials from temperature-dependent absorption spectra around 1853 Å*. J. Phys. B 17, 1831 (1984) France
02180 E	A12: K + Rb A17: K + Rb	420-570 K	Grujic, B.; Novak, M.; Vrdija, C. The impact broadening of the first potassium resonance lines by rubidium atoms. J. Phys. B 17, 1841 (1984) Yugoslavia

Ref. No.	Reactants	Energy Range	Reference
02261 P	A16: F + Ne; F + Ar; F + N ₂ ; F + O ₂ ; F + O ₃ ; F + CO ₂	0.5-4033 eV	Izquierdo, V. A.; Grenier, J. P.; Bell, L. J.; Landau, R.; Bontemps, J. L.; Fischer, P.; Schermann, C. Electron detachment and charge exchange to shape resonances in F- collisions. <i>J. Phys. E</i> 17, 1821 (1984).
02262 P	B07: Ne + Ca; Ne + Si; Ne + Th; O + Ca; O + Si; C + Th; C + Si; F + Si	1.3-41 keV	Zelazny, Z.; Boczarow, P. The K-shell ionization of Ca ²⁺ , Fe ²⁺ and Fe ³⁺ induced by heavy charged particles. <i>J. Phys. E</i> 17, 1867 (1984). Poland
02263 T	E03: e + Ne	50-500 eV	Eiswass, A. P. Electron impact excitation of the 2^1S state of helium at intermediate and high energies. <i>J. Phys. E</i> 17, 1889 (1984). India
02264 Z	F03: e + Ne	2-1000 eV	Jitschin, W.; Gaintzsch, S.; Beibl, R.; Mainsperger, H.; Letz, E. C. Electron exchange in the Ne 3p electron impact excitation. <i>J. Phys. E</i> 17, 1899 (1984). West Germany
02265 Z	A06: Ar ¹⁹ + Ar; Ar ³⁶ + Ar; Ar ³⁹ + Ar; Ar ³⁷ + Ar; Ar ³⁸ + Ar; Ar ⁴⁰ + Ar; Ar ³⁶ + Ar; Ar ³⁸ + Ar; Ar ³⁹ + Ar; Ar ³⁷ + Ar; Ar ³⁸ + Ar A17: Ar ¹⁹ + Ar; Ar ³⁶ + Ar; Ar ³⁹ + Ar; Ar ³⁷ + Ar; Ar ³⁸ + Ar; Ar ⁴⁰ + Ar; Ar ³⁶ + Ar; Ar ³⁸ + Ar; Ar ³⁹ + Ar; Ar ³⁷ + Ar; Ar ³⁹ + Ar	1.05 keV/amu	Tomono, T.; Sano, R.; Sashihara, T.; Kusogai, T.; Matsuo, I.; Urakawa, J.; Shikata, N.; Takahashi, J.; Chikai, I.; So, S. H.; Sohn, J.; Terasawa, H. Projectile charge-state dependence of recoil-ion charge-state distributions produced in heavy-ion collisions. <i>J. Phys. E</i> 17, L317 (1984). Japan
02266 T	A06: C ¹² + H; D ² + H; O ¹⁶ + H	0.25-25 keV/amu	Bonagen, J.; Gayet, R.; Haxel, C.; Salin, R. Electron capture by C ¹² , D ² , and O ¹⁶ free atomic hydrogen in the keV/amu energy range. <i>J. Phys. E</i> 17, L323 (1984). France
02267 T	B07: hv + H H06: hv + H	B06: 0.63-3 cm ⁻¹	Kondratenko, V. D.; Ostrovsky, V. B. Resonance and interference phenomena in the photoionisation of a hydrogen atom in a uniform electric field: I. Resonances below and above the potential barrier. <i>J. Phys. E</i> 17, 1981 (1984). Soviet Union
02268 T	B07: hv + H H06: hv + H	Undef	Kondratenko, V. D.; Ostrovsky, V. B. Resonance and interference phenomena in the photoionisation of a hydrogen atom in a uniform electric field: II. Overlapping resonances and interference. <i>J. Phys. E</i> 17, 2311 (1984). Soviet Union
02269 T	H36: hv + Ag ⁺ ; hv + Al ³⁺ ; hv + Si ³⁺ ; hv + S ²⁻	0-2 Ry	Fetler, R.; Mendez, C.; Zeippens, C. J. Oscillator strengths and photoionisation cross sections for positive ions in the sodium isoelectronic sequence. <i>J. Phys. E</i> 17, 2339 (1984). United Kingdom
02270 Z	H36: 3hv + Ba; 5hv + Ta	9633-9883 cm ⁻¹	Bender, I. I.; Gomberg, A. I.; Delone, N. E.; Zaparovayi, I. I.; Seran, V. V. Measurement of the three- and five-photon ionisation probabilities of the barium atom. <i>J. Phys. E</i> 17, 2449 (1984). Soviet Union
02271 Z	E75: e + Fe ⁺	14-731 eV	Bastogne, B. G.; Dimiceli, R. J.; Harrison, P. P. A measurement of the cross section for electron impact ionisation of Fe ⁺ . <i>J. Phys. E</i> 17, 2485 (1984). United Kingdom
02272 Z	F03: e + CO	206-352 eV	Shaw, D. A.; King, G. C.; Cvejanovic, D.; Reed, P. B. Electron impact excitation of inner-shell excited states of CO. <i>J. Phys. E</i> 17, 2591 (1984). United Kingdom
02273 Z	H06: hv + Ga; hv + In; hv + Ti	120-720 nm	Sokoloski, R.; Heller, R.; Schmidt, R.; Ziemann, R. Investigations of autoionising levels in Ga I, In I, and Ti I by photoionisation experiments. <i>J. Phys. E</i> 17, 1341 (1984). West Germany
02274 P	H06: hv + Ba ⁺	33-36 eV	Lyon, I. C.; Peart, G.; Best, J. B.; Kingdon, A. E.; Gelder, S. Evidence of autoionisation in the photoionisation of Ba ⁺ . <i>J. Phys. E</i> 17, L345 (1984). United Kingdom
02275 P	H36: ahv + Fe ⁺	3.53-1.36 μ m	Clement, P. Multiphoton ionisation of noble gases: a statistical description of the energy spectrum of emitted electrons. <i>J. Phys. E</i> 17, L355 (1984). France

Ref. No.	Reactants	Energy Range	Reference
02216 T	A06: $\text{Be}^{++} + \text{R}$	3.1-25 keV/amu	Beda, S.; Suzuki, T. Charge-coupling calculation for charge transfer in $\text{Be}^{++} + \text{R}$ (Li) collisions at low energies. <i>J. Phys. B</i> 17, L16 (1984) Japan
02217 T	B06: $\text{R}^{+} + \text{R}; \text{R}^{+} + \text{Be}$	Undef	Iannone, A. R. Photoionization through isolated Rydberg states interacting with a broad state. <i>J. Phys. B</i> 17, 2213 (1984) United Kingdom
02218 T	A17: $\text{Cd} + \text{Ar}; \text{Cd} + \text{Rg}; \text{Cd} + \text{Xe}$	Undef	Czuchaj, Z.; Sienkiewicz, J. Pseudopotential calculations of the adiabatic potentials and oscillator strengths of exciton-atom-gas pairs. <i>J. Phys. B</i> 17, 2151 (1984) Poland
02219 T	A15: $\text{Rg}^{+} + \text{Be}$	0-0.1 eV	Glikowski, T.; Alendarov, G. N. Fine-structure transitions in collisions of $\text{Rg}^{(3P_1, 3P_2)}$ with Ne . <i>J. Phys. B</i> 17, 2265 (1984) United States
02220 E	A16: $\text{R}^{+} + \text{R}; \text{R}^{+} + \text{Rg}; \text{R}^{+} + \text{Ar}; \text{Li}^{+} + \text{R}; \text{Li}^{+} + \text{R}; \text{Li}^{+} + \text{Ar}; \text{Rg}^{+} + \text{R}; \text{Rg}^{+} + \text{Ar}; \text{Rg}^{+} + \text{Rg}; \text{R}^{+} + \text{Rg}; \text{R}^{+} + \text{Ar}; \text{R}^{+} + \text{R}; \text{R}^{+} + \text{R}$	3.5-10 keV/amu	Andersen, B.; Andersen, J.; Jorgensen, L.; Pacek, J. Electron detachment processes in keV R^{+} , Li^{+} , Rg^{+} , R-rare-gas collisions. <i>J. Phys. B</i> 17, 2281 (1984) Denmark
02221 T	A36: $\text{Au}^{++} + \text{R}; \text{Au}^{++} + \text{Rg}; \text{Au}^{++} + \text{Ar}; \text{Au}^{++} + \text{R}; \text{Au}^{++} + \text{Rg}; \text{Au}^{++} + \text{Ar}; \text{Au}^{++} + \text{R}; \text{Au}^{++} + \text{Rg}; \text{Au}^{++} + \text{Ar}; \text{Au}^{++} + \text{R}; \text{Au}^{++} + \text{Rg}; \text{Au}^{++} + \text{Ar}; \text{Au}^{++} + \text{R}; \text{Au}^{++} + \text{Rg}; \text{Au}^{++} + \text{Ar}; \text{Au}^{++} + \text{R}; \text{Au}^{++} + \text{Rg}; \text{Au}^{++} + \text{Ar}$ A37: $\text{Au}^{++} + \text{R}; \text{Au}^{++} + \text{Rg}; \text{Au}^{++} + \text{Ar}; \text{Au}^{++} + \text{R}; \text{Au}^{++} + \text{Rg}; \text{Au}^{++} + \text{Ar}; \text{Au}^{++} + \text{R}; \text{Au}^{++} + \text{Rg}; \text{Au}^{++} + \text{Ar}; \text{Au}^{++} + \text{R}; \text{Au}^{++} + \text{Rg}; \text{Au}^{++} + \text{Ar}$	20-300 keV/amu	McDevitt, B.-B.C.; Jones, B. R. Electron capture, ionisation and transfer-ionisation in fast $\text{Au}^{(s.p.)^{+}}$ + Ne collisions. <i>J. Phys. B</i> 17, 2295 (1984) United Kingdom
02222 E	A37: $\text{R}^{+} + \text{R}; \text{R}^{+} + \text{Ar}; \text{R}^{+} + \text{O}$	0.65-3.75 keV	De Castro Pachia, M. V.; Freire, F. L., Jr.; Montenegro, E. C.; de Finho, A. G.; da Silveira, E. F. K-shell ionisation cross sections for R , Ar, and O by low-velocity protons. <i>J. Phys. B</i> 17, 2337 (1984) Brazil
02223 E	A06: $\text{S}^{18+} + \text{Ar}$	4.7-90 keV	Schuch, B.; Ingvardson, R.; Justiniano, E.; Schmidt-Bocking, H.; Schulz, R.; Ziegler, F. Interference effects in K vacancy transfer of hydrogen-like S ions colliding with Ar. <i>J. Phys. B</i> 17, 2345 (1984) West Germany
02224 E	E03: $e + \text{He}$ E05: $e + \text{He}$	1200 eV	Cook, J.F.D.; McCarthy, I. E.; Stelbovics, A. T.; Bergfeld, E. Non-coplanar asymmetric ($e, 2e$) momentum profile measurements for helium: an accurate test of helium wavefunctions. <i>J. Phys. B</i> 17, 2359 (1984) Australia
02225 E	A03: $\text{C}^{6+} + \text{R}_2$ D36: $\text{C}^{6+} + \text{R}_2$	0.2-0.4 eV	Baptist, P.; Bonnet, J. J.; Chauvet, G.; Desclaux, J. F.; Poussot, S.; Bitz, D. Polarization of light emitted after charge transfer from R to C ⁺ ions. <i>J. Phys. B</i> 17, L67 (1984) West Germany
02226 T	E35: $e + \text{R}$ R37: $\text{R}^{+} + \text{R}^+$	Undef	Pearce, J. R. Coulomb threshold theory for the Coulomb break-up of three-particle systems. <i>J. Phys. B</i> 17, 2433 (1984) United States
02227 E	A37: $\text{R}^{+} + \text{Rg}; \text{R}^{+} + \text{Rg}; \text{R}^{+} + \text{Ar}$ A16: $\text{R}^{+} + \text{Rg}; \text{R}^{+} + \text{Se}; \text{R}^{+} + \text{Ar}$	10-550 eV	Hippel, R.; Bissler, J.; Lutz, R. O. Delta-electron spectroscopy of multiply ionizing proton-rare-gas collisions. <i>J. Phys. B</i> 17, 2453 (1984) West Germany
02228 E	A16: $\text{R}^{+} + \text{Rg}; \text{R}^{+} + \text{Ar}$	500 keV	Ponce, V. M.; Bataglia, F. A. Origin of features in the energy spectra of electrons detached from fast R ⁺ in collisions with He and Ar atoms. <i>J. Phys. B</i> 17, 2467 (1984) Argentina
02229 T	A06: $\text{R}^{+} + \text{R}; \text{R}^{+} + \text{Rg}$	0.01-100 keV	Seidegan, J. R.; Silvercle, P. L. A synthetic eikonal-type approximation for electron capture in ion-atom collisions. <i>J. Phys. B</i> 17, 2477 (1984) Argentina

Ref. No.	Reactants	Energy Range	Reference
02230 E	A33: C ⁺ + Li; Be ⁺ + Li; B ⁺ + Li; O ⁺ + Li A36: C ⁺ + Li; Be ⁺ + Li; B ⁺ + Li; O ⁺ + Li	20-320 keV	Szczek, L.; Tijhuis, L.; Brantje, A. C.; de Boer, F. J.; Winter, L. Measurement of metastable fractions in multiply charged ion beams by ion excitation in core-conserving electron capture. <i>J. Phys. B</i> 17, 2689 (1984) Austria
02231 T	E32: e + Kr; e + Xe E17: e + Kr; e + Xe	6-50 eV	Balachan, S. R.; Stauffer, A. D. Plastic scattering of electrons from krypton and xenon. <i>J. Phys. B</i> 17, 2567 (1984) Canada
02232 E	E32: e + Rb E33: e + Rb E17: e + Rb	10-200 eV	Vukovic, L.; Maleki, L.; Trajmar, S. Elastic and inelastic electron scattering by rubidium at 10, 20, and 200 eV impact energies. <i>J. Phys. B</i> 17, 2519 (1984) United States
02233 T	E35: e + Ca; e + Sr	25-150 eV	Chatterjee, S. D.; Ray, L. B. Electron impact double ionization of Ca and Sr. <i>J. Phys. B</i> 17, 2527 (1984) India
02234 E	E32: e + H ₂ ; e + D ₂ E17: e + H ₂ ; e + D ₂	12-60 eV	Tucker, R.; Zupan, R. W.; McComby, J. B. Electron-polarized-photon coincidence study of the excitation of the C \rightarrow g+u state in hydrogen and deuterium. <i>J. Phys. B</i> 17, 2535 (1984) Canada
02235 T	E32: e + CO	0.01-1 keV	Salvini, S.; Butke, F. G.; Noble, C. J. Electron scattering by polar molecules using the R-matrix method. <i>J. Phys. B</i> 17, 2545 (1984) United Kingdom
02236 T	A33: Ba ⁺ + Ba A36: Ba ⁺ + Ba A16: Ba ⁺ + Ba	37.5 eV	Allan, R. J. Ba(3p) + Ba ⁺ = Ba(3p) + Ba ⁺ differential scattering. <i>J. Phys. B</i> 17, L645 (1984) West Germany
02237 E	A37: Ba ⁺ + Ba ⁺	550-580 eV	Tuzuglov, B. N.; Kucherov, A. N.; Sheverev, V. A. On the possibility of extraordinary low rate constants of some collision reactions in atomic beams. <i>J. Phys. B</i> 17, L645 (1984) Soviet Union
02238 T	E32: e + H ₂	Undef	Berman, R.; Tomche, R. Direct calculation of complex resonance poles in electron-molecule scattering using separable R-matrix expansions. <i>J. Phys. B</i> 17, L653 (1984) West Germany
02239 E	A08: He + H ₂ ; He + Be; He + Be; He + Ar; He + Kr; He + Xe	1.3-3.6 keV	Cornet, A.; Claeys, B.; Lorent, V.; Junqua, J.; Janssen, L. Electron loss from H(3p) atoms in collisions with H ₂ molecules and rare-gas atoms. Intense H(3p) beam production by laser excitation of metastable hydrogen. <i>J. Phys. B</i> 17, 2681 (1984) Belgium
02240 T	A06: R ⁺ + R	100-5000 keV	Boushani, S. J.; Boinevitsch, B. L. Relativistic second Born approximation for electron capture. <i>J. Phys. B</i> 17, 2655 (1984) United Kingdom
02241 T	A36: H ⁺ + C; H ⁺ + Be A18: H ⁺ + C; H ⁺ + Be	2.0-20 keV	Andunden, P. A.; Jakobsson-Andunden, L. B. Charge transfer at large scattering angles in the strong-potential Born approximation. <i>J. Phys. B</i> 17, 2671 (1984) Norway
02242 T	A36: Li ⁺ + Li A18: Li ⁺ + Li	0.5-1.0 keV	Shimakura, S.; Inouye, H.; Matsumoto, T. Differential cross sections for Li ⁺ -Li collisions using molecular bases: quantum effect. <i>J. Phys. B</i> 17, 2687 (1984) Japan
02243 E	E33: e + H	150 eV	Fach, C. G.; Bathis, S.; Misnyas, S.; Sulkin, E.; Slevin, J.; Soclany, J. L. Excitation and decay of Stark-shifted $\ell = 1$ states of hydrogen observed in an electron-photon coincidence experiment. <i>J. Phys. B</i> 17, 2695 (1984) United Kingdom
02244 E	E35: e + Y ₂	61-750 eV	Hastings, B. G.; Harrison, R. F. A. A measurement of the cross section for electron impact ionization of singly charged tungsten ions. <i>J. Phys. B</i> 17, 2723 (1984) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
02245 T	A11: $\text{Ba}^+ + \text{He}$	296 eV	Togizawa, T.; Matsuzawa, H. Collisions of high-Rydberg atoms in circular states with He. <i>J. Phys. B</i> 17, 1685 (1984) Japan
02246 T	B16: $\text{He} + \text{Pb}; \text{He} + \text{Sn}$	Undef	Zachariasch, B.; Kausmann, B.; Salotzki, B.; Schmidt, V. Photoionization processes in the 5d, 6s, and 4p shells of atomic lead and the 4d shell of atomic tin. <i>J. Phys. B</i> 17, 2781 (1984) West Germany
02247 E	B15: $\text{He} + \text{R}_2$ B16: $\text{He} + \text{R}_2$	512-853 eV	Sogika, T.; Miyake, S.; Kageyama, T.; Hayashi, T.; Suzuki, I. K.; Inoyama, C.; Amaka, S.; Ishiguro, R.; Wakamatsu, M. Dissociative photoionization of R ₂ from threshold to 29 eV. <i>J. Phys. B</i> 17, 2795 (1984) Japan
02248 T	A13: $\text{Ba}^+ + \text{He}; \text{Ba}^+ + \text{He}$	500 eV	Valiron, P.; Boche, A. L.; Hammes-Schiffer, P.; Dolan, B. E. Molecular treatment of collisions between a Rydberg sodium atom and a rare-gas perturber. <i>J. Phys. B</i> 17, 2633 (1984) France
02249 E	A13: $\text{Ba}^+ + \text{He}$ A16: $\text{Ba}^+ + \text{He}$	1.2-6 keV	Eggenbok, E.; Bergmannsma, B.; Van der Straten, P.; Biesman, A. A study of double excitation in He ⁺ -He collisions. <i>J. Phys. B</i> 17, 2673 (1984) The Netherlands
02250 E	A15: $\text{He}^+ + \text{Cs}; \text{He}^+ + \text{Ba}; \text{He}^+ + \text{La}; \text{He}^+ + \text{Cd}$	1-2 keV	Avoldi, L.; Mitchell, J. V.; Zachariasch, B. L.; Dolan, B. L-shell x-ray production cross sections of ¹³³ Cs, ¹³⁸ La, ¹³⁸ La, and ¹⁴⁰ Gd for protons of energy 1-2 keV. <i>J. Phys. B</i> 17, 2751 (1984) Belgium
02251 E-T	A13: $\text{Ba}^+ + \text{Ba}^+$ A17: $\text{Ba}^+ + \text{Ba}^+$	20-48 eV	Fabring, A.; Bertel, L. V.; Meyer, E.; Meyer, E.; Spies, W.; Schmidt, B. Excitation of laser state-prepared Ba ^{+(3p)} to Ba ^{+(1d)} in low-energy collisions with Ba ⁺ : experiment and calculations of the potential curves of Ba ⁺ . <i>J. Phys. B</i> 17, 2659 (1984) West Germany
02252 E	A16: $\text{F}^- + \text{C}_2; \text{F}^- + \text{R}_2; \text{F}^- + \text{O}_2; \text{F}^- + \text{CO}_2$	10-4000 eV	Ngoc Tran, V. A.; Kavcic, V. A.; Grossard, J. P.; Hall, B. J.; Bottsouagon, J. L. Electron detachment and charge exchange to shape resonances in F-molecule collisions. <i>J. Phys. B</i> 17, 2657 (1984) France
02253 T	E05: $e + \text{Ar}$	1000 eV	Sevill, E. C.; Crowe, A. Alignment produced in ionization of the 1p shell of argon by specific momentum transfer electrons. <i>J. Phys. E</i> 17, 2913 (1984) United Kingdom
02254 E	E03: $e + \text{Ar}; e + \text{Kr}; e + \text{Xe}; e + \text{Ne}; e + \text{H}_2; e + \text{D}_2; e + \text{CO}$	12-17 eV	Bassani, F.; Read, P. H.; King, G. C. Near-threshold electron impact excitation functions of high-f states of Ar, Kr, Ne, H ₂ , and CO. <i>J. Phys. E</i> 17, 2925 (1984) United Kingdom
02255 T	A14: $\text{O}^+ + \text{R}_2$ A17: $\text{O}^+ + \text{R}_2$	Undef	Birk, D. H. An ab initio potential energy surface for collinear O ⁺ -CH ₃ . <i>J. Phys. E</i> 17, 2935 (1984) United Kingdom
02256 T	B17: $\text{He}^+ + \text{K}$ B16: $\text{He}^+ + \text{K}$	Undef	Edwards, N.; Fan, L.; Armstrong, L., Jr. Model study of multiphoton ionization in strong fields. <i>J. Phys. B</i> 17, 1515 (1984) United States
02257 E	A03: $\text{He}^+ + \text{He}$ A26: $\text{He}^+ + \text{He}$ A27: $\text{He}^+ + \text{He}$	3-38 keV	Boscia, F.; Taget, H.; Laurent, H.; Desniers, S.; Pitz, E. Transfer ionization and two-electron capture processes in He ⁺ -He collisions at 3-38 keV energies. <i>J. Phys. B</i> 17, 1521 (1984) France
02258 T	E02: $e + \text{R}_2$	1.5-11 eV	Budde, J. B., Jr.; Stevens, W. J.; Truhlar, D. G. Effect of electron correlation in the target wavefunction on electron-molecule scattering. <i>J. Phys. E</i> 17, 3151 (1984) United States
02259 E	E35: $e + \text{He}$ E17: $e + \text{He}$	6 keV	Ishaaq-Benassi, A.; Hellenstein, W. J.; Tal Cappello, C.; Taget, A. Coincidence electron impact ionization of helium: absolute experimental cross sections and comparison with first-order theories. <i>J. Phys. E</i> 17, 3159 (1984) France
02260 T	E05: $e + \text{Ca}^+; e + \text{Ba}^+$	10-50 eV	Griffin, D. C.; Fiadzola, R. S.; Bottcher, C. Calculations of the contributions of excitation-autoionization to the electron impact ionisation of Ca ⁺ and Ba ⁺ in the distorted-wave approximation. <i>J. Phys. B</i> 17, 3163 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
02261 E	E03: e + He	6.7-15 eV	Fest, H. A. The absolute He 6 ¹ P ₁ direct electron impact excitation cross sections determined in a low-pressure He discharge. J. Phys. B 17, 3193 (1984) The Netherlands
02262 E	All: He ⁺ + Cu; He ⁺ + Cu; Ar ⁺ + Cu; Kr ⁺ + Cu; Ne ⁺ + Cu	300 K	Bavniksi, G.; Rosenblat, S. Quenching of metastable states of rare gases by copper atoms. J. Appl. Phys. 55, 735 (1984) Israel
02263 T	All: He ⁺ + Si ²⁺ ; He ⁺ + Ca ²⁺ ; He ⁺ + Fe ²⁺ ; He ⁺ + Zn ²⁺ ; He ⁺ + In ²⁺ ; He ⁺ + Ga ²⁺ ; He ⁺ + Pb ²⁺ ; He ⁺ + Si ³⁺ ; He ⁺ + Ca ³⁺ ; He ⁺ + Fe ³⁺ ; He ⁺ + Zn ³⁺ ; He ⁺ + In ³⁺ ; He ⁺ + Ga ³⁺ ; He ⁺ + Pb ³⁺	0.96-82 e.v.	Zilitin, V. A. Theoretical determination of oscillator strengths for the principal series of lithium-like ions. Opt. Spectrosc. 55, 127 (1983) Soviet Union
02264 T	He ⁰ : He ⁺ + Ar He ⁰ : He ⁺ + Ar	245-270 eV	Sokolov, V. L.; Demchik, V. P.; Ivash, V. A.; Sudenok, A. I.; Timoshchuk, V. V. Photoionization of the atoms 2p shell. Opt. Spectrosc. 55, 135 (1983) Soviet Union
02265 E	E03: e + He; e + He ⁺	5.0-330 eV	Silin, L. I.; Gel'vachak, N. V.; Garga, I. I.; Goldovskii, V. I. Electron-impact excitation of He electrons of exotic atoms and singly charged ions. Opt. Spectrosc. 55, 137 (1983) Soviet Union
02266 E	E03: e + He ⁺	16-53 eV	Sityuceva, A. A.; Genkin, V. P. Cross sections for electron-impact excitation of atomic beam metastable states. Opt. Spectrosc. 55, 229 (1983) Soviet Union
02267 E	E03: e + He ⁺ ; e + He	20-500 eV	Semenyuk, I. B.; Inko, A. I.; Davchenko, A. I.; Zapovednyi, I. F. Excitation of spectral lines of the principal series of the helium atom and ion in electron-atom collisions. Opt. Spectrosc. 55, 252 (1983) Soviet Union
02268 E-T	A07: Kr ⁰ + Kr ⁰ All: Kr ⁰ + Kr ⁺	300 K	Sokolov, V. B.; Gorosov, O. G. Interaction between metastable krypton atoms in the 3P ₁ state. Opt. Spectrosc. 55, 256 (1983) Soviet Union
02269 E-T	E03: e + Be E17: e + Be	19-60 eV	Fabrikant, I. I.; Shpileik, O. B.; Zavilopulo, A. B.; Stepanskii, A. V. Some aspects of the excitation of metastable states of the helium atom by electron impact. Opt. Spectrosc. 55, 370 (1983) Soviet Union
02270 E	All: R ₂ ⁺ + R ₂	300 K	Schmerzer, H.; Immschaefer, J. Radiative lifetimes and collisional quenching cross sections of selectively excited vibrational states of the 8 2p 3P ₁ (n=8) state of R ₂ . Phys. Lett. A 103, 85 (1984) West Germany
02271 T	C02: R ⁺ + R ₂ ; R ⁺ + R ₂	0.1-2.5 MeV	Iu, J. J.; Khandelwal, G. S.; Silcox, J. W. Intermediate energy proton stopping power for hydrogen molecules and monatomic helium gas. Phys. Lett. A 103, 137 (1984) United States
02272 T	C02: Li ²⁺ + C; C ²⁺ + C; C ²⁺ + C	3 MeV/amu	Maseta, T.; Yamagata, Y. Theoretical study of the stopping powers for pre-equilibrium heavy ion beams. Phys. Lett. A 103, 113 (1984) Japan
02273 T	E02: e + R E03: e + R E05: e + R E17: e + R	15 eV	Callaway, J. Electrons-hydrogen scattering just above the ionization threshold. Phys. Lett. A 103, 415 (1984) United States
02274 E	E05: e + He	500-2000 eV	Di Martino, V.; Pantini, R.; Giardini-Gaidosi, A.; Tiritelli, S. Triple differential cross section for electron impact ionization of He: measurements taken at intermediate incident energy. Phys. Lett. A 103, 85 (1984) Italy
02275 T	C02: Undef	3 MeV/amu	Govers, B.E.B.; Read, P. M.; Sofield, C. J. Comments on "Theoretical study of the stopping powers for pre-equilibrium heavy ion beams". Phys. Lett. A 103, 87 (1984) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
02276 E	C ₆₀ ⁺ He ⁺ + C	1.5-2.4 keV	Clovesan, A.; Caillard, M. J.; de Pinto, A. G.; Poizat, J. C.; Bessilliez, J. Nonequilibrium effects in the energy loss of He ⁺ beams in very thin carbon foils. <i>Phys. Lett. A</i> 103, 419 (1984) France
02277 T	A16: H ⁻ + Be A18: H ⁻ + Be	0.5 keV	Crawford, C. N. Theory of structures in the doubly differential cross sections for collisional detachment of electrons from H ⁻ . <i>Phys. Lett. A</i> 134, 25 (1988) United States
02278 E	H36: hν + He ⁺	150-420 eV	Jannitti, E.; Bicocchi, F.; Tomello, G. Photoionization and double excitation spectra of Be ²⁺ . <i>Opt. Comm.</i> 50, 225 (1984) Italy
02279 E	H36: hν + Au; hν + Pb; hν + Th; hν + U	5.9 keV	Shatendra, S.; Illavadhi, K. L.; Sood, B. S. Measurement of average K-shell fluorescence yields in some high Z elements. <i>Physica B+C</i> 126, 279 (1988) India
02280 E	A17: H + He	Undef	Jochumson, B.; Berlinsky, A. J.; Hardy, B. R. The diffusion cross section for atomic hydrogens in helium gas at low temperature and the H-He potential. <i>Can. J. Phys.</i> 67, 751 (1989) Canada
02281 E-T	K01: Laser assisted atom-atom collisions		Bousquet, F. Laser-assisted atom - atom collisions. <i>Comptes Rend. Soc. Phys.</i> 15, 59 (1988) France
02282 E-T	B01: hν + B B06: hν + B	808: 3-10 GHz	Tatarsky, I. I. Radiative transitions between highly excited atomic states in the presence of a strong microwave field. <i>Sov. Phys.-JETP</i> 56, 43 (1983) Soviet Union
02283 E-T	H36: hν + Cr; hν + Ni; hν + Tc	43-60 eV	Anus'ya, M. I.; Golstatov, V. K.; Ivanov, V. P. Photoionization of atoms with half-filled shells. <i>Sov. Phys.-JETP</i> 58, 67 (1983) Soviet Union
02284 E-T	E03: e + Hg ⁺	3-16 eV	Zagesochayi, I. P.; Lashchenko, A. I.; Frontev, V. I.; Isra, B. J.; Gonosai, A. B.; Lebed'ev, V. I.; Savrotskii, V. T.; Sabad, E. P. Resonance structure of the cross section for electron-impact excitation of the 1p 3P level of the argesotin ion. <i>Sov. Phys.-JETP Lett.</i> 39, 51 (1984) Soviet Union
02285 T	A14: H + D ₂	0.55-1.3 eV	Connor, J. B. I.; Southall, B. J. B. The reaction H + D ₂ - E ₁ + D: distorted wave calculations at E sub trans (v = 0, j = 0) = 0.55 and 1.3 eV. <i>Chem. Phys. Lett.</i> 108, 527 (1984) United Kingdom
02286 T	A14: H + D ₂	0.55 eV	Schatz, G. C. A coupled states quantum reactive scattering study of H + D ₂ - E ₁ + D at E sub rel (v = j = 0) = 0.55 eV. <i>Chem. Phys. Lett.</i> 108, 532 (1984) United States
02287 E	A02: Na + K A18: Na + K	200-250 meV	Duren, R.; Grager, W.; Liedtke, R. A differential scattering experiment for Na(3P) colliding with K(3S). <i>Chem. Phys. Lett.</i> 109, 424 (1984) West Germany
02288 T	H33: e + Ne; e + O ²⁺ ; e + He ⁺ ; e + Kr ⁺ E07: e + Ar ⁺	259 eV	Andreev, E. A.; Bodrov, A. E. Inelastic scattering of low-energy electrons by metastable atoms. <i>Chem. Phys. Lett.</i> 105, 453 (1984) Soviet Union
02289 E	H36: hν + CO ₂	25-55 eV	Boy, P.; Seznec, I.; Alain, R. Y.; Delville, J.; Butin-Frapskin, B. J.; Labigne, P.; Boy, D. On the photoionization shape resonance associated to the C 3P ₂ state of CO ₂ ⁺ . <i>Chem. Phys. Lett.</i> 109, 667 (1984) France
02290 E-T	E03: e + Ne J02: Excitation		Aggarwal, K. N.; Kingston, A. E.; McDowell, T. B. C. Electron excitation rate coefficients for transitions from the 1s ² 1S ground state to the 1s2s 1P ₁ and 1s2p 1P ₀ excited states of helium. <i>Astrophys. J., Part 1</i> 278, 674 (1984) United Kingdom
02291 T	B07: e + Be-like ions		Dimitrijevic, M. S. Electron impact line widths of the resonance lines of Be-like ions. <i>Astrophys. J.</i> 311, 327 (1986) Yugoslavia

Ref. No.	Reactants	Energy Range	Reference
02292 T	E06: e + C ⁺ ; e + C ²⁺ ; e + C ³⁺ ; e + C ⁴⁺ ; e + C ⁵⁺ ; e + C ⁶⁺ ; e + C ⁷⁺ ; e + C ⁸⁺ ; e + N ⁺ ; e + Ne ⁺ ; e + N ²⁺ ; e + Ne ²⁺ ; e + O ⁺ ; e + O ²⁺ ; e + O ³⁺ ; e + O ⁴⁺ ; e + O ⁵⁺ ; e + O ⁶⁺ ; e + O ⁷⁺ ; e + O ⁸⁺ ; e + O ⁹⁺ ; e + O ¹⁰⁺ ; e + O ¹¹⁺ ;	Undef	Bossekauer, R.; Storey, P. J. Dielectronic recombination at low temperatures: II. Recombination coefficients for lines of C, N, O. Astrophys. Suppl. Ser. 56, 293 (1984) Switzerland
02293 E	E03: e + Fe ¹⁰⁺	Undef	Bragg, J. S.; Baratta, A.; Berlin, R. M. Collisional excitation rate coefficients for Fe II. Astrophys. J., Part 1, 279, 466 (1984) United States
02294 E	E03: hv + O ²⁺	Undef	Johnson, B. C.; Smith, P. L.; Knight, B. D. The radiative lifetime of the 3S_1 metastable level of O ²⁺ . Astrophys. J., Part 1, 281, 477 (1984) United States
02295 T	E03: e + He ⁺⁺ ; e + Si ¹⁰⁺	3.0-103.0 eV K	Aggarwal, K. B. Electron impact excitation rates for fine-structure transitions in α He and Si IX: an α -matrix approach. Astrophys. J. Suppl. Ser. 59, 1 (1980) United Kingdom
02296 T	E03: e + Si ¹¹⁺ ; e + Ca ¹²⁺ ; e + Fe ¹²⁺ ; e + Kr ²³⁺ ; e + Cd ¹¹⁺	Undef	Coote, S. J.; Saspot, D. H.; Clark, R. E. B. Inner shell excitations of lithium-like ions. Astrophys. J. Suppl. Ser. 54, 111 (1984) United States
02297 T	E03: e + H-like ions	Undef	Cox, D. R. High energy collision strengths and limits for excitation of hydrogenic ions by electron impact. Astrophys. J. Suppl. Ser. 54, 395 (1984) United States
02298 T	E03: e + He ²⁺	5.0-20.0 eV K	Butler, R.; Sendeza, C. Collisional excitation rates for transitions between the fine structure levels of the ground term of He ²⁺ . Mon. Not. R. Astron. Soc. 200, 175 (1983) United Kingdom
02299 E	E03: hv + CH	163-175 nm	Bee, J. S.; Lee, L. C. Photoabsorption cross sections of CH at 175-183 nm. J. Chem. Phys. 81, 31 (1984) United States
02300 T	A16: H + H ₂ A16: H + H ₂	0.3-0.65 eV	Schatz, G. C.; Hubbard, L. A.; Dardi, P. S.; Biller, W. L. Coupled channel distorted wave calculations for the three-dimensional $e + H_2$ reaction. J. Chem. Phys. 81, 231 (1984) United States
02301 T	E02: e + H ₂ E03: e + H ₂ E17: e + H ₂	10-100 eV	Staszewski, G.; Schwabe, D. B.; Truhlar, D. G. Complex optical potential model for electron-molecule scattering, elastic scattering, and rotational excitation of H ₂ at 10-100 eV. J. Chem. Phys. 81, 335 (1984) United States
02302 T	A17: O + H ₂ ; F + H ₂	Undef	Bright, J. S.; Donaldson, D. J.; Williams, B. J. HED-Cl potential surfaces using balanced basis sets. III. C + H ₂ and F + H ₂ . J. Chem. Phys. 81, 397 (1984) Canada
02303 E	D03: H ₂ + Li ₂ + Pt	523-1175 K	Lia, Y. H.; Somorjai, G. A. Angular and velocity distributions of HD molecules produced by the H ₂ -D ₂ exchange reaction on the stepped Pt(557) surface. J. Chem. Phys. 81, 704 (1984) United States
02304 T	A17: He + Ar	Undef	Axiz, B. A.; Van Dalen, A. An improved potential for He-Ar. J. Chem. Phys. 81, 779 (1984)
02305 E	A17: HD ⁺ + EC; HD ⁺ + Ne; HD ⁺ + D ₂	298 K	Bohlfing, R. A.; Babitz, R.; Gelfand, J.; Giles, B. L. Mechanisms and rate constants for the vibrational relaxation of EC (v = 4, 5, and 6) in collisions with HD, ³ He, and D ₂ . J. Chem. Phys. 81, 823 (1984) United States
02306 T	A17: Li ⁺ + Ar; Ne ⁺ + Ar; Kr ⁺ + Ar; Rb ⁺ + Ar; Ca ⁺ + Ar; Cl ⁻ + Ar; He ⁺ + Ar; Li ⁺ + Kr; Ne ⁺ + Kr; Kr ⁺ + Kr; Rb ⁺ + Kr; Ca ⁺ + Kr; Rb ⁺ + Ne; Ca ⁺ + Ne	Undef	Viehland, L. A.; Masca, L. A. Repulsive interactions of closed-shell ions with Ar, Kr, and Xe atoms: comparison of beam and transport measurements. J. Chem. Phys. 81, 503 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
32337 E	E39: e + O ₂ + Re; e + O ₂ + Re; e + O ₂ + Kr; e + O ₂ + Kr; e + O ₂ + Ne; e + O ₂ + Ne; e + O ₂ + Ar; e + O ₂ + Ar; e + O ₂ + C ₂ ; e + O ₂ + CO ₂	300 K	Shimomori, T.; Nitta, H. Mechanism of thermal electron attachment to O ₂ : isotopic effect studies with ¹⁶ O, ¹⁸ O, in rare gases and some hydrocarbons. J. Chem. Phys. 81, 1277 (1984) Japan
32338 T	A17: Co + Ne; Re + Ne; Co + Ne	Undef	Siegbahn, E. H.; Blomberg, H.-B.-A.; Bauchlicker, C. H., Jr. Potential energy surfaces of RN ₂ (R = Co, Re, and Cu). J. Chem. Phys. 81, 1273 (1984) Sweden
32339 T	D39: NO + Pt	600-1400 K	Kucher, B.; Sosorjai, G. A.; Zeiri, Y. Vibrational excitation and deexcitation rates of molecules adsorbed on metal surfaces. J. Chem. Phys. 81, 1537 (1984) United States
32340 T	A18: O + Ne; O + Ne	200-2000 K	Toups, J. R.; Wagner, L. F.; Balch, S. P.; Dunning, T. F., Jr. Reaction dynamics for O(^{3P}) + Ne and O ₂ . II. Reduced dissociability quotients and quasiclassical rate constants with an adiabatic incorporation of the bending motion. J. Chem. Phys. 81, 1739 (1984) United States
32341 T	E33: e + Ne*	30-10000 eV	Gennas, P. S.; Aryafar, H.; Cately, L. F. Electron-impact ionization cross sections for Ne II. J. Chem. Phys. 81, 2187 (1984) United States
32342 E	D39: Ne ₂ + N	10-200 kJ/mol	Auerbach, D. J.; Pfmer, B. E.; Bettner, C. I.; Schlaegel, J. E.; Lee, J.; Radis, B. J. Kinetic energy and angular dependence of activated dissociative adsorption of N ₂ on Ni(110): observed insensitivity to incidence angle. J. Chem. Phys. 81, 2515 (1984) United States
32343 E	A19: N ₂ ⁺⁺ + Re; N ₂ ⁺⁺ + Ne; N ₂ ⁺⁺ + Kr; N ₂ ⁺⁺ + Ne; N ₂ ⁺⁺ + O ₂	0.5 eV	Tempar, P. S.; Bouckaert, B. T. Collisional deactivation of vibrationally excited N ₂ ⁺⁺ . J. Chem. Phys. 81, 2639 (1984) United States
32344 T	A17: H ₂ C + H ₂ O	Undef	Caravetta, V.; Clementi, E. Water-water interaction potential: an approximation of the electron correlation contribution by a functional of the SCF density matrix. J. Chem. Phys. 81, 1646 (1984) United States
32345 T	A33: H + H ₂ O	0.1-0.8 eV	Hayne, R. R. Rotational energy transfer in H + H ₂ (v) inelastic collisions. J. Chem. Phys. 81, 2664 (1984) United States
32346 T	A03: K ⁺ + Ne; F ⁻ + R	0-0.5 eV	Hestdagh, J. M. Polarization induced by atomic collisions into an excited state. Influence of the nuclear spin. J. Phys. [Orsay] 45, 197 (1984) France
32347 E-T	A02: Ar ⁺ + Ar A11: Ar ⁺ + Ar A17: Ar ⁺ + Ar A18: Ar ⁺ + Ar	40-180 aJ	Robert, J.; Eccherinski, V.; Colomb de Saenart, L.; Vassilev, G.; Baudoin, J. Ar ⁺ (3p ^{1/2} , 3P _{1/2,3/2}) on Ar(3p ^{1/2} , 3S _{1/2}) collisions at thermal energies. J. Phys. [Orsay] 45, 225 (1984) France
32348 E-T	B31: Xe ⁺	Undef	Iessaigne, J. P.; Grardin, J. P.; Husson, X.; Kucal, E. Dielectric behaviour of xenon Rydberg states studied by the R. P. optogalvanic method. J. Phys. [Orsay] 45, 249 (1984) France
32349 T	A36: C ⁶⁰ + R; C ⁶⁰ + R; He ¹⁰⁺ + R	0.11x10 ⁻² -1.8 x10 ⁻³ eV	Salin, A. Intrashell mixing following electron capture from atomic hydrogen targets by slow ions. I. Fully stripped projectiles. J. Phys. [Orsay] 45, 671 (1984) France
32350 E-T	A36: O ⁺ + O	0.01-10 keV	Favlovská, Z.; Fauchais, P. Charge transfer between atomic and ionic oxygen. J. Phys. [Orsay] 45, 667 (1984) Poland
32351 E-T	A37: He ⁺ + Re; F ⁺ + Ar; He ⁺ + Re; He ⁺ + Ar; He ⁺ + Re; He ⁺ + Re; Re ⁺ + Ar A38: Re ⁺ + Re; Re ⁺ + Ar	0.8-2.3 keV/amu	Scheder, J.; Letz, P.; Burkhardt, H.; Frischkorn, H. J.; Hofmann, E.; Roschek, P.; Groeneweld, K. O.; Betenyi, L.; Kovac, J.; Szabo, G. Target ionization and projectile electric loss in single collision systems. J. Phys. [Orsay] Lett. 45, L-249 (1984) France

Ref. No.	Reactants	Energy Range	Reference
02322 E-T	A36: E ⁺ + He; E ⁺ + E _r A16: E ⁺ + He; E ⁺ + E _r	2.02-7.43 keV	Riverola, B. B.; Selis, A.; Steckli, B. R. Differential electron-capture cross-sections in high energy ion-atom collisions: comparison of experiment and theory for the Thomas peak. <i>J. Phys. (Orsay) Lett.</i> 45, L-259 (1984) Argentina
02323 E	E39: e + He E17: e + He	56-58 eV	Bertrand, A.; Haynes, B.; Paquegnau, D. Study of helium resonances by the recoil of atoms excited by electron impact in a supersonic beam. <i>J. Phys. (Orsay) Lett.</i> 45, L-227 (1984) France
02324 T	D31: Ba ⁺ + Ne D39: Ba ⁺ + Ne	Undef	Sylie, J. S.; Sipe, J. E. Quantum electrodynamics near an interface. <i>Phys. Rev. A</i> 33, 1185 (1986) Canada
02325 T	E32: e + He	200-400 eV	Allen, L. J.; Berger, H. Local potentials equivalent to matrix effective potentials for e-He scattering at 200 and 400 eV. <i>Phys. Rev. A</i> 35, 1537 (1982) South Africa
02326 T	E32: e + He E17: e + He E19: e + He	5-50 eV	Bans Gupta, A.; Bhattacharjee, A. K. Scattering of electrons from atoms. <i>Phys. Rev. A</i> 35, 1261 (1982) United States
02327 E	E32: e + He E17: e + He E19: e + He	2-10 eV	Golden, D. E.; Forest, J.; Bahgat, H. Absolute elastic electron-helium scattering cross-section measurements from 2 to 10 eV. <i>Phys. Rev. A</i> 30, 1247 (1984) United States
02328 E	E32: e + He E03: e + He E17: e + He	6-25 eV	Jedamzik, B.; Weiss, F.; Yano, A.; Bednarcz, B. Small-angle (e-, He) scattering in the 6-25 eV range. <i>Phys. Rev. A</i> 30, 1255 (1984) United States
02329 E	C07: H ⁺ + C; H ₂ ⁺ + C; H ₃ ⁺ + C	0.2-2.4 keV	Tobayashi, H.; Oda, S. Molecular enhancement of Balmer emissions following field-induced dissociation of fast H ₂ ⁺ and H ₃ ⁺ ions. <i>Phys. Rev. A</i> 33, 1296 (1986) Japan
02330 T	A03: H ⁺ Seg + E Seg; E ⁺ + E ⁺ A36: E ⁺ Seg + E Seg; E ⁺ + E ⁺	10-1000 keV	Ghosh, M.; Datta, S.; Mukherjee, S. C. Calculation of cross sections for electron capture between arbitrary hydrogenic states of target and projectile. <i>Phys. Rev. A</i> 30, 1337 (1984) India
02331 E	E36: hv + Ne	12-110 eV	Krause, B. O.; Carlson, T. A.; Pashkin, A. Photoelectrospectroscopy of manganese vapor between 12 and 110 eV. <i>Phys. Rev. A</i> 33, 1316 (1984) United States
02332 E	E37: Undef	Undef	Saha, B. P.; Dahler, J. S.; Jones, D. R. Theory of laser-induced excitation transfer and atomic association. <i>Phys. Rev. A</i> 33, 1345 (1984) United States
02333 E	E05: e + Ar E17: e + Ar	0.4 keV	Ishaaq-Benassi, A.; Beilenstein, R. F.; Leguet, A.; Secaud, A. Absolute (e, 2e) cross sections measured for the 2p orbital of argon. <i>Phys. Rev. A</i> 33, 1511 (1984) France
02334 T	E36: hv + Cl	2.5-6.0 eV	Hansen, J. E.; Cowan, R. C.; Carter, S. I.; Pelly, M. P. Analysis of resonance structure in the photoionization of atomic chlorine. <i>Phys. Rev. A</i> 33, 1541 (1984) The Netherlands
02335 E	H08: 2hv + O; 2hv + N	226-211 ns	Crosley, D. B.; Bischof, B. K. Relative fine-structure intensities in two-photon excitation. <i>Phys. Rev. A</i> 33, 1546 (1984) United States
02336 T	E36: e + Ca ⁺	0.35-0.25 Ry	Passer, J.; Baba, T. Resonant electron capture to high Rydberg states of Ca II. <i>Phys. Rev. A</i> 33, 1556 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
02337 T	X06: $h\nu + B_2$	0.00-0.12 eV	Lynch, D. L.; McRoy, V. Relaxation effects in molecular K-shell photoionization. <i>Phys. Rev. A</i> 30, 1561 (1984) United States
02338 E	E39: $e + O_2; e + O_2 + B_2; e + C_2 + CO_2$	Undef	Bogerborg, S.; Crossman, R. B. Diffusion, attachment and attachment cooling of thermal electrons in oxygen and nitrogen mixtures. <i>Inst. J. Phys. 36</i> , 831 (1983) Australia
02339 T	A11: $CO^+ + B_2$	100-1000 eV	Cacciatore, P.; Capitelli, M.; Billing, G. D. Theoretical semiclassical investigation of the vibrational relaxations of CO colliding with $^{16}N_2$. <i>Chem. Phys. 89</i> , 17 (1984) Italy
02340 E	E20: $e + B_2O; e + B_2O$	10-300 eV	Kurashiki, J.; Ogawa, T. Isotope effects in the emission cross section of ^{16}B and ^{10}B produced by controlled electron impact on B_2 and B_2O . <i>Chem. Phys. 89</i> , 59 (1984) Japan
02341 T	A11: $B_2 + CO^+$	0.0-1000 eV	Foulkes, L. L.; Billing, G. D. Vibrational deactivation of CO ($\nu = 1$) by $p-B_2$. The importance of the higher-order multipole moments. <i>Chem. Phys. 69</i> , 213 (1984) United Kingdom
02342 T-T	K03: Photoionization	Undef	Sharma, R. S. The electronic structure of the elements from gas-phase x-ray photoelectron spectroscopy. <i>Contemp. Phys. 25</i> , 159 (1984) United Kingdom
02343 E	D38: $Ar^+ + Al; Ar^+ + Ag$	3-6 keV	Saito, K.; Tanaka, S. Effect of oxygen adsorption on the ion-induced Auger electron spectra of Ag and Al. <i>Jpn. J. Appl. Phys. Pt. 1</i> 23, 1153 (1984) Japan
02344 F-T	J06: Spectra K06: Spectra L36: Spectra	0.02-3000 eV	Fawcett, B. C. Classification in the early 1980s of the spectra of highly ionized atoms. <i>J. Opt. Soc. Am. B</i> 1, 195 (1984) United Kingdom
02345 E	D32: $H_2^+ + C; H + C$ D17: $H_2^+ + C; H + C$	0.02-3000 eV	Tanada, S.; Sone, K. Chemical erosion yield of graphite simultaneously bombarded with energetic protons and thermal atomic hydrogen. <i>J. Nucl. Mater. 123</i> , 119 (1984) Japan
02346 T	D11: $He + Al; He + Mg; He + Cu; He + Au;$ $He + Ag; He + Li; He + Na; He + K$	Undef	Bordlander, F.; Battis, J. The interaction of helium with smooth metal surfaces. <i>J. Phys. C</i> 17, 1161 (1984) Sweden
02347 T	C02: $e + Al; e + Cu$ C04: $e + Al; e + Cu$ C05: $e + Al; e + Cu$	20 keV	Salvat, P.; Paredes, J. Penetration and energy loss of fast electrons through matter. <i>J. Phys. B</i> 17, 1545 (1984) Spain
02348 E	D13: $e + TiC; e + SiC; e + TiO_2;$ $e + MgLi_2Co; e + Al_2O_3; e + Si$	300 eV	Nuciello, O.; Bassz, A. A.; Stengely, P. C. Gas release from 1st wall coatings under electron impact. <i>J. Vac. Sci. Technol. A</i> 2, 633 (1984) United States
02349 T	D02: $H^+ + Fe; H^+ + Fe$ D12: $H^+ + C + Fe; H^+ + D + Si$	10 ⁻⁵ -5x10 ⁻⁷ eV	Bastasz, R. Ion impact desorption mechanisms: the role of the substrate. <i>J. Vac. Sci. Technol. A</i> 2, 630 (1984) United States
02350 T	D39: $H + Ca; H + Ca + N$	150 eV	Binkley, J. S.; Karc, A. B.; Bissner, R.; Pressman, A. J.; Chubb, S. Generation of H-, D- ions on composite surfaces with application to surface plasma ion source systems. <i>J. Vac. Sci. Technol. A</i> 2, 673 (1984) United States
02351 E	D18: $H + Inconel$	Undef	Sister, J.; Baebenrodt, F. G.; Vieghold, P.; Bots, E.; Bassz, A. Characterization of the 1st wall of Tector with respect to hydrogen recycling. <i>J. Vac. Sci. Technol. A</i> 2, 675 (1984) West Germany
02352 E	D03: $Ar^+ + Fe$	3 keV	Young, C. E.; Calaway, W. P.; Pelizzetti, E. J.; Gruen, E. W. Velocity and electronic state distributions of sputtered Fe atoms by laser-induced fluorescence spectroscopy. <i>J. Vac. Sci. Technol. A</i> 2, 653 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
02353 E	D33: Ar ⁺ + Cr; Ar ⁺ + Ca; Kr ⁺ + Cr; Kr ⁺ + Ca	7-15 keV	Buniasty, W.; Dotz, G.; Cigala, J. Ground state and excited state sputtering: Rutherford-backscattering studies of Cr and Ca targets. <i>J. Vac. Sci. Technol. A</i> 2, 696 (1984) West Germany
02354 E-T	D37: He + Pt D31: H + Pt	300 eV	Batra, I. P.; Barker, J. A.; Amerbach, D. J. Helium scattering from (111) H-Pt(111). <i>J. Vac. Sci. Technol. A</i> 2, 963 (1984) United States
02355 E	D36: e + La	633-850 eV	Chamberlain, R. B.; Burr, A. P.; Linfield, E. J. Threshold electron excitation of Auger-electron and x-ray emissions in La. <i>J. Vac. Sci. Technol. A</i> 2, 953 (1984) United States
02356 E	D13: hv + Cu; hv + Si _x	23-32 eV	Semba, S.; Younif, N.; Bammer, D. E. Photo-stimulated ion desorption from condensed CO and H ₂ . <i>J. Vac. Sci. Technol. A</i> 2, 1511 (1984) United States
02357 E	D31: H ₂ + Ni; C _x + Ni	300 eV	Villarrubia, J. S.; So, B. Kinetics of the adsorption and reaction of H ₂ and O ₂ on nickel (110). <i>J. Vac. Sci. Technol. A</i> 2, 1519 (1984) United States
02358 F	D31: O ₂ + Pt	123 eV	Bertom, P. E.; Bindner, F. E.; Griffiths, K. The adsorption of oxygen on Pt(100)-(1x1) and He sub x surfaces at 123-eV. <i>J. Vac. Sci. Technol. A</i> 2, 1528 (1984) Canada
02359 E	D13: hv + Si _x C + Pd; hv + Si _x O + Pt	19-24 eV	Stiles, B. B.; Escoberg, B. A. High resolution photo-stimulated desorption of He ⁺ from H ₂ O on Pd and Pt. <i>J. Vac. Sci. Technol. A</i> 2, 1551 (1984) United States
02360 E	D13: hv + C + Cr	25-80 eV	Stockbauer, R.; Bammer, D. E.; Bartel, E.; Bartz, J. L.; Maday, T. E. Mechanism for photo-stimulated desorption of O ⁺ fcc Cr (110). <i>J. Vac. Sci. Technol. A</i> 2, 1553 (1984) United States
02361 E	D37: He + NaF; He + GaSe; He + Ag; He + Si	20-100 meV	Tuusniemi, J. P. Photon inelastic scattering of He atoms from single crystal surfaces. <i>J. Vac. Sci. Technol. A</i> 2, 1555 (1984) West Germany
02362 E	D37: He + Ag	25 meV	Lambert, W. S.; Trevor, P. L.; Doak, B. E.; Cardillo, E. J. Inelastic helium scattering from Ag (331) and Ag (551) C(22) CL. <i>J. Vac. Sci. Technol. A</i> 2, 1566 (1984) United States
02363 F	D32: H ⁺ + Si _x H _y ; H ₂ ⁺ + Si _x H _y	100-1000 eV	Zalm, P. C.; Beckers, L. J. Sputtering of silicon nitride with hydrogen ions. <i>J. Vac. Sci. Technol. B</i> 2, 64 (1984) The Netherlands
02364 T	D32: Undef	Undef	Zalm, P. C. Some useful yield estimates for ion beam sputtering and ion plating at low bombardment energies. <i>J. Vac. Sci. Technol. B</i> 2, 151 (1984) The Netherlands
02365 T	E32: e + R E17: e + R	15-35 keV	Geltman, S.; Nesbet, R. R. High-energy forward elastic scattering of electrons: Born amplitudes for a pseudostate model of atomic hydrogen. <i>Phys. Rev. A</i> 33, 1636 (1986) United States
02366 T	A36: Undef	Undef	Gerratt, J. S-matrix theory of charge transfer. <i>Phys. Rev. A</i> 36, 1681 (1986) United States
02367 F	A36: Be ²⁺ + Be; Be ²⁺ + Ne; Be ²⁺ + He; Be ²⁺ + He; Ne ²⁺ + Ne; Ne ²⁺ + He	72-523 eV	Schaeffer, C.; Coote, C. L.; Mass, B.; Seyerhof, B. Energy-gain spectroscopy studies of electron capture from helium by slow multiply charged neon ions. <i>Phys. Rev. A</i> 33, 1661 (1986) United States
02368 T	A33: He + He A37: He + He A11: He + He E33: e + He	10-2-100 keV	Shirai, T.; Sekai, Y.; Nakamura, B. Ionization collisions between two excited atoms: application of the Glauber amplitude in the framework of the impulse approximation. <i>Phys. Rev. A</i> 33, 1672 (1986) Japan

Ref. No.	Reactants	Energy Range	Reference
02369 T	C32: He ⁺ + C; Li ⁺ + C; C ⁺ + C; C ⁰ + C	3 MeV/amu	Covers, H.E.S.; Read, P. H.; Sofield, C. J.; Stridwell, L. E.; Lucas, S. U. Charge-changing energy loss, higher-order Z, dependence, and pre-equilibrium behavior in the stopping power for energetic ions in acids. <i>Phys. Rev. A</i> 30, 1672 (1984) United Kingdom
02370 T	A33: E + Ca ⁺ E36: E + Ca ⁰ ; E ⁺ + Ca ⁰ E17: E + Ca	0.1-10 keV	Classen, R. E.; Kimura, H.; Sato, S. Molecular-state cross-section calculations for E + Ca coming from or going to E ⁺ + Ca ⁰ . <i>Phys. Rev. A</i> 30, 1692 (1984) United States
02371 T	E33: e + Ar E17: e + Ar	16-60 eV	de Paiva, F. J.; Radial, D. T.; Chasat, G. Electron-photon coincidence parameters for the Ar ⁺ [1/2], ⁰ (P ₁) and 8 ¹ (3/2), ⁰ (P ₂) states of argon. <i>Phys. Rev. A</i> 30, 1697 (1984) Brazil
02372 T	C02: He ⁺ + Fe ²⁺ ; He ⁺ + Fe ³⁺	200-1600 keV	Soneko, T. Z, dependence of the stopping power and the effective charge for 200 keV helium-ion beams. <i>Phys. Rev. A</i> 30, 1710 (1984) Japan
02373 T	A36: E ⁺ + Ca; E ⁺ + O; E ⁺ + Ne; E ⁺ + Ar A10: E ⁺ + Ar	0.2-20 MeV	Pizaglia, J. E. Electron capture in asymmetric collisions. <i>Phys. Rev. A</i> 30, 1711 (1984) Argentina
02374 T	E33: Undef	Undef	Takatsuka, K.; McRoy, V. Theory of electronically inelastic scattering of electrons by molecules. <i>Phys. Rev. A</i> 30, 1730 (1984) United States
02375 T	E33: e + H ₂ E17: e + H ₂	13-30 eV	Liu, H.L.P.; Gibson, T. L.; Takatsuka, K.; McRoy, V. Multichannel Schrödinger variational cross sections for electron-impact excitations of the b ¹ D (sub a) ¹ state in H ₂ . <i>Phys. Rev. A</i> 30, 1741 (1984) United States
02376 T	H36: 2h ⁺ + Cs	950-830 nm	Crompton, R. W.; Stockdale, J.A.D.; Cooper, C. E.; Tang, S.; Lambropoulos, P. Photoelectron angular distributions from multiphoton ionization of cesium atoms. <i>Phys. Rev. A</i> 30, 1761 (1984) United States
02377 T	H06: 2h ⁺ + Cs; 3h ⁺ + Cs	950-830 nm	Christians, B.; Crompton, R. W.; Stockdale, J.A.D.; Miller, J. C.; Cooper, C. E.; Tang, S.; Lambropoulos, P. Near-infrared multiphoton ionization of cesium. <i>Phys. Rev. A</i> 30, 1775 (1984) United States
02378 T	H06: h ⁺ + Na ⁺ ; h ⁺ + Br ⁻	0.1-0.0 Ry	Bazzone, A. Z.; Rausch, S. T. Photoionization of excited 3I states in Na and Kr: investigation of the I going to I - 1 zeros. <i>Phys. Rev. A</i> 30, 1795 (1984) United States
02379 T	H36: h ⁺ + Cs	719-710 nm	Findzola, B. S.; Glasser, A. H.; Payne, R. G. ac Stark shifts for cesium and their effect on ionization line shapes. <i>Phys. Rev. A</i> 30, 1803 (1984) United States
02380 T	H06: h ⁺ + Cl	0.6-1.2 a.u.	Sheehan, S.; Starace, A. F.; Chang, T. W. Photoionization of atomic chlorine above the 1S threshold. <i>Phys. Rev. A</i> 30, 1819 (1984) United States
02381 T	B01: Be	Undef	Jaffe, S. B.; Reich, B. B.; Van Linde van der Beurval, B.; Gallagher, T. F. Be autoionizing states in strong electric fields. <i>Phys. Rev. A</i> 30, 1828 (1984) United States
02382 T	B01: Li H06: h ⁺ + Li	Undef	Bitchie, B. Laser probe of the atomic ionization continuum: stimulated recombination into an excited state. <i>Phys. Rev. A</i> 30, 1849 (1984) United States
02383 T	A37: H ⁺ + He; D ⁺ + D	2.1-3.3 keV	Chen, H. N. Effects of relativity and wave functions on atomic 1- and 2-state ionization by protons. <i>Phys. Rev. A</i> 30, 1862 (1984) United States
02384 T	E33: e + CO E17: e + CO	1.8 eV	Chang, E. S.; Antosik, T.; Jung, J.; Ihrhardt, H. Coherent resonance and dipole scattering in rotational excitations of molecules by slow electrons. <i>Phys. Rev. A</i> 30, 1886 (1984) West Germany

Ref. No.	Reactants	Energy Range	Reference
02365 T	E06; e + Be ⁺ ; e + Be ⁰ ; e + C ⁰ ; e + O ⁰ ; e + Cl ⁰	3-12 eV	Padian, A. S. Theoretical calculations for dielectronic recombination cross sections. <i>Phys. Rev. A</i> 33, 2161 (1986) United States
02366 E	D07; h ⁻ + Be ⁻	1.5-2.5 eV	Fox, T. R.; Petersen, J. R. Observation of the metastable negative beryllium ics, Br-[¹⁰ F(¹⁹ Br e)]. <i>Phys. Rev. A</i> 36, 2185 (1987) United States
02367 T	E03; e + B E17; e + B	50 eV	Padian, A. S. Full second-order distorted-wave calculation without approximations for atomic excitation by electric dipole. <i>Phys. Rev. Lett.</i> 53, 42 (1984) United States
02368 T	E06; h ⁻ + B	3.31-13 eV	Bezic, P. M.; Copeland, G. E. Cooper-type minima in multipole cross sections of atomic hydrogen. <i>Phys. Rev. Lett.</i> 53, 163 (1984) United States
02369 E	A06; Ie + Fe	107 keV/u	Abdalla, D.; Andrade-Ortega, S. A.; Berezovik, R.; Stoller, C.; Kellerman, J. E.; Neupert, B. L.; Bouwe, H.; Xu, J. S.; Yu, J. Z.; Bassusse, J. G.; Hoffmann, D.H.W. Observation of radiative capture in relativistic heavy-ion-atom collisions. <i>Phys. Rev. Lett.</i> 53, 236 (1984) United States
02370 T	H06; h ⁻ + Th; h ⁻ + U; h ⁻ + La	13-650 eV	Tendzin, G. Photoionization of metallic lanthanum, thorium, and uranium in a local-density-based random-phase approximation. <i>Phys. Rev. Lett.</i> 53, 726 (1984) France
02371 E	A06; B ₂ ⁺ + Be A18; B ₂ ⁺ + Be	3.33-1.61 keV/nuc	Alvarez, J.; Cisneros, C.; de Urquiza, J.; Fergas, T. J. Three-body dissociation of triatomic hydrogen molecular ics. <i>Phys. Rev. Lett.</i> 53, 783 (1984) Mexico
02372 E	C02; H ⁺ + Cu; H ⁺ + Co; H ⁺ + V; H ⁺ + Ni; H ⁺ + C	50-500 keV	Grygoriev, V. G.; Bushov, Y. G.; Puzanov, A. A.; Brancov, A. N. Effects of electronic structure on ion stopping cross-section in solids. <i>Phys. Status Solidi A</i> 83, 573 (1984) Soviet Union
02373 T	D07; Si ⁺ + Si	10 keV	Vayatis, E. G.; Varatis, A. S.; Vozotkis, S. S. Computer simulation of glancing scattering of a fast proton beam by a crystal surface. <i>Phys. Status Solidi B</i> 122, 25 (1984) Soviet Union
02374 T	C02; Mg ⁺ + Si	10 keV	Fathak, A. F. Position dependence of channeling stopping power. <i>Phys. Status Solidi B</i> 122, 171 (1984) India
02375 E-T	F02; Electron scattering	Undef	Stavin, J. Coherence in inelastic low-energy electron scattering. <i>Rep. Prog. Phys.</i> 47, 461 (1984) United Kingdom
02376 T	B01; H ₂ ; H; H ₂ ⁺ A17; H ₂ ; H ₂ ⁺	Undef	Sorkin, A. V. Hydrogen molecule in a strong magnetic field. <i>Sov. Phys.-JETP Lett.</i> 38, 616 (1983) Soviet Union
02377 T	D07; Re + Pt	30 neV	Heijboer, G.; Heller, I. J. A wavepacket approach to gas-surface scattering: application to surfaces with imperfections. <i>Surf. Sci.</i> 139, 263 (1984) United States
02378 T	D03; Ar ⁺ + CuNi	7 keV	Iosten, C. R.; Tsong, I.-I.-I. A comparison of secondary ics and photon yields from ion scattered CuNi alloys. <i>Surf. Sci.</i> 139, 453 (1984) United States
02379 T	E03; e + Si ⁺	Undef	No, Y. K.; Reilly, J. W. Collision strengths for Lambda 1199 and Lambda 1729 of Si III. <i>Astrophys. J., Part 1</i> 284, 635 (1984)
02380 T	A06; h ⁻ + Te ⁰⁰	Undef	Cowan, B. D.; Bronsge, G. E.; Fawcett, B. C. On the theoretical calculation of wavelengths and oscillator strengths for Te I and similar species. <i>Nat. Met. R. Astron. Soc.</i> 21C, 439 (1984)
02381 E-T	D07; Review J04; Reflection R04; Reflectior	3.31-13 keV	Eckstein, W.; Verbeek, W. Reflection of light ions from solids. <i>Nucl. Fusion (Special Issue)</i> p. 12 (1984) West Germany

Ref. No.	Reactants	Energy Range	Reference
02402 E-T	D11; Review J30; Trapping K30; Trapping	3.0-18.3 keV	Biloen, R. L. Hydrogen and helium trapping. Nucl. Fusion (Special Issue) p. 26 (1980) United States
02403 E-T	D13; Review J30; Desorption K30; Desorption	1.0-3.0 keV	Taglauer, E. Desorption. Nucl. Fusion (Special Issue) p. 43 (1980) West Germany
02404 E-T	J30; Evaporation K30; Evaporation		Langley, D. J. Evaporation. Nucl. Fusion (Special Issue) p. 55 (1980) United States
02405 E-T	D02; Review J30; Sputtering K30; Sputtering	3.0-53.3 keV	Bobanek, J. Sputtering. Nucl. Fusion (Special Issue) p. 61 (1980) West Germany
02406 E-T	D32; Review J30; Sputtering K30; Sputtering	0.08-100 keV	Both, J. Chemical effects in sputtering. Nucl. Fusion (Special Issue) p. 72 (1980) West Germany
02407 E-T	K30; Blistering		Biloen, R. L. Blistering. Nucl. Fusion (Special Issue) p. 85 (1980) United States
02408 E-T	D04; Review D06; Review J30; Electron ref' actions; e secondary electron emission; Ion secondary electron emission K30; Electron ref' actions; e secondary electron emission; Ion secondary electron emission	0.35-20 keV	Thomas, R. L. Secondary electron emission. Nucl. Fusion (Special Issue) p. 94 (1980) United States
02409 E-T	K04; Unipolar arcing		Nieduszynski, P. Unipolar arcing. Nucl. Fusion (Special Issue) p. 135 (1980) United States
02410 T	C02; e + C C05; e + C	600-1600 eV	Rudi, C. H. Influence of multiple scattering on energy loss straggling for electrons. Thin Solid Films 111, 83 (1984) Taiwan
02411 T	B03; H-like atoms		Borsch, R. J.; Kohlrausch, R. Field ionization of Rydberg atoms: a semiclassical treatment of complex energy states in intense electric fields. Z. Phys. A 319, 107 (1983) West Germany
02412 T	A03; Rg ⁺ + He; Rg ⁺ + Ar; Rg ⁺ + Kr; Rg ⁺ + Ne; Rg ⁺ + He; Rg ⁺ + Kr	0.1-100 keV	Hoepfle, W.; Rappert, V. Theoretical study of the 3 p-excitation in Rg ⁺ and Rg ⁺ -inert gas collisions. Z. Phys. A 314, 283 (1983) West Germany
02413 T	A07; C ⁺ + C; CC ⁺ + C C05; C ⁺ + C; CC ⁺ + C C06; C ⁺ + C; CC ⁺ + C	83 keV/amu	Boscher, F.; Prischkens, R. J.; Groeneweld, P. O.; Szabo, G. Carbon Auger electron line shape after beam-foil excitations of molecular ions. Z. Phys. A 315, 11 (1983) West Germany
02414 T	A03; S + Ph; Si + Ph A10; S + Ph; Si + Ph	147-343 keV	Jakubassa-Auerbach, E. H. On the anisotropy of delta-electron-gas glow heavy-ion collisions in the emission angles Theta (sub E) and Phi (sub E). Z. Phys. A 315, 11 (1983) West Germany

Ref. No.	Reactants	Energy Range	Reference
02415 T	A06: He + C; He + Ar C07: He + C; He + Ar	2.06 ± 0.06 cm/s	Sipior, E.; Schroder, H. Polarization of a 3-torus after electron capture by beam-foil interaction. Z. Phys. A 312, 35 (1980) West Germany
02416 T	B01: H		Izcoa, G. A.; Fernandez, P. M.; Castro, E. J. A new variational approach to the hydrogen atom in magnetic fields. Z. Phys. A 315, 255 (1980) Argentina
02417 E	A12: He + K; He + Rb; He + Cs	Thermal	Vadie, C.; Biennaz, E. The far-wing broadening of the He I lines by K, Rb and Cs and the electrostatic interactions potentials of the HeK, HeRb, and HeCs molecules. Z. Phys. A 315, 263 (1980) West Germany
02418 T	B07: He + e + H; He + e + He E03: e + He + H; e + He + He H04: He + H; He + He	50-500 eV	Jettke, S.; Paival, F.H.-H.; Hippel, H.; Letz, H. O. Simultaneous electron-photon excitation of hydrogen and helium. Z. Phys. A 315, 271 (1980) West Germany
02419 E	A06: Br ³⁷⁺ + He; Br ³⁹⁺ + He	156 MeV	Kelch, S.; Scheidt-Roehling, H.; Ullrich, J.; Schach, B.; Justinius, E.; Ingwersen, S.; Coche, C. L. The contribution of K-electron capture for the production of highly charged He recoil ions by 156 MeV bromine impact. Z. Phys. A 317, 9 (1980) West Germany
02420 E	A08: He ²⁺ + F ₂ ; He ²⁺ + Ne; He ²⁺ + Kr A09: He ²⁺ + F ₂ ; He ²⁺ + Ne; He ²⁺ + Kr	10 keV	Heldreich, G.; Letz, H. W.; Pauli, H. Center-of-mass deflections in two processes: collision-induced dissociations of 10 keV He ²⁺ ions in their electric ground state 1s Sigma (sub g) and dissociative electron capture. Z. Phys. A 317, 23 (1980) West Germany
02421 E	A06: Ne ²⁺ + Ar; Ne ²⁺ + Kr	600 eV	Hehlert, B. J.; Huber, B. A. Electron transfer in low energetic Ne ²⁺ /Ar, Kr collisions. Z. Phys. A 317, 139 (1980) West Germany
02422 T	E03: e + Rg	46-234 keV	Uhrling, B. An approximate phase shift formula applied to elastic scattering of electrons by mercury atoms. Z. Phys. A 317, 241 (1980) West Germany
02423 E	A06: Si ¹³⁺ + Ar; Si ¹⁴⁺ + Ar	125-153 MeV	Andrianovje, S.; Chemin, J. F.; Botarier, J.; Satoya, E.; Scheurer, J. B.; Gayet, R.; Salin, A.; Aguer, P.; Thibaudeau, J. F. Production of projectile and target X rays by single and multiple electron-capture in collisions of Si ¹³⁺ and Si ¹⁴⁺ ions with Argon atoms at 4.5 and 5.5 MeV/nuc. Z. Phys. A 317, 251 (1980) France
02424 E	A03: H + Ne; D + Ne	13-1533 eV	Grosser, J.; Kruger, W. Hydrogen 2s and 2p excitation in low energy H, D + Ne collisions. Z. Phys. A 318, 25 (1980) West Germany
02425 T	B01: H ₂ ⁺		Le Guillou, J. C.; Zinn-Justin, J. The H ₂ ⁺ ion in an intense magnetic field: improved adiabatic approximations. Ann. Phys. (NY) 154, 480 (1984) France
02426 T	E03: e + C ⁺	500-40000 eV	Boyce, R. A.; Bussettauer, H. The C II 2325 Å multiplet and the 158 μm transition. Astron. Astrophys. 119, 233 (1980) Switzerland
02427 T	E03: e + Fe ²⁺	6-2 T	Dittrich, G. L.; Raymond, J. C. Plasma diagnostics for the outer solar corona: UV and XUV Fe III lines. Astrophys. J., Part 1 285, 387 (1984) United States
02428 T	A17: Tl + Ne; Tl + Ar; Tl + Kr	Undef	Czuchaj, E.; Sienkiewicz, J. Improved pseudopotential calculations of the adiabatic potentials and oscillator strengths of Tl-heavy noble gas systems. Z. Naturforsch. A 39, 513 (1984) Poland
02429 T	A03: He ²⁺ + Pb A06: He ²⁺ + Pb	400 eV	Tomas, R. I.; Tishchenko, N. P.; Shastov, I. P. Theory of charge-exchange transitions to excited states in ion-atom collisions. Sov. Phys.-Dokl. 28, 641 (1983) Soviet Union
02430 T	C01: Undef C05: Undef	250 keV/nuc	Besizovich, V. S.; Begezkin, D. B.; Byzzakov, S. I. Spectrum of particles at great depths in the passage of a narrow beam of fast charged particles through matter. Sov. Phys.-Dokl. 28, 646 (1983) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
02431 T	A07: He + Al; He ⁺ + Al	3.2-3.4 keV/amu	Gotoku, A.; Kawamura, K.; Konishi, K.; Fujimoto, F.; Ozawa, K.; Terasawa, R. Projectile dependence of Li ⁺ vacancy production cross sections of Al by 3 and 6 keV bombardments. <i>J. Phys. Soc. Jpn.</i> 53, 2215 (1984) Japan
02432 T	A07: He ⁺ + Be	0.1-10 keV	Uchiyama, T. Electronic relativistic effect in inner-shell ionization cross section and electron momentum distribution. <i>J. Phys. Soc. Jpn.</i> 53, 2119 (1984) Japan
02433 T	A06: C ¹² + He; C ¹² + Be; C ¹² + Ne; C ¹² + He; C ¹² + Fe; C ¹² + Si; Be ⁹ + He; Be ⁹ + Fe; Be ⁹ + Ne; Be ⁹ + He; Be ⁹ + Fe; Be ⁹ + Si; O ¹⁶ + He; O ¹⁶ + Fe; O ¹⁶ + Ne; O ¹⁶ + He; O ¹⁶ + Fe; O ¹⁶ + Si; O ¹⁶ + He; O ¹⁶ + Fe; O ¹⁶ + Ne; F ¹⁹ + He; F ¹⁹ + Fe; F ¹⁹ + Ne; F ¹⁹ + He; F ¹⁹ + Fe; F ¹⁹ + Si; Ne ²⁰ + He; Ne ²⁰ + Fe; Ne ²⁰ + Ne; Ne ²⁰ + He; Ne ²⁰ + Fe; Ne ²⁰ + Si; Kr ⁸⁴ + He; Kr ⁸⁴ + Fe; Kr ⁸⁴ + Ne; Kr ⁸⁴ + He; Kr ⁸⁴ + Fe; Kr ⁸⁴ + Si; Xe ¹³⁶ + He; Xe ¹³⁶ + Fe; Xe ¹³⁶ + Ne; Kr ⁸⁶ + He; Kr ⁸⁶ + Fe; Kr ⁸⁶ + Ne; Kr ⁸⁶ + He; Kr ⁸⁶ + Fe; Kr ⁸⁶ + Si	600 eV/amu	Kinbara, S.; Imai, T.; Kasai, Y.; Kotayashi, S.; Matsuzaki, A.; Chitani, S.; Ichine, K.; Takagi, S.; Tawara, H.; Tsurutachi, S. Landau-Siever model calculations of one-electron capture from Be atoms by highly stripped ions at low energies. <i>J. Phys. Soc. Jpn.</i> 53, 2220 (1984) Japan
02434	K06: Radiation		Schlichter, B.B.P.; Summers, E. P. Atomic radiation from low density glasses. p. 51 in <i>Applied Atomic Collision Physics</i> , Vol. 2, C. P. Barnett and R.F.A. Harrison, Eds. Academic Press, Inc., New York, (1984) United Kingdom
02435	K08: Transport		Boggs, J. T. Properties of magnetically confined glasses in tokamaks. p. 113 in <i>Applied Atomic Collision Physics</i> , Vol. 2, C. P. Barnett and R.F.A. Harrison, Eds. Academic Press, Inc., New York, (1984) United States
02436	K08: Spectroscopy		Seacock, B. J. Diagnostics based on emission spectra. p. 143 in <i>Applied Atomic Collision Physics</i> , Vol. 2, C. P. Barnett and R.F.A. Harrison, Eds. Academic Press, Inc., New York, (1984) United Kingdom
02437	K08: Laser diagnostics		Evans, D. E. Laser diagnostics. p. 191 in <i>Applied Atomic Collision Physics</i> , Vol. 2, C. P. Barnett and R.F.A. Harrison, Eds. Academic Press, Inc., New York, (1984) United Kingdom
02438	K08: Electron cyclotron emission		Boyd, D. A. Plasma diagnostics using electron cyclotron emission. p. 227 in <i>Applied Atomic Collision Physics</i> , Vol. 2, C. P. Barnett and R.F.A. Harrison, Eds. Academic Press, Inc., New York, (1984) United States
02439	K08: Particle plasma diagnostics		Barnett, C. P. Particle plasma diagnostics. p. 289 in <i>Applied Atomic Collision Physics</i> , Vol. 2, C. P. Barnett and R.F.A. Harrison, Eds. Academic Press, Inc., New York, (1984) United States
02440	K08: Beamstrahlung		Feltz, R. R.; Peng, L. J. The electron beamstrahlung spectrum from neutral atoms and ions. p. 337 in <i>Applied Atomic Collision Physics</i> , Vol. 2, C. P. Barnett and R.F.A. Harrison, Eds. Academic Press, Inc., New York, (1984) United States
02441	K08: Neutral beam heating		Cotter, J. G. Trapping and thermalization of fast ions. p. 327 in <i>Applied Atomic Collision Physics</i> , Vol. 2, C. P. Barnett and R.F.A. Harrison, Eds. Academic Press, Inc., New York, (1984) United Kingdom
02442	K08: Neutral beam heating		Green, T. S. Neutral-beam formation and transport. p. 339 in <i>Applied Atomic Collision Physics</i> , Vol. 2, C. P. Barnett and R.F.A. Harrison, Eds. Academic Press, Inc., New York, (1984) United Kingdom
02443	K08: Alpha particle heating		Post, D. T. Alpha-particle heating. p. 381 in <i>Applied Atomic Collision Physics</i> , Vol. 2, C. P. Barnett and R.F.A. Harrison, Eds. Academic Press, Inc., New York, (1984) United States

Ref. No.	Reactants	Energy Range Reference
32444	E35: Boundary plasma	Barkman, R.J.A. Boundary plasma. p. 395 in Applied Atomic Collision Physics, Vol. 2, C. P. Barnett and R.J.A. Barkman, Eds. Academic Press, Inc., New York, (1984) United Kingdom
32445	E36: Hot-dense plasmas	Weinheit, J. C. Atomic phenomena in hot dense plasmas. p. 441 in Applied Atomic Collision Physics, Vol. 2, C. P. Barnett and R.J.A. Barkman, Eds. Academic Press, Inc., New York, (1984)
32446 T	A33: PEST* + PEPT A34: PEST* + PEPT	02-670 keV/amu United States Abel, L.; Peleggi, G. L.; Steller, C.; Borzenets, I.; Andrianov, S. A.; Buitelaar, J. B.; Baker, C. E.; Hoffmann, D.R.D.; Borzenets, I.; Lu, J. S.; Lu, L. L.; Franken, K.; Murphy, E.; Cromm, R.; Hermanssen, J. O. Atomic collisions with relativistic heavy ions: target inner-shell ionization. Phys. Rev. A 30, 2234 (1984) United States
32447 T	E32: e + Ne E37: e + Be	1-19 eV United States Furst, J.; Shelyagofskaya, N.; Golden, R. E. Absolute total electronically elastic differential $e-N_2$ scattering cross-sections measurements from 1 to 19 eV. Phys. Rev. A 30, 2256 (1984)
32448 T	A36: He + Be E38: He + Be	1-3 keV United States Jackson, V.; Martin, S. J.; Jelsky, J., Jr.; Pollack, E. Electron capture in He + Be. Phys. Rev. A 30, 2261 (1984)
32449 T	E33: e + Be E34: e + Be E39: e + Be	0.1-1.6 eV United States Bong, C. F.; Light, J. C. Application of R-matrix theory to resonant reactive electron-molecule scattering: vibrational excitation and dissociative attachment of Be and F ₂ . Phys. Rev. A 30, 2268 (1984)
32450 T	D12: He + Al	1-8 keV Japan Ishii, K.; Petris, S. Continuous x rays produced by light-ion-atom collisions. Phys. Rev. A 30, 2278 (1984)
32451 T	C36: D ⁺ + C C07: D ⁺ + C	13-500 keV/amu Belgium Gaudet-Batinet, Y.; Bussat, P. D. Populations of np terms (n = 2-6) for 10-500-keV/amu deuterium ions exiting from carbon foils. Phys. Rev. A 30, 2287 (1984)
32452 T	A36: He ⁺ + S A16: He ⁺ + S	1-300 keV Argentina Gonzalez, A. D.; Nicogossian, J. E. Comparison between the mechanical and radiative electron-capture processes at high energies. Phys. Rev. A 30, 2292 (1984)
32453 T	D30: Be ⁺ + Be; Ar ⁺ + Be; Kr ⁺ + Be	2.5-10 keV Argentina Girzzi, C.; Saragaciola, S. A. Be K-shell Auger-electron emission in slow-ions-surface collisions. Phys. Rev. A 30, 2297 (1984)
32454 T	A12: Na ⁺ + Ne; Na ⁺ + Ar; Ne ⁺ + Kr; Ne ⁺ + Xe H30: He + Be	333 K United States Gothberg, L. J.; Bloemberger, R. High-resolution studies of collision-induced Raman scattering in optical four-wave mixing in sodium vapor. Phys. Rev. A 30, 2327 (1984)
32455 T	A12: Na ⁺ + Ar; Ne ⁺ + Xe H30: He + Be	333 K United States Silford, B. J.; Andersen, J.; Barnett, R.; Cooper, J. Collisional redistribution of light: far-wing line shapes and polarizations for the Be-He, Ne systems. Phys. Rev. A 30, 2331 (1984)
32456 T	E31: Ne ⁺	Van de Water, W.; Mariani, D. E.; Koch, F. M. Ionization of highly excited helium atoms in an electric field. Phys. Rev. A 30, 2335 (1984) United States
32457 T	S07: Undef F36: Undef	Undef Ianni, A.; Rehman, B. F.; Faissal, F.E.M. Stimulated electron-atom two-electron recombination at a resonance. Phys. Rev. A 30, 2333 (1984) Italy
32458 T	H07: Undef	18.3-18.6 eV United States Tashiro, A. Electron-atom spin asymmetry and two-electron photodetachment: addenda to the Coulomb-dipole threshold law. Phys. Rev. A 30, 2337 (1984)
32459 T	S07: Ne + N	United States Bachas, R.; Shakeshaft, E. Proton-hydrogen-atom scattering in a nearly resonant laser field. Phys. Rev. A 30, 2353 (1984)

Ref. No.	Reactants	Energy Range	Reference
02460 E	A33: He ⁺ + Ne	330 eV	Geller, L. A.; Schillien, G. S.; Smith, K. R.; Dunning, P. R. State changing in He (ns, np, nd)-Ne collisions. Phys. Rev. A 32, 2756 (1980) United States
02461 T	B07: e + H		Bandal, S. N.; Ghosh, A. S. Electron-hydrogen ionization in the presence of a laser field. Phys. Rev. A 30, 2759 (1980) India
02462 E	A30: He ⁺ + Kr; He ⁺ + Xe	1-5 kev/sec	Hardy, L. A.; Sheldon, J. S. Velocity-dependent total scattering cross sections for metastable helium on Kr and Xe. Phys. Rev. A 30, 2761 (1980) United States
02463 T	B36: he + He ⁺ ; he + He ⁺	8-4000 eV	Selzmann, D.; Pratt, L. R. Photoionization of nonexcited electrons from excited atoms. Phys. Rev. A 30, 2767 (1980) United States
02464 E	A33: He ⁺ + H ₂ A37: He ⁺ + H ₂	Thermal	Leimis, C.; Borgner, R. Optical spectroscopy of the reaction of He(2 ³ S) with H ₂ in a molecular-beam experiment. Phys. Rev. A 30, 2791 (1980) West Germany
02465 E	A33: He ⁺ + H ₂ A37: He ⁺ + H ₂	Undef	Ferguson, L. S.; Barnes, S. D.; Wells, B. F.; Tilton, B. B. He(2 ³ S)-H ₂ interactions in high-pressure, electron-beam discharge and low-pressure flowing afterglow experiments. Phys. Rev. A 30, 2793 (1980) United States
02466 E	A06: D ₂ ⁺ + Cs; D ₂ ⁺ + Cs; O ₂ ⁺ + Cs A36: D ₂ ⁺ + Cs; D ₂ ⁺ + Cs; O ₂ ⁺ + Cs	0.695-2.02 keV	Peterson, J. R.; Bao, Y. R. Product states of H ₂ ⁺ , H ₂ ⁺ , and O ₂ ⁺ electron capture in Cs. Phys. Rev. A 30, 2807 (1980) United States
02467 T	E03: e + H ₂	0.7-4.5 eV	Morrison, B. A.; Feldt, A. W.; Saha, B. C. Validity of the adiabatic nuclei theory for vibrational excitation of molecules by electron impact: the e-H ₂ system. Phys. Rev. A 30, 2811 (1980) United States
02468 T	B06: Undef	Undef	Agarwal, G. S.; Kassay, C. V. Multiphoton ionization in chaotic fields with a non-Lorentzian spectrum. Phys. Rev. A 30, 2814 (1980) India
02469 T	B36: e + Ca ⁺	Undef	Altar, G.; Cooper, J.; Bao, A.B.P. Unified treatment of radiative and dielectronic recombination. Phys. Rev. A 30, 2845 (1980) United States
02470 T	A32: He ⁺ + R	10-1 keV	Bemmann, D. E.; Eichler, J. Model calculations for proton-hydrogen elastic scattering at intermediate energies. I. Phys. B 17, 1561 (1980) West Germany
02471 E	E05: e + Ar	10 - 100 eV	Sewell, E. C.; Crowe, A. Auger electron lineshapes measured in coincidence with scattered electrons. J. Phys. B 17, 1567 (1980) United Kingdom
02472 T	A37: Si ¹⁴⁺ + Ar; Fe ⁺ + Ar; Co ⁺ + Ar; He ⁺ + Ar; He ⁺ + Ar	0.5-1.5 keV/sec	Selik, B.; Bock, G.; Benyai, D. Charge scaling of ionization probabilities in ion-atom collisions for zero impact parameter. J. Phys. B 17, 1579 (1980) Hungary
02473 E	A33: He ⁺ + Ag; He ⁺ + Sn; He ⁺ + Te; He ⁺ + Fe; He ⁺ + Ti; He ⁺ + Ni; He ⁺ + Pt; He ⁺ + Pt	1.5-3.0 keV	Braziewicz, J.; Frejewicz, E.; Ploskowska, J.; Pejek, R.; Czernyak, G. M. L-shell x-ray production cross sections by the ion bombardment. J. Phys. B 17, 1585 (1980) Poland
02474 T	A36: He ⁺ + Ne A18: He ⁺ + Ne	200-550 keV	Hochbach, L.; Briggs, J. S. Theory of electrons capture by fast projectiles scattered through large angles. J. Phys. B 17, 1595 (1980) England
02475 T	A36: C ¹²⁺ + R; C ¹²⁺ + R; C ¹²⁺ + Li	0.1-10 keV	Fritsch, W.; Liu, C. D. Atomic-basis study of electron transfer into C ¹²⁺⁽¹⁾ orbitals in C ¹²⁺ + R and C ¹²⁺ + Li collisions. J. Phys. B 17, 1671 (1980) West Germany
02476 T	E02: e + Kr E17: e + Kr	0.1-100 eV	Pon, B. C.; Terrington, E. A.; Hibbert, A. The elastic scattering of electrons from inert gases: IV. Krypton. J. Phys. B 17, 1679 (1980) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
02477 E	E05: e + He	24-753 eV	Bonagur, I. G.; Harrison, R.P.H.; Smith, A.C.H. A measurement of the cross section for ionisation of helium by electron impact using a fast crossed beam technique. <i>J. Phys. B</i> 17, 3295 (1984) United Kingdom
02478 E	E05: e + R Seq ⁺	1.3-6 eV	Clark, R.K.H.; Sungun, R. R. Ionisation from the sublevels n1 with n = 5 and 6 in highly charged ions. <i>J. Phys. B</i> 17, 3311 (1984) United States
02479 T	E03: e + S ⁺	0.7-1.7 eV	Leftos, P. L.; Kingston, A. E. Electron impact collisional rates for S V. <i>J. Phys. B</i> 17, 3321 (1984) United Kingdom
02480 T	E03: e + CO ₂	Undef	Chang, E. S. Theory of rotational-vibronic excitation in linear molecules by slow electrons. <i>J. Phys. B</i> 17, 3341 (1984) West Germany
02481 T	E02: e + R	Undef	Bo, Y. H.; Callaway, J. Supernonplet structures of doubly excited states of R ⁻ below the N = 6 hydrogen threshold. <i>J. Phys. B</i> 17, 3359 (1984) United States
02482 T	E06: hν + R ₂	15-43 eV	Ional, R. F.; Bachado, L. E.; Hu-Tao, L. Vibrational branching ratios in 1 Sigma (sub g) photoionisation of R ₂ in the Stieltjes-Tchebycheff moment theory. <i>J. Phys. B</i> 17, 3369 (1984) Brazil
02483 E-T	E05: e + He E17: e + He	25-30 eV	Fournier-Lagarde, F.; Nakase, J.; Huetz, A. Electron impact ionisations of helium: a measurement of (n, 2e) differential cross sections close to threshold. <i>J. Phys. B</i> 17, 3391 (1984) France
02484 E-T	H36: hν + He; hν + Ar; hν + Kr; hν + Xe	0.2-1.1 μm	Crance, R. Multiphoton stripping of noble gas atoms: a statistical interpretation. <i>J. Phys. B</i> 17, 3503 (1984) France
02485 E	H06: hν + Ar; hν + Kr; hν + Xe	65-250 eV	Sayashi, T.; Moritsuka, Y.; Nagayama, T.; Matsubara, R.; Szekli, I. B.; Sikuni, S.; Isayama, G.; Asada, S.; Nakamura, R. Multiple photoionisation of the rare gases in the XUV region. <i>J. Phys. B</i> 17, 3511 (1984) Japan
02486 E	A37: H ⁺ + He; H ⁺ + He; C ⁺ + He; C ⁺ + He	0.13-15 keV/nm	Baudzen, H.; Andersen, L. B.; Enevoldsen, P.; Astner, G.; Cedergquist, B.; Canfield, R.; Liljeby, L.; Basselt, R. C. An experimental investigation of double ionisation of helium atoms in collisions with fast, fully stripped ions. <i>J. Phys. B</i> 17, 3585 (1984) Denmark
02487 E	A36: He + Kr	1.78-530 eV	Deynaber, R. R.; Tang, S. Y. Ion-pair production in collisions of He and Kr. <i>J. Phys. B</i> 17, 3585 (1984) United States
02488 T	E03: e + He ⁺ E17: e + He ⁺	50-1000 eV	Gian, T. T. Excitation of He ⁺ by electron impact in the modified Glauber approximation: II. 1s-2p transitions. <i>J. Phys. B</i> 17, 3575 (1984) Canada
02489 T	E03: e + He ⁺	Undef	Lek, B. C.; Sil, M. C. Electron impact excitation of positive ions in dense plasmas. <i>J. Phys. B</i> 17, 3587 (1984) India
02490 E	E05: e + Ne ⁺	41-2000 eV	Giscreen, R. J.; Harrison, R.P.H.; Smith, A.C.H. A measurement of the cross section for electron impact ionisation of Ne ⁺ . <i>J. Phys. B</i> 17, 3621 (1984) United Kingdom
02491 T	A36: R ⁺ + R A37: R ⁺ + R A18: R ⁺ + R	1-250 keV	Terlecki, G.; Grun, R.; Scheid, W. Trajectory method for the solution of the time-dependent Schrödinger equation in atomic physics and application to H ⁺ -R scattering. <i>J. Phys. B</i> 17, 3719 (1984) West Germany
02492 T	A33: R ⁺ + R; R ⁺ + Ne A18: R ⁺ + R; R ⁺ + Ne	100-500 keV	Joseph, S.; Gupta, G. P.; Luther, K. C. Excitation of the hydrogen atom from its ground and metastable states by positron and proton impact at intermediate energies. <i>J. Phys. B</i> 17, 3743 (1984) India

Ref. No.	Reactants	Energy Range	Reference
02493 T	E32: e + Ne; e + Be E17: e + Ne; e + Be	19-230 eV	Kesper, F.; Kosicky, F.; Feder, R. Relativistic two-channel theory of elastic electron-atom scattering and application to Ne and Be. <i>J. Phys. B</i> 17, 3763 (1984) West Germany
02494 T	E32: e + Cs E03: e + Cs E17: e + Cs	3-3 eV	Scott, B. S.; Bartachat, L.; Burke, P. G.; Nagy, O.; Kissner, L. E. Low-energy scattering of electrons by cesium atoms: II. <i>J. Phys. B</i> 17, 3775 (1984) United Kingdom
02495 T	E32: e + Tl E03: e + Tl	3-5 eV	Bartachat, L.; Scott, B. S. Resonances in the low-energy scattering of electrons by atomic thallium. <i>J. Phys. F</i> 17, 3787 (1984) West Germany
02496 T	E32: e + Ng; e + Tl E03: e + Ng; e + Tl E17: e + Ng; e + Tl	5-8 eV	Bartachat, L.; Blas, K.; Burke, P. G.; Hanne, G. P.; Scott, B. S. The fine-structure effect in the low-energy scattering of electrons on Ng and Tl atoms. <i>J. Phys. B</i> 17, 3797 (1984) United Kingdom
02497 E	E33: e + Ne; e + D ₂ E17: e + Ne; e + D ₂	10 eV	Bell, S. J.; Andric, L. Electron impact excitation of D ₂ (D ₂). Resonance phenomena associated with the 3 ³ S(1s _{1/2} , 0 ⁺) and 3 ³ D(1s _{3/2} , 0 ⁺) states of Ne ⁺ in the 10 eV region. <i>J. Phys. E</i> 17, 3815 (1984) France
02498 T	E02: e + CO ₂ E17: e + CO ₂	20-1500 eV	Totolho, L. B.; Freitas, L.C.G.; Su-Tao, L.; Jain, A.; Tayal, S. S. Elastic scattering of intermediate and high energy electrons by CO ₂ . <i>J. Phys. B</i> 17, L641 (1984) Brazil
02499 E	E03: e + Kr [*] E05: e + Kr [*] E27: e + Kr [*]	8.0-12.5 eV	Flaovev, A.; Ivanov, I.; Bishosov, T.; Popov, T. Absolute calibration of arbitrary total cross sections for electron impact excitation of Kr metastable states in the near-threshold regions. <i>J. Phys. B</i> 17, L647 (1984) Bulgaria
02500 E	H03: hv + e	Undef	Craeland, H. W. Relativistic kinematic scattering of x rays by electrons. <i>J. Phys. B</i> 17, L653 (1984) Norway
02501 T	E33: e + Al [*]	3.5-13x10 ⁻⁴ eV	Tayal, S. S.; Burke, P. G.; Kingston, A. E. Electron impact excitation of intercombination transitions in Al III. <i>J. Phys. B</i> 17, L667 (1984) United Kingdom
02502 T	A11: CO ₂ + N ₂	83-600 eV	Eshier, D. J.; Clever, D. R. Near-resonance vibrational relaxation of ¹³ C ¹⁶ O in collisions with para-N ₂ . <i>J. Phys. B</i> 17, 3951 (1984) United Kingdom
02503 T	A37: He ⁺ + D ₂ ; He ⁺ + B; He ⁺ + Au; He ⁺ + PE; He ⁺ + Th; He ⁺ + U	1-3 MeV	Cohen, D. D. Comments on several analytical techniques for 1-ds ^{1/2} shell ionisation calculations. <i>J. Phys. E</i> 17, 3913 (1984) Australia
02504 T	A33: He ⁺ + He [*] A36: He ⁺ + He [*] ; He ⁺ + Ba [*] A37: He ⁺ + He [*] A38: He ⁺ + He [*]	0.25-100 keV/amu	Tecker, B. I.; Beckler, A. D. Theoretical initial 1 dependence of ion-Hydrogen-atom collisions cross sections. <i>J. Phys. E</i> 17, 3923 (1984) United States
02505 E	A33: Si ¹⁴⁺ + C A36: Si ¹⁴⁺ + C	125 MeV	Jekutianska-Astadsen, I. M.; Hoppler, R.; Letz, F. D. Radiative electron capture in fast ion-atom collisions. <i>J. Phys. E</i> 17, 3943 (1984) West Germany
02506 T	E32: e + R E33: e + R E17: e + R	20-200 eV	McDowell, H.B.C.; Edmunds, P. W.; Potvliege, S. M.; Joachain, C. J.; Shingai, B.; Fratadini, S. B. The angular distributions of asymmetry in scattering of spin-polarised electrons by spin-polarised hydrogen atoms: II. <i>J. Phys. B</i> 17, 3951 (1984) United Kingdom
02507 T	E33: Undef E05: Feder	Undef	Read, P. H. Extensions of the Wannier theory for near-threshold excitation and ionisation of atoms by electron impact. <i>J. Phys. E</i> 17, 3965 (1984) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
02508 T	E03: $e + He^+$	Undef	Bax, A. K.; Sil, N. C. Excitation of arbitrary states of hydrogen-like ions by the impact of a charged particle I. J. Phys. E 17, 3987 (1984) India
02509 T	E03: $e + He^+$ Seq	1.2-10 Threshold	Bax, A. K.; Sil, N. C. Excitation of arbitrary states of hydrogen-like ions by the impact of a charged particle II. J. Phys. E 17, 4031 (1984) India
02510 T	E03: $e + He$	Threshold-15 K	Fadnelli, S. S. Electron impact excitation of He. J. Phys. E 17, 4033 (1984) United Kingdom
02511 E	A03: $C^{+} + He$	2-5 keV	Brech, R.; Allich, P. L.; Isenhardt, R.; Heckmann, P. R. High-resolution RUV satellite spectra of doubly excited He I ($n\lambda^2 1'$), $n = 2$ to 5. J. Phys. E 17, 1655 (1984) West Germany
02512 E	A12: $Ca + Kr$	870 K	Berrin, R.; Lewis, R. L.; McHugh, D.; Shannon, I. The full Voigt profile and collision time asymmetry for profiles of calcium 4s2.7 nm perturbed by krypton. J. Phys. E 17, 1661 (1984) United Kingdom
02513 E-T	A17: $K + Ar$	300 K	Lewis, R. L. Potentials for potassium-argon collisions and multipole relaxation rates. J. Phys. E 17, 1669 (1984) United Kingdom
02514 T	A03: $H^{+} + H$ A06: $H^{+} + H$	0.01-1000 keV	Rittby, B.; Blidner, B.; Braendas, B.; Durany, A. Resonance structures in charge transfer cross sections: as application to the $H^{+} + H - H^{+} + H$ reaction. J. Phys. E 17, 1677 (1984) Sweden
02515 T	E32: Undef	Undef	Cordes, J. C.; Chevaley, J. L. Two-atom absorption spectra in the intense-field approximation. J. Phys. E 17, 4163 (1984) Canada
02516 E	A03: $H^{+} + Li$	1-20 keV	Amayr, F.; Pehringuer, R.; Winter, R. Inelastic $H^{+}-Li(2s)$ collisions (1-20 keV): I. Experimental methods and Li(2s) excitation. J. Phys. E 17, 4185 (1984) Austria
02517 E	A03: $H^{+} + Li$ A06: $H^{+} + Li$	1-20 keV	Amayr, F.; Pehringuer, R.; Winter, R. Inelastic $H^{+}-Li(1s)$ collisions (1-20 keV): II. Electron capture into $Li(2s)$ and $Li(3, 1)$ subshells. J. Phys. E 17, 4231 (1984) Austria
02518 T	E32: $e + Ne; e + Ne; e + CO_2$	0.01-1.0 eV	Petrikant, I. I. Effective-range analysis of low-energy electron scattering by non-polar molecules. J. Phys. E 17, 4222 (1984) Soviet Union
02519 T	E75: $e + He$	8 keV	Brothers, R. J.; Bonham, R. A. Approximate first Born descriptions of high-energy asymmetric ($e, 2e$) cross sections for helium. J. Phys. E 17, 4235 (1984) United States
02520 T	F03: $e + He^+$	0-320 eV	Fundin, B. I.; Nather, R. C. Plasma effect on electron-helium ion scattering. J. Phys. E 17, 4245 (1984) India
02521 E-T	A12: $Ca + Ne$ A17: $Ca + Ne$	470 K	Allard, R. J.; Bireaud, Y. G. Alkali-gas interaction potential modelisation by square-well potentials: physical interpretation. Ann. Phys. (Paris) 9, 565 (1984) France
02522 E-T	A11: $He^+ + Ne; He^+ + Ne; He^+ + Ar;$ $He^+ + Kr; He^+ + Ne; He^+ + Xe$ A12: $Ne + Ne; Ne + Ne; Ne + Ar; Ne + Kr;$ $Pb + Ne; Ne + Ne$	Undef	Gougnad, P.; Study, J.; Auger, S.; Sayer, E.; Fontenier, P. R. Broadening of optical lines originating from Rydberg states: a simple model. Ann. Phys. (Paris) 9, 597 (1984) France
02523 T	A35: Undef A06: Undef	Undef	Bonnet, J. J. Photoemission spectroscopy of highly charged ions following low-energy charge exchange collisions. Ann. Phys. (Paris) 9, 629 (1984) France
02524 T	D07: $He^+ + Si; He^+ + Si + S; He^+ + Si;$ $He^+ + Ni + O$	0.9 keV	Schenkhaber, R.; Bichard, A.; Dose, V. Comparison of low-energy neutral scattering (LENS) with low-energy ion scattering (LIS) at clean and adsorbate covered Si surfaces. Appl. Phys. (Germany) 14, 15 (1984) West Germany

Ref. No.	Reactants	Energy Range	Reference
02525 T	D92: He ⁺ + Si; Ne ⁺ + Si; Ar ⁺ + Si; Kr ⁺ + Si; Xe ⁺ + Si; Br ⁺ + Si; Cl ⁺ + Si	30-1x10 ⁶ eV	Biersack, J. P.; Eckstein, W. Sputtering studies with the Monte Carlo program TRIM.5B. <i>Appl. Phys. (Germany)</i> 8, 36, 73 (1984) West Germany
02526 T	C92: e + Cu; e + Au; e + Al C94: e + Ru; e + Al D96: e + Al; e + Lu	0.01-10 keV	Valkonenlahti, S.; Nieminen, R. M. Monte Carlo calculations of hot electron and positron sputtering dose in solids. II. <i>Appl. Phys. (Germany)</i> 8, 35, 91 (1984) Finland
02527 T	D97: Br ⁺ + Si; He ⁺ + Ag; Br ⁺ + Ti; Br ⁺ + Ti; Br ⁺ + C; Br ⁺ + C	20-60 keV	Bedell, B. Total backscattering and energy reflection of light ions from solids in the single-collision approximation. <i>Appl. Phys. (Germany)</i> 8, 35, 91 (1984) United States
02528 T	D11: e + Cu + Si	60 eV	Ren-hao, S.; Verhoeven, J. Low energy electron impact effects on the adsorption of residual gases on a nickel (100) surface. <i>Appl. Surf. Sci.</i> 17, 331 (1984) The Netherlands
02529 T	D11: H ₂ + Rh; CO + Rh	300-1400 eV	Craig, J. H., Jr. Adsorption of H ₂ and CO on rhodium. <i>Appl. Surf. Sci.</i> 17, 375 (1984) United States
02530 T	E24: 2He ⁺ + E	Undef	Busshammer, L.; Schatz, W. The hydrogenic $\alpha - \alpha$ two-photon emission. <i>Astrophys. J.</i> 138, 455 (1964) Switzerland
02531 T	A36: H ⁺ + E	30-10 ⁶ eV	Feickert, C. A.; Dlist, R. J.; Serratt, G. T.; Watson, G. L. Covalent calculations of charge transfer in collisions between α and atomic hydrogen. <i>Astrophys. J., Part 1</i> 266, 371 (1984) United States
02532 T	E23: e + Eg ⁺	3.35-533x10 ² eV	Aggarwal, K. B. Electron impact excitation of forbidden transitions in Eg VII. <i>Astrophys. J. Suppl. Ser.</i> 56, 303 (1984) United Kingdom
02533 T	A14: CO ₂ + O ₂	Thermal	Buhland, T.; Temp, F.; Wagner, R. G. Direct determination of the rate constant for the reaction CH ₃ + O ₂ with a LIF-spectrometer. <i>Rev. Sensors. Phys. Chem.</i> 68, 455 (1984) West Germany
02534 T	K30: Charge states; Equilibrium fractions		T. R. Ohtsuki Charge states, screening and take. p. 155 in <i>Charged Beam Interaction with Solids</i> , Yoshihi-Siko Ohtsuki, Ed., Taylor and Francis, Inc., New York, (1983) Japan
02535 T	K34: Backscattering; Neutralization		T. R. Ohtsuki Particles and solid surfaces. p. 186 in <i>Charge Beam Interaction with Solids</i> , Yoshihi-Siko, Ohtsuki, Ed., Taylor and Francis, Inc., New York, (1983) Japan
02536 E-T	K02: Elastic scattering		Kosak, G.; Cartwright, E. C.; Srivastava, S. K.; Trajmar, S. Elastic scattering of electrons by molecules. p. 1 in <i>Electron-Molecule Interactions and their Applications</i> , vol. 1, L. G. Christophorou, Ed., Academic Press, Inc., New York, (1984) United States
02537 E-T	K02: Excitation		Trajmar, S.; Cartwright, D. C. Excitation of molecules by electron impact. p. 155 in <i>Electron-Molecule Interactions and their Applications</i> , vol. 1, L. G. Christophorou, Ed., Academic Press, Inc., New York, (1984) United States
02538 E	K02: Ionization		Reck, T. D. Ionization of molecules by electron impact. p. 255 in <i>Electron-Molecule Interactions and their Applications</i> , vol. 1, L. G. Christophorou, Ed., Academic Press, Inc., New York, (1984) Austria
02539 E	K02: Dissociation		Zipf, E. C. Dissociation of molecules by electron impact. p. 335 in <i>Electron-Molecule Interactions and their Applications</i> , vol. 1, L. G. Christophorou, Ed., Academic Press, Inc., New York, (1984) United States
02540 E	K02: Resonances		Hasted, J. B.; Nather, S. Electron-molecule resonances. p. 403 in <i>Electron-Molecule Interactions and their Applications</i> , vol. 1, L. G. Christophorou, Ed., Academic Press, Inc., New York, (1984) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
02541 E	K02; Attachment		Christophorou, L. G.; McCorkle, D. L.; Christodoulides, A. A. Electron attachment processes. p. 477 in <i>Electron-Molecule Interactions and their Applications</i> , vol. 1, L. G. Christophorou, Ed., Academic Press, Inc., New York, (1980) United States
02542 E	K02; Detachment		Champion, R. L.; Beveridge, L. T. Electron detachment processes. p. 619 in <i>Electron-Molecule Interactions and their Applications</i> , vol. 1, L. G. Christophorou, Ed., Academic Press, Inc., New York, (1980) United States
02543 E	K03; Electron transfer; Electron capture		Borau, F. P. Electron transfer reactions. p. 1 in <i>Electron-Molecule Interactions and their Applications</i> , vol. 2, L. G. Christophorou, Ed., Academic Press, Inc., New York, (1980) United States
02544 E	K02; Recombination		McComas, J. S.; Mitchell, J.B.A. Electron-molecular positive-ion recombination. p. 65 in <i>Electron-Molecule Interactions and their Applications</i> , vol. 2, L. G. Christophorou, Ed., Academic Press, Inc., New York, (1980) Canada
02545 E	K02; Transport; Drift; Diffusion; Scattering; Attachment; Excitation; Ionization		Buster, S. S.; Christophorou, L. G. Electron optics in low-and high-pressure gases. p. 89 in <i>Electron-Molecule Interactions and their Applications</i> , vol. 2, L. G. Christophorou, Ed., Academic Press, Inc., New York, (1980) United States
02546 E	K02; Mobilities; Attachment; Ionization		Christophorou, L. G.; Sionos, I. Interphase physics: linking knowledge on electron-molecule interactions in gases to knowledge on such processes in condensed matter. p. 227 in <i>Electron-Molecule Interactions and their Applications</i> , vol. 2, L. G. Christophorou, Ed., Academic Press, Inc., New York, (1980) United States
02547 E-T	K02; Electron affinities K06; Electron affinities		Christodoulides, A. A.; McCorkle, D. L.; Christophorou, L. G. Electron affinities of atoms, molecules, and radicals. p. 423 in <i>Electron-Molecule Interactions and their Applications</i> , vol. 2, L. G. Christophorou, Ed., Academic Press, Inc., New York, (1980) United States
02548 T	E05; $e + H$ E17; $e + H_2$	110-114 eV	Ghosh, A. S.; Baranov, P. S.; Basu, K. The triple differential cross sections for the ionization of hydrogen atoms under electron impact. <i>Can. J. Phys.</i> 62, 968 (1984) India
02549 T	D11; $H_2 + Al$; $H_2 + Ag$	Thermal	Ju, L.; Zhang, X. Studies of hydrogen adsorption on Al(111) and Ag(111) surfaces by the BET method. <i>Chin. J. Phys.</i> 4, 33 (1964) Republic of China
02550 E-T	A03; $H^+ + H$ A26; $H^+ + H$	1-10 keV	Crothers, D.J.P.; Hughes, J. G. Symmetric orthogonalization of travelling molecular orbitals. <i>Comments At. Mol. Phys.</i> 15, 15 (1984) United Kingdom
02551 E-T	A27; $H^+ + Ag$	0.2-30 MeV	Leska, O.; Feil, H. Inner-shell ionization by light ions. <i>Comments At. Mol. Phys.</i> 15, 29 (1984) Austria
02552 T	B27; $e + H$; $e + He$		Faisal, F.M.H. Radiative electron-atom collisions in a strong laser field. <i>Comments At. Mol. Phys.</i> 15, 119 (1984) West Germany
02553 T	A26; $Li^{2+} + H$	Undef	Seljak, S.; Geyet, B.; Salin, A. Computation of total cross-sections for electron capture in high energy collisions. II. <i>Comput. Phys. Commun.</i> 35, 193 (1983) Yugoslavia
02554 T	K02; $e + Cs$	0.136 eV	Sartorius, R.; Scott, W. S. Amplitudes for scattering of electrons by atomic systems including relativistic effects. <i>Comput. Phys. Commun.</i> 35, 369 (1983) United Kingdom
02555 T	K02; $e + Ng$	100 eV	Sartorius, R. Progress to calculate observable quantities from scattering amplitudes for inelastic electron-atom collisions. <i>Comput. Phys. Commun.</i> 35, 383 (1983) West Germany
02556 E	C04; $e + H_2O$; $e + D_2O$	0-4 eV	Konovalov, I. V.; Baitsevich, A. N.; Tsvetkov, Y. D. Determination of the thermalization length of low-energy electrons in H_2O and D_2O solutions by photoelectric emission. <i>High Energy Chem.</i> 1, 1 (1984) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
02257 E	CO_2 : e + CO_2 CO_2 : e + CO_2	1.5-4 eV	Fletschier, A. V.; Chiklyan, R. V. Dissociative electron attachment to CO_2 in a multicomponent discharge plasma. High Energy Chem. 18, 67 (1984) Soviet Union
02258 T	A33: H_2 + N_2 A32: H_2 + N_2	11-18 eV	Bonke, P. E.; Ziesmerkamp, R. Oscillator-strength distribution in a dense hydrogen plasma. High Temp. 21, 479 (1983) East Germany
02259 E	E32: e + Ba ; e + Si ; e + Ca ; e + Ba ; e + Ti ; e + Zn E17: e + Ba ; e + Si ; e + Ca ; e + Ba ; e + Ti ; e + Zn E19: e + Ba ; e + Si ; e + Ca ; e + Ba ; e + Ti ; e + Zn	13-150 eV	Ikejiri, S. Electron impact spectroscopy of high temperature species. High Temp. Sci. 17, 65 (1984) United States
02260 E	E31: Review	13-150 eV	Chutjian, A. Electron-ica collisions in high temperature plasmas. High Temp. Sci. 17, 135 (1984) United States
02261 T	A11: H^+ + H_2O	0.35 eV	Sinclair, J. I.; Kato, A. H. Generation of negative ions in tandem high-density hydrogen discharges. J. Appl. Phys. 54, 1927 (1981) United States
02262 E	A11: Hg^+ + H_2 ; Hg^+ + CO_2 ; Hg^+ + N_2O	800 K	Ruskin, E.; Schiffrin, J. Collisional quenching of $\text{Ag}(3^3\text{P}_{0,1,2})$ studied by time-resolved emission, $3^3\text{P}_1 - 3^1\text{S}_0 + \text{h}\nu$ (lambda = 457.1 nm), followed by dye-laser excitation. J. Chem. Soc. Faraday Trans. II 75, 919 (1981)
02263 E	A11: Ca^+ + He ; Ca^+ + Ar ; Ca^+ + Ar ; Ca^+ + Kr ; Ca^+ + Ne	Thermal	Ruskin, E.; Schiffrin, J. Kinetic study of $\text{Ca}(4^3\text{P}_{0,1,2})$ by time-resolved emission, $4^3\text{P}_1 - 4^1\text{S}_0 + \text{h}\nu$ (lambda = 657.3 nm), following dye-laser excitation. Spontaneous emission, diffusion and collisional quenching. J. Chem. Soc. Faraday Trans. II 79, 1265 (1983) United Kingdom
02264 T	A11: Ca^+ + CO ; Ca^+ + BC ; Ca^+ + CO_2 ; Ca^+ + CH_4	1000 K	Ruskin, E.; Schiffrin, J. Collisional quenching of $\text{Ca}(4^3\text{P}_{0,1,2})$ studied by time-resolved emission, $4^3\text{P}_1 - 4^1\text{S}_0 + \text{h}\nu$ (lambda = 657.3 nm), following dye-laser excitation. J. Chem. Soc. Faraday Trans. II 75, 1677 (1983) United Kingdom
02265 T	E30: Ar^+ + F_2	53-72 eV	Kotkin, B. I.; Becker, G.; Trivedi, C. R.; Lindle, D. B.; Berkhoff, R. C.; Shigley, D. A. Photoelectron asymmetries and two-electron satellites near the $3p - 3d$ giant-resonance region in atomic He. J. Electron. Spectrosc. Relat. Phenom. 34, 119 (1980) United States
02266 T	D32: Ar^+ + CO ; Ar^+ + N_2O ; Ar^+ + C_2H_4	3 keV	de Vries, A. H.; Bering, P. A.; Bering, A. H.; Plein, F. S.; Kamuel, A. C.; Sutia, F. W. Synthesis and scattering of newly formed molecules by kiloelectrostatic ions. J. Phys. Chem. 88, 4513 (1984) The Netherlands
02267 E	A33: Ge^{60+} + Ar A36: Ge^{60+} + Ar A37: Ge^{60+} + Ar	5.9 keV/amu	Cederstroem, B. D.; Leyte, B. F.; Folkeson, P. Precision x-ray wavelength measurements in helium-like argon recoil ions. J. Phys. B 17, L669 (1984) United States
02268 T	A12: $\text{Re} + \text{He}$; $\text{Re} + \text{Kr}$; $\text{Re} + \text{Ar}$; $\text{Re} + \text{He}$; $\text{Re} + \text{Ne}$	800 K	Lugent, A. V.; Bennett, J. Collision cross sections for the noble-gas bimodes of the Ca 6s-7p doublet using photo-echoes. J. Phys. B 17, L731 (1984) United Kingdom
02269 T	A33: He^+ + Re ; He^{2+} + Re A36: He^+ + Re ; He^{2+} + Re	25-13000 keV	Deco, G. R.; Meldagam, J. N.; Bivacoli, S. G. Electron capture by protons and alpha-particle impact on helium atoms. J. Phys. B 17, L737 (1984) Argentina
02270 T	A33: C^{60+} + He ; C^{60+} + He A36: C^{60+} + He ; C^{60+} + He	1-200 keV	Ricotta, G.; Cisneros, R. F. Electron capture to (all) states in collisions of C^{60+} and C^{60+} with He. J. Phys. B 17, L733 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
32571 E	A33: Be ⁺⁺ + Be A36: Be ⁺⁺ + Be	6-133 keV	Bikalia, V. V.; Dijkgraaf, B.; Gordeev, Y. S.; Samoylov, A. V.; de Boer, F. J. Electron capture into excited projectile atoms in 6-133 keV Be ⁺⁺ -Be collisions. <i>J. Phys. B</i> 17, 1721 (1984) The Netherlands
32572 T	E35: e + Ti ⁺	46-200 eV	Burke, P. G.; Fox, W. C.; Kingston, A. E. Electron impact ionization of Ti ⁺ . <i>J. Phys. B</i> 17, 1733 (1984) United Kingdom
32573 E	E35: e + N ₂	1 keV	Shibata, H.; Enoki, K.; Hashizume, F.; Goto, D. Partial generalized oscillator strengths for ionizations of the nitrogen molecule by 1 keV electron impact. <i>J. Phys. B</i> 17, L739 (1984) Japan
32574 E	A03: Ca ⁺ + N ₂ ; Ca ⁺ + D ₂ A11: Ca ⁺ + N ₂ ; Ca ⁺ + Z ₂	366-436 eV	Tub, R. J.; Bagdigian, P. J. State-resolved fine-structure transitions in collisions of Ca (3p ^{1/2} p ^{3/2} 3P ₀) with N ₂ and D ₂ molecules. <i>J. Phys. B</i> 17, 4351 (1984) United States
32575 E	A33: C ⁺⁺ + Li A36: C ⁺⁺ + Li	26-80 keV	Dijkgraaf, B.; Braxak, A.; Brentje, A. G.; de Boer, F. J.; Minter, B. Single-electron capture into C ⁺⁺ (n,l) autoionics in C ⁺⁺ -Li collisions (26-80 keV). <i>J. Phys. B</i> 17, 4371 (1984) The Netherlands
32576 E	E33: e + N ₂	0.05-6 eV	Picocelli Verrecchia, F.; Lamanna, U. T. Threshold behaviour of rotational cross sections in e-N ₂ scattering. <i>J. Phys. B</i> 17, 4395 (1984) Italy
32577 T	E36: Be ⁺ + Li	33872 cm ⁻¹	Sixit, S. S.; Lee, A.H.F. Photon catalysed autoionisation of lithium. <i>J. Phys. B</i> 17, 1765 (1984) United States
32578 P	F52: N ₂ + Ng H06: Be ⁺ + Ng	11-13.5 eV	Schoebensee, G.; Schafers, P.; Beckenkamp, C.; Meissner, G.; Seig, G. A. Singlet-triplet mixing in Ng by photoionization via autoionizing transitions. <i>J. Phys. B</i> 17, 1771 (1984) West Germany
32579 T	A37: Be ⁺ + Be E35: e + Be H06: Be ⁺ + Be	0.5-50 keV	McGehee, J. B. High-velocity limits for the ratio of double to single ionization by charged particles and by photons. <i>J. Phys. B</i> 17, 1779 (1984) United States
32580 E	A36: Ne ⁺⁺ + Ar A37: Ne ⁺⁺ + Ar	15.5 keV	Ollrich, J.; Cocke, C. L.; Kelch, S.; Bass, B.; Richard, P.; Schmidt-Bocking, R. A parasite ion source for bare-ion production on a high-energy heavy-ion accelerator. <i>J. Phys. B</i> 17, 1785 (1984) West Germany
32581 E	E33: e + He E17: e + He	22 eV	Beill, P. A.; Crewe, A. Scattered electron-photon angular correlations for the 2P state of helium below the n = 3 threshold. <i>J. Phys. B</i> 17, 1791 (1984) United Kingdom
32582 E	A12: Ne ⁺ + Ne; Ne ⁺ + Ne; Ne ⁺ + Ar; Ne ⁺ + Kr; Ne ⁺ + Kr; Ne ⁺ + Kr; Ca ⁺ + Ne; Ca ⁺ + Ar; Ca ⁺ + Kr; Ca ⁺ + Ne	433-553 eV	Kaulys, S. Broadening and shift of Rydberg levels by elastic collisions with rare-gas atoms. <i>J. Phys. B</i> 17, 1865 (1984) Soviet Union
32583 E	A33: He ³³⁺ + Ne; He ³³⁺ + Ne; He ³³⁺ + Ne; He ³³⁺ + Ne; He ³³⁺ + Ne; He ³³⁺ + Ne; He ³³⁺ + Ne; He ³³⁺ + Ne; He ³³⁺ + Ne; He ³³⁺ + Ne; He ³³⁺ + Ne; Sp ³³⁺ + Ne; Sp ³³⁺ + Ne; Sp ³³⁺ + Ne; Sp ³³⁺ + Ne; Sp ³³⁺ + Ne; Sp ³³⁺ + Ne; Sp ³³⁺ + Ne; Sp ³³⁺ + Ne; Sp ³³⁺ + Ne; Sp ³³⁺ + Ne;	2.2-4.7 keV/amu	Bekler, P. B.; Hoffmann, D.H.H.; Schoenfeldt, W. A.; Bect, D.; Stecher, L.; Matczak, L. Vacancy transfer to the K shell in very heavy quasi-molecules studied with highly charged, decelerated heavy atoms. <i>J. Phys. B</i> 17, 1895 (1984) West Germany
32584 T	A33: He ⁺ + Li A36: He ⁺ + Li	1-400 keV	Brennan, S. B.; Ercalay, A. N.; Shingal, R. One- and two-electron models for electron capture by He ⁺ ions from Li ⁺ at intermediate energies. <i>J. Phys. B</i> 17, 1915 (1984) United Kingdom
32585 T	A33: Ar ⁺⁺ + R; Cr ⁺⁺ + R; Mg ⁺⁺ + R A36: Ar ⁺⁺ + R; Cr ⁺⁺ + R; Mg ⁺⁺ + R	0.05-0.8 e.e.	Mørk, O. G.; Faabjerg, K. Theory of electron capture by partly stripped ions in slow collisions with atomic hydrogen. <i>J. Phys. B</i> 17, 1923 (1984) Denmark

Ref. No.	Reactants	Energy Range	Reference
02586 T	E03; e + R ₂ E17; e + R ₂	50.4 eV	Bremden, S. R.; McCarthy, J. E.; Steltzner, A. T. Off-diagonal polarizability potentials in the e-R coupled-channels problem. <i>J. Phys. B</i> 17, 4563 (1984) Australia
02587 Z	E11; e + Be E17; e + Be	19.3 eV	Andrich, B.; Bader, E. Resonance structures in the cross sections for free-free radiative transitions in e--Be scattering. <i>J. Phys. E</i> 17, 6549 (1984) West Germany
02588 T	E05; e + Be E17; e + Be	8 keV	Ial Cappelle, C.; Izard, C.; Laham-Bennai, D.; Ial Cappelle, B. C. High-energy electron-impact spectroscopy: (e,e) models for absolute triple differential cross sections of neon. <i>J. Phys. B</i> 17, 6557 (1984) France
02589 T	D07; R ₆₊ + Pt; R ₆₊ + Cu; R ₆₊ + Pd	0.5-2.5 keV	Jahas, S. H.; Poce, V. H. Anomalous enhanced back-scattering of fast light ions from amorphous solid targets. <i>J. Phys. E</i> 17, 1333 (1984) Argentina
02590 Z	R05; hv + R ₂ R06; hv + R ₂ R08; hv + R ₂	660-740 keV	Giese-Gaujeau, H.; Breton, J.; Thibault, E.; Ita, K. Lifetimes of radiative excited levels of R ₂ . <i>J. Phys. [Cray]</i> 45, 1137 (1980) France
02591 T	E36; e + O ₂ ⁺ ; e + Ar ¹⁰⁺ ; e + Kr ¹⁰⁺ ; e + Ne ¹⁰⁺	3.157-4.3 keV	Bassler, I.; Baha, L. Dielectronic recombination rates for the He-like ions. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 29, 1 (1983) United States
02592 Z	A03; R ⁶⁺ + R ₂ ; R ⁶⁺ + R ₂ ; R ⁶⁺ + CO; R ⁶⁺ + CH ₄	302 F	Ciucylo, J.; Krause, L. ESR fine-structure splittings in potassium by collisions with R ₂ , R ₂ , CO, and CH ₄ . <i>J. Quant. Spectrosc. Radiat. Transfer</i> 29, 57 (1983) Canada
02593 T	E35; e + Fe ¹⁰⁺ ; e + Fe ¹⁰⁺ ; e + Fe ¹⁰⁺ ; e + Fe ¹⁰⁺ ; e + Fe ¹⁰⁺ ; e + Fe ¹⁰⁺ ; e + Sc ¹⁰⁺ ; e + Sc ¹⁰⁺ ; e + Sc ¹⁰⁺ ; e + Sc ¹⁰⁺ ; e + Sc ¹⁰⁺ ; e + Sc ¹⁰⁺ ; e + Sc ¹⁰⁺	1.25-5.3 E/I	Younger, S. E. Electron ionization rate coefficients for highly ionized iron and scandium. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 29, 61 (1983) United States
02594 T	E36; e + Co ⁶⁺ ; e + Al ¹⁰⁺ ; e + Ar ¹⁰⁺ ; e + Fe ¹⁰⁺	0.2-7.0 E/I	Younger, S. E. Dielectronic recombination rate coefficients for highly ionized helium-like ions. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 29, 67 (1983) United States
02595 Z	A11; Cd ⁶⁺ + R ₂ ; Cd ⁶⁺ + R ₂ ; Cd ⁶⁺ + CO; Cd ⁶⁺ + CO ₂ ; Cd ⁶⁺ + Ar	internal	Czajkowska, B.; Balagtyanowicz, E.; Krause, L. Excitation transfer and quenching induced in inelastic collisions of cadmium SIP atoms. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 30, 113 (1983) Canada
02596 T	A17; R ₂ ⁶⁺ ; O ₂ ⁶⁺ ; R ₂ ⁶⁺ ; R ₂ ⁶⁺	undef	Banasi, K.; Chedgacchar, A. N. On the application of the Rydberg-Kratzer potential to some diatomic molecules. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 29, 379 (1983) India
02597 Z	R02; hv + R ₂ C	1901 cm ⁻¹	Selimian, S.; Banasi, K. R. Absorption measurements of R ₂ C at high temperatures using a CO laser. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 30, 1 (1983) United States
02598 T	B01; Br; Cd; Ge; Mg; Pb; Rb; Se; Zn		Stojanovic, M. S.; Kosjevic, S. Stark broadening of isolated spectral lines of heavy elements in glasses. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 30, 45 (1983) Yugoslavia
02599 T	E36; e + Fe ¹⁰⁺	3.2-2.3 keV	Bonham, L. J.; Weiss, A. B. Effects of configuration interactions on dielectronic recombination of Fe(IIIIV). <i>J. Quant. Spectrosc. Radiat. Transfer</i> 30, 67 (1983) United States
02600 Z	E33; e + R ₂ ; e + R ₂	13-633 eV	Shaw, R.; Caspos, J. Emission cross sections of the second positive and first negative systems of R ₂ and R ₂ ⁺ excited by electron impact. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 30, 73 (1983) Spain

Ref. No.	Reactants	Energy Range	Reference
32631 T	H ₂ O; hv + H ₂ O	150-500 cm ⁻¹	Ghosalampalay, T. T.; Pelshe, J. B. Total band absorptance, emissivity, and absorptivity of the pure rotational band of water vapor. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 30, 69 (1983) United States
32632 E	H ₂ O; hv + H ₂	63-933 cm ⁻¹	Boro, P.; Ricci, L.; Birnbaum, G. Far infrared absorption in normal H ₂ from 77 to 296 K. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 33, 265 (1983) United States
02663 E	H ₂ O; hv + CO ₂	1970-1200 Å*	Lewis, B. R.; Carver, J. B. Temperature dependence of the carbon dioxide photo-absorption cross sections between 1200 and 1970 Å. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 33, 293 (1983) Australia
02664 E	205; e + Kr ⁺ ; e + Kr ⁰ ; e + Kr ⁺⁰ ; e + Kr ⁺⁺	50-250 eV	Jones, L. A.; Kaline, E. A study of the UV emissions from highly ionized krypton in a theta pinch plasma. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 33, 317 (1983) United States
32635 E	H ₂ O; C ₂ O ⁺ ; C ₂ O		El-Farra, N. A.; Hughes, T. P. Stark broadening of lines from multiply-charged carbon ions in a high-density arc plasma. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 33, 335 (1983) United Kingdom
32636 E	H ₂ O; He		Castelli, I.; Mandelbaum, B.; Sander, A.; Sanchez, A. Stark broadening of the Paschen-beta line of hydrogen in a linear discharge. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 30, 345 (1983) Venezuela
02667 E	H ₂ O; hv + O ₂	170-1400 nm	Gibson, S. T.; Gies, H.-P.-F.; Blake, A. J.; McCoy, B. G.; Rogers, P. J. Temperature dependence in the Schumann-Runge photoabsorption continua of oxygen. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 33, 365 (1983) Australia
32638 T	H ₂ O; hv + H ₂ O; hv + O ₂ ; hv + CO; hv + NO	130-1633 GHz	Selbe, W. F.; Leskevar, B. Millimeter and submillimeter wave absorption by atmospheric pollutants and constituents. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 30, 863 (1983) United States
32639 T	205; e + R	Undef	Fleming, R.; Suwa Uebel, I.-S.-K. On the quadrupole contributions to electric broadening of spectral lines. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 31, 267 (1980) West Germany
02640 T	A12; R ⁺ + Ne 205; e + Ne	5x10 ⁻¹ -1x10 ⁰ K	Dimitrijevic, B. S.; Sabot-Brochet, S. Stark broadening of neutral helium lines. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 31, 331 (1980) France
32641 E	A12; CO ⁺ + H ₂ O	400-1333 nm	Tillie, D. E.; Balmer, H. C., Jr.; Levy, B. S., III Collision widths of CO lines broadened by water vapor at elevated temperatures. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 31, 373 (1980) United States
32642 E	A13; R ⁺ + Ne; R ⁺ + Ne; R ⁺ + Ar; R ⁺ + N ₂ ; R ⁺ + N ₂ ; R ⁺ + O ₂ ; R ⁺ + CN ₂	5-153 keV	Bodd, R. E. Cross sections for production of vacuum ultraviolet radiation by 5-153-keV protons in gases. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 31, 387 (1980) United States
32643 E	A13; R ⁺ + Ne ⁺	5-753 eV	Kushavah, V. S. Absolute cross section assessment of Lyman-alpha radiation production. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 31, 517 (1980) United States
02644 F	A12; CO ⁺ + CO ₂ ; CO ⁺ + H ₂ O	300-600 K	Lovry, B. S., III; Fisher, C. J. Line parameter measurements and calculations of CO broadened by H ₂ O and CO ₂ at elevated temperatures. <i>J. Quant. Spectrosc. Radiat. Transfer</i> 31, 575 (1980) United States
32645 T	H ₂ O; hv + CR	Undef	McCue, T. J.; McIlrath, T. J. Absolute CO absorption cross sections (for Lidar measurements). <i>J. Quant. Spectrosc. Radiat. Transfer</i> 32, 179 (1980) United States
02646 T	A12; CR + O ₂ ; C + OR	Thermal	Clary, D. C. Rates of chemical reactions dominated by long-range intermolecular forces. <i>Mol. Phys.</i> 53, 3 (1983) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
02617 T	A32: $h\nu + Ne$	5-220 cm ⁻¹	Joulin, C. G.; Gray, C. G.; Charki, Z. Far-infrared absorption in nitrogen gas. A theoretical study. <i>Bol. Phys.</i> 53, 233 (1984) United Kingdom
02618 T	A37: $Be + Be; Li^+ + Be$	Undef	Ishizaki, N.; Tanaka, K.; Ohno, T.; Nakamura, T. The interaction potentials for Be-Be and Be-Li ⁺ . <i>Mol. Phys.</i> 53, 233 (1984) Japan
02619 T	A37: $Na^+ + Na^+$ A31: $Na^+ + Na^+$	520 K	Carre, B.; Spiess, G.; Sizan, J. M.; Ober, P.; Gerard, P.; Bellennou, F.; Keller, J. C.; Le Gouet, J. L.; Picque, J. L.; Idoux, B. L.; Koch, P. S. Electron spectroscopy study of associative and Penning ionization in laser excited sodium vapor. <i>Cpt. Commun.</i> 52, 29 (1984) France
02620 T	R08: $h\nu + Fe^{2+}$	Undef	Anderson, E. K.; Anderson, E. S. Theoretical determinations of the lifetimes of low-lying levels of Fe IV ion. <i>Opt. Spectrosc.</i> 55, 533 (1983) Soviet Union
02621 R-T	R08: $h\nu + Ti^{2+}; h\nu + Fe^{2+}$	100-1000 eV	Boiko, V. A.; Bryzgunov, D. A.; Pikel, S. A.; Shobolev, I. V.; Faenov, A. V.; S. V. Khakhalin. Spectral line strengths of lithium-like ions Ti II and Fe IIIIV in a laser plasma. <i>Opt. Spectrosc.</i> 55, 533 (1983) Soviet Union
02622 T	A03: $He^+ + He$ A36: $He^+ + He$	Thermal	Ostrovskii, V. N.; Tolmachev, V. A. Calculation of cross sections for charge-exchange with ion excitation. <i>Cpt. Spectrosc.</i> 55, 646 (1983) Soviet Union
02623 T	A33: $He^+ + He$ A31: $He^+ + He$	0.05-0.1 eV	Sovarianni, A. Z.; Zagrebic, A. L. Resonant excitation transfer in the reactions He (2 ¹ S, 2 ³ S) + He ₂ . <i>Opt. Spectrosc.</i> 55, 650 (1983) Soviet Union
02624 R-C	R37: $h\nu + Li^-$	0.6-1.1 eV	Golovinskii, F. A. Shotodetachment of electrons from negative ions. <i>Opt. Spectrosc.</i> 55, 655 (1983) Soviet Union
02625 T	E36: $e + C^{2+}$	8x10 ⁵ K	Kuplyanskiy, Z. I.; Glyazko, K. K.; Kuplyanskaya, A. V. Dielectronic satellites of the C ²⁺ resonance line. <i>Cpt. Spectrosc.</i> 56, 12 (1984) Soviet Union
02626 T	F07: $e + Ke^+$	0.1-1.0 eV	Lochakov, D. P.; Boritts, A. P. Rate of deexcitation of the $Ke^+ 1s_0(11/2, 1)$ state by slow electrons as a function of electron energy in the 0.1-1.0 eV range. <i>Opt. Spectrosc.</i> 56, 134 (1984) Soviet Union
02627 T	A37: $Ne^+ + Rb; Ne^+ + Li; Ne^+ + Ba; Ne^+ + K;$ $Ne^+ + Rb; Ne^+ + Cs; Ne^+ + Si;$ $Ne^+ + Li; Ne^+ + Ba; Ne^+ + K;$ $Ne^+ + Si; Ne^+ + Cs; Ne^+ + Ar;$ $Ne^+ + Kr; Ne^+ + Xe; Ne^+ + Ne;$ $Ar^+ + Li; Ar^+ + Ba; Ar^+ + K;$ $Ar^+ + Si; Ar^+ + Cs; Ar^+ + Ar;$ $Ar^+ + Kr; Ar^+ + Xe; Ar^+ + Ne;$ $Xe^+ + Li; Xe^+ + Ba; Xe^+ + K;$ $Xe^+ + Si; Xe^+ + Cs; Xe^+ + Ar;$ $Xe^+ + Kr; Xe^+ + Xe; Xe^+ + Ne;$ A31: $Ne^+ + Rb; Ne^+ + Li; Ne^+ + Ba; Ne^+ + K;$ $Ne^+ + Rb; Ne^+ + Cs; Ne^+ + Si;$ $Ne^+ + Li; Ne^+ + Ba; Ne^+ + K;$ $Ne^+ + Si; Ne^+ + Cs; Ne^+ + Ar;$ $Ne^+ + Kr; Ne^+ + Xe; Ne^+ + Ne;$ $Ar^+ + Li; Ar^+ + Ba; Ar^+ + K;$ $Ar^+ + Si; Ar^+ + Cs; Ar^+ + Ar;$ $Ar^+ + Kr; Ar^+ + Xe; Ar^+ + Ne;$ $Xe^+ + Li; Xe^+ + Ba; Xe^+ + K;$ $Xe^+ + Si; Xe^+ + Cs; Xe^+ + Ar;$ $Xe^+ + Kr; Xe^+ + Xe; Xe^+ + Ne;$	300 K	Banakov, N. I.; Gulyanskiy, V. D.; Ostrovskii, V. N.; Testrekhov, V. N. Effect of long-range forces on Penning ionization. <i>Opt. Spectrosc.</i> 56, 138 (1984) Soviet Union
02628 T	A03: $Ar + Li; Ar + Ne; Kr + Li; Kr + Ne;$ $Xe + Li; Xe + Ne$ A31: $Ar^+ + Li; Ar^+ + Ne; Kr^+ + Li;$ $Kr^+ + Ne; Xe^+ + Li; Xe^+ + Ne$	2x10 ⁵ cm ⁻¹ sec	Petrashen, A. G.; Bobane, V. N.; Rebane, T. F. Effective cross sections for the production and breakdown of alignment for the 4^1P doublet in anisotropic collisions. <i>Opt. Spectrosc.</i> 56, 213 (1984) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
02629 T	A36: He ²⁺ + Ar; He ²⁺ + Kr	25-1330 keV	Chatterjee, S. N.; Kumar, A.; Roy, B. B. ERB calculations for double electron capture by multicharged ion-beam heavy targets. <i>Physica B+C</i> 125, 111 (1984) India
02630 E-T	E02: he + R; he + Ne; he + Ar; he + Bi; he + Th; he + U	70-300 keV	Krishna Rao, C.; Perumalla, L.; Raynor, G. S. A study on atomic photo effect cross sections at the K-edge in high Z-elements. <i>Physica B+C</i> 125, 334 (1984) India
02631 E-T	E02: he + Y; he + La; he + Ce; he + Pr; he + Nd; he + Sm; he + Eu; he + Gd; he + Tb; he + Dy; he + Ho; he + Er; he + Tm; he + Th	30-662 keV	Suresh Babu, R.; Chandralingam, S.; Krishna Reddy, D. V. Total mass attenuation cross sections of rare earth elements in the energy range 30 to 662 keV and derived photoelectric cross sections. <i>Physica B+C</i> 125, 353 (1984) India
02632 E-T	E03: e + Ar ⁺ ; e + Ar E35: e + Ar ⁺ ; e + Br	15-200 eV	Busilek, J.; Finken, L. B.; Schermann, R. Simultaneous ionization and excitation of argon in an ionization wave. <i>Physica B+C</i> 125, 361 (1984) West Germany
02633 E-T	E06: he + Li; he + Na; he + K	0-14 eV	Tsvary, S. B.; Nicelainas, C. A. Generalized oscillator strengths and photoionization of alkali-metal atoms. <i>Physica B+C</i> 125, 319 (1984) Greece
02634 E	E33: e + I ₂ E34: e + I ₃	10-230 eV	Bane, K.; Goto, T.; Battassi, S. Emission cross sections for the laser lines of I ⁺ by electron - I _n -selenide collisions. <i>Phys. Lett.</i> A 134, 146 (1989) Japan
02635 T	E36: 2he + Ne	Threshold	Fainshtain, A. G.; Benakov, B. L.; Barso, S. I. Use of Coulomb Green's functions for the calculation of above-threshold multiphoton transitions. <i>Phys. Lett.</i> A 104, 367 (1984) Soviet Union
02636 T	C32: Undef	Undef	Rosenzweig, R. Covalent bonding effect on the mean excitation energy of R ₂ with the local plasma model. <i>Phys. Lett.</i> A 119, 415 (1986) United States
02637 T	H34: he + Kr	13-233 eV	Strakhova, S. I.; Zayac, S. S. Argon photoionization in the region of the lowest resonance of the two-particle - two-hole type. <i>Phys. Lett.</i> A 135, 36 (1988) Soviet Union
02638 E	L16: I ⁻ + Ne; I ⁻ + Ar; I ⁻ + Kr; I ⁻ + Xe	13-130 keV	Bird, S.; Bahadur, P. One- and two-electron detachment rates I ⁻ in single rare-gas collisions. <i>Phys. Rev.</i> A 33, 2983 (1986) Canada
02639 T	A33: Rb ⁺ + CC; Rb ⁺ + Ne; Rb ⁺ + Xe A37: Rb ⁺ + CC; Rb ⁺ + Ne; Rb ⁺ + Xe A38: Pb ⁺ + CC; Pb ⁺ + Ne; Pb ⁺ + Xe A41: Rb ⁺ + CC; Rb ⁺ + Ne; Rb ⁺ + Xe	300-830 eV	Petitjean, L.; Guenard, P. Simple analytical formulas for collisional ionizing, reionizing, and ionization of Rydberg atoms with neutral particles at thermal energy. <i>Phys. Rev.</i> A 33, 2986 (1986) France
02640 T	E32: e + H E17: e + H	0-0.7 a.u.	Berger, H.; Sandhas, W.; Alt, E. O. Quasiparticle integral equations for the electron-hydrogen system. <i>Phys. Rev.</i> A 30, 2965 (1984) West Germany
02641 T	E33: e + He E17: e + He	333 eV	Sarker, S.; Chakrabarty, N. Different forms of direct- and exchange-scattering amplitudes for the e,e-nug transitions in electron-hydrogen collisions. <i>Phys. Rev.</i> A 30, 2988 (1984) India
02642 T	D39: Undef	Undef	Bacic, Z.; Rosanac, S. D. Analysis of rotationally inelastic molecule-surface collisions: a two-dimensional treatment. <i>Phys. Rev.</i> A 30, 2998 (1984) West Germany
02643 T	E32: e + N ₂ E17: e + N ₂	1-10 eV	Glaeser, T. L.; Lise, A.A.P.; Takatsuka, S.; McKoy, V. At initial inclusion of polarization effects in the Schrödinger multichannel formulation: application to elastic e-N ₂ scattering. <i>Phys. Rev.</i> A 33, 3035 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
02644 T	E05; Undef	Undef	Grujic, F. V. Energy distribution in the near-threshold electron-impact ionization of atoms and ions. <i>Phys. Rev. A</i> 33, 1612 (1986) Yugoslavia
02645 T	E01; Undef	Undef	Beter, D. L. Redistribution of scattered light in resonant electronic Raman scattering from localized scattering centers. <i>Phys. Rev. A</i> 36, 3033 (1986) United States
02646 T	E36; $\text{He}^+ + \text{He}$	1.364 eV	Heller, H. G.; Tip, A. Multiphoton ionization in strong fields. <i>Phys. Rev. A</i> 33, 3539 (1986) The Netherlands
02647 T	E36; $\text{He}^+ + \text{H}_2$; $\text{He}^+ + \text{D}_2$; $\text{He}^+ + \text{H}_2$	1610-703 eV	Clement-Suzor, A.; Lafabvre, Etien, H. Theoretical study of coupled resonances near ionization thresholds: application to the He photoionization spectrum. <i>Phys. Rev. A</i> 30, 3657 (1984) France
02648 T	E36; $e^- + \text{C}^{2+}$; $e^- + \text{O}^{2+}$; $e^- + \text{Ar}^{1+}$; $e^- + \text{Fe}^{2+}$	0.25-10 eV	LaGattuta, E. J. Effects of LS-coupling order and configuration interaction upon dielectronic-recombinations rates: He sequence ($n = 3$). <i>Phys. Rev. A</i> 33, 3372 (1986) United States
02649 T	A37; $\text{He}^+ + \text{H}$	Undef	Bister, T. C.; Lin, C. D. Erratum: Triple-center treatment of ionization in p-p collisions [Phys. Rev. A 25, 3371 (1982)]. <i>Phys. Rev. A</i> 33, 3323 (1986) United States
02650 T	A33; $\text{C}^{2+} + \text{H}$; $\text{D}^{2+} + \text{H}$; $\text{O}^{2+} + \text{H}$ A36; $\text{C}^{2+} + \text{H}$; $\text{D}^{2+} + \text{H}$; $\text{O}^{2+} + \text{H}$	4-100 keV/amu	Fritsch, B. Determination of high-s partial transfer cross sections in bare-nucleus-hydrogen-atom collisions. <i>Phys. Rev. A</i> 33, 3316 (1986) West Germany
02651 E	E35; $e^- + \text{Ar}$ E17; $e^- + \text{Ar}$	300-8000 eV	Sippeler, R.; Saeed, E.; Duncan, A. J.; Kleinpoppen, R. Electron spectroscopy of multiple ionization of argon by electron impact. <i>Phys. Rev. A</i> 33, 3326 (1986) United Kingdom
02652 T	E36; $\text{He}^+ + \text{H}_2$	Undef	Dixit, S. P.; Lynch, D. L.; McKoy, V. Three-photon resonant four-photon ionizations of H_2 via the $\text{C}^1(\text{s}1/2)$ state. <i>Phys. Rev. A</i> 30, 3332 (1984) United States
02653 E	D38; $\text{Ne}^+ + \text{Na}$; $\text{Ne}^+ + \text{Kg}$; $\text{Ne}^+ + \text{Al}$	1 keV	Zaspisici, G.; Baragielka, R. Ion-induced Auger emission from solids: correlation between Auger energies and work functions. <i>Phys. Rev. E</i> 29, 1482 (1984) Argentina
02654 T	C04; PbTe^+ + Si; PbTe^+ + Ge	0.4-80 keV	Gepta, S. K.; Bhattacharyya, P. K. Shell effects in low-energy heavy-ion ranges. <i>Phys. Rev. E</i> 29, 2449 (1984) India
02655 E	D13; $\text{hv} + \text{RbBr}$; $\text{hv} + \text{KI}$; $\text{hv} + \text{AgBr}$; $\text{hv} + \text{AgCl}$	160-195 eV	Kaneko, H.; Mori, T. Photo-stimulated desorption of neutrals from silver and alkali halides. <i>Phys. Rev. E</i> 29, 3573 (1984) Japan
02656 T	D37; $\text{He} + \text{Si}$	20-100 keV	Annett, J. P.; Haydock, R. Helium diffraction from metal surfaces: elimination of a class of potentials. <i>Phys. Rev. B</i> 29, 3773 (1984) United States
02657 E	D33; $\text{Ar}^+ + \text{Cu}$; $\text{Ar}^+ + \text{Ag}$; $\text{Ar}^+ + \text{Zn}$; $\text{Ar}^+ + \text{Cr}$	0.5-3.0 keV	Vasile, M. J. Velocity dependence of secondary-ion emission. <i>Phys. Rev. E</i> 29, 3785 (1984) United States
02658 E	D37; $\text{He} + \text{He}$	2 meV	Sivans, N.; Goodstein, D. L.; Cole, R. B. Scattering of low-energy helium atoms from a low-temperature solid surface. <i>Phys. Rev. E</i> 29, 3935 (1984) United States
02659 E	D13; $\text{hv} + \text{LiF}$; $\text{hv} + \text{BaF}$	37-72 eV	Parks, C. C.; Shirley, D. A.; Loubriel, G. Beam-exposure dependence and mechanisms of photo-stimulated desorption from alkali fluorides. <i>Phys. Rev. E</i> 29, 4799 (1984) United States
02660 T	D07; Undef	Undef	Criljen, Z.; Gushter, B. Electronic Brueker-Bauer effect in atom-surface scattering. <i>Phys. Rev. E</i> 29, 6633 (1984) Yugoslavia
02661 E	D38; $\text{Ne}^+ + \text{Si}$; $\text{Ne}^+ + \text{Ca} + \text{Si}$ D39; $\text{Ne}^+ + \text{Si}$; $\text{Ne}^+ + \text{Ca} + \text{Si}$	75-180 keV	Raight, B.; Feldman, L. C.; Buck, T. R.; Gibson, W. R. Neutralization of energetic Ne ions scattered from clean and Ca-covered Si(100). <i>Phys. Rev. E</i> 30, 734 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
32662 T	D12: e + H ₂ O + TiO ₂ D13: e + H ₂ O + TiO ₂	6-63 eV	Bernardes, V. S.; Hoffbauer, H. A. Electros-stimulated desorption of neutrals from ionic surfaces: O ₂ from TiO ₂ . Phys. Rev. B 30, 1125 (1984) United States
32663 T	D33: Undef	Undef	Goldberg, I. C.; Petren, J.; Pusseggi, M.C.G. Secondary-ion emission: a molecular-orbital approach. Phys. Rev. E 35, 2048 (1986) Argentina
32664 T	C04: H ₂ ⁺ + Cu; H ₂ ⁺ + Ag	3-5 keV	Esquerdo, A.; Tengnagard, S.; Ignatius, A. Range distributions of low-energy nitrogen ions in metals. Phys. Rev. B 30, 3120 (1984) United States
32665 T	D32: Undef	Undef	Jakas, B. B.; Barricus, L. E., Jr. Influence of electronic energy losses on atom ejection processes. Phys. Rev. B 30, 3573 (1984) United States
32666 T	C36: H ⁺ + Al; H ₂ ⁺ + Al	Undef	Solis, F.; Flores, P. Charge transfer processes for light ions moving in metals. Phys. Rev. B 30, 4079 (1984) Spain
32667 T	D34: H ⁺ + Si	3-3.5 keV	Kudo, N.; Schneider, D.; Kantor, E. P.; Accorsi, P. W.; Johnson, R. A. Energy spectra of ion-induced Auger electrons under channeling conditions. Phys. Rev. B 30, 4099 (1984) United States
32668 T	C32: Ca ⁺ + Cu; Fe ⁺ + Si; D ⁺ + Si; Ne ⁺ + Cu	5-60 keV	Mastela, H. Nuclear stopping in polycrystalline materials: range distributions and Doppler-shift attenuation analysis. Phys. Rev. B 30, 5713 (1984) Finland
32669 T	D07: Undef	Undef	Holmberg, C.; Apell, P. Van der Waals interaction in atom-surface scattering. Phys. Rev. B 30, 5727 (1984) Sweden
32670 T	D06: Undef	1-30 eV	Michaud, R.; Sanchez, L. Interaction of low-energy electrons (1-30 eV) with condensed molecules: I. Multiple scattering theory. Phys. Rev. B 30, 6667 (1984) Canada
32671 T	D36: e + H ₂ + Pt; e + CO + Pt; e + Ar + Pt	1-30 eV	Sanchez, L.; Michaud, R. Interaction of low-energy electrons (1-30 eV) with condensed molecules: II. Vibrational-librational excitation and shape resonances in thin H ₂ and CO films. Phys. Rev. B 30, 6678 (1984) Canada
32672 T	E33: e + Be ⁷⁺	50-100 eV	Cheng, C. C.; Greve, P.; Kolk, E. H.; Kunze, B. J. Experimental excitation rate coefficients for Be VIII ions. Phys. Scr. 29, 131 (1984) West Germany
32673 T	A03: H ⁺ + He	0.01-2.0 keV	Sidorovich, V. A. On the cross sections for the excitation of the 2p3p1/2, 2p3d1/2 and 3p3d1/2 autoionizing states of helium by protons. Phys. Scr. 29, 233 (1984) Soviet Union
32674 T	E33: e + CO	Undef	Agren, B.; Åberg, B. Origin of fine structures in the vicinity of the K-edges in the CO electron energy loss spectra. Phys. Scr. 30, 55 (1984) Sweden
32675 T	A17: Al + Al; Cu + Cu; Ar + Ar	Undef	Åslander, B. J.; Pastero, P. Monte Carlo testing of pair potentials for Al, Al and Cu. Phys. Scr. 30, 66 (1984) Finland
32676 T	E06: e + Al deg E06: Oscillator strengths	Undef	Aasheim, K.; Lahn, T. M.; Tolman, J. D. Oscillator strengths in the silicones sequence. Phys. Scr. 30, 121 (1984) Norway
32677 T	A06: C ⁶⁺ + N	10 ⁷ -10 ⁸ x 10 ⁷ cm/sec	Grozdanov, I. P.; Bulicic, D. S. A model for final-states mixing following electron capture in slow collisions of fully stripped, multicharged ions and hydrogen atoms. Phys. Scr. 30, 194 (1984) Yugoslavia
32678 T	A37: F ¹⁹⁺ + C; F ¹⁹⁺ + C; F ¹⁹⁺ + C; Si ²⁴⁺ + C; Si ²⁴⁺ + C; Si ²⁴⁺ + C A38: F ¹⁹⁺ + C; F ¹⁹⁺ + C; Si ²⁴⁺ + C; Si ²⁴⁺ + C C05: F ¹⁹⁺ + C; F ¹⁹⁺ + C; F ¹⁹⁺ + C; Si ²⁴⁺ + C; Si ²⁴⁺ + C; Si ²⁴⁺ + C C06: F ¹⁹⁺ + C; F ¹⁹⁺ + C; F ¹⁹⁺ + C; Si ²⁴⁺ + C; Si ²⁴⁺ + C; Si ²⁴⁺ + C	10-56 keV	Nielsen, P. I.; Syddal, K.; Bonde Nielsen, K.; Bud, B. K-shell cross sections extracted from measured charge-state distributions for F and Si ions penetrating C. Phys. Scr. 30, 297 (1984) Denmark

Ref. No.	Reactants	Energy Range	Reference
02679 Z	D02: Kr ⁺ + V ₃ Si; Kr ⁺ + V ₆ Si ₃ ; Kr ⁺ + VSi ₂	10 keV	Beinsbrodt, P.; Starbeck, P.; Hauffe, K. Sputtering behaviour of vanadium silicide single crystals under 10 keV Kr ⁺ ion bombardment. Phys. Status Solidi A 81, 259 (1984) East Germany
02680 Z	D03: Kr ⁺ + Fe	3 keV	Shlomass, E.; Schmid, H. Influence of work function change due to oxygen chemisorption on the secondary-ion emission probability. Phys. Status Solidi A 85, 819 (1984) East Germany
02681 Z	D10: D ⁺ + Si	25-2500 eV	Hildebrandt, D.; Strunay, R.; Grotzschel, R.; Kotlyar, L.; Panati, F. Damage and trapping behaviour of crystalline Si lccs at low energy deuterium implantation. Phys. Status Solidi A 85, 835 (1984) East Germany
02682 Z	C02: e ⁻ + GaAsP	10-45 keV	Colgaro, G.; Werner, U. Kilovolt electron energy loss distribution in GaAsP. Phys. Status Solidi A 85, 235 (1984) East Germany
02683 T	C02: H ⁺ + PEET; He ⁺ + PEET	Undef	Shindo, S. The recoil effect on the electronic stopping power of solids for slowly moving atoms. Phys. Status Solidi B 125, 161 (1984) Japan
02684 T	C04: PEET ⁺ + Si	5-30 keV	Chabikov, N. A.; Akhiezar, I. Y. Simulation of Z-oscillations in low-energy heavy ion ranges in solids. Phys. Status Solidi B 125, 169 (1984) Soviet Union
02685 Z	H02: Li ⁺ + O ₂	350-200 nm	Freeman, D. L.; Yoshino, K.; Esposito, J. R.; Jackins, B. M. High resolution absorption cross-section measurements of excite at 195 K in the wavelength region 240-350 nm. Planet. Space Sci. 31, 229 (1983) United States
02686 Z	D02: H ⁺ + e ⁻ + C	40 eV-10 keV	Guseva, N. I.; Ivanov, S. N.; Massurova, A. P. Synergic effect in irradiating graphite with H ⁺ ions and electrons. Sov. At. Energy 55, 436 (1984) Soviet Union
02687 Z	D02: H ⁺ + Cu; He ⁺ + Cu; C ⁺ + Cu	3.65 GeV/n	Aleksikov, V. E.; Tisoshenko, G. P. Angular distributions of fluxes of charged particles from a thick target bombarded with beams of protons, alpha particles, and ¹⁴ C nuclei with energies of 3.65 GeV/nucleon. Sov. At. Energy 55, 878 (1984) Soviet Union
02688 T	A03: H ⁺ + Fe ⁷⁷⁺	0.5-10 keV	Abrosimov, V. A.; Gonitis, V. G.; Litsitsa, V. S. Excitation of impurities by heavy particles and radiative loss of a fusion plasma. Sov. J. Plasma Phys. 10, 235 (1984) Soviet Union
02689 Z	E04: e ⁻ + Ne ₂ ⁺ E06: e ⁻ + Ne ₂ ⁺	0.33-0.6 eV	Ivanov, V. A.; Shoblik, T. E. Recombination channels of molecular ions Ne ₂ ⁺ and electrons. Sov. Phys. J. 27, 144 (1984) Soviet Union
02690 Z	E06: e ⁻ + Ne ⁺	1000 K	Tancharina, A. N.; Nasav'ev, I. I.; Shernav, A. N.; Khrenzha, L. E. Level population by recombination in a pulsed plasma jet in an He-Ne mixture. Sov. Phys. J. 27, 177 (1984) Soviet Union
02691 T	E08: e ⁻ + H ₂ ⁺	1-10 eV	Barchenko, V. S. Dissociation of homonuclear ions by electron impact. Sov. Phys.-JETP 58, 292 (1983) Soviet Union
02692 E-T	E36: e ⁻ + He ⁺	13-53 eV	Igashchenko, I. P.; Sosipyan, I. B.; Dashchekko, A. I.; Iate, P. I.; Zapomochyi, A. I. Dielectronic recombination of the helium ion. Sov. Phys.-JETP Lett. 39, 161 (1984) Soviet Union
02693 E-T	D30: Ar ⁺ + Si; Ar ⁺ + Cu	30-35 keV	Hitov, V. G.; Parilis, E. S. Auger spectra during ion bombardment of crystals. Sov. Tech. Phys. Lett. 9, 525 (1984) Soviet Union
02694 E-T	C02: H ⁺ + C	100-900 keV	Kulikauskas, V. S.; Koshev, P. G.; Pozhnov, B. A.; Urmanov, A. B.; Shabik, V. F. Difference between the stopping cross sections of diamond and graphite for protons moving in random directions. Sov. Tech. Phys. Lett. 10, 96 (1984) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
02695 E	D36: e + LiF; e + NaCl; e + KCl; e + CsCl; e + CsBr; e + Cl	0.6-3.8 keV	Guly, P. V.; God, I. Z.; Izmail, N. A. Secondary emission efficiency of ionizer emitters within an average energy range of incident electrons. Ukr. Phys. J. 29, 265 (1984) Soviet Union
02696 T	A36: Ce ⁺ + Ce ⁺ ; Ba ⁺ + Ba ⁺ ; O ⁺ + O ⁺	0.37-155 keV	Kerhovanets, B. I.; Lutsik, V. I.; Chikishev, R. I. Resonant two-electron charge exchange in ion-ion collisions. Ukr. Phys. J. 29, 655 (1984) Soviet Union
02697 E	D11: H ₂ + Zr	300-1100 eV	Liu, J. H.; Gilbert, R. E. The interaction of hydrogen with polycrystalline zirconium. I. Sticking coefficients and binding states. Appl. Surf. Sci. 18, 315 (1984) United States
02698 E	D03: In ⁺ + Si; In ⁺ + C ₆₀ ; In ⁺ + Ti; In ⁺ + O ₂ + Ti; In ⁺ + Nb; In ⁺ + O ₂ + Si	10 keV	Graener, B. Secondary ion emission from transition metals during exposure to oxygen and subsequent sputtering. Appl. Surf. Sci. 18, 389 (1984) Austria
02699 T	D33: Undef	Undef	Sroobek, S. Electronic excitations in collision cascades and the ionization of sputtered particles. Appl. Phys. Lett. 45, 809 (1984) Czechoslovakia
02700 E	D32: Ar ⁺ + Cl ₂ + Si D17: Ar ⁺ + Cl ₂ + Si	1 keV	Bosman, B. A.; Sewing, R. E. Ion-enhanced gas-surface kinetics: the Si-Cl ₂ -Si system. Appl. Phys. Lett. 45, 860 (1984) United States
02701 E	J06: Sputtering	Undef	Setoguchi, S.; Yamagata, T.; Itikawa, Y.; Itch, R.; Kurozawa, T.; Higashida, T.; Morita, K.; Shimizu, T.; Tomura, R. Energy dependence of the ion-induced sputtering yields of monatomic solids. At. Data Nucl. Data Tables 31, 1 (1984) Japan
02702 E	J35: Ion transport in gases	Undef	Ellis, H. B.; Thackston, B. G.; McDaniel, E. B.; Hascall, F. A. Transport properties of gaseous ions over a wide energy range: Part III. At. Data Nucl. Data Tables 31, 113 (1984) United States
02703 E-T	L02: Excitation; Ionization	Undef	Itikawa, Y.; Takayanagi, R.; Imai, T. Annotated bibliography on electron collisions with atomic positive ions: excitation and ionization. At. Data Nucl. Data Tables 31, 215 (1984) Japan
02704 T	J31: Proton stopping power J38: Proton stopping power	Undef	Geddes, J.; Sahai, J. B. Orbital and valence-atom proton stopping power and shell corrections for atoms with Z less than or equal to 36. At. Data Nucl. Data Tables 31, 275 (1984) Denmark
02705 T	R36: hν + H ₂ O	7-60 eV	Cacelli, I.; Boccia, R.; Corradi, V. Photoionization cross section calculations for H ₂ O and NH ₃ by one-center expansion and Stieljes technique. Chem. Phys. 90, 313 (1984) Italy
02706 E	E35: e + Te	15-180 eV	Stephan, R.; Bark, T. D. Absolute partial electron impact ionization cross sections of Te from threshold up to 180 eV. J. Chem. Phys. 81, 3716 (1984) Australia
02707 T	A17: He + O ₂	Undef	Van Lenthe, J. H.; Van Duijnneveldt, T. B. Ab initio calculations on the He-O ₂ potential energy surface, Hartree-Fock instability of C ₂ . J. Chem. Phys. 81, 3168 (1984) The Netherlands
02708 T	A16: H ₂ ⁺ + He; HD ⁺ + He	0-10 eV	Furner, T.; Estuit, C.; Lee, Y. T. The effects of collisional energy and vibrational excitation on H ₂ ⁺ , HD ⁺ + He reactions. J. Chem. Phys. 81, 3835 (1984) United States
02709 T	A17: H ₂ + H ₂ ; H ₂ + D ₂	Undef	Bosman, R. J.; Watts, B. O.; Beck, U. A spherical potential for hydrogen fcc solid state and scattering data. J. Chem. Phys. 81, 3533 (1984) Australia
02710 F	X06: hν + CO ₂	80-2 nm	Betin-Frassbie, M. J.; Delville, J.; Morin, F.; Adam, R. T.; Desner, J.; Bey, P. Synchrotron radiation study of vibrationally resolved partial photoionization cross sections of CO ₂ between 64 and 80 nm. J. Chem. Phys. 81, 8286 (1984) France

Ref. No.	Reactants	Energy Range	Inference
02711 E	D02: H + C; H + TiB ₂ D17: H + C; H + TiB ₂	420-1540 eV	Ashby, C.I.L. Chemical erosion of first wall materials by atomic hydrogen at high temperatures. <i>J. Nucl. Mater.</i> 123, 1036 (1984) United States
02712 E	D02: H ⁺ + Cu + Si D13: H ⁺ + Cu + Si	0.3-1 keV	Fantazz, R.; Kerst, R. A.; Causey, R. A. Ion impact desorption measurements of sputter-deposited copper on stainless steel. <i>J. Nucl. Mater.</i> 123, 1012 (1984) United States
02713 E	D02: H ⁺ + Be; H ⁺ + SiC; H ⁺ + TiC; H ⁺ + Be,C; H ⁺ + Be; D ⁺ + SiC; D ⁺ + TiC; D ⁺ + Be,C; T ⁺ + Be; T ⁺ + SiC; T ⁺ + TiC; T ⁺ + Be,C; He ⁺ + Be; He ⁺ + SiC; He ⁺ + TiC; He ⁺ + Be,C	0.06-10 keV	Sobolevsky, J.; Roth, J. Light ion sputtering of low Z materials in the temperature range 20-1100 °C. <i>J. Nucl. Mater.</i> 123, 1017 (1984) West Germany
02714 E	D02: Ar ⁺ + Cu + Li	1-3 keV	Braess, L. S.; Green, D. K.; Vassilopoulos, D. Sputtering properties of lithium-bearing copper alloys. <i>J. Nucl. Mater.</i> 123, 1025 (1984) United States
02715 E	D02: O ⁺ + C; O ⁺ + Be; Be ⁺ + C; Be ⁺ + Be; Be ⁺ + C; Be ⁺ + O; Ar ⁺ + C; Ar ⁺ + Be; Kr ⁺ + C; Kr ⁺ + Be; Xe ⁺ + C; Xe ⁺ + Be	0.1-10 keV	Bechtel, H.; Sobolevsky, J. Sputtering behavior of graphite and polycrystalline silicon at low bombardment energies. <i>J. Nucl. Mater.</i> 123, 1031 (1984) West Germany
02716 E	D02: H + C D17: H + C	300-1100 eV	Philippe, V.; Fleckamp, R.; Vietske, E. A comparative study of the chemical erosion of different types of graphite and the influence of nickel surface contaminations. <i>J. Nucl. Mater.</i> 123, 1043 (1984) West Germany
02717 E	D02: H ⁺ + C; C ⁺ + C; O ⁺ + C; Ar ⁺ + C	0.13-150 keV	Roth, J.; Eckert, J. S.; Wilson, R. L. Enhanced sputtering of graphite at high temperature. <i>J. Nucl. Mater.</i> 123, 1047 (1984) United States
02718 E	D04: H ⁺ + Al; H ⁺ + Si; H ⁺ + Fe; He ⁺ + Al; He ⁺ + Si; He ⁺ + Fe; H ⁺ + Al; H ⁺ + Si; H ⁺ + Fe; O ⁺ + Al; O ⁺ + Si; O ⁺ + Fe; He ⁺ + Al; He ⁺ + Si; He ⁺ + Fe; Ar ⁺ + Al; Ar ⁺ + Si; Ar ⁺ + Fe	1-30 keV	Ishii, T.; Imaeda, M.; Isoto, S. Surface processes occurring under reactive ion bombardment studied by secondary electron emission. <i>J. Nucl. Mater.</i> 123, 1056 (1984) Japan
02719 E	D01: H + Al; H + Be; H + Cu; H + Ni; H + Ni; H + Ti; H + V; H + Ta; H + Ir; H + Be; H + C; H + B; H + Si; H + Fe; H + SS; H + Inconel O16: H + Al; H + Be; H + Cu; H + Ni; H + Ni; H + Ti; H + V; H + Ta; H + Ir; H + Be; H + C; H + B; H + Si; H + Fe; H + SS; H + Inconel	Undef	Doyle, B. L.; Brice, D. K. Steady state hydrogen transport in solids exposed to fusion reactor plasmas: Part II. Applications of theory. <i>J. Nucl. Mater.</i> 123, 1053 (1984) United States
02720 E	D01: Undef D18: Undef	Undef	Brice, D. K. Steady state hydrogen transport in solids exposed to fusion reactor plasmas: Part III. Isotope effects. <i>J. Nucl. Mater.</i> 123, 1051 (1984) United States
02721 E	D01: H + SS D18: H + SS	Undef	Causey, R. A.; Kerst, R. A.; Mills, S. E. The effect of surface composition on plasma driven permeation of deuterium through 304 stainless steel. <i>J. Nucl. Mater.</i> 123, 1057 (1984) United States
02722 E	D01: H + SS D18: H + SS	Undef	Schwarzinger, G. W.; Sobolevsky, J. Permeation and diffusion of hydrogen and deuterium under fission-reactor radiation. <i>J. Nucl. Mater.</i> 123, 1060 (1984) Austria
02723 E	D18: D + Si	20-30 keV	Ishii, T.; Furuya, T.; Isoto, S. Kinetics and permeation of deuterium implanted into metals. <i>J. Nucl. Mater.</i> 123, 1063 (1984) Japan
02724 E	D18: H ⁺ + Si	75 keV	Choyke, W. J.; Irvin, R. B.; Spitznagel, J. B.; Wood, S. P.; Bell, F. C. Implanted hydrogen effects at high concentrations in model low Z shielding materials. <i>J. Nucl. Mater.</i> 123, 1085 (1984) United States
02725 E	D18: H + C; H + C	Undef	Stangeby, P. C.; Ascencio, O.; Haasz, A. A.; Doyle, B. L. Trapping of sub-eV hydrogen and deuterium atoms in carbon. <i>J. Nucl. Mater.</i> 123, 1092 (1984) Canada

Ref. No.	Reactants	Energy Range	Reference
02726 E	D18: D ⁺ + Be	500-1500 eV	Bamplier, V. S. Retention and thermal release of deuterium implanted in beryllium. <i>J. Nucl. Mater.</i> 123, 1598 (1984) United States
02727 T	D18: H + Si	Undef	Stenberg, P. C. An analytic approximation for time-dependent retention and re-cycle of atomic hydrogen in materials. <i>J. Nucl. Mater.</i> 126, 193 (1984) Canada
02728 T	A14: H + H ₂ O	0.05-1.7 eV	Schatz, G. C.; Colton, R. C.; Grant, J. L. A quasiclassical trajectory-study of the state-to-state dynamics of H + H ₂ C → CH + H ₂ . <i>J. Phys. Chem.</i> 88, 2971 (1984) United States
02729 T	A14: Y + H ₂ ; Y + BD; Y + D ₂ A17: F + H ₂ ; F + BD; F + D ₂	1.6-1.8 eV	Hayes, E. F.; Walker, B. S. Reactive differential cross sections in the rotating linear model. Reactions of fluorine atoms with hydrogen molecules and their isotopic variants. <i>J. Phys. Chem.</i> 88, 3318 (1984) United States
02730 T	C36: e + H ₂	500 eV	Borner, A.; Laverne, J. A. Range straggling of low-energy electrons. <i>J. Phys. Chem.</i> 88, 3926 (1984) United States
02731 T	A17: He + Be; He + Be; He + Ar; He + Kr; He + Xe; He + Be; He + Ar; He + Kr; He + Xe; Kr + Kr; Kr + Xe; Ar + Ar; Ar + Kr; Ar + Xe; Xe + Xe; Xe + Be; H ₂ + Be; H ₂ + Ar	Undef	LeSar, B. Electron-gas plus damped-dispersion model for intermolecular forces. The rare-gas and H ₂ -He, H ₂ -Ar, and H ₂ -Kr potentials. <i>J. Phys. Chem.</i> 88, 4272 (1984) United States
02732 E	A33: Ar + CO ₂ ; H ₂ + CO ₂	2-5 keV	Battue, A. Vibrationally inelastic collisions of CO ₂ with H ₂ and Ar. <i>J. Phys. Chem.</i> 88, 4480 (1984) United States
02733 P	J01: Excitation; De-excitation		Steinigfeld, J. I. Rate data for inelastic collision processes in the diatomic halogen molecules. <i>J. Phys. Chem. Ref. Data</i> 13, 445 (1984) United States
02734 E	E39: e + H ₂	50 eV	Graham, B. G. Vacua ultraviolet emission and H ⁻ production in a low pressure hydrogen plasma. <i>J. Phys. D</i> 17, 2225 (1984) United Kingdom
02735 E	D92: Ar ⁺ + Au	15-60 keV	Kojima, S.; Kinoshita, S.; Nakanishi, S. Angular dependence of sputtering yield of Au on bombardment by 15-60 keV Ar ⁺ . <i>Jpn. J. Appl. Phys. Pt. 1</i> 22, 1831 (1983) Japan
02736 E	C02: H ⁺ + Ag; I ⁺ + Ag; Ne ⁺ + Ag	0.14-2.6 keV/amu	Lounsbury, J.; Congdon, J.; Friedland, L. Energy-loss and straggling of hydrogen and helium ions in silver. <i>Nucl. Instrum. Methods Phys. Res.</i> 216, 293 (1983) South Africa
02737 E	D37: H ⁺ + Au	0.9-3.5 keV	Singay, D. B.; Bassett, B. Enhanced yields of different charge states of nitrogen ions backscattered at 180 degrees. <i>Nucl. Instrum. Methods Phys. Res.</i> 216, 517 (1983) South Africa
02738 E	D33: Br ³⁵ + Cu; Br ³⁵ + Nb; Br ³⁵ + Ta	75 keV	C'Cosson, J. P.; Blauner, P. G.; Miller, B. J. Energy and mass analysis of secondary ions sputtered from metallic targets by 75 keV heavy ions. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 353 (1984)
02739 E	D33: O ₂ ⁺ + Si; O ₂ ⁺ + Ge; O ₂ ⁺ + GaAs	3-12 keV	Wittmaack, E. The effect of the angle of incidence on secondary ion yields of oxygen-bombarded solids. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 337 (1984) West Germany
02740 E	D33: I ₂ ⁺ + Si + O	9 keV	Graessner, B. Oxygen-concentration dependent enhancement of positive secondary ion emission from silicon. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 312 (1984) Austria
02741 E	D33: Ar ⁺ + Cr; Ar ⁺ + Ag; Ar ⁺ + Cu; Ar ⁺ + Zr	0.5-3.0 keV	Vasile, R. J. The velocity dependence of secondary ion yields. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 319 (1984) United States
02742 E	D13: Ca ⁺ + O + Si; Ca ⁺ + C + Si; Ca ⁺ + N + Si; Ca ⁺ + SiN + Si	10 keV	Wittmaack, E. Background formation in SIMS analysis of hydrogens, carbon, nitrogen and oxygen in silicates. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 327 (1984) West Germany

Ref. No.	Reactants	Energy Range	Reference
02743 E	D03: Ar ⁺ + Al	40 keV	Gazet, B. F.; MacDonald, R. J.; O'Connor, D. J. Ion neutralization in secondary ion mass spectrometry. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 333 (1984) Australia
02744 E-T	D03: Ar ⁺ + GaAs; Ar ⁺ + InAs	300-2000 eV	Sroubek, Z. Ionization of atoms sputtered from I ₂ (mp III) T ₂ (mp V) compounds. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 336 (1984) Czechoslovakia
02745 E	C03: Be ⁺ + Al C05: Be ⁺ + Al D12: Be ⁺ + Al	550 keV	Bedard, P.; Connolly, S. K. Lateral variations measurement of helium concentration of implanted Al foils using a proton microbeam. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 329 (1984) Belgium
02746 E	D03: Be ⁺ + Be ₂ O; Be ⁺ + B ₂ O ₃ ; Be ⁺ + CO ₂ ; Be ⁺ + SO ₂ ; Be ⁺ + B ₂ O; Be ⁺ + B ₂ O ₃ ; Be ⁺ + CO ₂ ; Be ⁺ + SO ₂ ; Ar ⁺ + B ₂ O; Ar ⁺ + B ₂ O ₃ ; Ar ⁺ + CO ₂ ; Ar ⁺ + SO ₂ D17: Be ⁺ + B ₂ O; Be ⁺ + B ₂ O ₃ ; Be ⁺ + CO ₂ ; Be ⁺ + SO ₂ ; Be ⁺ + B ₂ O; Be ⁺ + B ₂ O ₃ ; Be ⁺ + CO ₂ ; Be ⁺ + SO ₂ ; Ar ⁺ + B ₂ O; Ar ⁺ + B ₂ O ₃ ; Ar ⁺ + CO ₂ ; Ar ⁺ + SO ₂	0.045-1.5 keV	Boring, J. S.; Johnson, B. E.; Seissam, C. T.; Garrett, J. W.; Frew, N. L.; Marcano, E. J. Ion-induced chemistry in condensed gas solids. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 767 (1984) United States
02747 E	D02: Co ⁺ + Co	100 keV	Johansen, A.; Johnson, B.; Sarholt-Kristoffersen, L.; Abdali, S. R. Self sputtering on cobalt single crystals. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 737 (1984) Denmark
02748 E	D02: Ta ⁺ + Ta	3 keV	Tiv, A. R.; King, E. V.; Lin, S. H.; Tsang, I.S.T. Kinetic energy distributions of scattered particles in non-cascade sputtering processes. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 742 (1984) United States
02749 E	D02: H ₂ O ₂ ; H ⁺ + TiB ₂ ; H ⁺ + B ₂ C; H ⁺ + TiC; H ⁺ + B; H ⁺ + C; D ⁺ + H ₂ O; D ⁺ + TiB ₂ ; D ⁺ + B ₂ C; D ⁺ + TiC; D ⁺ + B; D ⁺ + C; He ⁺ + H ₂ B ₂ ; He ⁺ + TiB ₂ ; He ⁺ + B ₂ C; He ⁺ + TiC; He ⁺ + B; He ⁺ + C	0.3-50 keV	Both, J.; Schdansky, J.; Eckstein, W. Angular distributions and differential sputtering yields of binary compounds as a function of angle of incidence. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 751 (1984) West Germany
02750 E	D03: O ⁺ + Si; O ⁺ + Cu; O ⁺ + Al; O ⁺ + Ag; O ⁺ + BiSi ₃ ; O ⁺ + Ag ₃ Cu	6-32 keV	Saemann-Ischenko, G.; Scheidt, W. Auger electron emission from solids during bombardment with He ⁺ ions. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 757 (1984) West Germany
02751 E	D03: H ⁺ + Si; H ⁺ + Ni; H ⁺ + Au; He ⁺ + Si; He ⁺ + Ni; He ⁺ + Au	1-2 keV	MacDonald, J. B.; Fieldas, L. C.; Silverman, F. J.; Davies, J. A.; Griffiths, R.; Jackson, T. E.; Norton, P. B.; Omartian, L. B. Auger electron emission induced by He ⁺ and He ⁺ ions. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 765 (1984) Canada
02752 E	D03: Ar ⁺ + Ti; He ⁺ + Ti	3 keV	Pelliss, B. J.; Green, E. M.; Young, C. E.; Higgins, M. D. Electronic excitation of Ti atoms sputtered by energetic Ar ⁺ and He ⁺ from clean and monolayer oxygen covered surfaces. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 771 (1984) United States
02753 E	C01: Ar ⁺ + Mg; Ar ⁺ + Al; Ar ⁺ + Si C07: Ar ⁺ + Mg; Ar ⁺ + Al; Ar ⁺ + Si	160-380 keV	Cipolla, S. J.; Hildebrand, R. E. Multiple-collision analysis of characteristic x rays from low-energy Ar ⁺ traveling in solid targets. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 777 (1984) United States
02754 E	D03: He ⁺ + Ni + Fe; Ar ⁺ + Ni + Fe	5 keV	Soszka, H.; Soszka, B. Ion-electron emission from magnetostrictive alloy. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 782 (1984) Poland
02755 E	C03: C ⁺ + Si; C ⁺ + Ge; H ⁺ + Si; H ⁺ + Ge; Al ⁺ + Si; Al ⁺ + Ge; Mg ⁺ + Ge	20-100 keV	Faltens, B.; Saemann, J.; Hautala, M.; Anttila, A. Range of some 20-100 keV light ions in Si and Ge. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 785 (1984) Finland
02756 E	C03: H ⁺ + La; H ⁺ + Bd; H ⁺ + Tb; H ⁺ + Dy; H ⁺ + La; H ⁺ + Ta; H ⁺ + Re; H ⁺ + Ir; H ⁺ + Pt; H ⁺ + Ru; H ⁺ + Os	30-350 keV	Krist, T.; Karttunen, E. Proton energies at the maximum of the electronic stopping cross section in materials with Z less than or equal to Z _c , less than or equal to 63. <i>Nucl. Instrum. Methods Phys. Res.</i> 218, 795 (1984) West Germany

Ref. No.	Reactants	Energy Range	Reference
02757 E	A07: H ⁺ + Dy; H ⁺ + V; He ⁺ + Dy; He ⁺ + V	1-3 keV	Cohen, D. D. 1 nmbkll ionization cross section for light ion bombardment of high Z targets. Nucl. Instrum. Methods Phys. Res. 218, 795 (1984) Australia
02758 T	C02: Pb ⁺ + Al; Al ⁺ + Ta C03: Pb ⁺ + Al; Al ⁺ + Ta	20-120 keV	Hastela, S. Computer simulations of slowing down of ions in polycrystalline materials. Nucl. Instrum. Methods Phys. Res. 216, 799 (1984) Finland
02759 E	C05: H ⁺ + Al; H ⁺ + Cu; H ⁺ + Ag; H ⁺ + Au; Si ⁺ + Au; Cl ⁺ + Au; Ta ⁺ + Au; Fe ⁺ + Au; Cr ⁺ + Au; Be ⁺ + Au; Pb ⁺ + Au	1.5 MeV/ase	Atchere, J. R. Heavy ion energy straggling. Nucl. Instrum. Methods Phys. Res. 216, 603 (1984) United States
02760 E	C02: H ⁺ + Cu; H ⁺ + Cu	70-500 keV/ase	Sengpiel, K.; Baser, P.; Amaya, F.; Huber, P.; Obermann, K. Search for an influence of the measuring method on stopping cross section data near the maxima. Nucl. Instrum. Methods Phys. Res. 216, 611 (1984) Austria
02761 E	C02: He ⁺ + PET; Li ⁺ + PET; Be ⁺ + PET; H ⁺ + PET	50-1500 keV	Pink, D.; Biersack, J. P.; Stadelo, D.; Tjens, L.; Cheng, Y. K. Z ₂ stopping power oscillations as derived from range measurements. Nucl. Instrum. Methods Phys. Res. 216, 617 (1984) West Germany
02762 E	C02: H ⁺ + Ta; H ⁺ + Be; H ⁺ + In; H ⁺ + Pt; H ⁺ + Au; H ⁺ + Si; H ⁺ + La; H ⁺ + Nd; H ⁺ + Tb; H ⁺ + Dy; H ⁺ + Lu; H ⁺ + Fe; H ⁺ + Hg; H ⁺ + In; H ⁺ + Pt; H ⁺ + Au; H ⁺ + Si; H ⁺ + La; H ⁺ + Nd; H ⁺ + Tb; H ⁺ + Dy; H ⁺ + In; Li ⁺ + Ta; Li ⁺ + Re; Li ⁺ + Ta; Li ⁺ + Pt; Li ⁺ + Au; Li ⁺ + Si; Li ⁺ + In; Li ⁺ + Nd; Li ⁺ + Tb; Li ⁺ + Dy; Li ⁺ + La; Be ⁺ + Ta; Be ⁺ + Be; Be ⁺ + In; Be ⁺ + Pt; Be ⁺ + Au; Be ⁺ + Si; Be ⁺ + La; Be ⁺ + Nd; Be ⁺ + Tb; Be ⁺ + Dy; Be ⁺ + In; Be ⁺ + Ta; Be ⁺ + Be; Be ⁺ + In; H ⁺ + Pt; H ⁺ + Au; H ⁺ + Si; H ⁺ + In; H ⁺ + Nd; H ⁺ + Tb; H ⁺ + Dy; H ⁺ + La	35-330 keV	Kriest, T.; Bartsch, F. Stopping ratios for 50-330 keV light ions in materials with Z less than or equal to Z ₂ , less than or equal to 63. Nucl. Instrum. Methods Phys. Res. 216, 621 (1984) West Germany
02763 T	D05: he + Al; he + Cu; he + Cd; he + Ta; he + Ge; he + Ca; he + Au; he + Ag	0.036-2.75 keV	Grudskii, N. Y.; Erdogin, S. S.; Smirnov, V. V.; Adadurov, A. V.; Izotov, V. I. Experimental investigation and Monte Carlo calculation of photon-induced electron emission from solids. Nucl. Instrum. Methods Phys. Res. A 227, 124 (1984) Soviet Union
02764 E	C02: He ⁺ + Cu	1-2 keV	Culbertson, R. J.; Withrow, S. P.; Barrett, J. M. Potentials and stopping power information from ion channelling in Cu. Nucl. Instrum. Methods Phys. Res. B 230, 19 (1984) United States
02765 E	D06: CO ⁺ + C	18-89 keV/ase	Frischknecht, B. J.; Knobler, P.; Klemm, B.; Schader, J.; Groeneweld, K. O. Ion induced electron ejection mechanisms from solid surfaces. Nucl. Instrum. Methods Phys. Res. B 217, 35 (1984) West Germany
02766 E	C01: B ₂ ⁺ + C C05: B ₂ ⁺ + C C06: B ₂ ⁺ + C	6.9-13.7 keV/ase	Koubartski, G. J.; Bentziger, W.; Polster, W. B ₂ ⁺ molecular ion loss studies. Nucl. Instrum. Methods Phys. Res. B 230, 36 (1984) West Germany
02767 T	C05: H ₂ ⁺ + C; HeH ⁺ + C	0.8-3.6 keV	Kononenko, Y. V.; Janashkyan, N. N. Multiple scattering and wake effects in interactions of fast diatomic molecules with thin foils. Nucl. Instrum. Methods Phys. Res. B 230, 44 (1984) Soviet Union
02768 E	C02: He ⁺ + C; Li ⁺ + C; C ⁺ + C	0.8-7.2 keV/ase	Cowley, G.E.R.; Read, P. R.; Sofield, C. J.; Bridwell, L. R.; Bentsteb, G.; Miller, N.; Lucas, N. R. Charge state dependence of dE/dx for ions in very thin targets. Nucl. Instrum. Methods Phys. Res. B 230, 112 (1984) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
02769 E	C02: He ⁺ + C; He ⁺ + C	270-620 keV	Lennard, W. B.; Phillips, D.; Mitchell, I. V.; Andrews, F. B.; Ward, D. Search for pre-equilibrium stopping for ¹⁰ Be ions in thin carbon foils. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 116 (1984) Canada
02776 T-T	C02: He ⁺ + C; He ⁺ + Al; He ⁺ + V; He ⁺ + Cr; He ⁺ + Fe; He ⁺ + Si; He ⁺ + Cu; He ⁺ + Ta; He ⁺ + Ag; He ⁺ + Pt; He ⁺ + Au; He ⁺ + Ni; He ⁺ + C; He ⁺ + Al; He ⁺ + V; He ⁺ + Cr; He ⁺ + Fe; He ⁺ + Si; He ⁺ + Cu; He ⁺ + Ta; He ⁺ + Ag; He ⁺ + Pt; He ⁺ + Ag; He ⁺ + Si; He ⁺ + Cu; Li ⁺ + Al; Li ⁺ + V; Li ⁺ + Cr; Li ⁺ + Fe; Li ⁺ + Si; Li ⁺ + Cu; Li ⁺ + Ag; Li ⁺ + Pt; Li ⁺ + Au; Li ⁺ + Al; He ⁺ + C; He ⁺ + Al; He ⁺ + V; He ⁺ + Cr; He ⁺ + Fe; He ⁺ + Si; He ⁺ + Cu; He ⁺ + Ta; He ⁺ + Ag; He ⁺ + Pt; He ⁺ + Ag; He ⁺ + Si; He ⁺ + Al; He ⁺ + V; He ⁺ + Cr; He ⁺ + Pt; He ⁺ + Al; He ⁺ + Cu; He ⁺ + Ta; He ⁺ + Ag; He ⁺ + Pt; He ⁺ + Au; He ⁺ + Si	50-350 keV	Krist, T.; Bertone, E. Application of Brandt's effective charge theory to measurements for 50-350 keV ions with 1 loss less than or equal to λ_0 , loss less than or equal to 5. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 119 (1984) Canada
02771 T	A36: Udef A37: Udef C02: Udef	Undef	Kitagawa, S. Effective stopping power charge of ions in condensed matter. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 125 (1984) Japan
02772 T	C34: Fe ⁺ + Si	5-160 keV	Sautala, M. Comparison of experimental range distributions with computer simulations: Fe ions in crystalline tungsten. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 133 (1984) Finland
02773 T	C02: Se ⁺ + Ag	5-200 keV	Giter, J.; Bagy, I.; Laszlo, J. Calculation of inelastic energy loss in solids. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 135 (1984) Hungary
02774 E	C02: He ⁺ + Au	3-8 keV	Ishizaki, R.; Shiono, R.; Sakamoto, S. Stopping power of He for protons from 3 to 8 keV. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 141 (1984) Japan
02775 E	C02: He ⁺ + Cl ₂ ; He ⁺ + Br ₂ ; He ⁺ + Cl ₂ ; He ⁺ + Br ₂	50-1000 keV	Bousquet, H.; Berg, R.; Bottel, E.; Pfaffl, E.; Reitter, G.; Claesnitper, C. Proton and helium stopping cross sections in Cl ₂ and Br ₂ . <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 145 (1984) West Germany
02776 R	C02: He ⁺ + Cu; He ⁺ + Ag; He ⁺ + Au; He ⁺ + Co; D ⁺ + Ag; D ⁺ + Au	50-500 keV/amu	Rauer, P.; Seurad, D.; Gschmer, R. Investigation of hydrogen stopping in noble metals around the stopping power maximum. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 149 (1984) Austria
02777 E	C02: O ⁺ + C	Undef	Lennard, W. B.; Phillips, D.; Mitchell, I. V.; Andrews, F. B.; Ward, D. Dependence of specific energy loss on target thickness for low velocity ions: ¹⁰ O + C. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 151 (1984) Canada
02778 E	C02: H ₂ ⁺ + O ₂ ; H ₂ ⁺ + CO; H ₂ ⁺ + O ₂ ; H ₂ ⁺ + CO; D ₂ ⁺ + O ₂ ; D ₂ ⁺ + CO; D ₂ ⁺ + O ₂ ; D ₂ ⁺ + CO	2-10 keV	Schoes, J.; Sorensen, H.; Andersen, H. H.; Bieleben, R.; Buse, J. Range measurements of keV hydrogen ions in solid oxygen and carbon monoxide. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 159 (1984) Denmark
02779 T	C02: He ⁺ + C ₂	7 keV	Sakamoto, S.; Shiono, R.; Ishizaki, R. Computer simulation of the geometrical effect on the stopping power of a very thin C ₂ foil for 7 keV protons. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 164 (1984) Japan
02780 E	C02: He ⁺ + C; He ⁺ + Al; He ⁺ + C; He ⁺ + Al C05: He ⁺ + C; He ⁺ + Al; He ⁺ + C; He ⁺ + Al	50-200 keV	Eckhardt, J. C.; Leatschner, G. H.; Jakes, R. H.; Ponce, V. N. The correlation between inelastic energy loss and scattering angle in transmission experiments. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 166 (1984) Argentine
02781 T	C05: FeFe ⁺ + Fe	15-60 keV	Iuukainen, S.; Sautala, M.; Sister, M. Comparison of experimental and theoretical lateral multiple scattering of 15-60 keV ions (Z = 6-51) on Xe. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 173 (1984) Finland

Ref. No.	Reactants	Energy Range	Reference
02782 T	C02: He ⁺ + C; He ⁺ + Cu; He ⁺ + Al; He ⁺ + C; He ⁺ + Cu; He ⁺ + Al; He ⁺ + C; He ⁺ + Cu; He ⁺ + Al C05: He ⁺ + C; He ⁺ + Cu; He ⁺ + Al; He ⁺ + C; He ⁺ + Cu; He ⁺ + Al; He ⁺ + C; He ⁺ + Cu; He ⁺ + Al	Undef	Kreist, T.; Bertone, P.; Biersack, J. P. Nuclear stopping power for particles transmitted through thin foils in the beam direction. Nucl. Instrum. Methods Phys. Res. B 233, 177 (1986) Canada
02783 E-T	C03: Pb ⁺ + Si; Kr ⁺ + Si	40-80 keV	Bostic, S.; Jimenez-Rodriguez, J. J.; Karpenko, B. S.; Arment, D. G.; Carter, G. Range distributions in multiply implanted targets. Nucl. Instrum. Methods Phys. Res. B 233, 167 (1986) United Kingdom
02788 Z	C05: He ⁺ + Ta ₂ C ₆	1000 keV	Schaefer, D.; L'Hoix, A. Multiple scattering angular distributions of 800 eV ions transmitted through Ta ₂ C ₆ targets. Nucl. Instrum. Methods Phys. Res. B 233, 187 (1986) France
02785 T	C02: He ⁺ + Ir; He ⁺ + Pt; He ⁺ + Cd; He ⁺ + In; He ⁺ + Pb	6.5 MeV	Ishikawa, T.; Shioiri, T.; Sakamoto, T. Stopping powers of Ir, Pt, Cd, In and Pb for 6.5 MeV protons and mean excitation energies. Nucl. Instrum. Methods Phys. Res. B 233, 195 (1986) Japan
02786 T	C02: He ⁺ + Au	50-1000 keV	Schultz, F.; Michael, B. Multiply peaked energy-loss spectra of heavy ions transmitted through polycrystalline foils: an interpretation in terms of channeling. Nucl. Instrum. Methods Phys. Res. B 233, 195 (1986) West Germany
02787 T	C03: Undef	Undef	Hartman, J. An analytical formula for the range of loss in solids. Nucl. Instrum. Methods Phys. Res. B 233, 202 (1986) Poland
02788 T	A07: He ⁺ + BaC; He ⁺ + BaO	0.2-3.0 MeV	Sanger, B.; Beckermann, B. V. Angular and energy distributions of delta-rays ejected from low-Z molecular targets by incident protons and alpha particles. Nucl. Instrum. Methods Phys. Res. B 233, 204 (1986) France
02789 T	D08: Ar ⁺ + Cu; He ⁺ + C	Undef	Reffert, F.; Gabriel, R. The influence of surface roughness on the polarization after electron capture by beam-film interaction. Nucl. Instrum. Methods Phys. Res. B 233, 208 (1986) West Germany
02790 T	C07: He ⁺ + Au	Undef	Schroeder, E. Polarization by selective loss in beam-film interaction. Nucl. Instrum. Methods Phys. Res. B 233, 213 (1986) West Germany
02791 Z	D08: He ⁺ + Au; He ⁺ + Ti; He ⁺ + Pb	20-110 keV	Wejs, E. Excitation of helium backscattered from gold, thallium, and lead. Nucl. Instrum. Methods Phys. Res. B 233, 216 (1986) Poland
02792 Z	C06: Kr ⁺ + C	85-166 MeV	Shina, K.; Ishihara, T.; Mikado, T. Charge distributions width of heavy ions after passage through carbon foils. Nucl. Instrum. Methods Phys. Res. B 233, 222 (1986) Japan
02793 F	A03: Calcium-ions + Al ₂ O ₃ ; Iron-ions + Al ₂ O ₃ ; Titanium-ions + Al ₂ O ₃ ; Ti ⁺⁺ + Al ₂ O ₃ ; Ti ⁺⁺⁺ + Al ₂ O ₃ ; Ti ⁺⁺ + Al ₂ O ₃ ; Ti ⁺⁺⁺ + Al ₂ O ₃ ; Ti ⁺⁺ + Al ₂ O ₃ ; Ti ⁺⁺⁺ + Al ₂ O ₃ ; Ti ⁺⁺ + Al ₂ O ₃ ; Ti ⁺⁺⁺ + Al ₂ O ₃ A36: Calcium-ions + Ti; Iron-ions + Ti; Titanium-ions + Ti A08: Calcium-ions + Ti; Iron-ions + Ti; Titanium- ions + Ti	1-60 MeV	Dybdal, E.; Nielsen, P. T.; Bud, B.; Torp, S. L-shell populations of ions penetrating solids. Nucl. Instrum. Methods Phys. Res. B 233, 227 (1986) Denmark
02794 T	A08: H ⁺ + C; He ⁺ + Al; He ⁺ + Ni; He ⁺ + C; C ⁺ + C; He ⁺ + C; Ar ⁺⁺ + C	10-1-10+ MeV/amu	Gillespie, G. B. Systematics of electro-stripping cross sections for fast hydrogenic ions penetrating solids. Nucl. Instrum. Methods Phys. Res. B 233, 231 (1986) United States
02795 Z	A36: H ⁺ + Ne; H ⁺ + C; H ⁺ + Ne A38: H ⁺ + Ne; H ⁺ + C; F ⁻ + Ne D04: H ⁺ + C; H ⁺ + Ne; H ⁺ + Ne	105-270 keV	Focke, P.; Basirovsky, J. S.; Gonzalez Lopez, E.; Heckelbach, S.; Sellin, J. A.; Groenewald, K. O. Beam-film convey electrons distributions as a function of energy and angle of emission. Nucl. Instrum. Methods Phys. Res. B 233, 235 (1986) Argentina

Ref. No.	Reactants	Energy Range	Reference
02796 E	D38: H + C; H ⁺ + C; H ₂ ⁺ + C	1.0-2.0 MeV	Tomizaki, T.; Oda, H.; Tanaka, A. Coarse electron production from swift H ⁺ , H ⁰ and H ₂ ⁺ beams. Nucl. Instrum. Methods Phys. Res. B 233, 241 (1994) Japan
02797 E	C02: C ⁰ + C; O ⁰ + C; CO ⁰ + C D39: C ⁰ + C; O ⁰ + C; CO ⁰ + C	80 keV/amu	Latz, R.; Schader, J.; Frieskorn, E. J.; Heumann, P.; Koschar, F.; Groenewold, K. O. The relation between coarse electron velocity and ion velocity of ions penetrating solids. Nucl. Instrum. Methods Phys. Res. B 233, 245 (1994) West Germany
02798 E	D12: H ⁺ + C; H ₂ ⁺ + C; H ₃ ⁺ + C	3.3-3.5 MeV/amu	Sakayashi, H.; Oda, H. Continuous optical radiation emitted from a thin carbon foil exposed to 3.3-3.5 MeV/amu H ⁺ , H ₂ ⁺ , and H ₃ ⁺ ion bombardments. Nucl. Instrum. Methods Phys. Res. B 233, 246 (1994) Japan
02799 E	D08: H ³⁺ + Cu	4-12 MeV	Zissis, S.; Bister, H.; Bechter, B.; Schirnacher, A.; Andree, A. J. Influence of the Stark-effect on the orientation of Rydberg-states in highly ionized nitrogen after ion beam surface interaction at grazing incidence. Nucl. Instrum. Methods Phys. Res. B 233, 252 (1994) West Germany
02800 E	A33: C ⁰ + C; C ⁰ + C; Cl ¹⁺ + C A36: C ⁰ + C; Cl ¹⁺ + C A38: C ⁰ + C; Cl ¹⁺ + C A11: Cl ¹⁺ + C; C ¹⁺ + C C36: C ⁰ + C; Cl ¹⁺ + C	36-405 MeV	Sofield, C. J.; Bridwell, L. B.; Woods, C. J.; Book, C. E.; Conetta, B.R.B.; Miller, D. B.; Gregory, S.; Johnson, C.; Alton, G.; Reppliger, F.; Hall, B. J. Excited state populations and charge-exchange of fast ions in solids. Nucl. Instrum. Methods Phys. Res. B 233, 262 (1994) United Kingdom
02801 E	D38: H ⁺ + C; H ₂ ⁺ + C; H ₃ ⁺ + C; H ₄ ⁺ + C	1.7 MeV/amu	Latz, R.; Schader, J.; Frieskorn, E. J.; Heumann, P.; Koschar, F.; Groenewold, K. O.; Heckbach, W. Molecule transmission and coarse electron production by fast projectiles in thin solids. Nucl. Instrum. Methods Phys. Res. B 233, 265 (1994) West Germany
02802 E	C07: H ⁺ + C; H ₂ ⁺ + C; H ₃ ⁺ + C	3.2-3.8 MeV/amu	Sakayashi, H.; Oda, H. Molecular enhancement for n-state populations of excited hydrogen atoms produced by H ₂ ⁺ and H ₃ ⁺ ions passing through thin carbon foils. Nucl. Instrum. Methods Phys. Res. B 233, 269 (1994) Japan
02803 E	C06: H + C; He ⁺ + C; H ₂ ⁺ + C; H ₃ ⁺ + C C37: H + C; He ⁺ + C; H ₂ ⁺ + C; H ₃ ⁺ + C	1.0-1.4 MeV	Clovisas, A.; Gaillard, E. J.; de Pinho, A. G.; Poizat, J. C.; Benlliure, J.; Demazygues, J. Simultaneous study of non-equilibrated charge and excitation states of MeV/amu light atomic and molecular ions emerging from thin solid targets. Nucl. Instrum. Methods Phys. Res. B 233, 273 (1994) France
02804 T	D07: H ⁺ + Si	30-160 keV	Chitruki, T. B. Inelastic scattering of ions at the surface. Nucl. Instrum. Methods Phys. Res. B 233, 283 (1994) West Germany
02805 E	D38: H ⁺ + Cu; Ag ⁺ + Cu; Li ⁺ + Cu; H ⁰ + Cu; H ₂ ⁺ + Cu	50-350 keV	Bister, H. Recent developments in the study of fast ion-surface interactions at grazing incidence. Nucl. Instrum. Methods Phys. Res. B 233, 286 (1994) West Germany
02806 E	A32: Undef A18: Undef	Undef	Jackson, D. E. Ress ratio series for the laboratory Rutherford cross-sections. Nucl. Instrum. Methods Phys. Res. B 233, 308 (1994) Canada
02807 E	A07: H ⁺ + Al; H ⁰ + Cu	22 MeV	Hell, F.; Beckl, M. Solid state Compton profiles by inelastic-electron scattering. Nucl. Instrum. Methods Phys. Res. B 233, 311 (1994) West Germany
02808 T	D07: H ⁰ + Pt; H ⁺ + Au; H ⁰ + Ni; H ⁰ + Si	0.5-1.0 MeV	Jackson, D. E.; Garrett, J. H. Approximation for the surface backscattering yield from an atomic row with correlated thermal vibrations. Nucl. Instrum. Methods Phys. Res. B 233, 318 (1994) Canada
02809 T	D07: H ⁰ + TiC	1 keV	Takeda, H.; Yamamoto, T. Influence of thermal vibrations on ion surface scattering near 180 degrees scattering angle in the two-atom scattering model. Nucl. Instrum. Methods Phys. Res. B 233, 326 (1994) Japan

Ref. No.	Reactants	Energy Range	Reference
02810 E	D37: H ⁺ + Be; H ⁺ + Ta; H ⁺ + Ag D38: H ⁺ + Au; H ⁺ + Ta; H ⁺ + Ag	3 keV	Bissey, D. S.; Cooper, S. The enhanced yield of nitrogen ions backscattered at 103 degrees. Nucl. Instrum. Methods Phys. Res. E 233, 343 (1984) South Africa
02811 E	A33: Ag ⁺⁺ + Be	70 keV	Bolte, C.; Schmidt, W.; Jenke, S.; Boller, J.; Schneider, P.; Scheidt-Bocking, B. Is I x-ray emission probabilities by the impact of 70 keV Ar ions. Nucl. Instrum. Methods Phys. Res. E 236, 346 (1984) West Germany
02812 E	D38: Li ⁺ + Cu; Na ⁺ + Cu; K ⁺ + Cu	5-5 keV	Beens, A. L. Charge state of low energy reflected alkalis. Nucl. Instrum. Methods Phys. Res. E 233, 353 (1984) The Netherlands
02813 E	D37: H ₂ ⁺ + Cu; H ₃ ⁺ + Au; H ₂ ⁺ + Si D38: H ₂ ⁺ + Cu; H ₃ ⁺ + Au; H ₂ ⁺ + Si	0.25-3.2 keV	Pitonyak, I. S.; Parilis, E. S. Scattering of swift molecules by solid surfaces without dissociation. Nucl. Instrum. Methods Phys. Res. E 233, 364 (1984) Soviet Union
02814 E	D37: Li ⁺ O ₂ ⁺ + Ne; K ⁺ O ₂ ⁺ + Ne; Na ⁺ O ₂ ⁺ + Ne; Li ⁺ + Ne	500-1000 eV	Ovchinnikov, S. B.; Boklev, B. N.; Stair, P. C. Admixture induced neutralization effects in low energy alkali and inert gas ion scattering. Nucl. Instrum. Methods Phys. Res. E 233, 384 (1984) United States
02815 E	D39: Ar ⁺ + Si; Ar ⁺ + O + Si; Ar ⁺ + Si; Ar ⁺ + O + Si; Xe ⁺ + Si; Xe ⁺ + O + Si	15 eV	Boller, J.; Verga, P. Molecule dependent neutralization of ions near a surface. Nucl. Instrum. Methods Phys. Res. E 233, 391 (1984) Switzerland
02816 E	D31: H ₂ ⁺ + Si	300 eV	Boller, J.; Boiland, B.; Boerli, P. Molecular adsorption of H ₂ on Si(111) studied with ion scattering spectroscopy. Nucl. Instrum. Methods Phys. Res. E 233, 396 (1984) West Germany
02817 E	D37: K ⁺ + Ag; Be ⁺ + Au; Be ⁺ + Ta; Be ⁺ + Si	300-1000 eV	Shoji, F.; Banawa, T. Inelastic effect in low-energy K ⁺ ion scattering from solid surfaces. Nucl. Instrum. Methods Phys. Res. E 233, 401 (1984) Japan
02818 E	D37: H ₂ ⁺ + Cu; H ₃ O ⁺ + Cu D39: H ⁺ + Cu; H ₃ O ⁺ + Cu	6 keV	Van Zonst, J. H.; Van der Heij, C. E.; Vleit, J. H. Neutralization of keV-ions scattered at Cu(111). Nucl. Instrum. Methods Phys. Res. E 233, 416 (1984) The Netherlands
02819 E	D37: H ⁺ + Si	900 eV	Eschenbacher, H.; Richard, A. Comparison of low energy ion scattering (LEIS) with low energy neutral scattering (LNS) at a clean and sulphur covered polycrystalline Si-surface. Nucl. Instrum. Methods Phys. Res. E 233, 411 (1984) West Germany
02820 T	D39: Jadef	0.5-0.6 keV	Kawai, S.; Chitsuki, T. H. Theory of charge fractions for low energy process. Nucl. Instrum. Methods Phys. Res. E 233, 419 (1984) Japan
02821 E	D39: Ne ⁺ + Si; Ne ⁺ + Si	0.2-1.6 keV	MacDonald, S. J.; C'Conner, D. J.; Biggistotto, P. Neutralisation contributions in low energy ion scattering. Nucl. Instrum. Methods Phys. Res. E 233, 426 (1984) Australia
02822 T	D61: Undef	Undef	Rousse, J. S.; Ritchie, R. H. The attractive interaction between an atom and a surface. Nucl. Instrum. Methods Phys. Res. E 233, 427 (1984) United States
02823 E	D37: H ⁺ + Si	0.5-1.3 keV	Chulin, H.; Fortrand, P. The scattering of low energy protons from silicon. Nucl. Instrum. Methods Phys. Res. E 233, 427 (1984) Belgium
02824 T	D37: Ne ⁺ + Cu	3-13 keV	Comray, C.; Bernheim, S.; Siodmar, G. Shadowing effects in ion scattering spectrometry: simulation and experiments. Nucl. Instrum. Methods Phys. Res. E 233, 431 (1984) France
02825 T	D37: Ne ⁺ + Cu; Ne ⁺ + Cu	1 keV	Hagelmann, G.; Taglauer, E. Temperature effects in low-energy ion scattering from copper. Nucl. Instrum. Methods Phys. Res. E 233, 436 (1984) West Germany

Ref. No.	Reactants	Energy Range	Reference
32826 E	D97: He ⁺ + Cu ₂ As	5-9.5 keV	Jackson, D. R.; Buck, T. R.; Sheatley, G. S. Atom layer effects in the scattering of low He from Cu ₂ As(110). Nucl. Instrum. Methods Phys. Rev. E 233, 443 (1984) Canada
32827 E	D99: He ⁺ + CaO	0.3-1.2 keV	Richard, A.; Zschaefer, A. Neutralization of He ⁺ at CaO(110). Nucl. Instrum. Methods Phys. Rev. E 233, 444 (1984) West Germany
32828 E-T	D97: K ⁺ + Be	0.5 keV	Cverhart, S. E. Low energy alkali ion scattering from a clean and adsorbate covered Be(311) surface. Nucl. Instrum. Methods Phys. Rev. E 233, 446 (1984) United States
32829 E	D97: H ₂ ⁺ + Si; H ₂ ⁺ + Si	0.2-15 keV	Billerding, B.; Steininger, R.; Snowden, K. J.; Neiland, B. Time-of-flight measurements of light molecular ions scattered at grazing incidence from a Si(111) surface. Nucl. Instrum. Methods Phys. Rev. E 233, 453 (1984) West Germany
32830 E	D13: e ⁻ + NaCl; e ⁻ + NaF; e ⁻ + LiP; h ⁻ + LiP	40-1000 eV	Tolk, W. H.; Beckmann, P.; Gerbenfeld, R.; Kraus, J. S.; Morris, B. J.; Marwick, D. E.; Tally, J. C.; Daniels, B. R.; Bergamont, G.; Stoffel, B. G. Ionization induced by electronic transitions. Nucl. Instrum. Methods Phys. Rev. E 233, 457 (1984) United States
32831 T	D93: Undef	Undef	Hentschke, B.; Mertel, P.; Neiland, B.; Snowden, K. Rotational and vibrational excitation of sputtered dimers. Nucl. Instrum. Methods Phys. Rev. E 233, 461 (1984) West Germany
32832 E	D33: H ₂ ⁺ + C; H ₂ ⁺ + Si; H ₂ ⁺ + Al	12 keV	Lofton, C. E.; Tsong, I.-S.-L.; Reed, D. A. Excitation of molecules formed by ion bombardment of surfaces. Nucl. Instrum. Methods Phys. Rev. E 233, 465 (1984) United States
32833 E	D36: Ar ⁺ + Al	25-45 keV	Benzeth, B.; Siechler, J.; Benazeth, C. Polar angular distributions of L _{2,3} Al Auger electrons emitted in Ar+-polycrystalline Al solid target collisions. Nucl. Instrum. Methods Phys. Rev. E 233, 473 (1984) France
32834 E	D04: H ⁺ + Au; H ₂ ⁺ + Au; H ₃ ⁺ + Au; He ⁺ + Au	75-600 keV	Basselkamp, U.; Ripplar, S.; Scharras, A. Molecular effects in the energy spectra of ion-induced secondary electrons from gold. Nucl. Instrum. Methods Phys. Rev. E 233, 475 (1984) West Germany
32835 E	D33: H ₂ ⁺ + Si + N	130 keV	Thomas, L. B.; Pustath, L. The rotational populations of sputtered H ₂ - evidence for hindered rotational states. Nucl. Instrum. Methods Phys. Rev. E 233, 479 (1984) United States
32836 E	D98: He ⁺ + Cu; H ₂ ⁺ + Cu	0.25-82 keV	Steininger, R.; Billerding, B.; Snowden, K.; Tolk, W. H.; Eckstein, B. Light emission from hydrogen-copper interaction at grazing incidence. Nucl. Instrum. Methods Phys. Rev. E 233, 484 (1984) West Germany
32837 E	D98: He ⁺ + Cu; He ⁺ + Si D99: He ⁺ + Cu; He ⁺ + Si	0.5-15 keV	Tolk, W. H.; Billerding, B.; Steininger, R.; Neiland, B.; Snowden, K. Resonant neutralization of He ions into excited states at Cu(111) and Si(111) surfaces. Nucl. Instrum. Methods Phys. Rev. E 233, 488 (1984) West Germany
32838 T	C36: Li ⁺ + Al; Li ⁺ + Zn; Li ⁺ + Au	Undef	Saneko, T. Charge transfer in acids. Nucl. Instrum. Methods Phys. Rev. E 233, 491 (1984) Japan
32839 E	D93: Ar ⁺ + Cu; Ag ⁺ + Ag; Ar ⁺ + Au	80 keV	Veje, E. Study of atomic excitations in sputtering with the use of Cu, Ag, and Au targets. Nucl. Instrum. Methods Phys. Rev. E 233, 497 (1984) Denmark
32840 E	D95: He ⁺ + Si	75-100 keV	Raleigh, B.; Feldman, L. C.; Buck, T. R.; Gitsov, V. N. Neutralization of energetic He ions scattered from clean "2 x 1" Si (111). Nucl. Instrum. Methods Phys. Rev. E 233, 501 (1984) United States
32841 E	C76: Cl ¹⁶⁺ + C; Cl ³⁵⁺ + C; Cl ³⁷⁺ + C; Cl ³⁵⁺ + C; Cl ³⁶⁺ + C; Cl ³⁸⁺ + C; Cl ³⁷⁺ + C	130 keV	Rey, R. J.; Fender, L. F.; Treacy, P. R. Pre-equilibrium charge states of multi chlorine ions in solids. Nucl. Instrum. Methods Phys. Rev. E 233, 505 (1984) Australia

Ref. No.	Reactants	Energy Range	Reference
02842 T	D06: $B^+ + C; C^+ + C; B^+ + B_2$	Undef	Sasako, T. Equilibrium charge distributions for B, C, B ions passing through matter. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 538 (1984) Japan
02843 E	D08: $Ar^+ + Mg; Ar^+ + Al; Ar^+ + Si$	10 keV	Sasaki, K.; Yamaka, S. Ion-excited Auger electron emissivity from Mg, Al and Si surfaces. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 512 (1984) Japan
02844 E	D04: $He^+ + Mg; He^+ + Al; He^+ + Si$ $Ar^+ + Mg; Ar^+ + Al; Ar^+ + Si$	20-200 keV	Thomas, R. H.; Whaley, R. Inner shell vacancies in sputtered atoms. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 516 (1984) United States
02845 E	D03: $Ar^+ + Be; Ar^+ + B; Ar^+ + Mg$	80 keV	Vejd, E. Study of atomic excitation in sputtering as a function of the projectile incidence angle. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 521 (1984) Denmark
02846 E	D08: $He^+ + Ba$	7-20 keV	Schneider, F.; Eckstein, J.; Verbeek, B. Trajectory effects in the negative charge-state fraction of 3He and 4He reflected from a sodium target. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 525 (1984) West Germany
02847 E	D06: $PEMT^+ + Au; PEPT^+ + Au; PEMT^+ + Ag;$ $PEPT^+ + Au$	12-33 keV	Ishii, F.; Reifer, W. C. Z_2 -oscillations in ica-induced kinetic electron emission. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 521 (1984) West Germany
02848 E	D05: $Ar^+ + B; Ar^+ + Be; Ar^+ + Mg;$ $Ar^+ + Au; Xe^+ + Au$	40 keV	Vejd, E. Study of secondary electrons emissivities from Be, B, Mg, and Au as a function of the projectile incidence angle. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 536 (1984) Denmark
02849 T	D03: Undef D08: Undef D09: Undef	3-5 keV	Snowdon, L. J. Trajectory and primary ion charge dependence of key scattered and re-emitted H^- charged fractions. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 543 (1984) West Germany
02850 P	D03: $Ar^+ + B_2O; Ar^+ + BB_2; Ar^+ + CO;$ $He^+ + B_2O; He^+ + BB_2; He^+ + CO;$ $H_2^+ + B_2O; H_2^+ + BB_2; H_2^+ + CO$ D13: $Ar^+ + B_2O; Ar^+ + BB_2; Ar^+ + CO;$ $He^+ + B_2O; He^+ + BB_2; He^+ + CO;$ $H_2^+ + B_2O; H_2^+ + BB_2; H_2^+ + CO$	3-6 keV	Bering, B. A.; Wolfschoten, A. W.; de Vries, A. E. Chemical sputtering by keV ions. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 544 (1984) The Netherlands
02851 T	D02: $He^+ + Ni; D^+ + Ni; He^+ + Ni; B^+ + Ni;$ $Ar^+ + Ni; Xe^+ + Ni; D^+ + C$	2x10 ⁴ -2x10 ⁵ eV	Eckstein, W.; Biesack, J. P. Sputtering investigations with the Monte Carlo program TRIM SP. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 553 (1984) West Germany
02852 E	D02: $Cl^+ + SiO_2; Cl^+ + Si_2O_5; Cl^+ + Al_2O_3;$ $Cl^+ + Li_2CO_3; Cl^+ + CaF_2; Cl^+ + UF_6;$ $Cl^+ + IAP; Cl^+ + UO_2; Cl^+ + Si;$ $F^+ + SO_2; F^+ + B_2C; F^+ + UF_6$	1-35 keV	Tostrelle, T. A. Track damage and erosion of insulators by ion-induced electronic processes. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 555 (1984) United States
02853 E	D08: $He^+ + Si$	100-200 keV	Wenzel, R.; Wittmaack, K. Erosion of implanted xenon by 100-200 keV helium. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 564 (1984) West Germany
02854 E	D02: $Ar^+ + Si; Xe^+ + Si$	5-300 keV	Wittmaack, K. An attempt to understand the sputtering yield enhancement due to implantation of inert gases in anorthite solids. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 569 (1984) West Germany
02855 E	D02: $e^- + SF_6$	750 eV	Pedrys, B.; Barlog, B. A.; Bering, A.; de Vries, A. E. Erosion of frozen SF ₆ by electron bombardment. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 573 (1984) The Netherlands
02856 T	D02: $H^+ + Ni; B^+ + Ni; H^+ + B; H^+ + Au;$ $D^+ + Ni; F^+ + Ni; D^+ + B; D^+ + Au;$ $He^+ + Ni; He^+ + Ni; He^+ + B; He^+ + Au$	1-8 keV	Yamazaki, T. A simple analysis of the angular dependence of light-ion sputtering. <i>Nucl. Instrum. Methods Phys. Res. B</i> 233, 578 (1984) Japan

Ref. No.	Reactants	Energy Range	Reference
02857 T	D02: $\text{Ar}^+ + \text{Au}$; $\text{Ar}^+ + \text{Ag}$	6-20 keV	Szymanski, B. Elastic-collision spikes in sputtering of metals at normal and oblique incidence. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 583 (1988) Denmark
02858 T	D02: $\text{H}^+ + \text{PEST}$; $\text{D}^+ + \text{PEST}$; $\text{He}^+ + \text{PEST}$	$3 \times 10^4 - 3 \times 10^6$ eV	Bobdansky, J. A universal relation for the sputtering yield of semimetallic solids at normal ion incidence. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 587 (1988) West Germany
02859 T	D02: $\text{Ca}^+ + \text{Cu} + \text{Bi}$; $\text{Bi}^+ + \text{Cu} + \text{Bi}$	93 keV	Rosen, R.; Fassel, R. W. Binary collision cascade calculation of sputtering from Cu-Bi alloys by 93 keV Cu and Bi ions. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 592 (1988) United States
02860 Z	D02: $\text{Ar}^+ + \text{Ni}$; $\text{Ar}^+ + \text{Ni}_3\text{C}$	5 keV	Morita, K.; Chuo, S.; Hayashibara, H.; Itoh, N. Studies of temperature and flux dependences of sputtering yield of nickel from two-layered films of Ni-Ni ₃ C. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 596 (1988) Japan
02861 Z	D02: $\text{Ar}^+ + \text{CuPt}$; $\text{Ar}^+ + \text{Ni}_3\text{Pd}$; $\text{Ar}^+ + \text{NiPt}$; $\text{Ni}^+ + \text{Cu}$	20-320 keV	Andersen, B. B.; Stensø, E.; Sørensen, T.; Skitløv, B. J. Transients in the composition of material sputtered from alloy targets. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 601 (1988) Denmark
02862 Z	D02: $\text{D}^+ + \text{Zr}$; $\text{H}^+ + \text{Zr}$; $\text{He}^+ + \text{Zr}$; $\text{Ar}^+ + \text{Zr}$	2.5-8.3 keV	Eby, M. L.; Farren, G. Anisotropy of collision cascades by light-ion irradiation of zirconium. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 616 (1988) West Germany
02863 Z	D02: $\text{Ar}^+ + \text{Ti}$; $\text{Ar}^+ + \text{Al}$; $\text{Ar}^+ + \text{O} + \text{Ti}$; $\text{Ar}^+ + \text{N} + \text{Ti}$; $\text{Ar}^+ + \text{O} + \text{Al}$	1 keV	Cullai, E. Velocity distributions of the metal atoms sputtered from oxygen and nitrogen covered Ti- and Al-surfaces. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 619 (1988) West Germany
02864 Z	D03: $\text{Ar}^+ + \text{Al}$; $\text{Ar}^+ + \text{C} + \text{Al}$	2 keV	Baragiola, B.; Puccio, J.; Zappioli, G. Effect of oxygen on secondary ion emission from Al. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 619 (1988) Argentina
02865 Z-T	D02: $\text{Ar}^+ + \text{C}$	5 keV	Vietske, E.; Flasberg, K.; Hennes, H.; Philippa, V. The enhanced sputtering yield of graphite at elevated temperatures: the energy of the released carbon atoms. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 617 (1988) West Germany
02866 Z	D02: $\text{Ar}^+ + \text{Cu} + \text{Pt}$	20-80 keV	Andersen, B. B.; Stensø, E.; Sørensen, T.; Skitløv, B. J. Temperature dependence of the angular distribution of material sputtered from a CuPt alloy. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 623 (1988) Denmark
02867 T	D02: $\text{Ar}^+ + \text{Cu}$; $\text{B}^+ + \text{Bi}$	10-1000 eV	Tanigura, Y. Threshold energies of light-ion sputtering and heavy-ion sputtering as a function of angle of incidence. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 627 (1988) Japan
02868 T	D02: $\text{D}^+ + \text{Ni}$; $\text{D}^+ + \text{Mo}$	1.3-4 keV	Becerra-Acevedo, R.; Bobdansky, J.; Eckstein, B.; Roth, J. Spherical angular distribution of atoms sputtered with energetic deuterium at grazing incidence. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 631 (1988) West Germany
C2869 T	D02: Undef	Undef	Carter, G.; Hobbs, R. J. Theory of development of surface topography under spatiotemporally heterogeneous sputtering conditions. <i>Nucl. Instrum. Methods Phys. Res. E</i> 230, 635 (1988) United Kingdom
C2870 F	D02: $\text{Ar}^+ + \text{Cu}$; $\text{Ca}^+ + \text{Cu}$; $\text{Kr}^+ + \text{Cu}$; $\text{Ne}^+ + \text{Cu}$; $\text{Xe}^+ + \text{Cu}$	20-40 keV	Skitløv, J. L.; Kirikidis, G.; Carter, G.; Lewis, C. W.; Hobbs, R. J. The development of sputter-induced pits and pyramids on ion bombardment (111) surfaces of face centered cubic metal single crystals. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 643 (1988) Denmark
02871 F	D02: $\text{Ar}^+ + \text{Cu} + \text{Ag}$	80 keV	Babic, M.; Kapovic, M.; Spasic, V. Mechanisms of cone formation by ion bombardment. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 645 (1988) Yugoslavia

Ref. No.	Reactants	Energy Range	Reference
02872 E	D02: Ar ⁺ + Ag	20-40 keV	Lindner, J.; Niedrig, H.; Sternberg, R. Radiated measurements of differential scattering yields using the collector method by means of electron backscattering. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 649 (1989) West Germany
02873 E-T	D03: He ⁺ + SiO; He ⁺ + SiO; Ar ⁺ + SiO D13: He ⁺ + SiO; He ⁺ + SiO; Ar ⁺ + SiO	300-3800 eV	Schneider, F. J.; Eckstein, W.; Verbeek, B. Energy distributions of oxygen desorbed from a nickel surface through ion bombardment: comparison of computer simulation with experiment. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 655 (1989) West Germany
02874 T	D02: Sb ⁺ + Be; Ar ⁺ + Cu	5-50 keV	Seitz, B. P.; Harrison, D. R., Jr. A computer simulation of high energy density cascades. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 663 (1989) United States
02875 E	D02: Ar ⁺ + Tb	1-3 keV	Ousgaard, J.; Ellengard, O. Sputtering of thin metal overlayers studied by electron spectroscopy and a quartz crystal microbalance method. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 666 (1989) Denmark
02876 E	D02: Ar ⁺ + Si; Ar ⁺ + Cr; Ar ⁺ + Ag	4-12 keV	Bavinson, D.; Panjan, F.; Tabkar, A.; Vine, J. Determination of sputtering yields by a new procedure for depth profiling of multilayered structures. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 673 (1989) Yugoslavia
02877 E	D03: Ar ⁺ + Si; Xe ⁺ + Si	2-12 keV	Bittsach, K. Angular dependence of secondary ion emission from silicon bombarded with inert gas ions. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 674 (1989) West Germany
02878 E-T	D02: Ar ⁺ + Cu; Ta ⁺ + Cu	125 keV	Halberg, P. E.; Alian, S. C.; Leibert, J. R.; Treude, F. A.; Reynolds, G. B. Effects of non-normal incidence on the implantation of copper with gold and tantalum. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 679 (1989) United States
02879 E	D02: Ar ⁺ + Cu; Ce ⁺ + Cu	100-120 keV	Siebold-Pristowes, L.; Borisenko, V.; Johansen, A.; Jochsen, F. Sputtering on copper single crystals. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 684 (1989) Denmark
02880 T	D02: Undef	Undef	Smith, A. E.; Johnson, C.R.J. On the computer realisation of the nonlinear Boltzmann equation and its use in sputtering theory. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 689 (1989) Australia
02881 T	D02: Ar ⁺ + Si	15 keV	Roush, M. L.; Daverya, F.; Chambers, G. P.; Andreadis, T. D.; Es, J.; Goktepe, G. F.; Vine, J. Distribution of origins of sputtered particles and the shape of the target regions affected by the cascade regime. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 693 (1989) United States
02882 T	D02: Undef D03: Undef D19: Undef	Undef	Valente, G.; Oliva, A. An interpretation of SIMS measurements as a tool for investigating the ionization process. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 697 (1989) Italy
02883 T	D01: b + N; N ₂ + N	10-15 keV	Row, R. The spatial configuration of collision cascades induced by 10 and 15 keV per atca molecular ions in polycrystalline. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 715 (1989) Belgium
02884 T	C04: N ₂ ⁺ + SS	300-330 keV	Ferguson, R. H.; Evans, G. T.; Flottner, E. B.; Swanson, B. L.; Whilton, J. L. Planar contributions to axial flux peaks in nitrogen implanted single crystal stainless steel. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 741 (1989) West Germany
02885 T	C04: Ne ⁺ + Au; Ne ⁺ + Pt	35 keV	Gissel, H.; Leonard, W. B.; Alexander, T. K.; Ball, G. C.; Forster, J. S.; Long, R. A.; Milani, L.; Phillips, D.; Flottner, E. B. Influence of 1.3 MeV ³⁰ Si post-bombardment on the depth profiles of 35 keV ³⁰ Si ions implanted into Pb and Au. <i>Nucl. Instrum. Methods Phys. Res. E</i> 233, 770 (1989) Canada

Ref. No.	Reactants	Energy Range	Reference
02886 Z	C04: H ⁺ + Cu C05: H ⁺ + Cu	0.25-2.5 keV	Balmerbe, J. B. Implantation parameters of low energy nitrogen in copper. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 778 (1996) Australia
02887 Z-T	D17: Review	Undef	Sang, Z. L. Atomic mixing induced by ion-beams. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 784 (1996) Republic of China
02888 Z	D17: Ar ⁺ + Ag + Si	0.5 keV	Jimenez-Botiquez, J. J.; Tognetti, R. P.; Borah, T.; Collins, R. Atomic mixing of silver into a silicon substrate using a 0.5 keV beam of Ar ⁺ ions. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 792 (1996) United Kingdom
02889 Z	C04: H ₂ ⁺ + Si	3 keV	Snowdon, K.; Onggaard, J.; Tønsgaard, S. Observation of a surface peak in low energy implant depth profiles in silicon. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 797 (1996) Denmark
02890 Z	D17: Ar ⁺ + Ta ₂ O ₅	1 keV	Varga, P.; Taglauer, E. Depth profiling of the altered layer in Ta ₂ O ₅ produced by sputtering with He ions. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 802 (1996) West Germany
02891 T	D17: Undef	Undef	Collins, R. On the "collective current" concept in the theory of atomic mixing. <i>Nucl. Instrum. Methods Phys. Res. B</i> 230, 809 (1996) United Kingdom
02892 T	A07: H ⁺ + PET	Undef	Paul, H. An analytical cross-section formula for K x-ray production by protons. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 5 (1996) Austria
02893 Z	D12: H ⁺ + Al	1.5-6.0 keV	Folkmann, F.; Cranon, R. B.; Bertel, B. Angular distribution of particle-induced x-ray emission. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 11 (1996) Denmark
02894 T	A07: H ⁺ + Al; H ⁺ + Ti; H ⁺ + Cu; D ⁺ + Al; D ⁺ + Ti; D ⁺ + Cu	0.06-50 keV/amu	Bortesqto, E. C.; Baptista, G. B. A new approach to obtain an analytical expression for K shell ionization cross sections in PET. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 16 (1996) Brazil
02895 Z	A03: H ⁺ + I; H ⁺ + Cu; H ⁺ + Ba; H ⁺ + La; H ⁺ + Cu; H ⁺ + Br A07: H ⁺ + I; H ⁺ + Cu; H ⁺ + Ba; H ⁺ + La; H ⁺ + Cu; H ⁺ + Br	1.5-3.0 keV	Aveldt, I.; Mitchell, I. V.; Eschbach, H. L. Precise x-ray production cross-section measurements of medium Z elements by protons. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 21 (1996) Belgium
02896 Z	A07: H ⁺ + Ho; H ⁺ + Pd; H ⁺ + Sm; H ⁺ + Ba; H ⁺ + Ce; H ⁺ + Nd; H ⁺ + Sm	0.5-6.0 keV/amu	Divois, S.; Seith, G.; Gossior, S. K-shell ionization of heavy target elements (Z less than or equal to 72 and Z less than or equal to 62) bombarded with protons in the energy range 0.5 keV-6 keV. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 27 (1996) West Germany
02897 Z	A07: H ⁺ + + Ro; H ⁺ + Au	1-3 keV	Siwetzner, R.; Szarejko, J.; Zielanny, Z.; Zylicz, J.; Gocłowski, R.; Jaskolska, B.; Zielen, I.; Borashoj, P. The cross sections for K-shell ionization of atoms with Z less than or equal to 86 induced by low energy protons. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 33 (1996) Poland
02898 Z	A07: H ⁺ + Lu; H ⁺ + B; H ⁺ + Au; H ⁺ + Tl; H ⁺ + Pb; H ⁺ + Th; H ⁺ + U	0.5-0.9 keV	Eudnar, B.; Cindro, B.; Kregat, R.; Bavník, V.; Šitář, Z. Measurements of proton induced L shell x-ray cross sections on thin Lu, V, Au, Ti, Pb, Th and U targets. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 39 (1996) Yugoslavia
02899 T	A07: Ca ⁺ + Ac; Fe ⁺ + Ac; Si ⁺ + Ac; H ⁺ + Ac; Ba ⁺ + Ac	0.25-3.5 keV/amu	Becker, R. L.; Ford, A. L.; Readings, J. F. Rate of saturation of target L shell vacancy probability, $P_{\text{sat}}(L)$, with projectile charge as given by coupled-channels calculations. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 43 (1996) United States
02900 Z	A03: H ⁺ + Dy; H ⁺ + B; H ⁺ + Au; H ⁺ + Pb; H ⁺ + Th; H ⁺ + U; H ⁺ + Dy; H ⁺ + W; H ⁺ + Au; H ⁺ + Pb; H ⁺ + Th; H ⁺ + U A07: H ⁺ + Dy; H ⁺ + W; H ⁺ + Au; H ⁺ + Pb; H ⁺ + B; H ⁺ + U; H ⁺ + Dy; H ⁺ + W; H ⁺ + Au; H ⁺ + Pb; H ⁺ + Th; H ⁺ + U	1-3 keV	Cohen, D. D. L subshell x-ray production by 1 to 3 keV protons with H ⁺ ions. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 47 (1996) Australia

Ref. No.	Reactants	Energy Range	Reference
02901 E	D02: $H^+ + S$	2-3 keV	Satsunesu, A. A.; Kakunin, D. K.; Kallithrakas-Sotres, S. The x-ray continua from proton bombardment of thick targets in Ne. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 52 (1994) Greece
02902 E	D02: $H^+ + C; H^+ + Al$	1-6 keV	Ishii, K.; Sekita, S. Continuous x rays produced by a few keV proton bombardment. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 57 (1994) Japan
02903 E-T	A03: Review A07: Review	Undef	Suzuki, S.; Yamada, C. S. Implications of heavy-ion-induced satellite x-ray emission: I. Introduction. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 71 (1994) United States
02904 E	A03: $Ar^+ + V; Ar^+ + Cu; Ar^+ + Nb;$ $Ar^+ + Ta; Ar^+ + Pt$ A07: $Ar^+ + V; Ar^+ + Cu; Ar^+ + Nb;$ $Ar^+ + Ta; Ar^+ + Pt$	36-133 keV	C'Kellley, G. R.; Auble, R. L.; Galett, L. R., Jr.; Kim, G. J.; Kildner, R. J.; Raman, S.; Shahal, O.; Yousaf, J. F.; Lapicki, G. Implications of heavy-ion-induced satellite x-ray emission: II. Production of K and L x rays by 0.9-2.6 MeV/u argon ions in thick targets of vanadium, copper, niobium, tantalum and platinum. <i>Nucl. Instrum. Methods Phys. Res. B</i> 231, 78 (1994) United States
02905 T	C02: $Cl^+ + C; Cl^+ + Al; Cl^+ + Cu; Cl^+ + Ni;$ $O^+ + C$	0.03-30 keV	Boyle, S. C.; Apfel, R. E. Semi-empirical formulae for the stopping power of ions. <i>Nucl. Instrum. Methods Phys. Res. B</i> 232, 23 (1994) India
02906 E	A03: $Xe^{+14} + I; Xe^{+20} + Ie; Xe^{+24} + Ie;$ $Xe^{+28} + Ie; Xe^{+36} + Ie$	2.2-3.6 keV/amu	Böhler, P. E.; Hoffmann, D.H.H.; Schenfeldt, B. L.; Hack, E.; Beyurhoff, W. E.; Stachura, Z. Atomic collision studies at moderate projectile velocities using highly charged, decelerated heavy ions from the GSI-ONFIC. <i>Nucl. Instrum. Methods Phys. Res. B</i> 232, 34 (1994) West Germany
02907 E	D02: $Kr^+ + Ie; Ar^+ + Ie; Ar^+ + Kr;$ $Ar^+ + Kr$	2-8 keV	Haring, R. A.; Podry, R.; Haring, A.; de Vries, A. E. Spattering of condensed noble gases by keV heavy ions. <i>Nucl. Instrum. Methods Phys. Res. B</i> 232, 43 (1994) The Netherlands
02908 E	C02: $Cl^{+14} + C; Cl^{+18} + C; Cl^{+20} + C$ C06: $Cl^{+14} + C; Cl^{+18} + C; Cl^{+20} + C$	130 keV	Federer, L. E.; May, B. J. The measurement of pre-equilibrium heavy ion energy loss. <i>Nucl. Instrum. Methods Phys. Res. B</i> 232, 72 (1994) Australia
02909 E	D07: Review K04: Charge state	1-10 keV	Boers, A. L. Charge state of low energy reflected particles. <i>Nucl. Instrum. Methods Phys. Res. B</i> 232, 98 (1994) The Netherlands
02910 E-T	A07: $H^+ + PEIT$	Undef	Paul, E. K-shell ionization due to light ions: the status of cross-sections. <i>Nucl. Instrum. Methods Phys. Res. B</i> 232, 211 (1994) Austria
02911 T	A07: $H^+ + Ti; H^+ + Au; H^+ + Ag; O^+ + PEIT;$ $Cl^+ + PEIT; Re^+ + Dy; Fe^+ + Fe$	0.07-136 keV	Jakob, A.; Trautmann, D.; Bosel, F.; Boer, G. Wave function effects in inner shell ionization. <i>Nucl. Instrum. Methods Phys. Res. B</i> 232, 216 (1994) Switzerland
02912 T	C02: $PEIT^+ + PEIT$	Undef	Rashba, G. Inner-shell ionization and the Z ² and Barkas effects in stopping power. <i>Nucl. Instrum. Methods Phys. Res. B</i> 232, 227 (1994) Denmark
02913 T	A07: $He^+ + Ti; He^+ + Cu; He^+ + Ti; He^+ + Cu;$ $He^+ + Ni; I^+ + Bi; He^+ + Si$	50-150 keV	Iand, D. J.; Simons, D. G. Nonperturbative effects in inner-shell ionization. <i>Nucl. Instrum. Methods Phys. Res. B</i> 232, 235 (1994) United States
02914 T	A07: Undef	Undef	Schochach, L. On the binding effect on inner shell ionization in asymmetric ics-atomic collisions. <i>Nucl. Instrum. Methods Phys. Res. B</i> 232, 248 (1994) Denmark
02915 E	A03: $H^+ + V; H^+ + Ba; H^+ + Mg; H^+ + Al;$ $H^+ + Si; H^+ + Fe; H^+ + Cl; H^+ + Ca;$ $H^+ + Ti; He^+ + Fe; He^+ + Mg; He^+ + Ng;$ $He^+ + Al; He^+ + Si; He^+ + Fe;$ $Li^+ + Fe; Li^+ + Ba; Li^+ + Mg;$ $Li^+ + Al; Li^+ + Si; Li^+ + Fe;$ $Li^+ + Cl; Li^+ + Ca; Li^+ + Ti$	0.2-0.26 keV/amu	Lessard, W. W.; Forster, J. S.; Daniels, W.; Farfoot, R. M.; Phillips, D. K-shell x-ray cross-section ratios for 10 B, 10 Be and 10 Li projectiles on targets from fluorine to titanium. <i>Nucl. Instrum. Methods Phys. Res. B</i> 232, 252 (1994) Canada

Ref. No.	Reactants	Energy Range	Reference
02916 T	A07: H ⁺ + Cu; H ⁺ + Al	0.32-3.75 keV/amu	Reading, J. F.; Ford, A. L.; Smith, J. S.; Alexander, J.; Becker, S. L. Progress in numerical calculations of ion-atom collisions. Nucl. Instrum. Methods Phys. Res. B 232, 266 (1984) United States
02917 T	A07: C ⁶⁺ + Ne	1-10 keV/amu	Becker, S. L.; Ford, A. L.; Reading, J. F. The role of Pauli correlations, channel couplings, and shake-off in ion-induced K(⁴⁰ Mn) and K(⁴⁰ Mn) multiple-vacancy production. Nucl. Instrum. Methods Phys. Res. B 232, 271 (1984) United States
02918 T	A05: Review A07: Review	Undef	Benes, O. The influence of multiple ionization upon fluorescence yield. Nucl. Instrum. Methods Phys. Res. B 232, 279 (1984) Austria
02919 E	A07: Si ⁴⁺ + Au; Si ⁴⁺ + Ag A18: Si ⁴⁺ + Au; Si ⁴⁺ + Ag	0.25-2.5 keV/amu	Terinde, A.; Ciortea, C.; Paulescu, A.; Fluoresc., D.; Titica, I.-Z.; Zorzan, V.; Trautmann, D. Au L-shell ionization by Si and S ions: integral and differential cross sections and alignment. Nucl. Instrum. Methods Phys. Res. B 232, 283 (1984) Romania
02920 T	A07: H ⁺ + Au	0.2-3.6 keV	Jitschin, W. Projectile dependence of Au L-substrate ionization cross sections. Nucl. Instrum. Methods Phys. Res. B 232, 291 (1984) West Germany
02921 T	A07: H ⁺ + Au; H ⁺ + Au; He ⁺ + Au; Li ⁺ + Au; Be ⁺ + Au; C ⁺ + Au; B ⁺ + Au; O ⁺ + Au; H ⁺ + Ag; H ⁺ + Xe; H ⁺ + Dy; H ⁺ + Au; H ⁺ + O; C ⁺ + Ba; C ⁺ + Dy; C ⁺ + Au; C ⁺ + O; H ⁺ + Ba; H ⁺ + Dy; H ⁺ + Au; H ⁺ + O; He ⁺ + Ba; He ⁺ + Dy; He ⁺ + Au; He ⁺ + O; S ⁺ + Ba; S ⁺ + Dy; S ⁺ + Au; S ⁺ + O	0.15-2.0 keV/amu	Sarkadi, L.; Sakayama, T. Higher order processes in L-shell ionization. Nucl. Instrum. Methods Phys. Res. B 232, 296 (1984) Hungary
02922 E-T	A07: H ⁺ + Lu; H ⁺ + B; H ⁺ + Au; H ⁺ + Ti; H ⁺ + Pb; H ⁺ + Th; H ⁺ + Au	0.5-0.9 keV	Sudar, M. L-subshell ionization cross sections of Lu, B, Au, Ti, Pb, Th, and U by protons of 0.5-0.9 MeV energy. Nucl. Instrum. Methods Phys. Res. B 232, 303 (1984) Yugoslavia
02923 E	A07: D ⁺ + Sm; D ⁺ + Er; D ⁺ + Au; He ⁺ + Sm; He ⁺ + Er; He ⁺ + Au; C ⁺ + Sm; C ⁺ + Er; C ⁺ + Au; He ⁺ + Sm; He ⁺ + Er; He ⁺ + Au	0.2 keV/amu	Fapp, T.; Palinkas, J.; Sarkadi, L.; Schlapk, B.; Tocok, J.; Kiss, K. Investigation of the projectile atomic number dependence of the L-subshell ionization. Nucl. Instrum. Methods Phys. Res. B 232, 311 (1984) Hungary
02924 E	C05: H ⁺ + Rg; H ⁺ + Da; H ⁺ + He; H ⁺ + N ₂ ; H ⁺ + Ar	9.9-13.9 keV	Keha, S.; Everaerts, P. E.; Hinterberger, F.; Von Bassens, P.; Treille, B. P. Multiple scattering of protons in thick gas targets. Nucl. Instrum. Methods Phys. Res. B 232, 332 (1984) West Germany
02925 E	C02: H ⁺ + Al; H ⁺ + Si; H ⁺ + Sc; H ⁺ + V; H ⁺ + Cu; H ⁺ + Zn; H ⁺ + Ga; H ⁺ + Ge; H ⁺ + Ti; H ⁺ + Zr; H ⁺ + Nb; H ⁺ + Ru; H ⁺ + Ag; H ⁺ + Cd; H ⁺ + In; H ⁺ + Sn; H ⁺ + La; H ⁺ + Sm; H ⁺ + Gd; H ⁺ + Yb; H ⁺ + Hf; H ⁺ + Ta; H ⁺ + W; H ⁺ + Pt; H ⁺ + Au; H ⁺ + Pb	0.1-6.0 keV	Sirotirin, I. I.; Tul'nov, A. P.; Khodyrev, V. A.; Mizulin, V. B. Proton energy loss in solids. Nucl. Instrum. Methods Phys. Res. B 232, 337 (1984) Soviet Union
02926 T	D02: Undef	0.2-2.5 keV	Oktassek, B. The energy distribution of sputtered particles at low bombarding energies. Nucl. Instrum. Methods Phys. Res. B 232, 356 (1984) Germany
02927 E	C02: H ⁺ + CF ₆ ; He ⁺ + CH ₄	60-1050 keV	Baumgart, H.; Arnold, W.; Guenzl, J.; Buttig, I.; Hofmann, A.; Stier, B.; Pfaff, E.; Seiter, G.; Therrakotta, S.; Clausitzer, C. Electron and helium stopping cross sections in gaseous hydrocarbon compounds. Nucl. Instrum. Methods Phys. Res. B 233, 1 (1984) West Germany
02928 E	C06: H ⁺ + C; He ⁺ + C; H ⁺ + C	0.03-100 keV/amu	Zaitsev, V. F.; Kral'ykina, L. A.; Vorobjev, N. I.; Deitriev, I. S.; Nikolaeve, V. I.; Teplova, T. A. Attainment of equilibrium charge distributions in fast ion beams passing through solid films. Nucl. Instrum. Methods Phys. Res. B 233, 10 (1984) Soviet Union
02929 E	D02: e ⁻ + Ne; e ⁻ + D ₂ ; e ⁻ + N ₂ D04: e ⁻ + Ne; e ⁻ + D ₂ ; e ⁻ + N ₂ D06: e ⁻ + Ne; e ⁻ + D ₂ ; e ⁻ + N ₂	3 keV	Schou, J.; Sorensen, H.; Borgesen, P. The measurement of electron-induced erosion of condensed gases: experimental methods. Nucl. Instrum. Methods Phys. Res. B 233, 44 (1984) Denmark

Ref. No.	Reactants	Energy Range	Reference
02530 E	C66: C ⁺ + C; C ⁺ + O ₂ ; Cl ⁺ + C; Cl ⁺ + O ₂	1.5-7 eV	Bofmans, H.; Bonani, G.; Morozumi, K.; Rossi, R.; Suter, A.; Belfli, N. Charge state distributions and resulting isotope fractionation effects of carbon and chlorine in the 1-7 eV energy range. <i>Nucl. Instrum. Methods Phys. Res.</i> S 233, 254 (1984) Switzerland
02531 E	D09: B ₂ ⁺ + Si; B ₂ ⁺ + Si	200-600 eV	Billerding, G.; Hailand, W.; Snowden, R. J. Neutralization of fast molecular ions B ₂ ⁺ and B ₂ ⁺ at surfaces. <i>Phys. Rev. Lett.</i> 53 , 2331 (1984) West Germany
02532 E-T	K06: Structure; Lifetime		Bichteler, J. Measurements of lifetimes and oscillator strengths of neutral and singly ionized atoms - experimental results of the last 5 years. <i>Phys. Scr.</i> T8 , 70 (1980) West Germany
02533 E	K06: Structure; Lifetime		Curtiss, L. J. Lifetime measurements in highly ionized atoms. <i>Phys. Scr.</i> T8 , 71 (1980) United States
02534 E	K06: Oscillator strengths		Kock, A.; Krull, S.; Schaeffer, S. Fe-I Oscillator strengths. <i>Phys. Scr.</i> T8 , 84 (1980) West Germany
02535 E	K06: Oscillator strengths		Smith, P. L.; Johnson, D. C.; Kuang, H. S.; Farkhondeh, B. R.; Knight, B. B. Measurements of transition probabilities for spin-changing lines of atomic ions used in diagnostics of astrophysical plasmas. <i>Phys. Scr.</i> T8 , 86 (1980) United States
02536 T	K06: Transition probabilities		Crossley, R. 15 years on - the calculation of atomic transition probabilities revisited. <i>Phys. Scr.</i> T8 , 117 (1980) United Kingdom
02537 T	K06: Structure		Fricke, B. Relativistic calculations of atomic structure. <i>Phys. Scr.</i> T8 , 125 (1980) West Germany
02538 T	R06: Review	0-1.6 eV	Serep, B. B. Calculation of atomic data for Astrophysics at University-Collage-London. <i>Phys. Scr.</i> T8 , 130 (1980) United Kingdom
02539 T	D18: Review	Undef	Bilssauer, B. Introductory remarks - helium in metals. <i>Radiat. Eff.</i> 78 , 1 (1983) West Germany
02540 T	D18: He ⁺ + Si; He ⁺ + Al	Undef	Wilson, W. E. Theory of small clusters of helium in metals. <i>Radiat. Eff.</i> 78 , 11 (1983) United States
02541 T	D18: He + Ni; He + Mo	Undef	De Gossos, J.J.W.; Caspers, L.; Van Veen, A. Atomistic studies of helium trapping in metals. <i>Radiat. Eff.</i> 78 , 25 (1983) The Netherlands
02542 E	D18: He + Al; He + Au; He + Si	Undef	Theresa, G. J. Experimental studies of helium in metals. <i>Radiat. Eff.</i> 78 , 37 (1983) United States
02543 E	D18: He ⁺ + U; He ⁺ + Ba; He ⁺ + Ni	133-453 eV	Van Veen, A.; Evans, J. R.; Autengruber, S.T.R.; Caspers, L. R. Precipitation in low energy helium irradiated molybdenum. <i>Radiat. Eff.</i> 78 , 53 (1983) The Netherlands
02544 T + Ni	Undef	Caspers, L. R.; Van Veen, A.; Belliough, T. J. A simulation study of the initial phase of He precipitation in metals. <i>Radiat. Eff.</i> 78 , 67 (1983) The Netherlands
02545 T	D18: He ⁺ + TiT ₂	Undef	Foch, P. Comparison of theoretical and experimental ³ He desorption behavior of titanium tritide films. <i>Radiat. Eff.</i> 78 , 77 (1983) France
02546 E	D18: He ⁺ + Si	Undef	Sokor, D. S. Release of ion-implanted and transmutation-produced helium from silicon. <i>Radiat. Eff.</i> 78 , 131 (1983) United States
02547 E	D18: He ⁺ + Sc	133-153 eV	Evans, J. R.; Van Veen, A.; Caspers, L. R. The application of TiT ₂ to the study of helium cluster nucleation and growth in molybdenum at 323 K. <i>Radiat. Eff.</i> 78 , 135 (1983) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
02948 T	D18: He ⁺ + Be	Undef	Pinnin, N. G.; Van Veen, A.; Caspers, L. G. The energy of helium filled platelets and bubbles in molybdenum. Radiat. Eff. 70, 121 (1983) United Kingdom
02949 T	D18: He ⁺ + Si	50-3000 eV	Bailey, P.; Arroo, D. C.; Karpeev, D. S.; Carter, G. Helium trapping in nickel and the use of the helium probe as a technique for defect and gas agglomeration studies. Radiat. Eff. 70, 133 (1983) United Kingdom
02950 T	D18: He ⁺ + Cu; He ⁺ + Si; He ⁺ + Au; He ⁺ + Ti; He ⁺ + SS	30 keV	Johson, P. I.; Repay, D. J.; Evans, J. R. Bubble structures in He ⁺ irradiated metals. Radiat. Eff. 70, 147 (1983) New Zealand
02951 T	D18: He ⁺ + Si	5 keV	Van Sygenhoven, H.; Stals, L. H. The Greenwood-Pearman-Rinner loop punching mechanism as applied to helium bubble growth in nickel implanted with 5-keV He ⁺ ions at 273 K. Radiat. Eff. 70, 157 (1983) Belgium
02952 T	D18: He ⁺ + V	Undef	Jager, W.; Issner, H.; Schober, T.; Thomas, G. J. Formation of helium bubbles and dislocation loops in tritium-charged vanadium. Radiat. Eff. 70, 165 (1983) West Germany
02953 T	D18: He ⁺ + SS	15-200 keV	Eichert, T. Helium diffusion in metals observed by radiative atoms using RAC. Radiat. Eff. 70, 177 (1983) West Germany
02954 T	D18: Review	Undef	Trinkaus, H. Energetics and formation kinetics of helium bubbles in metals. Radiat. Eff. 70, 189 (1983) West Germany
02955 T	D18: He ⁺ + Si; He ⁺ + Cu	0-5.2 keV	Gaber, A.; Eichert, P. Investigation of the behaviour of helium and radiative defects after room temperature He-implantation of nickel and copper. Radiat. Eff. 70, 213 (1983) West Germany
02956 T	D18: He ⁺ + Si	Undef	Koegel, G.; Triftshäuser, W. Helium implantation in metals investigated by monoenergetic positrons. Radiat. Eff. 70, 221 (1983) West Germany
02957 T	D18: He ⁺ + SS	20 keV	Vijayarathna, E.; Triftshäuser, W.; Koegel, G. Investigation of helium and deuterium irradiated stainless steel (and nickel) by positron annihilation. Radiat. Eff. 70, 231 (1983) India
02958 T	D18: Undef	Undef	Salemma, D. The growth of gas bubbles in solids under irradiation at elevated temperatures around 3.5 K (out). Radiat. Eff. 70, 245 (1983) West Germany
02959 T	D18: He ⁺ + SS	20 keV	Kesternich, B. Helium trapping at dislocations, precipitates and grain boundaries. Radiat. Eff. 70, 261 (1983) West Germany
02960 T	D18: He ⁺ + SS	Undef	Ferrall, K.; Beaman, P. J.; Lee, E. H.; Masset, L. R. Modification of radiative damage microstructure by helium. Radiat. Eff. 70, 271 (1983) West Germany
02961 T	D18: He ⁺ + Al	Undef	Jager, W.; Beznak, B.; Trinkaus, H.; Zeller, B.; Fink, J.; Crecelius, G. The density and pressure of helium in bubbles in metals. Radiat. Eff. 70, 315 (1983) West Germany
02962 T	D18: He ⁺ + Al	3.5-8.0 keV	Beznak, B.; Crecelius, G.; Jager, W.; Trinkaus, H.; Zeller, B.; Fink, J. Growth of He bubbles in Al during annealing. Radiat. Eff. 70, 327 (1983) West Germany
02963 T	D18: He ⁺ + Al	5 keV	Connelly, S. E.; Lucas, A. A.; Wigerton, J. S. The density of helium in bubbles in implanted materials: results from VUV absorption and EEL spectroscopy. Radiat. Eff. 70, 337 (1983) Belgium
02964 T	D18: Undef	Undef	Lucas, A. A.; Wigerton, J. S.; Lambin, P.; Connelly, S. E. The density of helium in bubbles in implanted materials: theoretical interpretation of VUV absorption and EEL spectroscopy. Radiat. Eff. 70, 345 (1983) Belgium

Ref. No.	Reactants	Energy Range	Reference
02965 T	D18; He ⁺ + Si	75 keV	Inomata, S. Swelling of metallic surfaces irradiated by helium ions. Radiat. Eff. 78, 365 (1983) Sweden
02966 T	D18; He ⁺ + Si	5.2 MeV	Kraibald, L. G. Determination of the He pressure in bubbles formed during alpha-implantation of Si. Radiat. Eff. 78, 385 (1983) West Germany
02967 E	D18; He ⁺ + Si	0-150 keV	Hrenzberg, J.; Scherner, B.H.W.; Behrlich, R. Thermal desorption spectroscopy of He from Si at and below saturation. Radiat. Eff. 78, 435 (1983) West Germany
02968 T	D18; He ⁺ + Si	0-40 keV	Scherner, B. H.; Hrenzberg, J.; Behrlich, R. High-fluence He-implantation in Si trapping, re-emission, and surface modification. Radiat. Eff. 78, 417 (1983) West Germany
02969 T	D32; Undef	45-65 keV	Berezov, I. A.; Obozinskii, V. V. On the mechanism of the sputtering of fine-grained targets by heavy multicharged ions. Radiat. Eff. 79, 1 (1983) Soviet Union
02970 T	D31; Undef	Undef	Regisov, V. G.; Lazorkyan, Y. N. On the role of replacement sequences in forming cascade regions structures. Radiat. Eff. 79, 9 (1983) Soviet Union
02971 T	C02; He ⁺ + Be; He ⁺ + Al; He ⁺ + Cu; He ⁺ + Ag; He ⁺ + Ta	1-7 keV	Sisterbon, R. B. Impact parameter dependence of electronic energy loss. Radiat. Eff. 79, 251 (1983) Canada
02972 T	C02; He ⁺ + C; He ⁺ + Au C02; He ⁺ + C; He ⁺ + Au	1-10 ⁴ keV	Vargas-Alarcón, C.; Cruz, S. A.; Montenegro, F. C. Mean projected ranges of light ions in solids from a new stepping, power equation. Radiat. Eff. 83, 23 (1984) Mexico
02973 T	D32; PEBT ⁺ + PBT	0.45-30 keV	Ishizuka, T. An empirical formula for angular dependence of sputtering yields. Radiat. Eff. 80, 57 (1984) Japan
02974 T	C02; Si + Si; Cu + Cu	0.05-100 Bartrons	Shindo, S. The binding force effect on the nuclear (phases) stopping power of solids. Radiat. Eff. 83, 73 (1984) Japan
02975 E	D02; Ar ⁺ + Cu	30 keV	Torisev, A. N.; Dobrov, I. I.; Molchanov, V. A. Temperature effects in fast recoil ejection. Radiat. Eff. 83, 105 (1984) Soviet Union
02976 E-T	D32; He ⁺ + Si + Cu; Ar ⁺ + Si + Cu	0.5-2.0 keV	Itoh, H.; Saito, K. Effect of segregation on preferred sputtering of alloys. Radiat. Eff. 83, 163 (1984) Japan
02977 T	D32; He ⁺ + Bi; He ⁺ + Si; He ⁺ + NbB ₂ ; D ⁺ + Si; D ⁺ + Si; D ⁺ + NbB ₂ ; Ar ⁺ + Si; He ⁺ + Si; He ⁺ + NbB ₂	0.45-50 keV	Ishizuka, T. A simple analysis of angular dependence of light-ion sputtering yield. Radiat. Eff. 83, 193 (1984) Japan
02978 E	D32; F ₂ ⁺ + SiO ₂ ; F ₂ ⁺ + SiO; F ₂ ⁺ + SiO	1.6-25 keV	Cooper, B. B.; Tschirillo, T. L. Enhanced erosion of forces SiC films by high energy F ₂ ⁺ ions. Radiat. Eff. 84, 203 (1984) United States
02979 E	D18; H ⁺ + Ni	15-30 keV	Ievkovskii, V. N.; Bentov, V. F.; Botvin, L. V. Helium acceleration in polyethylene irradiated by protons in the 15-30 keV energy region. Radiat. Eff. 83, 223 (1984) Soviet Union
02980 E	D37; Ar ⁺ + Cu	13-33 keV	Bashkova, I. S.; Fleurov, V. G. Sp ill-angle ion reflection from single-crystals. Radiat. Eff. 83, 227 (1984) Soviet Union
02981 T	D39; Undef	Undef	Bazylev, V. A.; Pomara, A. V. The theory of the electric loss by a multiply-charged ion moving at a small angle to crystal planes. Radiat. Eff. 83, 261 (1984) Soviet Union
02982 T	C02; e + C	10 ³ -10 ⁴ eV	Teng, C. J.; Lin, C. Zero-energy density effect in stopping power of carbon. Radiat. Eff. 83, 261 (1984) Taiwan

Ref. No.	Reactants	Energy Range	Reference
02963 T	D02: Review	Undef	Kelly, L. The mechanism of sputtering: Part I. Prompt and slow collisional sputtering. <i>Radiat. Eff.</i> 60, 273 (1984) United States
02964 T	C02: Review	Undef	Sugiyama, H. Z, ² and Z, ² corrections to the electronic stopping power formula. <i>Radiat. Eff.</i> 81, 57 (1980) Japan
02965 E	C02: H ⁺ + C; H ⁺ + Al; H ⁺ + Au	0-300 keV	Shebochinsky, J.; Peterson, C. Stopping power and energy-loss straggling of slow protons moving in carbon, aluminum and gold: effective-charge fractions and straggling of heavy ions. <i>Radiat. Eff.</i> 81, 221 (1980) United States
02966 E	D07: He ⁺ + TiC	1 keV	Yasunaga, T.; Takeuchi, S. Large-angle surface scattering of low-energy ions in the two-atom scattering model. <i>Radiat. Eff.</i> 73, 73 (1980) Japan
02967 T	D07: H ⁺ + U	10 keV	Vyatkin, E. G.; Yakutin, A. B.; Vozotkov, S. A. Glancing scattering of fast protons by a crystal mirror system. Computer simulation. <i>Radiat. Eff.</i> 82, 97 (1984) Soviet Union
02968 T	D02: Ar ⁺ + Cu	27 keV	Shalga, V. I. Computer simulation of single-crystal and polycrystalline sputtering: II. <i>Radiat. Eff.</i> 62, 169 (1980) Soviet Union
02969 E	C02: H ⁺ + TaP; H ⁺ + GeP; H ⁺ + ZnSiP ₂	63-533 keV	Khodzhev, V. A.; Rizgalis, V. R.; Sirotinina, E. I.; Tulincev, A. P. Stopping cross sections of 63- to 533-keV protons in phosphorus compounds. <i>Radiat. Eff.</i> 81, 71 (1980) Soviet Union
02970 T	D02: Ar ⁺ + Cu	1 keV	Elteakov, V. A.; Popova, G. A.; Yurasova, V. I. Calculations of sputtering of sequentially increasing atom blocks. <i>Radiat. Eff.</i> 83, 39 (1984) Soviet Union
02971 T	D02: He ⁺ + Fe; He ⁺ + Ta + C	1 keV	Pletnev, V. V.; Samoylov, D. S.; Tel'kovsky, V. G. On the theory of binary alloy sputtering by light ions. <i>Radiat. Eff.</i> 83, 113 (1984) Soviet Union
02972 T	C02: Undef	Undef	Bisterbon, B. R. Erratum: Impact parameter dependence of electronic energy loss. <i>Radiat. Eff.</i> 83, 157 (1984) Canada
02973 E	D18: He ⁺ + Si	5 keV	Van Sygenhoven, H.; Stals, L. B.; Knuyt, G. Helium bubble growth during 1 MeV electron irradiation at 300 K in 5 keV-Be ⁺ pre-implanted nickel and an amorphous Fe-Ni-Fe-B alloy. <i>Radiat. Eff. Lett.</i> 76, 29 (1983) Belgium
02974 T	D02: Ar ⁺ + Au; Ar ⁺ + Cu	30 keV	Cliva Picric, A. R.; Alonso, E. V.; Barragán, E. A.; Ferreira, J. Low-dose effects in the sputtering of evaporated films. <i>Radiat. Eff. Lett.</i> 76, 137 (1983) Argentina
02975 T	D02: Undef	Undef	Falcone, G. Unified theory of collisional sputtering. <i>Radiat. Eff. Lett.</i> 85, 75 (1984) Italy
02976 T	D02: Review	Undef	Zahn, P. C. A critique of semiempirical formulas for the sputtering yield near threshold energy. <i>Radiat. Eff. Lett.</i> 86, 29 (1984) The Netherlands
02977 T	D02: H ⁺ + Ni; H ⁺ + Ta; D ⁺ + Ni; D ⁺ + Ta; H ⁺ + Ni; He ⁺ + Ta	0.1-10 keV	Falcone, G.; Oliva, A. Sputtering yields of random solids by keV light-ion bombardment: a new model bombardment: a new model. <i>Radiat. Eff. Lett.</i> 86, 57 (1984) Italy
02978 E	D07: H ⁺ + Al	400 keV	Barragán-Vidal, E.; García-Santibáñez, F. Small angle scattering of protons from rough Al at grazing incidence. <i>Radiat. Eff. Lett.</i> 86, 131 (1984) Mexico
02979 E	D07: Ar ⁺ + Cu	30 keV	Nashkova, E. S.; Plestov, V. S. Effect of surface semichanneling on the energy distributions of reflected ions. <i>Radiat. Eff. Lett.</i> 86, 115 (1984) Soviet Union

Ref. No.	Reactants	Energy Range	Reference
33333 T	C32; I ⁺ + Ar	15-60 keV	Todkov, G. V. On the theory of the internuclear interaction potential at high projectile velocities. Radiat. Eff. Lett. 66, 127 (1980) Soviet Union
33334 T	D02; PEBT ⁺ + PBT	Undef	Strydom, H. J.; Gries, W. H. A comparison of three versions of Sigmund's model of sputtering using experimental results. Radiat. Eff. Lett. 66, 145 (1980) South Africa
33335 T	C30; PEBT ⁺ + Si; PBT ⁺ + Al	Undef	Burenkov, A. F.; Konakov, P. P.; Yeshkin, S. E.; Schlettwein, G. Z.-dependence of low energy heavy ion range parameters. Radiat. Eff. Lett. 66, 153 (1980) Soviet Union
33336 T	C30; P ⁺ + Si; SB ⁺ + Si; B ⁺ + Si	20-100 keV	Burenkov, A. F.; Konakov, P. P.; Yeshkin, S. E.; Schlettwein, G. Ion range distribution calculation based on a numerical solution of the Boltzmann transport equation. Radiat. Eff. Lett. 66, 161 (1980) Soviet Union
33338 T	C08; B ₂ ⁺ + Al; B ₂ ⁺ + Ti; B ₂ ⁺ + Cu; B ₂ ⁺ + Sc; B ₂ ⁺ + Cr; B ₂ ⁺ + Fe; B ₂ ⁺ + SS	200-400 keV	Anttila, A.; Paltaneva, R.; Verjoranta, T.; Heatala, L. Ranges of 233-433 keV B ₂ ⁺ in some metals. Radiat. Eff. Lett. 66, 179 (1980) Finland
33339 E-T	D02; Review	Undef	Chaderton, L. T.; Cepe, J. C. On the topography of sputtered or chemically etched crystals: surface energies minimised. Radiat. Eff. Lett. 66, 223 (1980) Australia
33340 E-T	K01; Review K02; Review K30; SpectraCCCP;	Undef	de Michelis, C.; Battistoli, S. Spectroscopy and impurity behaviour in fusion plasmas. Rep. Prog. Phys. 47, 1233 (1984) France
33341 E-T	A30; C ⁺ + H; C ⁺ + H; C ⁺ + H; B ⁺ + H; B ⁺ + H; B ⁺ + H; O ⁺ + H; O ⁺ + H; O ⁺ + H; Ne ⁺ + H; Ne ⁺ + H; Ne ⁺ + H	3x10 ⁷ cm/sec	Afrosimov, V. V.; Basilevskii, A. A.; Dobretsov, E. D.; Zinov'ev, A. B.; Loshkin, K. C.; Panov, S. N. Electron capture cross sections of nuclei and multiply charged ions at hydrogen atoms. Sov. Phys.-JETP Lett. 37, 24 (1983) Soviet Union
33342 E-T	A33; C ⁺ + H; B ⁺ + H; B ⁺ + H; O ⁺ + H A05; C ⁺ + H; B ⁺ + H; B ⁺ + H; O ⁺ + H A36; C ⁺ + H; B ⁺ + H; B ⁺ + H; O ⁺ + H	3x10 ⁷ -10 ⁸ cm/sec	Afrosimov, V. V.; Dobretsov, E. D.; Zinov'ev, A. B.; Ovchinnikov, S. I.; Panov, S. N. Cross sections for characteristic x-ray emission in collisions of C ⁺ , B ⁺ , H ⁺ , and O ⁺ ions with hydrogen atoms. Sov. Phys.-JETP Lett. 38, 83 (1983) Soviet Union
33343 E-T	C32; He ⁺ + C; B ⁺ + C C05; He ⁺ + C; B ⁺ + C	0.5-3.62 keV	Kononenko, T. V.; Dzhanskyan, N. N. Asymptotic theory of transmission of fast diatomic ions through thin films. Sov. Phys.-JETP Lett. 38, 269 (1983) Soviet Union
33344 E	D02; Ar ⁺ + Cu D33; Ar ⁺ + Cu	4 keV	Bashchikov, A. G.; Burenkov, V. E.; Sevel'ev, A. G. Temperature dependence of ionic sputtering of copper and zinc. Sov. Phys.-Solid State 26, 324 (1984) Soviet Union
33345 T	A07; H ⁺ + Ag; B ⁺ + Se; B ⁺ + Cu	1-2 keV	Volkov, V. F.; Gerasimov, S. A.; Gritenko, A. S. Probability of K-shell ionization as a function of the impact parameter and energy of a heavy charged particle. Sov. Phys.-Tech. Phys. 28, 1167 (1983) Soviet Union
33346 T	A07; H ⁺ + Re	70 keV	Godenov, A. I.; Bileev, V. S.; Semashenko, V. S. Description of the (2s ²) 1S and (2m ^{2p}) 1P autoionization resonances excited at small ejection angles during ionization of helium atoms by protons. Sov. Phys.-Tech. Phys. 28, 1173 (1983) Soviet Union
33347 T	C02; Li ⁺ + C; Be ⁺ + C; B ⁺ + C; C ⁺ + C; H ⁺ + C; O ⁺ + C; F ⁺ + C; Ne ⁺ + C; Ne ⁺ + C; Mg ⁺ + C; Al ⁺ + C; Si ⁺ + C; P ⁺ + C; S ⁺ + C; Cl ⁺ + C; Ar ⁺ + C; K ⁺ + C; Ca ⁺ + C; Sc ⁺ + C; Ti ⁺ + C; V ⁺ + C; Cr ⁺ + C; Mn ⁺ + C; Co ⁺ + C; Ni ⁺ + C; Cu ⁺ + C; Zn ⁺ + C; Ga ⁺ + C; Ge ⁺ + C	Undef	Tarkov, G. Energy losses from slow ions as a function of the atomic number Z. Sov. Phys.-Tech. Phys. 29, 67 (1984) United States

Ref. No.	Reactants	Energy Range	Reference
03014 E	D93: Ar ⁺ + Al; Ar ⁺ + Si; Ar ⁺ + Cu	40 keV	Jimenez-Bogdanez, J. J.; Karpuzov, D. S.; Arscott, D. G. The angle of incidence dependence of ion-bombardment induced photoemission from solids. <i>Surf. Sci.</i> 136, 155 (1984) United Kingdom
03015 E	D93: He ⁺ + CG + Si; He ⁺ + SO + Si	Undef	Bosca, P.; Aciar, J.; Manchado, G.; Martin, F. M.; Yates, J. T., Jr.; Martin, R. Effect of surface electronic structure on the desorption of He 2 ^{1S} metastable atoms. <i>Surf. Sci.</i> 136, 257 (1984) United States
03016 T	D13: hv + CO ₂ + ZnO; hv + CO ₂ + TiO ₂ ; hv + CO ₂ + V ₂ O ₅ ; hv + Cd ₂ + Ba ₂ O ₅ ; hv + CO + Nb ₂ C ₆ ; hv + Cd ₂ + SrTiO ₃ ; hv + CO + SrTiO ₃ ; hv + MO + Al ₂ O ₃ ; hv + CO ₂ + CdS; hv + CO + Cr ₂ O ₃ ; hv + CO ₂ + Cr ₂ C ₃ ; hv + CO ₂ + Si	1-10 eV	Bozobishin, I.; Ignatiev, A. Photodesorption threshold energies in semiconductors. <i>Surf. Sci.</i> 116, L57 (1984) United States
03017 E	D93: Ar ⁺ + Al	40 keV	Bischler, J.; Benazeth, H.; Negre, R.; Benazeth, C. Angular distributions of secondary electrons emitted in Ar ⁺ -polycrystalline Al collisions. <i>Surf. Sci.</i> 136, 532 (1984) France
03018 E	D13: e + NO + Pt	0.4-1.5 keV	Schweikert, U.; Biehns, B.; Conesa, G. Electron stimulated desorption of molecular and dissociated NO on the Pt(110) surface. <i>Surf. Sci.</i> 137, 23 (1984) West Germany
03019 T	D13: Undef	0-30 meV	Solis, P.; Flores, P.; Garcia, B. Friction and sticking coefficients of rare gases approaching a metal surface. <i>Surf. Sci.</i> 137, 167 (1984) Spain
03020 T	D13: R + Li; Ar + Li; He + Li	3.01-1.9 eV	Kirson, Z.; Gerber, B. B.; Bitran, A.; Rethner, B. A. Dynamics of metal electron excitations in atom-surface collisions: a quantum wave packet approach. <i>Surf. Sci.</i> 137, 527 (1984) Israel
03021 T	D93: Undef	Undef	Fitor, V. O.; Parillios, E. S. The role of recoil atoms in ion excited Auger electron emission from single crystals. <i>Surf. Sci.</i> 138, 233 (1984) Soviet Union
03022 E	D93: Ar ⁺ + Al	40 keV	Garrett, B. F.; MacDonald, B. J.; O'Connor, T. J. A determination of the ionization probability for sputter-induced secondary ion emission. <i>Surf. Sci.</i> 136, 432 (1984) Australia
03023 E	D93: O ₂ ⁺ + Al; O ₂ ⁺ + Si; O ₂ ⁺ + Cu; O ₂ ⁺ + Ni; O ₂ ⁺ + Au; O ₂ ⁺ + Cr; O ₂ ⁺ + Ti; O ₂ ⁺ + V; O ₂ ⁺ + Mo; O ₂ ⁺ + Fe; O ₂ ⁺ + Co; O ₂ ⁺ + Ni; O ₂ ⁺ + Zn; O ₂ ⁺ + Pb; O ₂ ⁺ + Ag; O ₂ ⁺ + Cd; O ₂ ⁺ + In; O ₂ ⁺ + Sb; O ₂ ⁺ + Tb; O ₂ ⁺ + Ba; O ₂ ⁺ + Ta; O ₂ ⁺ + Sr; O ₂ ⁺ + Pt; In ⁺ + Al; In ⁺ + Si; In ⁺ + Cu; In ⁺ + Nb; In ⁺ + Au; In ⁺ + Cr; In ⁺ + Ti; In ⁺ + V; In ⁺ + Ni; In ⁺ + Fe; In ⁺ + Co; In ⁺ + Ni; In ⁺ + Zn; In ⁺ + Pb; In ⁺ + Ag; In ⁺ + Cd; In ⁺ + In; In ⁺ + Sb; In ⁺ + Tb; In ⁺ + Ho; In ⁺ + Ta; In ⁺ + Sr; In ⁺ + Pt	10 keV	Gasser, H. Negative secondary ion emission from oxidized surfaces. <i>Surf. Sci.</i> 138, 561 (1984) Austria
03024 E	D93: Li + C + N; Li + K + N	50-1000 eV	Bergman, J.; Welle, R.; Gehring, J.; Schell, R.; Kempter, V. Excitation of Li(2S) by electron transfer in slow Li-metal surface collisions. <i>Surf. Sci.</i> 138, 573 (1984) West Germany
03025 E	D92: Ar ⁺ + Fe-Al D93: Ar ⁺ + Fe-Al	4-15 keV	Bonnequin, J. P.; Ingelbart, R. L.; Vieras de Lemegne, P. Secondary ics and Auger electron emissions from Ar ⁺ -ion-sputtered Fe-Al alloys. <i>Surf. Sci.</i> 137, 197 (1984) France
03026 E	D13: e + H ₂ O + Al; e + H ₂ O + W	150-500 eV	Ding, N. Q.; Williams, E. W.; Adigadas, J. F.; de Segovia, J. L. Energy distribution of H ⁺ ions with ESD of water adsorbed at aluminum and tungsten surfaces. <i>Surf. Sci.</i> 140, L264 (1984) United Kingdom

Ref. No.	Reactants	Energy Range	Reference
03627 E	D02: O ⁺ + Ti-Al D38: O ⁺ + Ti-Al	10.5 keV	Inoue, K.; Taga, Y. Scattering and secondary ion yields of Ti-Al alloys subjected to oxygen ion bombardment. <i>Surf. Sci.</i> 163, 491 (1984) Japan
03628 T	D07: Be + Cu	5-45 keV	Barker, J. A.; Garcia, S.; Batra, I. P.; Benschoter, R. Validity of the Bohm-Jensen-Korshak approach to potentials for atom-surface scattering using atomic charge densities. <i>Surf. Sci.</i> 141, L313 (1984) Spain
03629 E	D02: Ar ⁺ + SiO ₂ D17: Ar ⁺ + SiO ₂	500 eV	Iordache, B. A.; Schmid, A.; Michamis, J. T.; Ashley, F. J. The chemical sputtering of silica by Ar ⁺ ions and BeF ₂ . <i>Surf. Sci.</i> 161, 439 (1984) United States
03630 E	D07: Be + Si	150-1000 eV	Bielawski, R. B.; Delchar, T. A. Fast Be atom scattering from a tungsten (113) surface. <i>Surf. Sci.</i> 161, 687 (1984) United Kingdom
03631 E	D17: H ₂ ⁺ + Be; H ⁺ + Be	7.5-100 eV	Baldwin, D. A.; Shasir, R.; Bobelaia, J. R. Kinetics of H ₂ ⁺ and H ⁺ reactions with Be at less than or equal to 100 eV impact energies. <i>Surf. Sci.</i> 161, 413 (1984) United States
03632 E	D13: e + O + BC	80-2500 eV	Stori, R.; Kreuz, P.; Gasser, R. Electron stimulated desorption of oxygen ions from tungsten carbide. <i>Surf. Sci.</i> 161, 650 (1984) Austria
03633 T	D02: Undef	Undef	Zavadil, J. On the semiclassical approach to the ionization process during sputtering. <i>Surf. Sci.</i> 143, 1383 (1984) United States
03634 E	D02: Ar ⁺ + Cu	60-300 eV	Cooper, C. R.; Bassett, R. A. Experiments on the sputtering of neutral Cu _x dimers from Cu by Ar ⁺ ions (60-200 eV). <i>Surf. Sci.</i> 163, 215 (1984) United States
03635 E-T	D11: H ₂ + Pt	Thermal	Sayers, C. R. Hydrogen adsorption on platinum. <i>Surf. Sci.</i> 161, 411 (1984) United Kingdom
03636 T	D09: Undef	Undef	Hoyer, C. A.; Bucus, K. R.; Helbig, R. P. Near-resonant and off-resonant charge exchange in ion-surface collisions. <i>Surf. Sci.</i> 163, 591 (1984) United States
03637 E	D19: H ₂ + Si	2-30 kcal	Iee, J.; Radin, B. J.; Schlaegel, J. R.; Auerbach, S. J. Molecular beam studies of the dynamics of activated desorption of H ₂ on Si(110); dissociation threshold and new binding states. <i>Surf. Sci.</i> 163, 626 (1984) United States
03638 E	D17: H ₂ + C + Si	610-612 K	Villeretrie, J. S.; Ho, L. Reaction of hydrogen with adsorbed oxygen on Si(110). <i>Surf. Sci.</i> 160, 373 (1984) United States
03639 E	D02: Ar ⁺ + Au; Ar ⁺ + Au-Cu; Ar ⁺ + Cu	1.5-10 keV	Kang, H. J.; Kawatchi, T.; Shinoda, T. Assessments of surface composition and sputtering yields of Au-Cu alloys for Ar ⁺ ion bombardment. <i>Surf. Sci.</i> 164, 581 (1984) Japan
03640 T	A13: He + C	Thermal	Hebsch, A.; Martin, J.; Weinert, M. Interaction of helium with a graphite surface. <i>Surf. Sci.</i> 165, 127 (1984) West Germany
03641 E	D08: Ar ⁺ + La; Ar ⁺ + Tb; Ar ⁺ + H ₂ + La; Ar ⁺ + O ₂ + La; Ar ⁺ + H ₂ O + La	3 keV	Bauer, A.; Mintz, H. H.; Bobelaia, J. R. Ion survival probabilities for 3 keV Ar ⁺ scattering from La, Tb, and chemisorbed H ₂ , O ₂ , and H ₂ O on La surfaces. <i>Surf. Sci.</i> 167, 15 (1984) United States
03642 E	D02: He ⁺ + D ₂ O; He ⁺ + D ₂ O; Ar ⁺ + D ₂ O	50-1500 keV	Reissman, C. T.; Boring, J. W.; Johnson, B. E.; Garrett, J. W.; Farmer, K. B.; Stroob, W. L.; Marcano, R. J.; Augustyniak, B. B. Ion-induced molecular ejection from D ₂ O ice. <i>Surf. Sci.</i> 167, 227 (1984) United States
03643 E	D08: e + SnO	0.2-1.0 keV	Croitoru, N.; Seidman, A.; Yassine, K. Effect of composition and structure modifications of SnO _n (n=2-4) films on the electron secondary emission. <i>Thin Solid Films</i> 116, 327 (1984) Israel

Ref. No.	Reactants	Energy Range	Reference
03044 E	A06: $\text{Ar}^{2+} + \text{He}$	1.25 keV	Ramber, E. Y.; Easter, J. R. Energy loss spectra for single electron capture in Ar^{2+} -He collisions. <i>Vacuum</i> 34, 63 (1984) United Kingdom
03045 E	D13: $e^- + \text{H}_2; \text{H}_2^+ + \text{H}_2$	72-1333 eV	Clampitt, R. SIMS of solid hydrogen. <i>Vacuum</i> 34, 113 (1984) United Kingdom
03046 E	A36: $\text{Ar}^+ + \text{Ar}; \text{N}_2^+ + \text{Ar}; \text{O}_2^+ + \text{Ar}; \text{O}^+ + \text{Ar}; \text{Cl}^+ + \text{Ar}; \text{F}^+ + \text{Ar}; \text{C}_2^+ + \text{Ar}; \text{Ar}^2 + \text{Ar}; \text{P}^+ + \text{Ar}; \text{S}^+ + \text{Ar}; \text{Ge}^+ + \text{Ar}; \text{As}^+ + \text{Ar}; \text{P}^+ + \text{Ar}; \text{Sb}^+ + \text{Ar}; \text{In}^+ + \text{Ar}; \text{Ne}^+ + \text{Ar}; \text{Rn}^+ + \text{Ar}; \text{C}^+ + \text{Ar}; \text{Al}^+ + \text{Ar}; \text{Cl}^+ + \text{Ar}; \text{Ar}^+ + \text{Ar}; \text{C}_2^+ + \text{Ar}; \text{N}^+ + \text{Ar}; \text{C}_2\text{O}^+ + \text{Ar}; \text{C}_2\text{H}^+ + \text{Ar}$	10-60 keV	Kheyrendish, H.; Armar, D. G.; Jones, E. J. The measurement of charge transfer cross sections for a variety of ions on air and argon. <i>Vacuum</i> 34, 269 (1984) United Kingdom
03047 E	D11: $\text{H}_2 + \text{Ti}; \text{H}_2 + \text{Ti}; \text{O}_2 + \text{Ti}; \text{CO} + \text{Ti}; \text{D}_2 + \text{Ti}; \text{CO}_2 + \text{Ti}$	60-300 eV	Grigorov, G. I. Apparent and real values of common gas sticking coefficients on titanium films and application to getter pump devices with periodic active film reactivation. <i>Vacuum</i> 34, 513 (1984) Bulgaria
03048 E	D33: $\text{H}^+ + \text{Si}; \text{C}^+ + \text{Si}; \text{O}^+ + \text{Si}; \text{CO}^+ + \text{Si}$	2-4 keV	Snowdon, K. J.; Weiland, H. Rotational and vibrational excitation of sputtered diatomic molecules: II. Experiment. <i>Z. Phys. A</i> 318, 275 (1980) West Germany
03049 T	H06: $h\nu + \text{Rb}$	43.01-43.35 keV	Schupp, D.; Czerwinski, E.; Smend, F.; Moessner, R.; Schussacher, E.; Millhouse, A. N.; Schmitz-Strauss, H. Bremsstrahlung scattering of synchrotron x rays by neodymium: observations of fine structure in K-L-BRS and K-K-BRS. <i>Z. Phys. A</i> 319, 1 (1984) West Germany
03050 T	F03: $e^- + \text{He}$	20-200 eV	Singh, C. S.; Bai, S. N.; Srivastava, R.; Bai, D. K. On the variable-charge Coulomb-projected Born approximation. <i>Z. Phys. A</i> 319, 9 (1984) India
03051 T	E05: $e^- + \text{H}$	20.4-68 eV	Ghosh, A. S.; Hazaradar, P. S.; Basu, N. Total ionization cross section in electron-hydrogen scattering. <i>Z. Phys. A</i> 319, 13 (1984) India
03052 F	A03: $\text{Pb} + \text{Pb}$	0.3-0.6 keV/amu	Stiebing, K. E.; Schmid-Mockinger, H.; Schmidt, H.; Barthel, R.; Schoch, B.; Kohler, F. H.; Bosch, F.; Liessen, D.; Nagel, S.; Vincent, P. The impact parameter dependence of the K K X-ray emission in γ -ray Pb + γ -ray Pb collisions. <i>Z. Phys. A</i> 319, 239 (1984) West Germany
03053 F	D05: $h\nu + \text{Ag}; h\nu + \text{Au}$	5-10 eV	Bartscher, H.; Schmid-Ott, A.; Siegmund, B. C. Photoelectrons yield of small silver and gold particles suspended in gas up to a photon energy of 10 eV. <i>Z. Phys. B</i> 56, 197 (1984) Switzerland
03054 T	H02: $h\nu + \text{O}_2; h\nu + \text{N}_2; h\nu + \text{CO}_2$	70-340 eV	Banazares, C.; Rusci, I. A.; Ridalgo, D. Collision-induced absorption of infrared radiation by N_2 , C_2 , and CO_2 . <i>Chem. Phys.</i> 87, 363 (1984) Venezuela
03055 F	E02: $e^- + \text{N}_2; e^- + \text{CO}; e^- + \text{CO}_2$ E03: $e^- + \text{N}_2; e^- + \text{CO}; e^- + \text{C}_2$	1.2-803 eV	Sueoka, C.; Mori, S. Total cross-sections for positrons and electrons colliding with N_2 , CO and CO_2 molecules. <i>J. Phys. Soc. Jpn.</i> 53, 2451 (1984) Japan
03056 E	A12: $\text{Ba} + \text{He}; \text{Ba} + \text{Ar}; \text{Ba} + \text{Kr}$	1250 K	Deda, K.; Haseguchi, Y.; Fujisato, T.; Fukuda, K. Oscillator strengths and rare-gas-induced broadening of the principal series lines of Ba. <i>J. Phys. Soc. Jpn.</i> 53, 2531 (1984) Japan
03057 F	A08: $\text{He}^+ + \text{C}$ A18: $\text{H}_2^+ + \text{C}; \text{H}_3^+ + \text{C}; \text{He}^+ + \text{C}; \text{He}^2+ + \text{C}$	0.8 keV/amu	Oda, H.; Yamazaki, T.; Yamaguchi, T. Production of $\pi^+(\text{out}) - \pi^-(\text{sub p})$ electrons from thin carbon foils barbecued with hydrogen molecular ions (H_2^+ , H_3^+), He^+ , and He^2+ . <i>J. Phys. Soc. Jpn.</i> 53, 3259 (1984) Japan
03058 E	H06: $n\text{h}\nu + \text{Ca}$	1764-532 nm	Agostini, P.; Petite, G. Multiphoton ionisation of calcium with picosecond pulses. <i>J. Phys. B</i> 17, L811 (1984) France

Ref. No.	Reactants	Energy Range	Reference
33359 E	H36: nhe + Ne; he + Ne	1364-532 nm	Lopre, L. A.; Muilliet, A. L.; Mainfray, G.; Pas, J. P. Electron energy measurements in multiphoton ionization of xenon and neon. <i>J. Phys. B</i> 17, 1617 (1984) France
33360 T	A11: CO + N ₂	233-1101 cm ⁻¹	Faber, D. J.; Flower, D. R. Vibrational relaxation in collisions between ¹² C ¹⁴ O and para-N ₂ . <i>J. Phys. B</i> 17, 1629 (1984) United Kingdom
33361 T	A33: Ne ⁺ + Ne A18: Ne ⁺ + Ne	37.5 eV	Von Munch, F. Comment on the integration of impact parameter equations and application to Ne ⁺ -Ne inelastic scattering. <i>J. Phys. B</i> 17, 1833 (1984) West Germany
33362 T	H36: Undef	Undef	Jacques, B.; Laplanche, G.; Bachau, A. Use of the Green's function formalism in resonant two-photon ionization of alkali-metal atoms: I. Formal theory. <i>J. Phys. B</i> 17, 4643 (1984) France
33363 T	H36: 2hv + Cs	2.1-2.2x10 ⁴ cm ⁻¹	Jacques, B.; Laplanche, G.; Bachau, A. Use of the Green's function formalism in resonant two-photon ionization of alkali-metal atoms: II. Two-photon ionization of Cs near the 7F _{3/2} - 7F _{5/2} resonances. <i>J. Phys. B</i> 17, 4665 (1984) France
33364 T	A37: He ⁺ + He	0.325-0.21 eV	Pesselle, L.; Rungg, S. Molecular autoionisation width for He(3P) + He: Penning and associative ionization cross sections. <i>J. Phys. B</i> 17, 4689 (1984) France
03C65 T	A07: C ₂ ⁺ + Ar; O ³⁺ + Ar; P ⁵⁺ + Ar; Ar ³⁺ + Be; Ar ⁵⁺ + Be; Ar ⁷⁺ + Be; Ar ⁹⁺ + Be; Ar ¹¹⁺ + Be; Ar ¹³⁺ + Be; Ar ¹⁵⁺ + Be; Ar ¹⁷⁺ + Be; Ar ¹⁹⁺ + Be; Ar ²¹⁺ + Be; Ar ²³⁺ + Be; Ar ²⁵⁺ + Be; Ar ²⁷⁺ + Be; Ar ²⁹⁺ + Be; Ar ³¹⁺ + Be; Ar ³³⁺ + Be; Ar ³⁵⁺ + Be; Ar ³⁷⁺ + Be;	0.4-10.6x10 ⁸ cm ³ /sec	Andersen, L. H.; Frost, W.; Ebelplund, P.; Knudsen, E. Experimental investigation of the mechanism creating projectile continuum electrons in highly charged ion-atom collisions. <i>J. Phys. B</i> 17, 4731 (1984) Denmark
33366 E	A33: H ⁺ + Th A37: H ⁺ + Th	0.15-4.6 keV	Bügger, J.; Altevogt, H.; Bräuermann, R.; Richter, G.; Cleff, B. F ₂ , H ₂ and H ₃ alignment of theories by proton impact ionization. <i>J. Phys. B</i> 17, 4721 (1984) West Germany
33367 E	A33: Au ¹⁷⁺ + H ₂ ; Au ¹⁹⁺ + H ₂ ; Au ²¹⁺ + H ₂ ; Au ¹⁷⁺ + H ₃ ; Au ¹⁹⁺ + H ₃ ; Au ²¹⁺ + H ₃ ; Au ₂₆ : Au ¹⁷⁺ + H ₂ ; Au ¹⁹⁺ + H ₂ ; Au ²¹⁺ + H ₂ ; Au ¹⁷⁺ + H ₃ ; Au ¹⁹⁺ + H ₃ ; Au ²¹⁺ + H ₃ ;	20 keV	Sørensen, J.; Andersen, L. H.; Ebelplund, P.; Knudsen, E.; Liljeby, L.; Bielecki, E. B. Cross sections Sigma _(sub al) for electron capture collisions between medium velocity, highly charged ions and molecular hydrogen. <i>J. Phys. B</i> 17, 4743 (1984) Denmark
03C68 T	E03: e + Ar +17: e + Ar +19: e + Ar	0-19 eV	Bell, R. L.; Scott, B. S.; Lessons, R. A. The scattering of low-energy electrons by argon atoms. <i>J. Phys. B</i> 17, 4757 (1984) United Kingdom
33369 T	E03: e + N ₂ ; e + CO; e + H ₂ ; e + HD; e + D; E08: e + N ₂ ; e + CO; e + H ₂ ; e + HD; e + H ₃	0.5-10 eV	Kazansky, A. K.; Yelets, I. S. The semiclassical approximation in the local theory of resonance inelastic interaction of slow electrons with molecules. <i>J. Phys. B</i> 17, 4767 (1984) Soviet Union
33370 E	D07: Ca + Si; Br + Si; K + Si; Na + Si	63-200 keV	Frostgap, W.; Griepentrog, W.; Klose, B.; Freysach, G.; Boller-Johrkens, U. The influence of silicon atoms implanted in silicon on the negative secondary ion emissivity. <i>Phys. Status Solidi A</i> 84, 269 (1984) West Germany
33371 E	E05: e + Au	3-29 keV	Berndt, R.; Hunger, R. J. Experimental determination of the K-shell ionization cross section. <i>Phys. Status Solidi A</i> 84, 2165 (1984) West Germany

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02369 E	02228 E	01876 E
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$\text{H} + \text{O}_2$	01867 E	$\text{H}^{+} + \text{O}_2$	02612 E	$\text{H}_2 + \text{Li}$	02580 T
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$\text{Fe}^{++} + \text{Ba}$ 02152 E	$\text{H}^+ + \text{P}$ 02900 E	$\text{H}_2 + \text{H}_2$ 01905 T
$\text{Fe}^{++} + \text{Ba}$ 02152 E	$\text{H}^+ + \text{P}$ 02915 E	$\text{H}_2^+ + \text{H}$ 02172 E-T
$\text{Fe}^{++} + \text{Ba}$ 02152 E	$\text{H}^+ + \text{P}_{\text{diss}}$ 02688 T	$\text{H}_2 + \text{H}_2^+$ 02097 T
$\text{Fe}^{++} + \text{Ba}$ 02152 E	$\text{H}^+ + \text{R}$ 01903 T 01934 T 02692 T 02550 E-T	$\text{H}_2^+ + \text{Ag}$ 02473 E
$\text{Fe}^{++} + \text{Ba}$ 02152 E	$\text{H}^+ + \text{Ba}$ 02332 T 02892 T	$\text{H}_2^+ + \text{Al}$ 02915 E
$\text{Fe}^{++} + \text{Ba}$ 02152 E 02189 E	$\text{H}^+ + \text{Ba}$ 01923 E 02612 E	$\text{H}_2^+ + \text{Ar}$ 02268 E
$\text{Fe}^{++} + \text{Ba}$ 02152 E	$\text{H}^+ + \text{Ba}$ 02569 T 02612 E 02673 T	$\text{H}_2^+ + \text{Au}$ 02923 E
$\text{Fe}^{++} + \text{Ba}$ 02152 E	$\text{H}^+ + \text{I}$ 02895 E	$\text{H}_2^+ + \text{Br}$ 02473 E
$\text{Fe}^{++} + \text{Ba}$ 02152 E	$\text{H}^+ + \text{K}$ 01937 E	$\text{H}_2^+ + \text{Ca}$ 02915 E
$\text{Fe}^{++} + \text{Ar}$ 01794 E	$\text{H}^+ + \text{La}$ 02895 E	$\text{H}_2^+ + \text{Cl}$ 02915 E
$\text{Fe}^{++} + \text{Ba}$ 01794 E	$\text{H}^+ + \text{Li}$ 02516 E 02517 E	$\text{H}_2^+ + \text{D}_2$ 01078 E
$\text{Fe}^{++} + \text{Ba}$ 01794 E	$\text{H}^+ + \text{B}$ 01917 E 02915 E	$\text{H}_2^+ + \text{Br}$ 02933 E
$\text{Fe}^{++} + \text{Ba}$ 01794 E	$\text{H}^+ + \text{B}_2$ 01923 E 02612 E	$\text{H}_2^+ + \text{F}$ 02915 E
$\text{H} + \text{CO}$ 02098 T	$\text{H}^+ + \text{Ba}$ 01937 E 02915 E	$\text{H}_2^+ + \text{H}$ 01955 T
$\text{H} + \text{Cs}^+$ 02370 T	$\text{H}^+ + \text{Ba}^+$ 02613 E	$\text{H}_2^+ + \text{H}_2$ 01078 E 01979 T
$\text{H} + \text{H}_2^+$ 02315 T	$\text{H}^+ + \text{Ba}$ 02612 E	$\text{H}_2^+ + \text{H}_2$ 02249 E
$\text{H} + \text{K}$ 02824 E	$\text{H}^+ + \text{O}$ 01867 E	$\text{H}_2^+ + \text{Hg}$ 02131 E-T 02622 T
$\text{H} + \text{O}$ 01847 E	$\text{H}^+ + \text{O}_2$ 01867 E 02612 E	$\text{H}_2^+ + \text{Hg}$ 02473 E
$\text{H} + \text{O}_2$ 01847 E	$\text{H}^+ + \text{P}$ 02915 E	$\text{H}_2^+ + \text{Li}$ 02550 T
$\text{H}^+ + \text{Al}$ 02915 E	$\text{H}^+ + \text{Pb}$ 02933 E	$\text{H}_2^+ + \text{Hg}$ 02915 E
$\text{H}^+ + \text{Ar}$ 02612 E	$\text{H}^+ + \text{SL}$ 02915 E	$\text{H}_2^+ + \text{Ba}$ 02915 E
$\text{H}^+ + \text{Au}$ 02900 E	$\text{H}^+ + \text{Th}$ 02933 E 03366 E	$\text{H}_2^+ + \text{Hg}$ 01825 E
$\text{H}^+ + \text{Ba}$ 02895 E	$\text{H}^+ + \text{Tl}$ 02915 E	$\text{H}_2^+ + \text{P}$ 02915 E
$\text{H}^+ + \text{Be}$ 02895 E	$\text{H}^+ + \text{U}$ 02933 E	$\text{H}_2^+ + \text{Pb}$ 02933 E
$\text{H}^+ + \text{Ca}$ 02915 E	$\text{H}^+ + \text{V}$ 02933 E	$\text{H}_2^+ + \text{PE}$ 02473 E
$\text{H}^+ + \text{Cl}$ 02915 E	$\text{H}^+ + \text{Zn}$ 02933 E	$\text{H}_2^+ + \text{Pb}$ 02429 T
$\text{H}^+ + \text{CO}_2$ 02612 E	$\text{H}^+ \text{Seq} + \text{H}_2 \text{Seq}$ 02333 T	

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$\text{Si}^{++} + \text{Be}$	$\text{Si}^{++} + \text{Zn}$	$\text{U} + \text{U}$
32328 E	32583 E	31836 T
$\text{Si}^{++} + \text{Be}$	$\text{Si}^{++} + \text{Zn}$	$\text{U}^{++} + \text{Li}$
32328 E	32583 E	32547 E
$\text{Si}^{++} + \text{Be}$	$\text{Si}^{++} + \text{Zn}$	$\text{Zn} + \text{Li}$
32328 E	32583 E	32628 T
$\text{Si}^{++} + \text{Be}$	$\text{Si}^{++} + \text{Zn}$	$\text{Zn} + \text{Be}$
32328 E	32583 E	32623 T
$\text{Si}^{++} + \text{Be}$	$\text{Si}^{++} + \text{Zn}$	$\text{Zn} + \text{Be}$
32328 E	32583 E	31987 E-T
$\text{Si}^{++} + \text{Be}$	$\text{Si}^{++} + \text{Zn}$	$\text{Zn}^{++} + \text{Zn}$
32328 E	32583 E	32583 E
$\text{Si}^{++} + \text{Be}$	$\text{Ti}^{++} + \text{Al}_2\text{O}_3$	$\text{Zn}^{++} + \text{Zn}$
32328 E	32793 E	32583 E
$\text{Si}^{++} + \text{Be}$	$\text{Ti}^{++} + \text{Al}_2\text{O}_3$	$\text{Zn}^{++} + \text{Zn}$
32583 E	32793 E	32583 E
$\text{Si}^{++} + \text{Be}$	$\text{Ti}^{++} + \text{Al}_2\text{O}_3$	$\text{Zn}^{++} + \text{Zn}$
32583 E	32793 E	32583 E
$\text{Si}^{++} + \text{Be}$	$\text{Ti}^{++} + \text{Al}_2\text{O}_3$	$\text{Zn}^{++} + \text{Zn}$
32583 E	32793 E	32936 E
$\text{Si}^{++} + \text{Be}$	$\text{Ti}^{++} + \text{Al}_2\text{O}_3$	$\text{Zn}^{++} + \text{Zn}$
32583 E	32793 E	32936 E
$\text{Si}^{++} + \text{Be}$	$\text{Ti}^{++} + \text{Al}_2\text{O}_3$	$\text{Zn}^{++} + \text{Zn}$
32583 E	32793 E	32936 E
$\text{Si}^{++} + \text{Be}$	$\text{Ti}^{++} + \text{Al}_2\text{O}_3$	$\text{Zn}^{++} + \text{Zn}$
32583 E	32793 E	32936 E
$\text{Si}^{++} + \text{Be}$	$\text{Ti}^{++} + \text{Al}_2\text{O}_3$	$\text{Zn}^{++} + \text{Zn}$
32583 E	32793 E	32936 E
$\text{Si}^{++} + \text{Be}$	$\text{U} + \text{Ca}$	$\text{Zn}^{++} + \text{Zn}$
32583 E	31834 T	32583 E
$\text{Si}^{++} + \text{Be}$	$\text{U} + \text{Sn}$	$\text{Zn}^{++} + \text{Zn}$
32583 E	31834 T	32931 E-T
$\text{Si}^{++} + \text{Be}$		Review
32583 E		32931 E-T

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HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS	D_2^+ + Ne 01989 E	H_2^+ + Ne 02923 E
Diassociations	H_2 + H ₂ 02923 E	H_2^+ + H ₂ 01813 E
	H_2 + H ₂ 01813 E	H_2^+ + He 02391 E
D_2^+ + Cr 02966 E	H_2^+ + Ne 01813 E	D_2^+ + Cr 02966 E
D_2^+ + Ar 01989 E	H_2^+ + Ne 01813 E	D_2^+ + Ne 02923 E

A05

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Fluorescence

 Ce^+ + H
03338 E-T D_2^+ + Kr
01869 E

H^+ + Ba	02250 E	H^+ + S	03338 E-T
H^+ + Ca	02250 E	H^+ + S	03338 E-T
H^+ + Cd	02250 E	Os^+ + S	03338 E-T
H^+ + La	02250 E	Review	02916 T
H^+ + Au	01792 E	Uncat	02523 T

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C ⁺ + H ₂	31837 E	32117 T	C ⁺ + Li	31878 E	F ⁺ + Ar	31981 E
C ⁺ + He	32117 T		C ⁺ + He	31981 E	F ⁺ + He	31879 E
C ⁺ + Li	32233 E		C ⁺ + He	32433 T	F ⁺ + He	31981 E
C ⁺ + H ₂	01837 E	01893 T	C ⁺ + Li	31878 E	F ⁺ + He	31879 E
C ⁺ + He	02475 T		C ⁺ + He	32433 T	F ⁺ + He	31981 E
C ⁺ + Li	32117 T		C ⁺ + He	32433 T	F ⁺ + He	31981 E
C ⁺ + He	31878 E		Calcium-ions + Ti		F ⁺ + He	31981 E
C ⁺ + He	31981 E			02793 E	F ⁺ + Kr	31981 E
C ⁺ + H ₂	32117 T	03007 E-T	C ⁺ + Ar	33246 E	F ⁺ + He	31981 E
C ⁺ + He	32233 T		C ⁺ + Ar	33246 E	F ⁺ + He	31981 E
C ⁺ + Li	32233 T		C ⁺ + Ar	33246 E	F ⁺ + Ar	31981 E
C ⁺ + He	31981 E		C ⁺ + C	32833 E	F ⁺ + He	31881 E
C ⁺ + Li	32572 T		C ⁺ + H ₂	32117 T	F ⁺ + Kr	31981 E
C ⁺ + He	01981 T		C ⁺ + Ar	32116 E	F ⁺ + He	31981 E
C ⁺ + Li	01981 E	02475 T	C ⁺ + Ar	33246 E	F ⁺ + He	31981 E
C ⁺ + He	01981 E		C ⁺ + Ar	33246 E	F ⁺ + Ar	31981 E
C ⁺ + C	01816 F		C ⁺ + Ar	33246 E	F ⁺ + Ar	31981 E
C ⁺ + H ₂	02117 T	03007 E-T	C ⁺ + H ₂	32585 T	F ⁺ + Ar	32171 E
C ⁺ + He	02117 T	02433 T	C ⁺ + He	32752 E	F ⁺ + Ar	32171 E
C ⁺ + Li	02117 T	02433 T	C ⁺ + O ₂	32752 E	F ⁺ + Ar	32171 E
C ⁺ + He	01981 E		C ⁺ + He	33306 E	F ⁺ + Ar	32171 E
C ⁺ + Ar	01981 E		C ⁺ + Ar	33306 E	F ⁺ + Ar	32171 E
C ⁺ + C	01816 F		C ⁺ + Ar	33306 E	F ⁺ + Ar	32171 E
C ⁺ + H ₂	02117 T	03007 E-T	C ⁺ + Ar	32585 T	F ⁺ + Ar	32171 E
C ⁺ + He	01981 E	02117 T	C ⁺ + He	32752 E	F ⁺ + Ar	32171 E
C ⁺ + Li	02117 T	02433 T	C ⁺ + O ₂	32752 E	F ⁺ + Ar	32171 E
C ⁺ + He	01981 T		C ⁺ + He	33306 E	F ⁺ + Ar	32171 E
C ⁺ + Ar	01981 T		C ⁺ + Ar	33306 E	F ⁺ + Ar	32171 E
C ⁺ + C	01816 F		C ⁺ + Ar	33306 E	F ⁺ + Ar	32171 E
C ⁺ + H ₂	02117 T	03007 E-T	C ⁺ + Ar	33246 E	F ⁺ + Ar	32171 E
C ⁺ + He	01981 T		C ⁺ + Ar	33246 E	F ⁺ + Ar	32171 E
C ⁺ + Li	01981 T		D ₂ ⁺ + Cs	32466 E	F ⁺ + Ar	32171 E
C ⁺ + Ar	01981 T	02117 T	D ₂ ⁺ + Ar	31992 E	F ⁺ + Ar	31790 E
C ⁺ + C	01816 F	02030 E	D ₂ ⁺ + Cs	32466 E	F ⁺ + Ar	31790 E
C ⁺ + CH ₄	01816 F		D ₂ ⁺ + H ₂	31992 E	F ⁺ + Ar	31790 E
C ⁺ + H ₂	03492 T	01982 T	D ₂ ⁺ + Ar	33246 E	F ⁺ + Ar	31790 E
C ⁺ + He	02346 T	02319 T	D ₂ ⁺ + He	32433 T	F ⁺ + Ar	31790 E
C ⁺ + Li	02677 T	03007 E-T	D ₂ ⁺ + He	31992 E	F ⁺ + Ar	31790 E
C ⁺ + H ₂	32171 E		D ₂ ⁺ + He	32433 T	F ⁺ + Ar	31790 E
C ⁺ + He	01697 T	01981 F	D ₂ ⁺ + He	32433 T	F ⁺ + Ar	31790 E
C ⁺ + Li	32171 E	02433 T	D ₂ ⁺ + He	32433 T	F ⁺ + Ar	31790 E
C ⁺ + He	31981 E		D ₂ ⁺ + He	32433 T	F ⁺ + Ar	31790 E

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$B^+ + B^+$ Seq 02174 T	$B^- + C^{+}$ 02373 T	$Be^{++} + Be$ 01865 T 02165 T 02136 E-T
$B^+ + Be$ 02795 E	$Be^- + B_g$ 01813 E	$Be^{++} + E$ 01962 T
$B^+ + Be$ 01910 E	$Be^+ + B_g$ 01783 T 01813 E 02020 E	$Be^{++} + E$ 02629 T
$B^+ + O$ 01867 E	$Be^+ + E_g$ 02020 E	$Be^{++} + LL$ 01827 T 01969 T 01973 E
$B^+ + O_g$ 01867 E	$Be^+ + B_g$ 02054 T	$Be^{++} + B_g$ 01969 T
$B^+ + AE$ 02031 T 02107 E 02373 T	$Be^+ + B_g$ 02020 E	$Be^{++} + B_g$ 01780 E 02136 E-T
$B^+ + AE$ 02415 T	$Be^+ + B_g$ 01813 E	$Be^{++} + B_g$ 01969 T
$B^+ + C$ 01805 T 02201 T 02415 T	$Be^- + Ac$ 02136 E-T	$Be^{++} + Be$ 01780 E 01969 T 02136 E-T
$B^+ + C$ 0132 E 02373 T	$Be^- + Be$ 02136 E-T	$Be^{++} + PER$ 02136 E-T
$B^+ + H$ 01823 T 01933 T 01936 T 02015 T 02087 T 02229 T 02200 T 02052 T 02091 T 02550 E-T	$Be^- + B_g$ 02136 E-T	$Be^{++} + Be$ 02316 E
$B^+ + He^+$ 01766 E-T	$Be^- + Be$ 02136 E-T	$Ion-ion + Ti$ 02793 E
$B^+ + Be$ 01972 T 02330 T	$Be^- + B_g$ 02136 E-T	$Ke^+ + Ac$ 03306 E
$B^+ + E_g$ 01923 E 02109 E-T 02160 T 02322 E-T 02148 E	$Be^- + B_g$ 02131 E-T	$Ke^+ + E$ 01916 E
$B^+ + Be$ 01897 T 02109 E-T 02322 E-T 02569 T 02795 E	$Be^- + E$ 02137 E	$Ke^+ + Ie$ 01916 E
$B^+ + E$ 01907 T 02191 T	$Be^- + LL$ 01973 E 02580 T	$Ke^{++} + Be$ 01919 E
$B^+ + E_g$ 02107 E	$Be^- + B_g$ 02373 T 02174 E-T	$Ke^{++} + LL$ 01971 E
$B^+ + LL$ 01826 T 01970 E 02517 E	$Be^- + B_g$ 02137 E 02136 E-T	$Ke^{++} + Be$ 01919 E
$B^+ + B_g$ 01917 E	$Be^- + PER$ 02136 E-T	$Ke^{++} + LL$ 01971 E
$B^+ + B_g$ 01923 E	$Be^- + B_g$ 02029 T	$Ke^{++} + Be$ 01919 E
$B^+ + B_g$ 01907 E 02191 T	$Be^{++} + Ac$ 01788 E 01969 T 02136 E-T 02629 T	$Ke^{++} + LL$ 01971 E
$B^+ + B_g$ 01805 T 02107 E 02281 T 02373 T 02078 T	$Be^{++} + B$ 01969 T	$Ke^{++} + Be$ 01919 E
$B^+ + O$ 01867 E 02373 T	$Be^{++} + Be$ 01969 T	$Ke^{++} + LL$ 01971 E
$B^+ + O_g$ 01867 E	$Be^{++} + C$ 01969 T	$Ke^{++} + Be$ 01919 E
$B^+ Seq + B Seq$ 02330 T	$Be^{++} + Ca$ 01969 T	$Ke^{++} + LL$ 01971 E
$B^+ + O$ 01867 E	$Be^{++} + Ca$ 01969 T	$Ke^{++} + Be$ 01832 E 01919 E
$B^+ + O_g$ 01867 E	$Be^{++} + E$ 01815 T 01898 T 01969 T 01902 T 02015 T	$Ke^{++} + LL$ 01971 E

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$E^{++} + Be$ 01802 E 01919 E	$Li^{2+} + Be$ 01969 T	$B^{++} + Ar$ 01981 E
$E^{++} + Li$ 01971 E	$Li^{2+} + C$ 01969 T	$B^{++} + B$ 02117 T 02236 T 03307 E-T
$E^{++} + Be$ 01802 E 01919 E	$Li^{2+} + Ca$ 01969 T	$B^{++} + Be$ 01981 E 02117 T 02633 T
$E^{++} + Li$ 01971 E	$Li^{2+} + Cs$ 01969 T	$B^{++} + K$ 01981 E
$E^{++} + Be$ 01802 E 01919 E 02633 T	$Li^{2+} + E$ 01853 T 02166 T 02553 T	$B^{++} + Ne$ 01981 E
$E^{++} + Li$ 01971 E	$Li^{2+} + Be$ 01853 T	$B^{++} + Ar$ 01981 E
$E^{++} + Be$ 01802 E 01919 E 02633 T	$Li^{2+} + Be$ 01897 T	$B^{++} + E$ 02117 T 03307 E-T 03308 E-T
$E^{++} + Be$ 01802 E 01919 E 02633 T	$Li^{2+} + E$ 01969 T	$B^{++} + B_2$ 01831 E
$E^{++} + Be$ 01802 E 02433 T	$Li^{2+} + Li$ 01969 T	$B^{++} + Be$ 01831 E 01981 E 02117 T
$E^{++} + Be$ 01802 E 02433 T	$Li^{2+} + Ng$ 01969 T	$B^{++} + Kr$ 01981 E
$E^{++} + Be$ 01802 E 02433 T	$Li^{2+} + La$ 01969 T	$B^{++} + Be$ 01981 E
$E^{++} + Be$ 01802 E 2433 T	$Li^{2+} + Be$ 01969 T	$B^{++} + Ar$ 01981 E
$E^{++} + Be$ 01802 E 02433 T	$Hg^+ + Be$ 01871 E-T	$B^{++} + E$ 01982 T 02117 T 02196 T
$E^{++} + Be$ 01802 E 02433 T	$Hg^+ + Sc$ 01871 E-T	$B^{++} + B_2$ 01869 E
$E^{++} + Be$ 01802 E 02433 T	$Hg^{++} + E$ 02585 T	$B^{++} + Be$ 01830 E 01981 E 02117 T
$E^{++} + Be$ 01802 E 02433 T	$H^+ + AlE$ 03306 E	$B^{++} + Kr$ 01981 E
$E^{++} + Be$ 01802 E 02433 T	$H^+ + E$ 02117 T	$B^{++} + Be$ 01981 E
$E^{++} + Be$ 01802 E 02433 T	$H^+ + Be$ 02117 T	$B^{++} + Be$ 02431 T
$E^{++} + Be$ 01802 E 02433 T	$H^+ + AlE$ 03306 E	$Na + Be$ 02407 E
$E^{++} + Be$ 01802 E 02433 T	$H^+ + E$ 02117 T	$B^{++} + Be$ 02236 T
$E^{++} + Be$ 01802 E 02433 T	$H^+ + Li$ 02236 T	$B^{++} + Be$ 02236 T
$Li + H^+$ 01904 T	$H^+ + E$ 01961 T 02117 T 02510 T	$B^{++} + B_2$ 02171 E
$Li^+ + E$ 02166 T	$H^+ + Be$ 02117 T	$B^{++} + Ar$ 02171 E
$Li^+ + Li$ 01854 E	$H^+ + Li$ 02236 T	$B^{++} + Be$ 02171 E
$Li^+ + Li$ 02262 T	$H^+ + Be$ 02696 T	$B^{++} + Be$ 02171 E
$Li^+ + Be$ 01964 T	$H^+ + E$ 02117 T 02531 T	$B^{++} + B_2$ 02171 E
$Li^{2+} + E$ 02166 T	$H^+ + Be$ 02117 T	$B^{++} + Ar$ 03306 E
$Li^{2+} + Ar$ 01969 T	$H^+ + Be$ 02117 T	
$Li^{2+} + B$ 01969 T		

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$\text{H}_2^{\bullet} + \text{CO}$		$\text{H}_2^{\bullet} + \text{He}$		$\text{O}^{\bullet} + \text{He}$	
02672 E		01933 E 02433 T		01981 E 02117 T 02433 T	
$\text{H}_2^{\bullet} + \text{D}_2$		$\text{H}_2^{\bullet} + \text{Li}$		$\text{O}^{\bullet} + \text{K}$	
02572 E		01971 E		01981 E	
$\text{H}_2^{\bullet} + \text{O}_2$		$\text{H}_2^{\bullet} + \text{S}$		$\text{O}^{\bullet} + \text{Ne}$	
02372 E		02319 E 03337 E-T		01981 E	
$\text{H}_2^{\bullet} + \text{Ar}$		$\text{H}_2^{\bullet} + \text{Li}$		$\text{O}^{\bullet} + \text{Ar}$	
01806 E 02421 E		01971 E		01981 E	
$\text{H}_2^{\bullet} + \text{N}_2$		$\text{Si}^{\bullet} + \text{K}$		$\text{O}^{\bullet} + \text{X}$	
02316 E		03346 E		01982 E 02117 T 02186 T	
$\text{H}_2^{\bullet} + \text{He}$	01875 E 01919 E 02316 E	$\text{O}^{\bullet} + \text{K}$	02339 T 02650 T 03037 E-T	02433 T	02117 T
02621 E		03346 E		$\text{O}^{\bullet} + \text{He}$	
$\text{H}_2^{\bullet} + \text{Li}$	01971 E	$\text{O}^{\bullet} + \text{X}$		$\text{O}^{\bullet} + \text{K}$	
01836 E		02323 E-T		01981 E	
$\text{H}_2^{\bullet} + \text{N}_2$	01797 E	$\text{O}_2^{\bullet} + \text{Ar}$		$\text{O}^{\bullet} + \text{Ne}$	
02316 E		03346 E		02433 T	
$\text{H}_2^{\bullet} + \text{Ar}$	01919 E 02316 E 02367 E	$\text{O}_2^{\bullet} + \text{Cs}$		$\text{P}^{\bullet} + \text{Ar}$	
02433 T		02466 E		03346 E	
$\text{H}_2^{\bullet} + \text{Li}$	01971 E	$\text{O}^{\bullet} + \text{E}$	02117 T	$\text{Pb}^{2+} + \text{E}_2$	
02016 E		02117 T		02171 E	
$\text{H}_2^{\bullet} + \text{He}$	01919 E 02316 E 02367 E	$\text{O}^{\bullet} + \text{He}$	02117 T	$\text{Pb}^{2+} + \text{E}_2$	
02433 T		02117 T		02171 E	
$\text{H}_2^{\bullet} + \text{Li}$	01971 E	$\text{O}^{\bullet} + \text{E}$	02117 T	$\text{Pb}^{2+} + \text{Ar}$	
02571 E		02117 T		02171 E	
$\text{H}_2^{\bullet} + \text{D}_2$	02316 E	$\text{O}^{\bullet} + \text{O}_2$		$\text{Pb}^{2+} + \text{E}_2$	
02671 E		02696 T		02171 E	
$\text{H}_2^{\bullet} + \text{He}$	01919 E 02367 E 02433 T	$\text{O}^{\bullet} + \text{E}$	02117 T	$\text{Pb}^{2+} + \text{E}_2$	
02433 T		02117 T		02171 E	
$\text{H}_2^{\bullet} + \text{Li}$	01971 E	$\text{O}^{\bullet} + \text{He}$	02117 T	$\text{Pb}^{2+} + \text{E}_2$	
02571 E		02117 T		02171 E	
$\text{H}_2^{\bullet} + \text{He}$	01919 E 02367 E 02433 T	$\text{O}^{\bullet} + \text{Li}$		$\text{Pb}^{2+} + \text{E}_2$	
02433 T		02233 E		02171 E	
$\text{H}_2^{\bullet} + \text{D}_2$	01919 E 02367 E 02433 T	$\text{O}^{\bullet} + \text{O}_2$		$\text{Pb}^{2+} + \text{E}_2$	
02433 T		02696 T		02171 E	
$\text{H}_2^{\bullet} + \text{He}$	01919 E 02367 E 02433 T	$\text{O}^{\bullet} + \text{E}$	02117 T	$\text{Pb}^{2+} + \text{E}_2$	
02433 T		02117 T		02171 E	
$\text{H}_2^{\bullet} + \text{Li}$	01971 E	$\text{O}^{\bullet} + \text{He}$	02117 T	$\text{Pb}^{2+} + \text{E}_2$	
02571 E		02117 T		02171 E	
$\text{H}_2^{\bullet} + \text{N}_2$	01919 E 01933 E 02367 E	$\text{O}^{\bullet} + \text{Ar}$		$\text{Pb}^{2+} + \text{E}_2$	
02433 T		01981 E		02171 E	
$\text{H}_2^{\bullet} + \text{Li}$	01971 E	$\text{O}^{\bullet} + \text{He}$	01981 E	$\text{Pb}^{2+} + \text{E}_2$	
03007 E-T		01981 E		02171 E	
$\text{H}_2^{\bullet} + \text{He}$	01919 E 01933 E 02367 E	$\text{O}^{\bullet} + \text{Ar}$	01981 E	$\text{Pb}^{2+} + \text{E}_2$	
02433 T		01981 E		02171 E	
$\text{H}_2^{\bullet} + \text{Li}$	01971 E	$\text{O}^{\bullet} + \text{E}$	02117 T	$\text{Pb}^{2+} + \text{E}_2$	
03237 E-T		03337 E-T		02171 E	

REACTANT ISOBAR

$\text{Si}^{+} + \text{Be}$	$\text{Xe}^{+} + \text{Ta}$	$\text{Xe}^{+} + \text{Be}$
01002 E	02131 E	01919 E
$\text{Si}^{+} + \text{Be}$	$\text{H}^{+} + \text{Ar}$	$\text{Xe}^{+} + \text{Li}$
01032 E	03306 E	01971 E
$\text{Si}^{+} + \text{Ar}$	$\text{Xe}^{+} + \text{Be}$	$\text{Xe}^{+} + \text{Be}$
02223 E	02309 E	01919 E
$\text{Si}^{+} + \text{C}$	$\text{Xe}^{+} + \text{Ar}$	$\text{Xe}^{+} + \text{Li}$
02505 E	02310 E	01971 E
$\text{SD}^{+} + \text{Ar}$	$\text{Ar}^{+} + \text{Be}$	$\text{Xe}^{+} + \text{Be}$
03046 E	01919 E	01919 E
$\text{SD}^{+} + \text{Ar}$	$\text{Xe}^{+} + \text{Li}$	$\text{Xe}^{+} + \text{Li}$
03306 E	01971 E	01971 E
$\text{Si}^{+} + \text{Ar}$	$\text{Xe}^{+} + \text{Be}$	$\text{Xe}^{+} + \text{Be}$
02423 E	01919 E	01919 E
$\text{Si}^{+} + \text{Ar}$	$\text{Xe}^{+} + \text{Li}$	$\text{Xe}^{+} + \text{Li}$
02423 E	01971 E	01971 E
$\text{Te}^{+} + \text{Ar}$	$\text{Xe}^{+} + \text{Be}$	$\text{Xe}^{+} + \text{Be}$
03306 E	01919 E	01919 E
Titanium-Isobars + Ti	$\text{Xe}^{+} + \text{Li}$	$\text{Xe}^{+} + \text{Be}$
02793 E	01971 E	01919 E
$\text{U}^{+} + \text{Ar}$	$\text{Xe}^{+} + \text{Be}$	$\text{Xe}^{+} + \text{Be}$
02567 E	01919 E	01919 E
$\text{U}^{+} + \text{Ar}$	$\text{Xe}^{+} + \text{Li}$	$\text{Xe}^{+} + \text{Be}$
02569 E	01971 E	01919 E
$\text{U}^{+} + \text{C}$	$\text{Xe}^{+} + \text{Be}$	$\text{Xe}^{+} + \text{Be}$
02131 E	01919 E	01919 E
$\text{U}^{+} + \text{Ta}$	$\text{Xe}^{+} + \text{Li}$	$\text{Xe}^{+} + \text{Be}$
02101 E	01971 E	01919 E
$\text{U}^{+} + \text{C}$		$\text{U}^{+} + \text{C}$
02131 E		01786 T 01936 T 01966 T 02366 T 02523 T 02771 T

STRUCTURE INDEX

REACTANT ISOMER

B ¹⁰ O + Kr	02328 E	C ¹⁶ O + He	02117 T	F ¹⁹ O + Ne	01981 E
B ¹⁰ O + Kr	02328 E	C ¹⁶ O + He	01981 E	F ¹⁹ O + Ne	01981 E
B ¹⁰ O + Kr	02328 E	C ¹⁶ O + Kr	01981 E	F ¹⁹ O + C	02678 E
B ¹⁰ O + Kr	02328 E	C ¹⁶ O + He	01981 E	F ¹⁹ O + Ne	01981 E
B ¹⁰ O + Kr	02328 E	C ¹⁶ O + Ar	01981 E	F ¹⁹ O + Kr	01981 E
B ¹⁰ O + Kr	02328 E	C ¹⁶ O + He	02117 T	F ¹⁹ O + Ne	01981 E
B ¹⁰ O + Kr	02328 E	C ¹⁶ O + He	02117 T	F ¹⁹ O + Ne	01981 E
B ¹⁰ O + Kr	02328 E	C ¹⁶ O + He	01981 E	F ¹⁹ O + Ne	01981 E
C + H	02232 E	C ¹⁶ O + He	01981 E	F ¹⁹ O + C	02678 E
C ¹⁶ O + Ar	02921 T	02921 T	02923 E	F ¹⁹ O + Ne	01981 E
C ¹⁶ O + Ne	02921 T	C ¹⁶ O + He	02917 T	F ¹⁹ O + Kr	01981 E
C ¹⁶ O + Ne	02921 T	C ¹⁶ O + Kr	02917 T	F ¹⁹ O + Ne	01981 E
C ¹⁶ O + C	02613 E	C ¹⁶ O + He	02613 E	F ¹⁹ O + Ne	01981 E
C ¹⁶ O + D ₂	02921 T	C ¹⁶ O + He	02352 E	F ¹⁹ O + Kr	01981 E
C ¹⁶ O + Kr	02923 E	C ¹⁶ O + O ₂	02352 E	H ¹ + H ¹	01990 T
C ¹⁶ O + Kr	02117 T	D ¹⁰ + He	02894 T	H ¹ + H ¹	01990 T
C ¹⁶ O + Ne	02117 T	D ¹⁰ + He	02921 T	H ¹ + H ¹	01990 T
C ¹⁶ O + Ne	02117 T	D ¹⁰ + He	02923 E	H ¹ + Ag	01968 E
C ¹⁶ O + Ne	02923 E	D ¹⁰ + Cu	02894 T	02551 E-T	02911 T
C ¹⁶ O + H	02921 T	D ¹⁰ + He	02923 E	D ¹⁰ + Al	01862 E-T
C ¹⁶ O + Ne	03365 E	D ¹⁰ + He	02913 T	02121 T	02831 E
C ¹⁶ O + H	02117 T	D ¹⁰ + Ne	02923 E	D ¹⁰ + Ne	02807 E
C ¹⁶ O + He	02117 T	D ¹⁰ + He	02894 T	D ¹⁰ + Ne	02894 T
C ¹⁶ O + H	02117 T	D ¹⁰ + He	02923 E	D ¹⁰ + Ag	01810 E
C ¹⁶ O + Ne	01981 E	D ¹⁰ + He	02913 T	01877 E	02137 E
C ¹⁶ O + H	02117 T	D ¹⁰ + Ne	02923 E	D ¹⁰ + Ne	02227 E
C ¹⁶ O + Ne	02117 T	D ¹⁰ + He	02894 T	D ¹⁰ + Ne	02321 E-T
C ¹⁶ O + Ne	02117 T	F ¹⁹ + H	02232 E	D ¹⁰ + Ne	02972 T
C ¹⁶ O + Ne	02117 T	F ¹⁹ + He	02911 T	D ¹⁰ + Ne	02899 T
C ¹⁶ O + Ne	01981 E	F ¹⁹ + Ar	03365 E	D ¹⁰ + Ne	02222 E
C ¹⁶ O + H	02117 T	F ¹⁹ + He	02923 E	D ¹⁰ + Ne	02898 E
C ¹⁶ O + Ne	02117 T	F ¹⁹ + He	02894 T	D ¹⁰ + Ne	02933 E
C ¹⁶ O + Ne	02117 T	F ¹⁹ + Ne	02921 T	D ¹⁰ + Ne	02921 T
C ¹⁶ O + Ne	01981 E	F ¹⁹ + Ar	03365 E	D ¹⁰ + Ne	02922 E-T
C ¹⁶ O + H	02117 T	F ¹⁹ + He	02678 E	D ¹⁰ + Ne	02895 E
C ¹⁶ O + Ne	02117 T	F ¹⁹ + Ar	01981 E	D ¹⁰ + Ne	02896 E
C ¹⁶ O + Ne	01981 E	F ¹⁹ + He	01981 E	D ¹⁰ + Ne	02895 E
C ¹⁶ O + Ne	01981 E	F ¹⁹ + Ne	01981 E	D ¹⁰ + Ne	02895 E
C ¹⁶ O + Ne	01981 E	F ¹⁹ + Ne	01981 E	D ¹⁰ + Ne	02895 E
C ¹⁶ O + Ne	01981 E	F ¹⁹ + Ne	01981 E	D ¹⁰ + Ne	02895 E

DEMOCRATIC INDEX

REACTANT INDEX

$\text{K}^{+} + \text{Be}$			$\text{He}^{+} + \text{K}$	
01919 E			02627 T	
$\text{K}^{+} + \text{Be}$			$\text{He}^{+} + \text{K}$	
01919 E			02627 T	
$\text{K}^{+} + \text{Be}$			$\text{He}^{+} + \text{Li}$	
01919 E			02627 T	
$\text{K}^{+} + \text{Be}$			$\text{He}^{+} + \text{Na}$	
01919 E			02627 T	
$\text{K}^{+} + \text{Be}$			$\text{He}^{+} + \text{Be}$	
01919 E			02627 T	
$\text{K}^{+} + \text{Be}$			$\text{He}^{+} + \text{Be}$	
01919 E			02135 E	
$\text{K}^{+} + \text{Be}$			$\text{He}^{+} + \text{O}_2$	
01919 E			01782 E	
$\text{K}^{+} + \text{Be}$			$\text{He}^{+} + \text{Bb}$	
01919 E			02627 T	
$\text{K}^{+} + \text{Be}$			$\text{He}^{+} + \text{Ie}$	
01919 E			02627 T	
$\text{Li}^{+} + \text{Ar}$			$\text{He}^{+} + \text{Ar}$	
02921 T			01860 E-T	
$\text{Li}^{+} + \text{Ar}$			$\text{He}^{+} + \text{He}$	
01854 E			01919 E	
$\text{He}^{+} + \text{Ar}$			$\text{He}^{+} + \text{Ic}$	
01792 E	02921 T	02921 T	01797 E	
$\text{He}^{+} + \text{Ar}$			$\text{He}^{+} + \text{He}$	
02923 E			01919 E	
$\text{He}^{+} + \text{Be}$			$\text{He}^{+} + \text{He}$	
02921 T			01919 E	
$\text{He}^{+} + \text{Be}$			$\text{He}^{+} + \text{He}$	
02919 E			01919 E	
$\text{He}^{+} + \text{Dy}$			$\text{He}^{+} + \text{He}$	
02921 T			01919 E	
$\text{He}^{+} + \text{Ec}$			$\text{He}^{+} + \text{He}$	
02923 E			01919 E	
$\text{He}^{+} + \text{H}$			$\text{He}^{+} + \text{He}$	
02117 T			01919 E	
$\text{He}^{+} + \text{He}$			$\text{He}^{+} + \text{He}$	
02117 T			01919 E	
$\text{He}^{+} + \text{Sb}$			$\text{He}^{+} + \text{Gd}$	
02923 E			02202 E	
$\text{He}^{+} + \text{U}$			$\text{O} + \text{Th}$	
02921 T			02202 E	
$\text{He}^{+} + \text{E}$			$\text{O} + \text{U}$	
02117 T			02202 E	
$\text{He}^{+} + \text{Be}$			$\text{O}^{+} + \text{Ag}$	
02117 T			01968 E	
$\text{He}^{+} + \text{B}$			$\text{O}^{+} + \text{Au}$	
02117 T			02921 T	
$\text{He}^{+} + \text{B}$			$\text{O}^{+} + \text{Be}$	
02117 T			02019 E	
$\text{He}^{+} + \text{B}$			$\text{O}^{+} + \text{Ca}$	
02117 T			01968 E	
$\text{He}^{+} + \text{B}$			$\text{O}^{+} + \text{B}$	
02117 T			02117 T	
$\text{He}^{+} + \text{Be}$			$\text{O}^{+} + \text{Be}$	
02117 T			02117 T	
$\text{He}^{+} + \text{Ar}$			$\text{O}^{+} + \text{O}_2$	
01981 E			02146 E-T	
$\text{He}^{+} + \text{B}$				
02117 T				

SECRETARY ISM

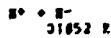
REACTANT INDEX

Al	P ³⁰ + Be	B ⁰ + Be
HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS	P ³⁰ + Be	P ³⁰ + Be
scrapping	P ³⁰ + Be	O + O
Al + C	P ³⁰ + Be	O + Be
02121 T	02152 E	02239 E
Ar ³⁶ + Ar	P ³⁰ + Be	O + Be
01787 E	02152 E	02239 E
Ar ³⁶ + Br	P ³⁰ + Be	Be + Ar
01787 E	02152 E	01875 E
Ar ³⁶ + Kr	P ³⁰ + C	Be + Be
01787 E	02678 E	01875 E-T
Ar ³⁶ + N ₂	P ³⁰ + Be	Be + Be
01787 E	02152 E	02136 E-T
Ar ³⁶ + Kr	P ³⁰ + Be	Be + Kr
02171 E	02152 E	01875 E
Ar ³⁷ + Ar	P ³⁰ + Be	Be + Be
02171 E	02152 E	01875 E
Ar ³⁷ + C	P ³⁰ + Be	Br ³⁷ + Al
02793 T	02152 E	02793 T
Ar ³⁷ + N ₂	P ³⁰ + C	Br ³⁷ + Ar
02171 E	02678 E	01875 E-T
C + Be	P ³⁰ + Be	Br ³⁷ + Be
02121 T	02152 E	01788 E
C + Si	P ³⁰ + Be	Br ³⁷ + C
02121 T	02152 E	03057 E
C ³⁶ + C	P ³⁰ + Ar	Br ³⁷ + Be
01816 E	02171 E	01788 E
C ³⁶ + CH ₄	P ³⁰ + Ar	Br ³⁷ + H ₂
01816 E	02171 E	02534 T
C ³⁶ + C	P ³⁰ + Ar	Br ³⁷ + He
01816 E	02793 T	01788 E
C ³⁶ + CH ₄	P ³⁰ + Ar	Br ³⁷ + He
01816 E	02793 T	02136 E-T
Calcium-ions + Ti	P ³⁰ + Ar	Br ³⁷ + Si
02793 E	02171 E	02793 T
Cl ⁻ + Ar	H + C	Br ³⁷ + Ar
02111 E	02793 T	01875 E
Cl ⁻ + Be	H + Be	Br ³⁷ + Be
02111 E	02103 E	02135 E
Cl ⁻ + Kr	H + Be	Br ³⁷ + Kr
02111 E	01918 E	01875 E
Cl ⁻ + Br	H + O	Br ³⁷ + O
02111 E	01847 E	01875 E
Cl ⁻ + Be	H ⁺ + C	Br ³⁷ + Xe
02111 E	02795 E	01875 E
Cl ³⁶ + C	H ⁺ + Be	Irons-ions + Ti
02800 E	02795 E	02793 E
Ca + CH ₄	H ⁺ + Be	Br ³⁷ + Be
02121 T	02239 E	02639 T
P ³⁰ + Be	H ⁺ + Be	Br ³⁷ + Be
02152 E	02239 E	02639 T
P ³⁰ + Be	H ⁺ + Be	Br ³⁷ + Be
02152 E	02239 E	02171 E

REACTANT INDEX

$\text{Pb}^{2+} + \text{Ar}$	$\text{Pb}^{2+} + \text{He}$	$\text{Pb}^{2+} + \text{H}_2$
02171 E	02171 E	02171 E
$\text{Pb}^{2+} + \text{F}_2$	$\text{Pb}^{2+} + \text{He}$	$\text{Pb}^{2+} + \text{H}_2$
02171 E	02171 E	02171 E
$\text{Pb}^{2+} + \text{H}_2$	$\text{Pb}^{2+} + \text{He}$	$\text{Pb}^+ + \text{CO}$
02171 E	02171 E	02639 T
$\text{Pb}^+ + \text{He}$	$\text{Pb}^{2+} + \text{He}$	$\text{Si}^{2+} + \text{C}$
02135 E	02171 E	02678 E
$\text{Pb}^+ + \text{C}$	$\text{Pb}^{2+} + \text{He}$	$\text{Si}^{2+} + \text{C}$
02793 T	02171 E	02678 E
$\text{Pb}^{2+} + \text{H}_2$	$\text{Pb}^{2+} + \text{He}$	Titanium- Ions + Ti
02171 E	02171 E	02793 E
$\text{Pb}^{2+} + \text{H}_2$	$\text{Pb}^{2+} + \text{He}$	$\text{U} + \text{He}$
02171 E	02171 E	02121 T
$\text{Pb}^{2+} + \text{Ar}$	$\text{Pb}^{2+} + \text{He}$	Undef
02171 E	02171 E	01786 T
$\text{Pb}^{2+} + \text{Ar}$		
02171 E		

A09

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSRecombination or Neutral Neutralization
Leading to Neutral Products (ion-ion)

REACTANT INDEX

HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS		$\text{C}^{18+} + \text{He}$		$\text{Be}^{10+} + \text{Li}$	
Collisional De-Excitation		$\text{Cl}^{18+} + \text{C}$		$\text{Be}^{10+} + \text{Ba}$	
$\text{Ar}^{18+} + \text{He}$		$\text{Cl}^{18+} + \text{C}$		$\text{Be}^{10+} + \text{Ba}$	
$\text{Ar}^{18+} + \text{He}$		$\text{Cl}^{18+} + \text{C}$		$\text{Be}^{10+} + \text{Ba}$	
$\text{Ar}^{18+} + \text{Rb}$	31552 E	$\text{Cl}^{18+} + \text{He}$	32595 E	$\text{Be}^{10+} + \text{Ba}$	32627 T
$\text{Ar}^{18+} + \text{K}$	32317 E-T	$\text{Cl}^{18+} + \text{He}$	32595 E	$\text{Be}^{10+} + \text{Ca}$	32627 T
$\text{Ar}^{18+} + \text{Ca}$	32627 T	$\text{Cl}^{18+} + \text{He}$	32339 T	$\text{Be}^{10+} + \text{Ca}$	32262 E
$\text{Ar}^{18+} + \text{Ca}$	32262 E	$\text{Cl}^{18+} + \text{Ar}$	31857 E	$\text{Be}^{10+} + \text{K}$	32627 T
$\text{Ar}^{18+} + \text{K}$	32627 T	$\text{Cl}^{18+} + \text{He}$	31857 E	$\text{Be}^{10+} + \text{K}$	32527 T
$\text{Ar}^{18+} + \text{He}$	32627 T	$\text{Cl}^{18+} + \text{He}$	31857 E	$\text{Be}^{10+} + \text{K}$	32268 E-T
$\text{Ar}^{18+} + \text{Li}$	32627 T	$\text{Cl}^{18+} + \text{He}$	31857 E	$\text{Be}^{10+} + \text{Li}$	32627 T
$\text{Ar}^{18+} + \text{He}$	32627 T	$\text{Cl}^{18+} + \text{Xe}$	31857 E	$\text{Be}^{10+} + \text{Ba}$	32628 T
$\text{Ar}^{18+} + \text{BD}$	32627 T	$\text{He}^+ + \text{He}^+$	32368 T	$\text{Be}^{10+} + \text{BD}$	32627 T
$\text{C}^{18+} + \text{C}$	32833 E	$\text{He}^+ + \text{He}^+$	32134 E-T	$\text{B}^{10+} + \text{CO}_2$	32562 E
$\text{Ca}^{18+} + \text{Ar}$	32563 E	$\text{He}^+ + \text{O}$	31867 E	$\text{B}^{10+} + \text{D}_2$	32562 E
$\text{Ca}^{18+} + \text{CI}_2$	32564 E	$\text{He}^+ + \text{O}_2$	31867 E	$\text{B}^{10+} + \text{He}$	32219 T
$\text{Ca}^{18+} + \text{CO}$	32564 E	$\text{He}^+ + \text{CO}_2$	32361 T	$\text{B}^{10+} + \text{H}_2$	32313 E
$\text{Ca}^{18+} + \text{CO}_2$	32564 E	$\text{He}_2^+ + \text{He}_2^+$	32273 E	$\text{B}_{10+}^+ + \text{He}$	32313 E
$\text{Ca}^{18+} + \text{D}_2$	32574 E	$\text{He}_2^+ + \text{He}_2^+$	32363 E	$\text{B}_{10+}^+ + \text{K}$	32313 E
$\text{Ca}^{18+} + \text{B}_2$	32574 E	$\text{BD}^+ + \text{D}_2$	32335 E	$\text{B}_{10+}^+ + \text{He}$	32313 E
$\text{Ca}^{18+} + \text{He}$	32563 E	$\text{BD}^+ + \text{BD}$	32335 E	$\text{B}_{10+}^+ + \text{HO}$	32371 E
$\text{B}^{10+} + \text{K}$	32563 E	$\text{BD}^+ + \text{He}$	32375 E	$\text{B}_{10+}^+ + \text{O}_2$	32371 E
$\text{Ca}^{18+} + \text{He}$	32563 E	$\text{He} + \text{C}$	33343 T	$\text{B}_{10+}^+ + \text{Xe}$	32313 E
$\text{Ca}^{18+} + \text{HO}$	32564 E	$\text{He} + \text{He}_2^+$	32397 T	$\text{B}_{10+}^+ + \text{HO}^+$	32396 E
$\text{Ca}^{18+} + \text{He}$	32563 E	$\text{He}^+ + \text{Cs}$	32627 T	$\text{B}_{10+}^+ + \text{O}$	32313 E
$\text{Cde} + \text{Ar}$	32595 E	$\text{He}^+ + \text{Cu}$	32262 E	$\text{B}_{10+}^+ + \text{O}_2$	32396 E
$\text{Cde} + \text{CO}$	32595 E	$\text{He}^+ + \text{N}$	32627 T	$\text{B}_{10+}^+ + \text{Ar}$	32522 E-T
$\text{Cde} + \text{CO}_2$	32595 E	$\text{He}^+ + \text{K}$	32627 T	$\text{B}_{10+}^+ + \text{He}$	32245 T
$\text{Cde} + \text{H}_2$	32595 E				32522 E-T

REACTANT INDEX

$\text{Be}^0 + \text{Be}$	31935 E	32627 T	$\text{Bb}^0 + \text{Be}$	31857 E	32153 E
$\text{Bb}^0 + \text{Be}^0$	32619 E		$\text{Bb}^0 + \text{Bb}$	32153 E	
$\text{Bb}^0 + \text{Be}$	31935 E	32522 E-T	$\text{Bb}^0 + \text{Be}$	31935 E	32522 E-T
$\text{Bb}^0 + \text{K}$	32639 E		$\text{Bb}^0 + \text{K}$	32627 T	
$\text{Bb}^0 + \text{Ar}$	32627 T		$\text{Bb}^0 + \text{Ca}$	32627 T	
$\text{Bb}^0 + \text{Ca}$	32627 T		$\text{Bb}^0 + \text{Ca}$	32262 E	
$\text{Bb}^0 + \text{Ca}$	32262 E		$\text{Bb}^0 + \text{K}$	32627 T	
$\text{Bb}^0 + \text{E}$	32627 T		$\text{Bb}^0 + \text{Li}$	32627 T	32628 T
$\text{Bb}^0 + \text{H}_2$	31939 E		$\text{Bb}^0 + \text{Be}$	32627 T	32628 T
$\text{Bb}^0 + \text{E}$	32627 T		$\text{Bb}^0 + \text{Bb}$	32627 T	
$\text{Bb}^0 + \text{K}$	32627 T		$\text{Bb}^0 + \text{K}$	32627 T	
$\text{Bb}^0 + \text{Li}$	32627 T		$\text{Bb}^0 + \text{Zn}$	31860 E	
$\text{Bb}^0 + \text{Be}$	32627 T				

REACTANT INDEX

A12

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Collisional Line Processing

$\text{Ca}^{\oplus} + \text{Kr}$	02582 E	$\text{Ba} + \text{Kr}$	02522 E-T
$\text{Ca}^{\oplus} + \text{Rb}$	02582 E	$\text{Ba} + \text{Rb}$	02617 E
$\text{Ca}^{\oplus} + \text{Zn}$	02582 E	$\text{Ba} + \text{Zn}$	02522 E-T
$\text{He}^{\oplus} + \text{O}_2$	02613 T	$\text{Ba}^{\oplus} + \text{Ar}$	02656 T 02582 E
$\text{Ba} + \text{Ar}$	02656 E	$\text{Ba}^{\oplus} + \text{He}$	02656 T 02582 E
$\text{Ba} + \text{Be}$	02656 E	$\text{Ba}^{\oplus} + \text{Kr}$	02656 T 02582 E
$\text{Ba} + \text{Kr}$	02656 E	$\text{Ba}^{\oplus} + \text{Ba}$	02582 E
$\text{Ba}^{\oplus} + \text{Ar}$	02655 E	$\text{Ba}^{\oplus} + \text{Xe}$	02656 T 02582 E
$\text{Ba}^{\oplus} + \text{Rb}$	02655 E	$\text{Ba}^{\oplus} + \text{Be}$	02126 E-T
$\text{Ca} + \text{Kr}$	02512 E	$\text{O}_2 + \text{O}_2$	02606 E
$\text{Ca}^{\oplus} + \text{CO}_2$	02773 E	$\text{O}_2 + \text{O}_2$	02606 E
$\text{Ca}^{\oplus} + \text{BeO}$	02611 E	$\text{Ba} + \text{Be}$	02522 E-T
$\text{Cs} + \text{Ar}$	02025 E	$\text{Ba} + \text{Xe}$	02522 E-T
$\text{Cs} + \text{Be}$	02025 E	$\text{Ba}^{\oplus} + \text{Kr}$	01857 E
$\text{Cs} + \text{Kr}$	02025 E	$\text{Ba}^{\oplus} + \text{O}_2$	01857 E
$\text{Cs} + \text{Ba}$	02025 E	$\text{Ba}^{\oplus} + \text{Ar}$	01857 E
$\text{Cs} + \text{Xe}$	02521 E-T	$\text{Ba} + \text{Ca}$	01857 E
$\text{Ca}^{\oplus} + \text{Ar}$	01857 E	$\text{Ba} + \text{Rb}$	01857 E
$\text{Ca}^{\oplus} + \text{Be}$	01857 E	$\text{Ba} + \text{E}$	01857 E

REACTANT 1 E1

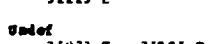
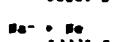
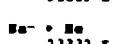
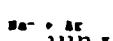
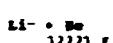
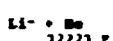
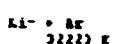
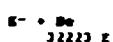
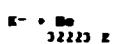
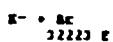
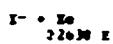
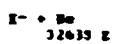
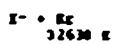
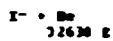
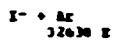
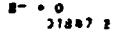
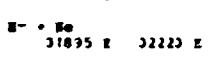
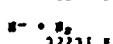
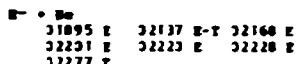
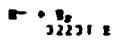
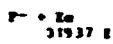
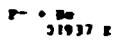
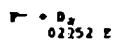
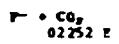
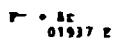
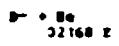
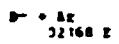
A76

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSHeavy Particle Interchange (most
involve one form of hydrogen or
helium)

$P + D_2$	01779 T	02304 T	02729 T	$O + CH_4$	02363 T
$P + D_2$	01924 T	01925 T	02729 T	$O + D_2$	02313 T
$P + HD$	02729 T			$O + H_2$	01777 T 02005 T 02330 T
$PO^+ + D_2$	02312 E			$O + OH$	02616 T
$C^+ + H_2$	02303 E			$O^+ + H_2$	02106 E 02255 T
$CH + O_2$	02616 T			$OH^+ + He$	02062 E
$CP + H$	02306 E			$OH^+ + CH_4$	02362 E
$CP + H_2$	02156 E			$OH^+ + CH_3$	02062 E
$CH_3 + O_2$	02533 E			$OH^+ + H_2O$	02362 E
$CH_3^+ + H_2$	02158 E			$OH^+ + H_2O$	02062 E
$CO^+ + H_2$	02136 E			$OH^+ + D_2O$	02362 E
$CO_2^+ + H$	02060 E			$OH^+ + H_2O$	02062 E
$D + D_2^+$	02358 E	02359 T		$OH^+ + H_2$	02062 E
$DO^- + D_2O$	02311 E			$OH^+ + He$	02362 E
$DO^- + H_2$	02011 E			$OH^+ + H_2$	02062 E
$DO^- + HD$	02311 E			$OH^+ + O_2$	02062 E

REACTANT INDEX

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HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONSElectron Detachment from Negative Ions
into Continuum

BIBLIOGRAPHY INDEX

A17			
HEAVY PARTICLE - HEAVY PARTICLE INTERACTIONS			
Interaction Potentials			
Al + Al	02675 T	Cs ⁺ + Xe	02236 T
Ar + Ar	01706 T 01058 T 01059 T 02675 T 02731 T	Cs + Cs	02675 T
Ar + Kr	02731 T	Cs + Br	02236 T
Ar + Xe	02731 T	Cs + Br ₂	02236 T
Ar ⁺ + Ar	02317 E-T	Cs + Br ₂	02236 T
Br ⁻ + Ar	02306 T	Cs + Cs	02373 T
Br ⁻ + Br	01701 T	Cs + Br ₂	02200 E
Br ⁻ + Br	01701 T	Cs + Br ₂	02200 E
Cl + Ar	02210 T	Cs + Br ₂	02200 E
Cl + Kr	02210 T	Cs + Br ₂	02200 E
Cl + Xe	02210 T	Cs + Br ₂	02200 E
Cl ⁻ + Ar	02306 T	Cs + Br ₂	02200 E
Cl ⁻ + Br	01701 T	Cs + Br ₂	02200 E
Cd + Ar	02210 T	Cs + Br ₂	02200 E
Cd + Kr	02210 T	Cs + Br ₂	02200 E
Cd + Xe	02210 T	Cs + Br ₂	02200 E
Cl ⁻ + Ar	02306 T	Cs + Br ₂	02200 E
Cl ⁻ + Br	01701 T	Cs + Br ₂	02200 E
Cl ⁻ + Br	01701 T	Cs + Br ₂	02200 E
Cs + Br ₂	02306 T	Cs + Br ₂	02200 E
Cs + Br	02112 T	Cs + Br ₂	02200 E
Cs + Cl	02112 T	Cs + Br ₂	02200 E
Cs + F	02112 T	Cs + Br ₂	02200 E
Cs + I	02112 T	Cs + Br ₂	02200 E
Cs + Xe	02521 E-T	Cs + Br ₂	02200 E
Cs ⁺ + Ar	02306 T	Cs + Br ₂	02200 E
Cs ⁺ + Br	01701 T	Cs + Br ₂	02200 E
Cs ⁺ + Br	02306 T	Cs + Br ₂	02200 E
Cs ⁺ + Br	01701 T	Cs + Br ₂	02200 E
K + K			
02513 E-T			
K + Br			
02112 T			
K + Cl			
02112 T			
K + F			
02112 T			
K + I			
02112 T			
K + Br₂			
02200 E			
K⁺ + Ar			
02306 T			
K⁺ + Br			
01701 T			
K⁺ + Br₂			
02105 T			
K⁺ + Br₂			
02105 T			
K⁺ + Br₂			
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02105 T			
</td			

REACTANT INDEX

$\text{Li}^+ + \text{Be}$	31701 T		$\text{OB}^- + \text{Be}$	32105 T
$\text{B}_2 + \text{Be}$	32399 T		$\text{OB}^- + \text{O}_2$	32105 T
$\text{H} + \text{B}_2$	32021 T		$\text{OB}^- + \text{OB}$	32105 T
$\text{Be} + \text{He}$	32093 T 32100 T		$\text{Rb} + \text{Be}$	32102 T
Be^+	32596 T		$\text{Rb} + \text{Cl}$	32102 T
$\text{Be} + \text{Kr}$	32112 T		$\text{Rb} + \text{F}$	32102 T
$\text{Be} + \text{Cl}$	32112 T		$\text{Rb} + \text{I}$	32102 T
$\text{Be} + \text{F}$	32112 T		$\text{Rb}^+ + \text{Ar}$	32336 T
$\text{Be} + \text{I}$	32112 T		$\text{Rb}^+ + \text{Be}$	31701 T
$\text{Be}^+ + \text{Kr}$	32336 T		$\text{Rb}^+ + \text{Kr}$	32336 T
$\text{Be}^+ + \text{Be}$	31701 T		$\text{Rb}^+ + \text{Be}$	31701 T
$\text{Be}^+ + \text{Kr}$	32336 T		$\text{Rb}^+ + \text{Be}$	32336 T
$\text{Be}^+ + \text{Be}^+$	32251 E-T		$\text{Rb}^+ + \text{Be}$	32336 T
$\text{Be}^+ + \text{Be}$	31701 T		$\text{Rb} + \text{Be}$	31700 T
$\text{Be}^+ + \text{Ar}$	32336 T 32731 T		$\text{Ti} + \text{Ar}$	32628 T
$\text{Be} + \text{Kr}$	32731 T		$\text{Ti} + \text{Kr}$	32628 T
$\text{Be} + \text{Be}$	31700 T 32731 T		$\text{Ti} + \text{Be}$	32628 T
$\text{Be} + \text{I}$	32731 T		$\text{Zn} + \text{Be}$	31700 T 32731 T
$\text{Be}^+ + \text{Be}$	32126 E-T			

REACTANT ISOTOPES

A18	$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{Be}^{90+} + \text{Rb}$ 01979 T
HEAVY PARTICLES - HEAVY PARTICLE INTERACTIONS	$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{Be}^{90+} + \text{Rb}$ 02209 E
Angular Scattering	$\text{Ca} + \text{Ti}$ 02020 E	$\text{Be}^{90+} + \text{Rb}$ 02062 E
	$\text{B}^- + \text{Kr}$ 02020 E	$\text{Be}^{90+} + \text{Rb}$ 02062 E
$\Delta\epsilon^0 + \text{Kr}$ 02020 E-T	$\text{B}^- + \text{Rb}$ 02060 E	$\text{Be}^{90+} + \text{Rb}$ 02105 T
$\text{Be} + \text{Ge}$ 02020 E	$\text{P} + \text{Rb}$ 01926 T 01925 T	$\text{Be}^{90+} + \text{Rb}$ 01936 E
$\text{Be} + \text{Si}$ 02020 E	$\text{B} + \text{Rb}$ 02300 T	$\text{Be}^{90+} + \text{Rb}$ 01936 E
$\text{Be} + \text{Nb}$ 02020 E	$\text{B} + \text{Rb}$ 02103 E	$\text{Li}^+ + \text{Li}$ 02202 E
$\text{Be} + \text{Sc}$ 02020 E	$\text{B}^+ + \text{Be}$ 02031 T 02227 E 02373 T	$\text{Li}^+ + \text{Rb}$ 01904 T
$\text{Be} + \text{V}$ 02020 E	$\text{B}^+ + \text{C}$ 02201 T 03057 E	$\text{B}^+ + \text{Rb}$ 01792 E
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}^+ + \text{CH}_4$ 02093 T	$\text{B}_2 + \text{Rb}$ 02093 T
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}^+ + \text{H}$ 01793 T 01896 E 02107 T 02452 T 02691 T 02692 T	$\text{Ba} + \text{E}$ 02207 E
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}^+ + \text{H}_2$ 02092 T	$\text{Be}^+ + \text{Li}$ 01904 T
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}^+ + \text{H}_2O$ 02395 T	$\text{Ba} + \text{Rb}$ 02226 T 03361 T
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}^+ + \text{Rb}$ 02109 E-T 02160 T 02322 E-T 02088 E	$\text{Be}^+ + \text{Zn}$ 01935 T
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}^+ + \text{Rb}$ 01995 T 02109 E-T 02227 E 02322 E-T	$\text{Si} + \text{Pb}$ 02010 T
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}^+ + \text{Rb}$ 02227 E 02261 T 02678 T	$\text{Si}^+ + \text{Rb}$ 02010 E
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}^- + \text{Kr}$ 02168 E	$\text{Si}^+ + \text{Ar}$ 02079 E
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}^- + \text{Rb}$ 02168 E 02277 T	$\text{Si}^{10+} + \text{Rb}$ 02020 E
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}_2^+ + \text{C}$ 03057 E	$\text{Si}^{10+} + \text{Al}$ 02020 E
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}_2^+ + \text{H}$ 02172 E-T	$\text{Si}^{10+} + \text{Rb}$ 02020 E
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}_2^+ + \text{C}$ 03057 E	$\text{Si}^{10+} + \text{Rb}$ 02020 E
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$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}^+ + \text{Rb}^+$ 02097 T	$\text{Si}^{10+} + \text{Rb}$ 02020 E
$\text{Be}^{90+} + \text{Kr}$ 02020 E	$\text{B}^+ + \text{C}$ 03057 E	$\text{Si}^{10+} + \text{Rb}$ 02020 E

REACTANT INDEX

$\text{Si}^{100} + \text{Be}$
02928 Z

Under
31436 T 32836 T

A20

HEAVY PARTICLE - HEAVY PARTICLE
INTERACTIONS

Attenuation (unspecified process)

$\text{He}^4 + \text{He}$
31864 Z

Under
32116 T

$\text{He}^4 + \text{He}$
31864 Z

REACTANT INDEX

B01

INTERACTIONS OF ATOMIC PARTICLES WITH FIELDS

Interaction of Individual Atoms or Molecules with External Fields

He	02598 T		$\text{hv} + \text{H}$	02262 E-T
H	01834 T 02128 T 02396 T	01912 E 02129 T 02416 T	Li	02362 T
			Pb	02598 T
He^+	01994 E		Rb	02598 T
Be	02361 T	H -like atoms	Sn	02598 T
Br	02598 T	02011 T	Zn	02598 T
C^{2+}	02635 E	H_2^+	Zn^+	02338 E-T
C^{2+}	02635 E	02396 T	Zn	02598 T
Ca	02630 T	He	Undes	02020 E-T 02227 T 02159 T
Cl	02598 T	01994 E 02056 E		02169 T 02178 T
		He^+		02598 T

B07

INTERACTIONS OF ATOMIC PARTICLES WITH FIELDS

Collisions in Presence of Static or Time Varying Fields

 $\bullet + \text{Be}$ -like ions

02291 T

 $\bullet + \text{H}$

01997 T 02193 T 02461 T

	02552 T		$\text{Al} + \text{Xe}$	02256 T
$\bullet + \text{He}$	02552 T		$\text{Bd}^+ + \text{Bd}$	01828 T
			$\text{Sr} + \text{Ca}$	01973 T
$\text{H}^+ + \text{H}$	02459 T		Undes	01830 T 01929 T 02130 T
		02610 T		02163 T 02332 E 02457 T
$\text{Bd}^+ + \text{Bd}$	02610 T			
$\text{Bd}^+ + \text{Bd}$	02610 T			
$\text{Bd}^+ + \text{Bd}$	02610 T			
$\text{Bd}^+ + \text{Bd}$	02610 T			

C01

PARTICLE PENETRATION IN MACROSCOPIC LATTICE (IONS, NEUTRALS, AND ELECTRONS)

General

$\text{Ar}^{2+} + \text{Hg}$	02753 E		$\text{Bd}^+ + \text{C}$	02766 E
$\text{Ar}^{2+} + \text{Si}$	02753 E		Undes	02437 T

 $\text{Ar}^{2+} + \text{Al}$

02753 E

REACTANT INDEX

CO₂PARTICLE PENETRATION IN MACROSCOPIC
MATERIAL (ATOMS, NEUTRALS, AND ELECTRONS)

Energy Loss and Stopping Power

Al + C
02121 TAl + Li
02121 TLi⁺ + C
03013 TAl⁺ + Ta
02750 TAr⁺ + C
03013 TB⁺ + Ag
02770 E-TB⁺ + Al
02770 E-TB⁺ + Au
02762 E 02770 E-TB⁺ + Bi
02762 E 02770 E-TB⁺ + C
02770 E-T 03013 TB⁺ + Ce
02770 E-TB⁺ + Cr
02770 E-TB⁺ + Dy
02762 EB⁺ + Fe
02770 E-TB⁺ + In
02762 EB⁺ + La
02762 EB⁺ + Li
02762 EB⁺ + Pb
02762 EB⁺ + Pt
02762 EB⁺ + Re
02762 EB⁺ + Si
02770 E-TB⁺ + TiO₂
02761 EB⁺ + Pt
02762 E 02770 E-TB⁺ + Re
02762 EB⁺ + Ta
02762 EB⁺ + Tb
02762 EB⁺ + V
02770 E-TB⁺ + Sr
02770 E-TB⁺ + Ag
02770 E-TB⁺ + Al
02770 E-TB⁺ + Au
02762 E 02770 E-TB⁺ + Bi
02762 E 02770 E-TB⁺ + C
02770 E-T 03013 TB⁺ + Ce
02770 E-TB⁺ + Cr
02770 E-TB⁺ + Dy
02762 EB⁺ + Fe
02770 E-TB⁺ + In
02762 EB⁺ + La
02762 EB⁺ + Lu
02762 EB⁺ + Pb
02762 EB⁺ + Pt
02770 E-TB⁺ + Re
02762 EB⁺ + Si
02770 E-TB⁺ + Tb
02762 EB⁺ + V
02770 E-TB⁺ + Sr
02770 E-TB⁺ + TiO₂
02761 TB⁺ + Al
02762 EB⁺ + Ag
02762 EB⁺ + Ce
02762 EB⁺ + Cr
02762 EB⁺ + Dy
02762 EB⁺ + Fe
02762 EB⁺ + In
02762 EB⁺ + Lu
02762 EB⁺ + Pb
02762 EB⁺ + Pt
02762 EB⁺ + Re
02762 EB⁺ + Si
02762 EB⁺ + Ta
02762 EB⁺ + Tb
02762 EB⁺ + V
02770 E-TCa⁺ + C
03013 TCl⁺ + Al
02925 TCl⁺ + C
02905 T 03013 TCl⁺ + C
02908 ECr⁺ + C
02908 ECs⁺ + C
02797 ECs⁺ + C
03013 TCr⁺ + C
03013 TCs⁺ + Cs
02976 TCs⁺ + C
03013 TCs⁺ + Cs
02668 TD⁺ + Ag
02736 E 02776 ED⁺ + Ar
02776 ED⁺ + Cd₂
02121 T 02123 TD⁺ + Cu
02763 E 02776 ED⁺ + Si
02668 TE⁺ + Al
02320 T 02335 T 02347 TE⁺ + Ar
02526 TE⁺ + C
02335 T 02526 TE⁺ + C
02339 T 02410 T 02982 TE⁺ + Cu
02320 T 02335 T 02347 TE⁺ + Geamp
02682 EE⁺ + Si
02035 TE⁺ + Xe
01867 TF⁺ + C
03013 TGe⁺ + C
03013 TGe⁺ + C
03013 TH⁺ + Ag
02146 E 02736 E 02770 E-T

REACTANT INDEX

H ⁺ + Al	02776 E 02925 E 02971 T	H ⁺ + In	02762 E 02785 T 02925 E	H ⁺ + BaSiP ₂	02909 E
H ⁺ + Al	01953 T 02119 E-T 02133 T	H ⁺ + InP	02989 E	H ⁺ + Re	02785 T 02925 E
	02168 E 02273 E-T 02783 E	H ⁺ + Ir	02756 E	H ⁺ + C	03009 E-T
	02782 T 02925 E 02971 T	H ⁺ + La	02756 E 02762 E 02925 E	H ⁺ + Ag	02736 E 02773 E-T
H ⁺ + Al-Plasma	02119 E-T	H ⁺ + La	02756 E 02762 E 02925 E	H ⁺ + Al	02773 E-T 02783 E 02782 T
		H ⁺ + La	02756 E 02762 E	H ⁺ + Au	02762 E 02770 E-T
H ⁺ + Ar	02119 E-T 02756 E 02762 E	H ⁺ + La	02756 E 02762 E	H ⁺ + Bi	02762 E 02770 E-T
	02773 E-T 02774 E 02776 E	H ⁺ + La	02756 E 02762 E	H ⁺ + Br ₂	02775 E
	02925 E 02985 E	H ⁺ + La	02756 E 02762 E	H ⁺ + C	02276 E 02768 E 02769 E
H ⁺ + Ar-Plasma	02119 E-T	H ⁺ + La	02756 E 02762 E	H ⁺ + CH ₄	02927 E
		H ⁺ + La	01996 E	H ⁺ + Cl ₂	02775 E
H ⁺ + Be	02133 T 02148 E 02971 T	H ⁺ + La	01996 E	H ⁺ + Cr	02773 E-T
		H ⁺ + La	02925 E	H ⁺ + Cu	02773 E-T 02782 E
H ⁺ + Bi	02756 E 02762 E 02773 E-T	H ⁺ + La	02925 E	H ⁺ + Dy	02762 E
		H ⁺ + La	02756 E 02762 E	H ⁺ + Fe	02773 E-T
H ⁺ + Br ₂	02775 E	H ⁺ + La	02756 E 02762 E	H ⁺ + Ge	02764 E
		H ⁺ + La	02756 E 02762 E	H ⁺ + In	02762 E
H ⁺ + C	01953 T 02392 E 02694 E-T	H ⁺ + La	02762 E	H ⁺ + La	02762 E
	02769 E 02770 E-T 02780 E	H ⁺ + La	02762 E	H ⁺ + La	02762 E
	02782 T 02985 E	H ⁺ + La	02762 E	H ⁺ + Li	02771 E-T
H ⁺ + Ca	02785 T 02925 E	H ⁺ + La	02762 E 02773 E-T	H ⁺ + PERT	02693 T 02761 E
		H ⁺ + La	02762 E	H ⁺ + Pt	02762 E 02773 E-T
H ⁺ + Ce	02927 E	H ⁺ + La	02762 E	H ⁺ + Pt	02762 E 02773 E-T
		H ⁺ + La	02762 E	H ⁺ + Re	02762 E
H ⁺ + Cl ₂	02771 E	H ⁺ + La	02762 E	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E	H ⁺ + Re	02762 E
H ⁺ + Co	02392 E	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
H ⁺ + Cr	02770 E-T	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
H ⁺ + Cu	02148 E 02392 E 02763 E	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
	02770 E-T 02776 E 02779 T	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
	02782 T 02925 E 02971 T	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
H ⁺ + Dy	02756 E 02762 E	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
H ⁺ + Fe	02773 E-T	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
H ⁺ + Ga	02925 E	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
H ⁺ + GaAlAs	01775 E	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
H ⁺ + GaP	02989 E	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
H ⁺ + Ge	02925 E	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
H ⁺ + Ge	02925 E	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
H ⁺ + H ₂ O	01996 E	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
H ⁺ + H ₂	02271 T	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
H ⁺ + He	02271 T	H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E
		H ⁺ + La	02762 E 02773 E-T	H ⁺ + Re	02762 E

REACTANT INDEX

$\text{Be}^{2+} + \text{Ag}$		$\text{Li}^+ + \text{La}$		$\text{Pb} + \text{Au}$	
02128 T	02972 T	02762 E		01866 E-T	
$\text{Be}^{2+} + \text{C}$		$\text{Li}^+ + \text{Lu}$		$\text{Pb} + \text{C}$	
02369 E	02972 T	02762 E		01866 E-T	
$\text{Be}^{2+} + \text{Si}$		$\text{Li}^+ + \text{Md}$		$\text{Pb} + \text{Cr}$	
02294 T		02762 E		01866 E-T	
$\text{Be}^{2+} + \text{C}$		$\text{Li}^+ + \text{Ni}$		$\text{Pb} + \text{Fe}$	
03039 E-T		02773 E-T		01866 E-T	
$\text{X}^+ + \text{Au}$		$\text{Li}^+ + \text{PEFT}$		$\text{Pb} + \text{Ag}$	
03300 T		02761 E		01866 E-T	
$\text{K}^+ + \text{C}$		$\text{Li}^+ + \text{Pt}$	02773 E-T	$\text{Pb} + \text{Ba}$	
033013 T		02762 E		01866 E-T	
$\text{Kr} + \text{Ag}$		$\text{Li}^+ + \text{Re}$		$\text{Pb} + \text{Bi}$	
01866 E-T		02762 E		01866 E-T	
$\text{Kr} + \text{Au}$		$\text{Li}^+ + \text{Ta}$		$\text{Pb} + \text{Pb}$	
01866 E-T		02762 E		01866 E-T	
$\text{Kr} + \text{C}$		$\text{Li}^+ + \text{Tb}$		$\text{Pb} + \text{Sc}$	
01866 E-T		02762 E		01866 E-T	
$\text{Kr} + \text{Cu}$		$\text{Li}^+ + \text{V}$		$\text{Pb} + \text{Ti}$	
01866 E-T		02773 E-T		01866 E-T	
$\text{Kr} + \text{Fe}$		$\text{Li}^+ + \text{Zn}$		$\text{Pb} + \text{V}$	
01866 E-T		02773 E-T		01866 E-T	
$\text{Kr} + \text{Ag}$		$\text{Li}^{2+} + \text{C}$	02272 T 02369 E	$\text{Pb} + \text{Zr}$	
01866 E-T		02272 T	02369 E	01866 E-T	
$\text{Kr} + \text{Ba}$		$\text{Hg}^+ + \text{C}$	033013 T	$\text{Pb}^2+ + \text{Al}$	
01866 E-T		033013 T		02758 T	
$\text{Kr} + \text{Bi}$		$\text{Hg}^+ + \text{C}$	033013 T	$\text{PbZn}^{2+} + \text{PbZn}$	
01866 E-T		033013 T		02912 T	
$\text{Kr} + \text{Pb}$		$\text{Hg}^+ + \text{Cl}$	02293 T	$\text{Sr}^+ + \text{C}$	
01866 E-T		02293 T		033013 T	
$\text{Kr} + \text{Sc}$		$\text{Hg}^+ + \text{Au}$	02786 T	$\text{Sr}^+ + \text{C}$	
01866 E-T		02786 T		033013 T	
$\text{Kr} + \text{Ti}$		$\text{Hg}^+ + \text{C}$	033013 T	$\text{Sr}^+ + \text{Ag}$	
01866 E-T		033013 T		02773 T	
$\text{Kr} + \text{V}$		$\text{Hg}^+ + \text{PEFT}$	02761 E	$\text{Si}^+ + \text{Si}$	
01866 E-T		02761 E		02970 T	
$\text{Kr} + \text{Zr}$		$\text{Hg}^+ + \text{Al}$	02782 T	$\text{Si}^+ + \text{C}$	
01866 E-T		02782 T	033013 T	033013 T	
$\text{Li}^+ + \text{Ag}$		$\text{Hg}^+ + \text{C}$	02782 T 033013 T	$\text{Ti}^+ + \text{C}$	
02773 E-T		02782 T		033013 T	
$\text{Li}^+ + \text{Al}$	02773 E-T	$\text{Hg}^+ + \text{Cu}$	02782 T	$\text{U} + \text{Ag}$	
		02782 T		01866 E-T	
$\text{Li}^+ + \text{Au}$	02762 E	$\text{Hg}^+ + \text{C}$	033013 T	$\text{U} + \text{Au}$	
02773 E-T	02770 E-T	02668 T		01866 E-T	
$\text{Li}^+ + \text{Al}$	02762 E	$\text{Hg}^+ + \text{Ho}$	02668 T	$\text{U} + \text{C}$	
02770 E-T	03013 T			01866 E-T	
$\text{Li}^+ + \text{C}$	02768 E	$\text{Hg}^+ + \text{C}$	033013 T	$\text{U} + \text{Cr}$	
02773 E-T		02937 E		01866 E-T	
$\text{Li}^+ + \text{Ce}$	02768 E	$\text{O}^+ + \text{Al}$	02937 E	$\text{U} + \text{Fe}$	
02773 E-T		02937 E		01866 E-T	
$\text{Li}^+ + \text{Cd}$	02773 E-T	$\text{O}^+ + \text{C}$	02777 E 02797 E 02905 T	$\text{U} + \text{Ag}$	
		02777 E	02797 E	01866 E-T	
$\text{Li}^+ + \text{Dy}$	02762 E	$\text{O}^+ + \text{C}$	02905 T	$\text{U} + \text{Ho}$	
02770 E-T		033013 T		01866 E-T	
$\text{Li}^+ + \text{Fe}$	02760 E	$\text{Pb} + \text{Ag}$	02766 E-T	$\text{U} + \text{Si}$	
02770 E-T		02766 E-T		01866 E-T	
$\text{Li}^+ + \text{In}$	02762 E				

REACTANT INDEX

$\text{U} + \text{Pb}$	01866 E-T	$\text{Xe} + \text{Ba}$	01866 E-T
$\text{U} + \text{Sn}$	01866 E-T	$\text{Xe} + \text{Bi}$	01866 E-T
$\text{U} + \text{Tl}$	01866 E-T	$\text{Xe} + \text{Pb}$	01866 E-T
$\text{U} + \text{V}$	01866 E-T	$\text{Xe} + \text{Sn}$	01866 E-T
$\text{U} + \text{Zr}$	01866 E-T	$\text{Xe} + \text{Tl}$	01866 E-T
$\text{V}^+ + \text{C}$	03313 T	$\text{Xe} + \text{V}$	01866 E-T
$\text{U} + \text{Ag}$	01866 E-T	$\text{Xe} + \text{Zr}$	01866 E-T
$\text{U} + \text{Au}$	01866 E-T	$\text{Xe}^+ + \text{H}$	02668 T
$\text{U} + \text{C}$	01866 E-T	$\text{Xe}^+ + \text{C}$	03313 T
$\text{U} + \text{Ca}$	01866 E-T	Xe^+	02980 T
$\text{U} + \text{Fe}$	01866 E-T	Under	02110 T 02275 T 02636 T
$\text{U} + \text{Mg}$	01866 E-T		02771 T 02992 T
$\text{U} + \text{Bo}$	01866 E-T		

CO3

PARTICLE PENETRATION IS MACROSCOPIC
ATTER (IONS, NEUTRALS, AND ELECTRONS)

Energy to Create an Ion Pair

 $\text{Pb} + \text{Si}$
02783 E-T Under
02787 T $\text{K}^+ + \text{Si}$
02783 E-T

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REACTANT INDEX

C65

PARTICLE PENETRATION IN MACROSCOPIC
MATERIAL (IONS, NEUTRALS, AND ELECTRONS)

Multiple Scattering

 He^+ + Al
32759 E C^+ + C
32613 E Cl^+ + Al
32759 E CO^+ + C
32613 E e^- + Al
02367 T e^- + C
02610 T e^- + Ca
02367 T P^{2+} + C
32678 E P^{2+} + C
32678 E P^{2+} + C
32678 E Fe^+ + Al
32759 E He^+ + C
32782 T He^+ + Al
32782 T He^+ + Ar
32924 E He^+ + C
32782 T He^+ + Ca
32782 T He^+ + D_2
32924 E He^+ + E_2
32924 E He^+ + Ne
32924 E He^+ + O_2
32924 E He^+ + N_2
32924 E He^+ + F_2
01920 T He_{α}^+ + C
02766 E 02767 T 03009 E-T He^+ + Al
32782 T He^+ + C
32782 T He^+ + Ca
32782 T He^+ + Ta_{2}O_5
32782 E He^+ + C
32767 T 03339 E-T He^+ + Ca
32886 E He^+ + Al
32782 T He^+ + C
32782 T He^+ + Cu
32782 T He^+ + Au
32759 E Si^+ + Au
32759 E Si^+ + Al
32759 E Si^+ + Au
32759 E Si^+ + Cu
32759 E PbSi^+ + Si
02761 T Si^+ + Au
32759 E Si^{1+} + C
32678 E Si^{1+} + C
32678 E Si^{1+} + C
32678 E Ti^+ + Au
32759 E Undef
32830 T

REACTANT INDEX

C66			
PARTICLE PENETRATION IN MACROSCOPIC MATERIAL (DENS, NEUTRALS, AND ELECTRONS)			
Charge State Population			
Al + C	02121 T		
B ⁺ + C	02842 T		
B ⁻ + C	02792 E		
C + Ne	02121 T		
C + Li	02121 T		
C + B ₃	02155 E		
C + Ne	02155 E		
C ⁺ + C	02813 E 02842 T 02930 E		
C ⁺ + B ₃	02155 E		
C ⁺ + Ne	02155 E		
C ⁺ + O ₂	02930 T		
C ⁺ + B ₂	02155 E		
C ⁺ + Ne	02155 E		
C ⁺ + Be	02155 E		
C ⁺ + O ₂	02930 T		
C ⁺ + B ₂	02155 E		
C ⁺ + Ne	02155 E		
C ⁺ + O ₂	02930 T		
C ⁺ + B ₂	02155 E		
C ⁺ + Ne	02155 E		
C ⁺ + C	01116 T		
C ⁺ + C	01116 E 02800 E		
C ⁺ + C	01116 T 02121 F-T		
C ⁺ + C	01921 E		
Cl + Ag	01863 E		
Cl + Al	01863 E		
Cl + Au	01863 E		
Cl + Be	01863 T		
Cl + B ₃	01863 T		
Cl + C	01863 T		
Cl + Cr	01863 E		
Cl + Ca	01863 E		
Cl + Fe	01863 E		
Cl + Ga	01863 E		
Cl + Sc	01863 E		
Cl + Mg	01863 E		
Cl + Ba	01863 E		
Cl + Bi	01863 E		
Cl + Pb	01863 E		
Cl + Se	01863 E		
Cl + Sm	01863 E		
Cl + Te	01863 E		
Cl + Ti	01863 E		
Cl + Tb	01863 E		
Cl + Tr	01863 E		
Cl + C	02930 E		
Cl ⁺⁺ + O ₂	02930 E		
Cl ⁺⁺ + C	02881 E		
Cl ⁺⁺ + C	02881 E 02908 E		
Cl ⁺⁺ + C	02881 E		
Cl ⁺⁺ + C	02881 E 02908 E		
Cl ⁺⁺ + C	02881 E		
Cl ⁺⁺ + C	02881 E		
Cl ⁺⁺ + C	02881 E 02881 E		
Cl ⁺⁺ + C	02881 E		
Cl ⁺⁺ + C	02881 E 02908 E		
Cl ⁺⁺ + C	02881 E		
Cl ⁺⁺ + C	02881 E		
Cl ⁺⁺ + C	02881 E 02908 E		
Cl ⁺⁺ + C	02881 E		
Cl ⁺⁺ + C	02881 E		
Cl ⁺⁺ + C	02881 E 02908 E		
Cl ⁺⁺ + C	02881 E		
Cl ⁺⁺ + C	02881 E		
D ⁺ + C	02851 E		
D ₂ ⁺ + Ar	01909 E		
D ₂ ⁺ + B ₃	01909 E		
F ⁺⁺ + C	02678 E		
F ⁺⁺ + C	02678 E		
F ⁺⁺ + C	02678 E		
F ⁺⁺ + PmT	01906 E		
F ⁺⁺ + C	02678 E		
F ⁺⁺ + PmT	01906 E		
H ⁺ + C	02833 E		
H ⁺ + Al	02666 T		
H ⁺ + C	02929 E		
H ⁺ + Ce	01832 E		
H ⁻ + Ba	01918 E		
H ₂ ⁺ + C	02803 E		
H ₂ ⁺ + C	02803 E		
H ₂ ⁺ + C	02803 E 02928 E		
H ₂ ⁺ + Al	02666 T		
Li ⁺ + Al	02839 T		
Li ⁺ + Au	02839 T		
Li ⁺ + Ba	02439 T		
H + Ar	02155 E		
H + B ₃	02155 E		
H + Ne	02155 E		
H + O ₂	02155 E		
H ⁺ + Ar	02155 E		
H ⁺ + C	02928 E		
H ⁺ + H ₂	02155 E 02842 T		
H ⁺ + Ne	02155 E		
H ⁺ + O ₂	02155 T		

REACTANT INDEX

$\text{Be}^{2+} + \text{Ar}$	$\text{O} + \text{E}_2$	$\text{Si} + \text{B}_2$
$\text{Be}^{2+} + \text{B}_2$	$\text{O} + \text{E}_2$	$\text{Si} + \text{B}_2$
$\text{Be}^{2+} + \text{B}_2$	$\text{O}^+ + \text{Ar}$	$\text{Si} + \text{B}_2$
$\text{Be}^{2+} + \text{O}_2$	$\text{O}^+ + \text{B}_2$	$\text{Si} + \text{B}_2$
$\text{Be}^{2+} + \text{Ar}$	$\text{O}^+ + \text{O}_2$	$\text{Si} + \text{B}_2$
$\text{Be}^{2+} + \text{B}_2$	$\text{Si} + \text{B}_2$	$\text{Si} + \text{B}_2$
$\text{Be}^{2+} + \text{B}_2$	$\text{Si} + \text{Al}$	$\text{Si} + \text{B}_2$
$\text{Be}^{2+} + \text{O}_2$	$\text{Si} + \text{Ar}$	$\text{Si} + \text{B}_2$
$\text{Be} + \text{B}_2$	$\text{Si} + \text{B}_2$	$\text{Si} + \text{B}_2$
$\text{Be} + \text{B}_2$	$\text{Si} + \text{B}_2$	$\text{Si} + \text{B}_2$
$\text{Be} + \text{B}_2$	$\text{Si} + \text{B}_2$	$\text{Si} + \text{B}_2$
$\text{Be} + \text{B}_2$	$\text{Si} + \text{B}_2$	$\text{Si} + \text{B}_2$
$\text{Be} + \text{B}_2$	$\text{Si} + \text{C}$	$\text{Si}^{1+0} + \text{C}$
$\text{Be} + \text{B}_2$	$\text{Si} + \text{Cr}$	$\text{Si}^{1+0} + \text{C}$
$\text{Be} + \text{B}_2$	$\text{Si} + \text{Cu}$	$\text{Si}^{1+0} + \text{C}$
$\text{Be} + \text{B}_2$	$\text{Si} + \text{Fe}$	$\text{Si} + \text{Ca}$
$\text{Be} + \text{B}_2$	$\text{Si} + \text{Ge}$	$\text{Si} + \text{Be}$
$\text{Be} + \text{B}_2$	$\text{Si} + \text{KCl}$	$\text{Si} + \text{Tc}$
$\text{O} + \text{Ar}$	$\text{Si} + \text{B}_2$	$\text{Si} + \text{B}_2$

REACTANT INDEX

C07

PARTICLE PENETRATION IN MACROSCOPIC MATTER (NEUTRALS, AND ELECTRONS)

Excited State Penetration

 $\text{Ar}^{2+} + \text{Al}$
02753 E $\text{Ar}^{2+} + \text{B}_2$
02753 E $\text{Ar}^{2+} + \text{Si}$
02753 E

$\text{D}^+ + \text{C}$	02851 E	02803 E
$\text{E} + \text{C}$	02853 E	$\text{B}_{\alpha}^+ + \text{C}$ 01950 E 02853 E
$\text{E}^+ + \text{Al}$	02845 T 02793 T	$\text{B}_{\alpha}^+ + \text{C}$ 01950 E
$\text{E}^+ + \text{C}$	01950 E 01951 E 02329 E	$\text{B}_{\alpha}^+ + \text{C}$ 01950 E
	02845 T 02852 E	$\text{Si}^{2+} + \text{C}$ 01950 E
$\text{E}_{\alpha}^+ + \text{C}$	01950 E 01951 E 02329 E	$\text{Si}^{2+} + \text{C}$ 02100 E
	02852 E 02853 E	
$\text{E}_{\alpha}^+ + \text{C}$	01951 E 02329 E 02852 E	

D01

PARTICLE INTERACTIONS WITH SOLID SURFACES

General

 $\text{E} + \text{Al}$
02719 T $\text{E} + \text{B}$
02719 T $\text{E} + \text{Be}$
02719 T $\text{E} + \text{C}$
02719 T $\text{E} + \text{Cu}$
02719 T

$\text{E} + \text{Fe}$	02719 T	$\text{E} + \text{V}$	02719 T
$\text{E} + \text{Incopol}$	02719 T	$\text{E} + \text{W}$	02719 T
$\text{E} + \text{Ni}$	02719 T	$\text{E} + \text{Zr}$	02719 T
$\text{E} + \text{Si}$	02719 T	$\text{E}_{\alpha} + \text{D}_2 + \text{PC}$	02303 E
$\text{E} + \text{Si}$	02719 T	$\text{E}_{\alpha}^+ + \text{Ba}$	01320 T
$\text{E} + \text{SS}$	02719 T 02721 E 02722 T	$\text{E} + \text{H}$	02803 T
$\text{E} + \text{Ta}$	02719 T	$\text{E}_{\alpha} + \text{H}$	02803 T
$\text{E} + \text{Tl}$	02719 T	Unkn	02720 T 02822 T 02973 T

REACTANT INDEX

Ar ⁺	Si	Cu	Ar ⁺ + Si + Cu 32976 E-T	Cr ⁺ + Cr + Si 32859 E	
PARTICLE INTERACTIONS WITH SOLID SURFACES					
Spottering by Electrons, Neutrons, and Heavy Particles (total removal coefficients)			Ar ⁺ + Si ₂ C 32863 E	D ⁺ + Si 32856 E	
			Ar ⁺ + Si ₂ Pd 32867 E	D ⁺ + SiC 32713 E	
			Ar ⁺ + SiPd 32861 E	D ⁺ + Si 32713 E	
Ar + Si			Ar ⁺ + Si + Al 32863 E	D ⁺ + C 32745 E 32769 E 32851 E	
Ar ⁺ + Si 32872 E	32876 E		Ar ⁺ + Si + Al 32863 E	D ⁺ + Si 32856 E 32868 E 32977 E	
Ar ⁺ + Al 32863 E			Ar ⁺ + Si 31776 E-T 32113 E-T 32854 E 32861 E	D ⁺ + Si 32853 E 32868 E 32977 E	
Ar ⁺ + In 32735 E	32994 E	33339 E	Ar ⁺ + SiO _x 32829 E	D ⁺ + SiO _x 32709 E	
Ar ⁺ + In-Cu 33339 E			Ar ⁺ + SiO _x 32746 E	D ⁺ + SiO _x 32713 E	
Ar ⁺ + C 32715 E	32717 E	32865 E-T	Ar ⁺ + Si 32863 E	D ⁺ + SiO _x 32713 E	
Ar ⁺ + Cl ₂ 32566 E			Ar ⁺ + SiO _x 32837 E	D ⁺ + SiO _x 32709 E	
Ar ⁺ + Cl ₂ + Si 32700 E			Ar ⁺ + Tb 32875 E	D ⁺ + Tb 32851 E	
Ar ⁺ + Cd 32566 E			Ar ⁺ + Zn 32862 E	D ⁺ + ZnC 32709 E	
Ar ⁺ + Cr ₂ O ₃ 32735 E			Ar ⁺ + Cu 32878 E-T	D ⁺ + TiB ₂ 32709 E	
Ar ⁺ + Cr 32876 E			Si ⁺ + Cu 32861 E	D ⁺ + TiC 32713 E	
Ar ⁺ + Cu 02867 T 32870 E 32874 T 32879 E 32975 E 32988 T 32990 T 33010 E 33034 E 33339 E			C ⁺ + C 32717 E	D ⁺ + SiO _x 32713 E	
Ar ⁺ + Cu + Ag 02871 E			C ⁺ + Co 32687 E	D ⁺ + SiO _x 32713 E	
Ar ⁺ + Cu + Li 02716 E			Cl ⁺ + Al ₂ O ₃ 32852 E	D ⁺ + SiO _x 32713 E	
Ar ⁺ + Cu + Pt 02866 E			Cl ⁺ + CaP ₂ 32852 E	D ⁺ + SiO _x 32713 E	
Ar ⁺ + CoPt 02861 E			Cl ⁺ + InP 32852 E	D ⁺ + SiO _x 32713 E	
Ar ⁺ + B ₂ O 02706 E	03002 E		Cl ⁺ + LiNbO ₃ 32852 E	D ⁺ + SiO _x 32713 E	
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Ar ⁺ + B ₂ O 02566 E	02786 E		Cl ⁺ + Si 32852 E	D ⁺ + SiO _x 32713 E	
Ar ⁺ + Re 02907 E			Cl ⁺ + SiO _x 32852 E	D ⁺ + SiO _x 32713 E	
Ar ⁺ + Re 03770 E-T 02715 E			Cl ⁺ + SiO _x 32852 E	D ⁺ + SiO _x 32713 E	
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R + TiB ₂ 32713 E	Re ⁺ + Ba 32713 E	Re ⁺ + Si 32113 E-T
Re ⁺ + Ba 32263 T 32856 T	Re ⁺ + C 32715 E 32769 E	Re ⁺ + Si 32113 E-T
Re ⁺ + B 32769 E	Re ⁺ + Cd ₂ 32766 E	Re ⁺ + Si 32063 T
Re ⁺ + BaC 32713 E 32769 E	Re ⁺ + BaO 32766 E 33342 E	Re ⁺ + C 32715 E
Re ⁺ + Ba 32349 T 32713 E	Re ⁺ + Fe 32931 T	Re ⁺ + Cd ₂ 32766 E
Re ⁺ + C 32717 E 32769 E	Re ⁺ + Fe + C 32931 T	Re ⁺ + Cu 32873 E
Re ⁺ + Cu 32667 E	Re ⁺ + HgO 32766 E	Re ⁺ + B ₂ O 32766 E 33342 E
Re ⁺ + Co + SS 32712 E	Re ⁺ + Ba 32715 E 32856 T 32997 T	Re ⁺ + B ₂ O 32766 E
Re ⁺ + C + C 32686 E	Re ⁺ + HgO ₂ 32769 E 32977 T	Re ⁺ + Ba 31774 E-T 32715 E
Re ⁺ + Fe 32349 T	Re ⁺ + BI 32525 T 32851 T 32856 T	Re ⁺ + BI 32525 T 32851 T
Re ⁺ + Ba 32856 T 32997 T	Re ⁺ + PbBr ₂ 32854 T	Re ⁺ + BI + Cu 32976 E-T
Re ⁺ + BaO ₂ 32769 E 32977 T	Re ⁺ + SiC 32713 E	Re ⁺ + Si 31774 E-T
Re ⁺ + BI 32525 T 32851 T 32856 T 32867 T 32997 T	Re ⁺ + SO ₂ 32766 E	Re ⁺ + SO ₂ 32766 E
Re ⁺ + PbBr ₂ 32854 T	Re ⁺ + Ta 32997 T	BI ⁺ + Cu + BI 32859 T
Re ⁺ + Si ₃ N ₄ 32363 E	Re ⁺ + TaC 32769 E	O ⁺ + C 32715 E 32717 E
Re ⁺ + SiC 32713 E	Re ⁺ + TiB ₂ 32769 E	O ⁺ + Ba 32715 E
Re ⁺ + Ta 32997 T	Re ⁺ + TiAC 32711 E	O ⁺ + TI-BI 33327 E
Re ⁺ + TaC 32769 E	Re ⁺ + B 32856 T 32977 T	PbBr ² + PbBr ₂ 32973 T 33331 T
Re ⁺ + TiB ₂ 32769 E	Re ⁺ + Br 32337 T 32365 E 32862 E	SB + Ag 32032 E
Re ⁺ + TiC 32713 E	Re ⁺ + Cu 32667 E	SB ⁺ + Au 32874 T
Re ⁺ + V 32856 T 32977 T	Re ⁺ + C 32715 E	T ⁺ + BaC 32713 E
Re ⁺ + ZE 32862 E	Re ⁺ + Cu 32873 E	T ⁺ + Ba 32713 E
Re ⁺ + Si ₃ N ₄ 32363 E	Re ⁺ + Ba 31774 E-T 32715 E	T ⁺ + SiC 32713 E
Re ⁺ + C 32345 T	Re ⁺ + Si 31774 E-T 32713 E-T	T ⁺ + TiC 32713 E
Re ⁺ + BI 32363 T	Re ⁺ + V ₂ Si 32679 E	T ⁺ + Cu 32870 E-T
Re ⁺ + Au 32456 T	Re ⁺ + V ₂ Si 32679 E	U + U 31773 E-T
Re ⁺ + B 32769 E	Re ⁺ + VS ₂ 32679 E	U ⁺ + U 31773 E-T

RECENT ISSUES

Σ^{+} + Δ^{+}
02303 T 02057 T

Σ^{+} + Ξ^{0}
02057 T

Σ^{+} + C
02715 T

Σ^{+} + $C\bar{C}$
02072 T 02996 T

Σ^{+} + DC
02957 T

Σ^{+} + Ξ^{+}
01774 P-T 02715 T

Σ^{+} + $B\bar{L}$
02525 T 02051 T

Σ^{+} + $D\bar{D}$
02746 T

Σ^{+} + $S\bar{L}$
01774 P-T 02054 T

Ξ^{+} + Ξ^{+}
02635 L-T 02636 L-T 02983 T
02936 T 03005 E-T

Ξ^{+} + Ξ^{+}
02349 T 02645 T 02669 T
02688 T 02682 T 02926 T
02969 T 02995 T 03033 T

REACTOR ISOTOPES

Be3	$\Delta E^+ + \text{Li}_2\text{O}_2$ 02138 E	$D^+ + \text{He}$ 02337 E
PARTICLE INTERACTIONS WITH SOLID SURFACES	$\Delta E^+ + \text{LiAlO}_2$ 02780 E-T	$D^+ + \text{Be}$ 02337 E
Scattered Particle Charge and Energy (excited) State Distribution	$\Delta E^+ + \text{La}_2\text{O}_3$ 02138 E	$E_{\alpha}^+ + \text{Co}$ 02650 E
	$\Delta E^+ + \text{B}_2$ 02805 E	$E_{\alpha}^+ + \text{B}_2\text{O}$ 02650 E
$\Delta E^+ + \text{Mg}$ 02657 E 02781 E 02839 E	$\Delta E^+ + \text{B}_2\text{O}_2$ 02138 E	$E_{\alpha}^+ + \text{B}_2\text{O}_2$ 02650 E
$\Delta E^+ + \text{Al}$ 02783 E 03064 E 03074 E	$\Delta E^+ + \text{B}_2\text{O}_3$ 02138 E	$E_{\alpha}^+ + \text{Co}$ 02650 E
$\Delta E^+ + \text{Al}_2\text{O}_3$ 02138 E	$\Delta E^+ + \text{B}_2\text{O}_4$ 02138 E	$E_{\alpha}^+ + \text{B}_2\text{O}_4$ 02650 E
$\Delta E^+ + \text{Si}$ 02839 E	$\Delta E^+ + \text{B}_2\text{O}_5$ 02850 E	$E_{\alpha}^+ + \text{B}_2\text{O}_5$ 02650 E
$\Delta E^+ + \text{B}$ 02805 E	$\Delta E^+ + \text{B}_3$ 03074 E	$E_{\alpha}^+ + \text{B}_3\text{O}$ 02673 E-T
$\Delta E^+ + \text{B}_2\text{O}_2$ 02138 E	$\Delta E^+ + \text{B}_3\text{O}_2$ 02138 E 02873 E-T	$E_{\alpha}^+ + \text{Ti}$ 02752 E
$\Delta E^+ + \text{B}_2$ 02805 E	$\Delta E^+ + \text{O} + \text{Al}$ 02864 E	$E_{\alpha}^+ + \text{Zr}$ 02337 E
$\Delta E^+ + \text{B}_2\text{O}$ 02138 E	$\Delta E^+ + \text{PbO}$ 02138 E	$I_{\alpha}^+ + \text{Ag}$ 03523 E
$\Delta E^+ + \text{B}_2\text{O}_2$ 02138 E	$\Delta E^+ + \text{Pb}_2\text{O}_3$ 02138 E	$I_{\alpha}^+ + \text{Al}$ 03523 E
$\Delta E^+ + \text{Ca}$ 02353 E	$\Delta E^+ + \text{Si}$ 02877 E	$I_{\alpha}^+ + \text{Au}$ 03523 E
$\Delta E^+ + \text{CaO}$ 02138 E	$\Delta E^+ + \text{SiO}_2$ 02138 E	$I_{\alpha}^+ + \text{C}$ 03523 E
$\Delta E^+ + \text{CaO}_2$ 02138 E	$\Delta E^+ + \text{Si}_2\text{O}_5$ 02138 E	$I_{\alpha}^+ + \text{Cd}$ 03523 E
$\Delta E^+ + \text{Co}$ 02850 E	$\Delta E^+ + \text{SnO}_2$ 02138 E	$I_{\alpha}^+ + \text{Co}$ 03523 E
$\Delta E^+ + \text{CoO}$ 02138 E	$\Delta E^+ + \text{V}$ 02752 E	$I_{\alpha}^+ + \text{Cr}$ 03523 E
$\Delta E^+ + \text{Cs}$ 02353 E 02657 E 02781 E	$\Delta E^+ + \text{VIO}_2$ 02138 E	$I_{\alpha}^+ + \text{Fe}$ 03523 E
$\Delta E^+ + \text{Cr}_2\text{O}_3$ 02138 E	$\Delta E^+ + \text{V}_2\text{O}_5$ 02138 E	$I_{\alpha}^+ + \text{Hg}$ 03023 E
$\Delta E^+ + \text{Cs}$ 02657 E 02781 E 02839 E 03010 E 03074 E	$\Delta E^+ + \text{VO}_2$ 02138 E	$I_{\alpha}^+ + \text{In}$ 03523 E
$\Delta E^+ + \text{CsI}$ 02398 E	$\Delta E^+ + \text{SnO}_2$ 02138 E	$I_{\alpha}^+ + \text{Hg}$ 03023 E
$\Delta E^+ + \text{CsO}$ 02108 E	$\Delta E^+ + \text{Zr}$ 02657 E 02781 E	$I_{\alpha}^+ + \text{Nb}$ 02690 E 03023 E
$\Delta E^+ + \text{Fe}$ 02352 E 02680 E	$\Delta E^+ + \text{Co}$ 02738 E	$I_{\alpha}^+ + \text{Si}$ 02690 E 03023 E
$\Delta E^+ + \text{Fe}_2\text{O}_3$ 02108 E	$\Delta E^+ + \text{Nb}$ 02738 E	$I_{\alpha}^+ + \text{O}_2 + \text{Nb}$ 02690 E
$\Delta E^+ + \text{Ga}_2\text{O}_3$ 02784 E-T	$\Delta E^+ + \text{Ta}$ 02738 E	$I_{\alpha}^+ + \text{O}_2 + \text{Si}$ 02690 E
$\Delta E^+ + \text{GeO}_2$ 02108 E	$C^+ + \text{Si}$ 03048 E	$I_{\alpha}^+ + \text{O}_2 + \text{Ti}$ 02690 E
$\Delta E^+ + \text{Hg}$ 02850 E	$CO^+ + \text{Si}$ 03048 E	$I_{\alpha}^+ + \text{Pb}$ 03023 E

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In^+ + Pt	O_2^+ + Si	O_2^+ + Bd
03023 E	02692 E	03023 E
In^+ + Sb	O_2^+ + $\text{Si} + \text{P}$	O_2^+ + Si
03023 E	02693 E	03023 E
In^+ + Si	O_2^+ + SiO	O_2^+ + Pb
03023 E	02673 E-T	03023 E
In^+ + $\text{Si} + \text{O}$	$\text{O}^+ + \text{Si}$	O_2^+ + Pt
02763 E	03048 E	03023 E
In^+ + Ta	O_2^+ + Ag	O_2^+ + Sb
03023 E	03023 E	03023 E
In^+ + Ta	O_2^+ + Al	O_2^+ + Si
03023 E	03023 E	02739 E - 03023 E
In^+ + Ti	O_2^+ + Au	O_2^+ + Ta
02698 E	03023 E	03023 E
In^+ + V	O_2^+ + C	O_2^+ + Ta
03023 E	03023 E	03023 E
In^+ + W	O_2^+ + Cd	O_2^+ + Ti
03023 E	03023 E	03023 E
In^+ + Zn	O_2^+ + Co	O_2^+ + V
03023 E	03023 E	03023 E
K^+ + Ca	O_2^+ + Cu	O_2^+ + W
02353 E	03023 E	03023 E
K^+ + Cr	O_2^+ + Fe	O_2^+ + Zn
02353 E	03023 E	03023 E
$\text{Li} + \text{K} + \text{V}$	O_2^+ + GaAs	$\text{U} + \text{U}$
03024 E	02739 E	01773 E-T
$\text{Li} + \text{O} + \text{V}$	O_2^+ + Ge	$\text{U} + \text{U}$
03024 E	02739 E	01773 E-T
$\text{H}^+ + \text{Si}$	O_2^+ + Ho	$\text{In}^+ + \text{Si}$
03048 E	03023 E	02877 E
$\text{H}_2^+ + \text{Al}$	O_2^+ + In	Undef
02832 E	03023 E	02663 T 02699 T 02831 T
$\text{O}_2^+ + \text{C}$	O_2^+ + Bd	02862 T
02832 E	03023 E	

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PARTICLE INTERACTIONS WITH SOLID SURFACES

Secondary Electron Ejection by Heavy Particles and Electrons

 $\text{Ar}^+ + \text{Al}$
02303 E 02693 E-T 02718 E
02833 E 02843 E 02844 E
03017 E $\text{Ar}^+ + \text{Au}$
02848 E $\text{Ar}^+ + \text{B}$
02848 E $\text{Ar}^+ + \text{Br}$
02453 E 02848 E $\text{Ar}^+ + \text{Ca}$
02693 E-T $\text{Ar}^+ + \text{Fe}$
02718 E $\text{Ar}^+ + \text{Fe-Al}$
03325 E $\text{Ar}^+ + \text{Mg}$
02303 E 02693 E-T 02844 E
02848 E $\text{Ar}^+ + \text{Ni} + \text{Fe}$
02754 E $\text{Ar}^+ + \text{Si}$
02718 E 02843 E 02844 E $\text{C}^+ + \text{C}$
02797 E $\text{CO}^+ + \text{C}$
02765 E 02797 E $e^- + \text{Cl}$
02605 E $e^- + \text{CaBr}$
02695 E $e^- + \text{CaCl}$
02695 E $e^- + \text{D}_2$
02929 E $e^- + \text{H}_2$
02929 E $e^- + \text{KCl}$
02695 E $e^- + \text{La}$
02355 E $e^- + \text{LiP}$
02695 E $e^- + \text{NaCl}$
02695 E $e^- + \text{Ne}$

02929 E

 $e^- + \text{SiO}$

03323 E

 $\text{He}^+ + \text{C}$

02795 E 02796 E

 $\text{He}^+ + \text{He}$

02795 E

 $\text{He}^+ + \text{Al}$

02718 E

 $\text{He}^+ + \text{Au}$

02751 E 02830 E

 $\text{He}^+ + \text{C}$

02796 E 02831 E

 $\text{He}^+ + \text{Fe}$

02718 E

 $\text{He}^+ + \text{He}$

02795 E

 $\text{He}^+ + \text{Ni}$

02751 E

 $\text{He}^+ + \text{Si}$

02667 E 02718 E 02751 E

 $\text{H}_2^+ + \text{Au}$

02834 E

 $\text{H}_2^+ + \text{C}$

02796 E 02831 E

 $\text{H}_2^+ + \text{C}$

02831 E

 $\text{H}_2^+ + \text{Au}$

02834 E

 $\text{H}_2^+ + \text{Al}$

02718 E

 $\text{He}^+ + \text{Au}$

02751 E 02834 E

 $\text{He}^+ + \text{C}$

02831 E

 $\text{He}^+ + \text{Fe}$

02718 E

 $\text{He}^+ + \text{Ni}$

02751 E

 $\text{He}^+ + \text{Ni} + \text{Fe}$

02754 E

 $\text{He}^+ + \text{Si}$

02718 E 02751 E

 $\text{He}^{++} + \text{C}$

02831 E

 $\text{Ar}^+ + \text{Be}$

02453 E

 $\text{He}^+ + \text{Al}$

02718 E

 $\text{He}^+ + \text{Po}$

02718 E

 $\text{He}^+ + \text{Si}$

02718 E

 $\text{He}^+ + \text{Al}$

01883 E 02653 E 02718 E

 $\text{He}^+ + \text{Be}$

02853 E

 $\text{He}^+ + \text{Po}$

02718 E

 $\text{He}^+ + \text{Ag}$

01883 E 02653 E 02844 E

 $\text{He}^+ + \text{Ba}$

02653 E

 $\text{He}^+ + \text{SL}$

01883 E 02718 E 02844 E

 $\text{O}^+ + \text{Al}$

02718 E 02750 E

 $\text{O}^+ + \text{C}$

02797 E

 $\text{O}^+ + \text{Cu}$

02750 E

 $\text{O}^+ + \text{Hg-Cu}$

02750 E

 $\text{O}^+ + \text{Si}$

02750 E

 $\text{O}^+ + \text{SL}$

02750 E

 $\text{O}^+ + \text{SiL}$

02750 E

 $\text{O}^+ + \text{SL}$

02718 E

 $\text{PERST}^{\pm} + \text{Au}$

02847 E

 $\text{PERST}^{\pm} + \text{Au}$

02847 E

 $\text{PERST}^{\pm} + \text{Au}$

02847 E

 $\text{Se}^+ + \text{Ag}$

02534 T

 $\text{Xe}^+ + \text{Au}$

02846 E

 Review

02408 E-T

 Underf

03021 T

REACTANT INDEX

905

PARTICLE INTERACTIONS WITH SOLID SURFACES

Photoelectric Ejection of Electrons (coefficients)

 $h\nu + Ag$
02763 T 03053 E $h\nu + Al$
02763 T $h\nu + Au$
02763 T 03053 E $h\nu + Cd$
02763 T $h\nu + CuI$
02763 T $h\nu + Cu$
02763 T $h\nu + Dy$
02763 E-T $h\nu + Fe$
02763 E-T $h\nu + Ge$
02763 E-T $h\nu + Sn$
02763 T $h\nu + Ta$
02763 T $h\nu + Y$
02763 E-T

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PARTICLE INTERACTIONS WITH SOLID SURFACES

Reflection of Electrons from Surfaces (coefficients)

 $e + Al$
02526 T $e + Ar + Pt$
02671 E $e + Ar$
02526 T $e + CO + Pt$
02671 E $e + D_2$
02929 E $e + H_2$
02929 E $e + H_2 + Pt$
02671 E $e + Ne$
02929 EReview
02438 E-T $\Delta \alpha_{ef}$
02156 T 02157 T 02673 T

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D07	He + GaSe 02361 E	K + Si 03070 E
PARTICLE INTERACTIONS WITH SOLID SURFACES	He + He 02658 E	K ⁺ + Bo 02828 E-T
Reflection of Heavy Particles from Surfaces (total reflection coefficients)	He + BeF 02361 E	K ⁺ O ₂ ⁺ + Bo 02614 E
	He + Bi 02361 E 02656 T	Li ⁺ + Bo 02816 E
Ar ⁺ + Cu 02360 E 02999 E	He + Pt 02358 E-T 02397 T	Li ⁺ O ₂ ⁺ + Bo 02816 E
Cs + Si 03070 E	He + Ti 02527 T	He ⁺ + Ag 02810 E
B ⁺ + C 02362 E 02527 T	He + U 03030 E	He ⁺ + Au 02810 E
B ⁺ + Ti 02527 T	He ⁺ + Ag 02527 T 02817 E	He ⁺ + Ta 02810 E
B ₂ O ⁺ + Au 02813 E	He ⁺ + Al 01773 E	He ⁺ + Cu 02813 E
He ⁺ + Al 02998 E	He ⁺ + Al + Si 01770 E	He ⁺ + Si 03070 E
He ⁺ + Au 02109 E-T	He ⁺ + Al ₂ O ₃ 01773 E	He ⁺ + Au 02737 E
He ⁺ + C 02109 E-T 02527 T	He ⁺ + Au 02808 T 02817 E	He ⁺ + S' 03070 E
He ⁺ + Si 02335 T 02804 T	He ⁺ + Cu 02509 T	He ⁺ + Cu 02825 E
He ⁺ + SS 02823 E	He ⁺ + Bo 02808 T	He ⁺ + Cu 02810 E 02814 T 02825 E
He ⁺ + Ti 02109 E-T 02527 T	He ⁺ + Bi 02033 E 02039 T 02524 E	He ⁺ + Cu ₂ Sn 02826 E
He ⁺ + TiB ₂ 02109 E-T	He ⁺ + Si + O 02528 E	He ⁺ + Bi 01528 E 02819 E
He ⁺ + TiC 02109 E-T	He ⁺ + Pd 02509 T	He ⁺ + Si + S 02524 E
He ⁺ + U 02109 E-T 02393 T 02987 T	He ⁺ + Pt 02509 T 02808 T	He + Si 03070 E
He ⁺ + VO ₃ 02109 E-T	He ⁺ + Si 01773 E 02808 T	He + S 01773 E-T
He ⁺ + Si 02913 E 02829 E	He ⁺ + Ta 02817 E	He ⁺ + S 01773 E-T
He ₂ O ⁺ + Cu 02818 E	He ⁺ + TiC 02039 T 02986 E	Review 02401 E-T 02939 E
He + Ag 02361 E 02362 E	He ⁺ + S 02817 E	Uncat 02660 T 02669 T
He + Cu 03028 T	He ⁺ O ₂ ⁺ + Bo 02814 E	

REACTANT INDEX

D08
PARTICLE INTERACTIONS WITH SOLID SURFACES

Charge and Quantum State Distributions of Reflected Heavy Particles

Ar^+ + Cu
02789 T 02805 E

Ar^+ + R_2 + La
03001 E

Ar^+ + H_2O + La
03001 E

Ar^+ + La
03001 E

Ar^+ + O_2 + La
03001 E

Ar^+ + Yb
03001 E

D_2^+ + La
02813 E

He^+ + Ca
02836 E

He^+ + Cu
02836 E

He^+ + Bi
02813 E

He^+ + Au
02791 E

He^+ + C
02789 T

He^+ + Ca + Si
02661 E

He^+ + Cu + Si
02835 E 02837 E

He^+ + Ba
02846 E

He^+ + Bi
02837 E

He^+ + Pb
02791 E

He^+ + Si
02661 E

He^+ + Ti
02791 E

Li^+ + Cu
02835 E 02812 E

Li^+ + B + Cs
02716 E

He^+ + Ag
02813 E

He^+ + Bi
02813 E

He^+ + Cu
02835 E

He^+ + Ba
02813 E

He^+ + Ca + Si
02661 E

He^+ + Cu
02799 E

He^+ + Ca
02812 E

He^+ + Cu
02832 E

D^+ + Si-Al
03027 E

He^+ + Cu
02835 E

He^+ + W
01773 E-T

He^+ + W
01773 E-T

Uncat
02849 T

D09
PARTICLE INTERACTIONS WITH SOLID SURFACES

De-Excitation, Neutralization, Ionization, or Dissociation of Particles Interacting with Surfaces

Ar^+ + O + B
02815 E

Ar^+ + B
02815 E

Ar^+ + O + B
02815 E

Ar^+ + B
02815 E

He^+ + Ca
02350 T

He^+ + Cu + B
02350 T

He^+ + Bi
02931 E

He^+ + Cu
02818 E

He^+ + Ca + Si
02661 E

He^+ + Cu
02837 E

He^+ + Bi
02821 E 02837 E

He^+ + Si
02661 E 02840 E

He^+ + CO + Bi
03315 E

He^+ + NO + Bi
03315 E

S_2 + B
03337 E

He^+ + Bi
02931 E

He^+ + Ba
02320 T

He^+ + Cu
02818 E

He^+ + GaAs
02827 E

He^+ + Bi
02821 E

HO^- + Pt
02339 T

He^+ + O + B
02815 E

He^+ + B
02815 E

Uncat
02662 T 02810 T 02849 T
02892 T 02961 T 03036 T

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D11	$\text{He} + \text{Ag}$ 02349 T	$\text{He} + \text{Ag}$ 02346 T
PARTICLE INTERACTIONS WITH SOLID SURFACES	$\text{He} + \text{Al}$ 02349 T	$\text{He} + \text{Au}$ 02346 T
Sticking Coefficients, Thermal Energies and Adsorption	$\text{He} + \text{Al}$ 02357 E	$\text{He} + \text{Bi}$ 02846 E
	$\text{He} + \text{Pt}$ 03035 E-T	$\text{He} + \text{Tl}$ 03047 E
$\text{Ar} + \text{Li}$ 03020 T	$\text{He} + \text{Bb}$ 02529 E	$\text{He} + \text{R}$ 02342 E
$\text{CO} + \text{Pt}$ 02057 T	$\text{He} + \text{Tl}$ 03047 E	$\text{He} + \text{C}$ 02322 T
$\text{CO} + \text{Rb}$ 02529 E	$\text{He} + \text{Zr}$ 02697 E	$\text{O}_2 + \text{Bi}$ 02357 E
$\text{CO} + \text{Tl}$ 03047 E	$\text{He} + \text{Ag}$ 02346 T	$\text{O}_2 + \text{Pt}$ 02350 E
$\text{CO}_2 + \text{Tl}$ 03047 E	$\text{He} + \text{Al}$ 02346 T	$\text{O}_2 + \text{Tl}$ 03047 E
$\text{D}_2 + \text{Tl}$ 03047 E	$\text{He} + \text{Au}$ 02346 T	$\text{Rb} + \text{Cs}$ 02543 E
$e + \text{CO} + \text{Pt}$ 02528 E	$\text{He} + \text{Ca}$ 02346 T	Review 02432 E-T
$\text{H} + \text{Li}$ 03020 T	$\text{He} + \text{K}$ 02346 T	Uncat 03049 T
$\text{K} + \text{Pt}$ 02354 E-T	$\text{He} + \text{Li}$ 02346 T 03023 T	

D12

PARTICLE INTERACTIONS WITH SOLID SURFACES
 Electromagnetic Radiations Induced by Electron or Heavy Particle Impact on Surfaces

$\text{Ar}^+ + \text{Al}$ 02038 E	$e + \text{K}$ 02125 E-T	$\text{He}^+ + \text{S}$ 02931 E
$e + \text{Al}$ 02124 E 02125 E-T	$e + \text{Pb}$ 02125 E-T	$\text{He}^+ + \text{Sb}$ 01050 E
$e + \text{Au}$ 02124 E 02125 E-T	$e + \text{Sb}$ 02125 E-T	$\text{He}^+ + \text{Ta}$ 01050 E
$e + \text{Cu}$ 02124 E	$\text{He}^+ + \text{Al}$ 02125 T 02450 T 02893 E 02932 E	$\text{He}^+ + \text{Te}$ 01050 E
$e + \text{H}_2\text{O} + \text{TiO}_2$ 02662 E	$\text{He}^+ + \text{Bi}$ 01050 E	$\text{He}^+ + \text{B}$ 01050 E
	$\text{He}^+ + \text{C}$ 02798 E 02932 E	$\text{He}^+ + \text{C}$ 02798 E
	$\text{He}^+ + \text{Ho}$ 01050 E	$\text{He}^+ + \text{C}$ 02798 E
	$\text{He}^+ + \text{Pt}$ 01050 E	

REACTANT INDEX

913

PARTICLE INTERACTIONS WITH SOLID SURFACES

Description of Gases from Surfaces

$\bullet + \text{SiC}$	$\text{h}\nu + \text{CO}_2 + \text{TiO}_2$
$\bullet + \text{TiC}$	02348 T
$\bullet + \text{TiO}_2$	$\text{h}\nu + \text{CO}_2 + \text{V}_2\text{O}_5$
$\bullet + \text{SiO}_2$	02348 T
$\text{H}^+ + \text{Cu} + \text{Si}$	$\text{h}\nu + \text{CO}_2 + \text{ZnO}$
02673 E-T	02676 T
$\text{H}^+ + \text{C} + \text{Si}$	$\text{h}\nu + \text{E}_2 + \text{Si}$
02762 E	02666 E
$\text{H}^+ + \text{Si} + \text{Si}$	$\text{h}\nu + \text{E}_2\text{O} + \text{Pd}$
02762 E	02359 E
$\text{H}^+ + \text{O} + \text{Si}$	$\text{h}\nu + \text{E}_2\text{O} + \text{Pt}$
02762 E	02350 E
$\text{H}^+ + \text{SiS} + \text{Si}$	$\text{h}\nu + \text{E}_2\text{O} + \text{Tl}$
02762 E	02667 E
$\bullet + \text{Al}_2\text{O}_3$	$\text{h}\nu + \text{E}_2\text{I}$
02348 E	02655 E
$\bullet + \text{E}_2\text{O} + \text{Al}$	$\text{h}\nu + \text{LiP}$
03026 E	02659 E
$\bullet + \text{E}_2\text{O} + \text{TiO}_2$	$\text{h}\nu + \text{E}_2\text{O}$
02662 E	02356 E
$\bullet + \text{E}_2\text{O} + \text{B}$	$\text{h}\nu + \text{E}_2\text{P}$
03026 E	02659 E
$\bullet + \text{E}_2$	$\text{h}\nu + \text{BD} + \text{Al}_2\text{O}_3$
03045 E	02660 E
$\bullet + \text{LiP}$	$\text{h}\nu + \text{O} + \text{B}$
02630 E	02667 E
$\bullet + \text{AgAl}_2\text{O}_3$	$\text{h}\nu + \text{O} + \text{Tl}$
02348 E	02667 E
$\bullet + \text{NaCl}$	$\text{h}\nu + \text{O} + \text{B}$
02630 E	02667 E
$\bullet + \text{NaF}$	$\text{h}\nu + \text{BD}$
02630 E	02655 E
$\bullet + \text{BO} + \text{Pt}$	$\text{H}^+ + \text{SiO}$
03016 E	02673 E-T
$\bullet + \text{O} + \text{EC}$	Review
03032 E	02603 E-T
$\bullet + \text{Si}$	
02348 E	

REACTIVITY INDEX

B17	$\text{Ar}^+ + \text{Ta}_2\text{O}_5$	32850 T	$\text{He}^+ + \text{Ba}_2$	32850 E
PARTICLE INTERACTIONS WITH SOLID SURFACES	$\text{He}^+ + \text{C}$	32385 E	$\text{He}^+ + \text{Si}_2$	32786 E
Electron-, Ion-, and Photon-Induced Chemical Changes to Surfaces	$\text{He}^+ + \text{TiB}_2$	32711 E	$\text{He}^+ + \text{Si}$	33031 E
	$\text{He}^+ + \text{O} + \text{Si}$	33036 E	$\text{He}^+ + \text{Ba}$	33031 E
$\text{Ar}^+ + \text{Ag} + \text{Si}$	32888 E		$\text{He}^+ + \text{CO}_2$	32786 E
$\text{Ar}^+ + \text{Cl}_2 + \text{Si}$	32725 E		$\text{He}^+ + \text{H}_2\text{O}$	32786 E
$\text{Ar}^+ + \text{CO}$	32853 E		$\text{He}^+ + \text{H}_2\text{O}$	32786 E
$\text{Ar}^+ + \text{CO}_2$	32786 E		$\text{He}^+ + \text{H}_2\text{O}$	32786 E
$\text{Ar}^+ + \text{O}_2$	32786 E		$\text{He}^+ + \text{C}$	32385 E
$\text{Ar}^+ + \text{O}_2\text{O}$	32850 E		$\text{He}^+ + \text{CO}$	32853 E
$\text{Ar}^+ + \text{SiO}_2$	32850 E		$\text{He}^+ + \text{CO}_2$	32786 E
$\text{Ar}^+ + \text{SiO}_2$	32850 E		$\text{He}^+ + \text{H}_2\text{O}$	32850 E-T
$\text{Ar}^+ + \text{SO}_2$	32786 E		Undef	32851 T

REACTANT INDEX

D18					
PARTICLE INTERACTIONS WITH SOLID SURFACES					
Trapping and Desorption of Hydrogen (all forms and ratios)					
H + Bi	02719 T				
H + Si	02719 T				
H + SS	02719 T	02721 E	02722 T		
	02727 T				
H + Ta	02339 T	02719 T			
H + Ti	02719 T				
H + TiC + Fe	02319 T				
H + V	02719 T	02719 T			
H + G	02719 T				
H + Be	02719 T				
H + C	02725 E				
H + Si	02723 E				
H + Be	02726 E				
H + C	02362 E				
H + Si	02681 E				
H + Al	02719 T				
H + B	02719 T				
H + Be	02719 T				
H + C	02719 T	02725 E			
H + Cu	02719 T				
H + Fe	02719 T				
H + Inconel	02351 E	02719 T			
H + Bo	02719 T				
H + Nb	02009 T				
He + Bi	02942 E	02943 E			
He + Si	02950 E				
He + Cu	02953 E				
He + Bo	02943 E	02944 T	02947 E		
	02948 T				
He + Al	02333 E	02943 T	02943 E		
	02946 E	02949 E	02950 E		
	02951 E	02956 E	02966 T		
	02967 E	02968 E	02969 E		
He + Si	02851 E				
He + SS	02950 E	02953 E	02960 E		
	02965 T				
He + Ti	02950 E				
He + TiC	02945 T				
He + V	02951 E				
He + G	02963 E				
He + Cu	02955 E				
He + Bi	02955 E				
He + Bo	02957 E	02959 E			
Lorius	02939 T	02954 T			
Undef	02723 T	02958 T	02960 T		
He + Al	02745 E	02943 T	02961 T		

REACTANT INDEX

E81

ELECTRON-PARTICLE INTERACTION

General

Borliss
32563 E

E82

ELECTRON-PARTICLE INTERACTION

Elastic Collisions

e + He
01986 T 02141 E

e + Br⁺
01957 T

e + Be
02559 E

e + Be⁺
01957 T

e + Bi
02559 E

e + CO
01789 T 02235 T 03055 E

e + CO₂
02898 T 02518 T 03055 F

e + Ca
01822 T 02894 T 02558 T

e + Cu
02559 E

e + H₂
31962 T 31991 T 31997 T
02051 T 02185 T 02273 T
32365 T 32481 T 32536 T
02440 T

e + H₂O
02141 E

e + He
31883 T 31922 T 31983 T
01975 T 02154 T 02301 T
02467 E 02518 T 02643 T

e + He⁺
31986 T 31993 T 32181 E
32796 T 32325 T 32327 E
02693 T

e + He⁺
31873 T

e + He⁻
31957 T

e + Hg
31429 E 32422 T 32496 T
02555 T

e + Kr
32231 T 32476 T

e + Li
31765 E-T 31957 T

e + He
32559 E

e + H₂
01789 T 01922 T 01983 T
31975 T 32152 T 32230 T
02258 T 02519 T 03055 E

e + He
02328 E

e + He
01855 T 01968 E 01986 T
32326 T 32493 T

e + He⁺
31873 T

e + He⁺
32232 E

e + Ti
32495 T 32896 T 32559 E

e + Xe
31829 E 31855 T 32231 T

e + Za
32559 E

Undef
32158 T 32175 T

REACTANT INDEX

e + p
01769 E-T

e + Zn
01817 E 02254 E

e + Zn⁺
02260 T 02499 E

e + Zr
02533 E

Undes
01750 E 01967 T 02170 T
02567 T

204

ELECTRON-PARTICLE INTERACTIONS

Dissociation

e + CO
01769 T

e + CO₂
02357 E

e + D₂
03369 T

e + H₂O⁺
02691 T

e + H₂O⁺
01881 T

e + H₂O⁺
02073 E

e + H₂
03369 T

e + HD
03369 T

e + H₂O⁺
02699 E

e + I₂
02634 E

e + H₂
02049 T 03069 T

REACTANT INDEX

105

ELECTRON-PIVICLE INTERACTIONS

Ionization

e + Fe ²⁺	32593 T	e + Sc ³⁺	32593 T
e + Fe ³⁺	32593 T	e + Sc ⁴⁺	32593 T
e + Cr	32608 E	e + Sc ⁵⁺	32593 T
e + Br	31768 E	e + Sc ⁶⁺	32593 T
e + Ar	31839 E 31856 T 31967 T 32253 E 32333 E 32671 E 32612 E-T 32651 E	e + Si ²⁺	32593 T
e + Ar ⁺	32632 E-T	e + Si ³⁺	32233 T
e + Ar ²⁺	31966 E-T	e + Si ⁴⁺	32233 T
e + Ar ³⁺	31871 E	e + Si ⁵⁺	32233 T
e + Br ⁺	31902 E	e + Kr ²⁺	32706 E
e + Br ²⁺	32263 T	e + Kr ³⁺	31863 E 31861 E 31966 E-T
e + Ca ⁺	32233 T	e + Kr ⁴⁺	32699 E
e + Ca ²⁺	32266 T	e + Kr ⁵⁺	31863 E 31861 E 31966 E-T
e + Cr ⁺	32139 T	e + Kr ⁶⁺	31863 E 31861 E 31966 E-T
e + CO ₂	31821 E	e + Br ₂	32127 E
e + Fe ⁺	32211 E	e + Br ⁺	32139 T
e + Te ²⁺	32593 T	Undeg	31932 T 32567 T 32604 T
e + Fe ³⁺	32593 T		
e + Fe ⁴⁺	32593 T		
e + Fe ⁵⁺	32593 T		

REACTANT INDEX

206	$e + C^{2+}$ 32183 E	$e + B^{2+}$ 32292 T
ELECTRO-PARTICLE INTERACTIONS	$e + Cl^{2+}$ 32385 T	$e + Br^{2+}$ 32292 T
Fissionization (electron-ion)	$e + Co^{2+}$ 32193 E	$e + O^{2+}$ 32292 T
	$e + Fe^{2+}$ 32163 T	$e + O_2^{2+}$ 32292 T
	$e + Fe^{2+}$ 32688 T	$e + O_2^{2+}$ 32292 T
	$e + Fe^{2+}$ 32591 T	$e + O_2^{2+}$ 32292 T
	$e + Fe^{2+}$ 32591 T	$e + O_2^{2+}$ 32292 T
	$e + Fe^{2+}$ 32692 E-T	$e + O_2^{2+}$ 32292 T
	$e + Fe_2^{2+}$ 32689 E	$e + O_2^{2+}$ 32292 T
	$e + Fe^{2+}$ 32385 T	$e + O_2^{2+}$ 31911 T
	$e + Co^{2+}$ 32292 T	$e + O_2^{2+}$ 32292 T
	$e + Co^{2+}$ 32292 T	$e + O_2^{2+}$ 32292 T
	$e + Co^{2+}$ 32292 T	$e + O_2^{2+}$ 32591 T
	$e + Co^{2+}$ 32292 T	$e + O_2^{2+}$ 32292 T
	$e + Co^{2+}$ 32292 T	$e + O_2^{2+}$ 31942 E-T
	$e + Co^{2+}$ 32292 T	$e + O_2^{2+}$ 31942 E-T
	$e + Co^{2+}$ 32292 T	$e + O_2^{2+}$ 31942 E-T
	$e + Co^{2+}$ 32292 T	$e + O_2^{2+}$ 31942 E-T
	$e + Co^{2+}$ 32292 T	$e + O_2^{2+}$ 31942 E-T
	$e + Co^{2+}$ 31942 E	Undef 32457 T
	$e + Co^{2+}$ 32316 T	
	$e + Co^{2+}$ 32469 T	

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ELECTRON-PARTICLE INTERACTION

Collisional De-Excitation

 $e + K^0$
31799 E $e + K^0$
31799 L 32499 E 32626 R $e + \Lambda^0$
32208 T

208

ELECTRON-PARTICLE INTERACTION

Collisional Line Broadening

 $e + No$
32192 T 32610 T $e + Ne^{**}$
31673 T $e + Ne^*$
31673 T $e + N$
32609 T

209

ELECTRON-PARTICLE INTERACTION

Negative Ion Formation

 $e + No$
32323 E $e + O_2 + Ne$
32337 E $e + N_2$
32449 T $e + O_2 + N_2$
32337 E 32338 E $e + O_2 + Ar$
32307 E $e + O_2 + Ne$
32307 E $e + CO_2$
32357 E $e + N_2 + CO_2$
32337 E 32338 E $e + O_2 + O_2$
32337 E $e + N_2^0$
31681 T $e + O_2 + O_2$
32337 E $e + O_2 + Ne$
32307 E $e + Ne^0$
32073 E $e + O_2 + N_2$
32307 E $e + O_2 + Ne$
32338 E $e + N_2$
32734 E $e + O_2 + Ne$
32337 E

REACTANT INDEX 1

E11

ELECTRO-PARTICLE INTERACTION

From-From Transitions (Bremsstrahlung)

e + e
02170 Ee + He
02587 Ee + Be
01894 TUndecl
02130 Te + C
02170 E

E16

ELECTRO-PARTICLE INTERACTION

Fluorescence and Luminescence

e + Tb
02127 E

E17

ELECTRO-PARTICLE INTERACTION

Angular Scattering (specified process)

e + D₂
02234 E 02497 Ee + K_C
01817 E 02231 T 02476 Te + H
01870 T 01991 T 01997 T
02051 T 02176 E 02273 T
02365 T 02387 T 02506 T
02548 T 02586 T 02640 T

e + Ba

02559 E

e + He^{*}

02328 E

e + H₂
01977 T 02150 T 02238 E
02301 T 02375 T 02447 E
02497 E 02683 T

e + He

01817 E 01855 T 01948 E

e + Ar
01817 E 01986 T 02333 E
02371 T 02651 E 03068 T

01989 E 01953 T 01986 T

e + Ba

02326 T 02493 T 02500 T

02559 E

e + He^{*}
01817 E 01913 T 01986 T
01990 T 02259 E 02269 E-T
02323 E 02327 E 02483 E-T
02493 T 02581 E 02587 E

e + Ba

02232 E

e + Cd^{*}

02496 T 02559 E

01876 E

02559 E

e + Cu

02231 T

02384 T

02476 T

e + Cu

02498 E

02494 T

02500 T

e + Cu

02559 E

REACTANT INDEX

E19	e + Bi 02559 E	e + Ba 02559 E
ELECTRON-PARTICLE INTERACTION		
Resonance Transfer	e + Co 02349 E	e + Be 01948 E 02326 T
	e + Cu 02559 E	e + Ti 02559 E
e + Ar 03064 T	e + Kr 02327 E	e + Sn 02559 E
e + Be 02559 E	e + Li 01765 E-T	

E01

PHOTON COLLISIONS WITH HEAVY PARTICLES
AND ELECTRONS ($\hbar\nu < 100$ keV)

General

Under
02182 T 02645 T

REACTANT INDEX

H02

PHOTON COLLISIONS WITH HEAVY PARTICLES
AND ELECTRONS ($\hbar\nu < 100$ keV)

Total Absorption

 $\hbar\nu + Ag$
01861 E-T $\hbar\nu + Ba$
01867 E 01861 E-T 01880 E $\hbar\nu + Bi$
01861 E-T 02630 E-T $\hbar\nu + Be$
01861 E-T $\hbar\nu + Cd$
01861 E-T $\hbar\nu + Co$
02631 E-T $\hbar\nu + Cr$
01861 Z-T 02608 T $\hbar\nu + Co_2$
02603 F 03050 T $\hbar\nu + Ce$
01861 E-T $\hbar\nu + Cu$
01861 E-T $\hbar\nu + D_2 + Ar$
01869 E $\hbar\nu + Dy$
02113 F-T 02631 E-T $\hbar\nu + Ec$
02113 E-T 02631 E-T $\hbar\nu + Es$
02631 E-T $\hbar\nu + Fe$
01861 E-T $\hbar\nu + Cd$
02113 E-T 02631 E-T $\hbar\nu + Eu$
02597 E 02631 T 02630 T
 $\hbar\nu + H_2$
02632 E $\hbar\nu + Eg$
01867 E 01861 E-T 02578 E
02630 E-T $\hbar\nu + Ho$
02631 E-T $\hbar\nu + I$
01861 E-T $\hbar\nu + In$
01861 E-T $\hbar\nu + La$
02631 E-T $\hbar\nu + Mn$
01861 E-T $\hbar\nu + No$
01861 E-T $\hbar\nu + Ni$
02617 T 03054 T $\hbar\nu + Nd$
02631 E-T $\hbar\nu + Ne$
02197 E $\hbar\nu + Ni$
01861 E-T $\hbar\nu + No$
02638 T $\hbar\nu + O_2$
02332 E 02637 E 03054 T $\hbar\nu + O_3$
02638 T 02685 E $\hbar\nu + O_4$
02299 E 02615 T $\hbar\nu + Pb$
01861 E-T 02633 E-T $\hbar\nu + Pt$
02631 E-T $\hbar\nu + Sb$
01861 E-T $\hbar\nu + Se$
01861 E-T $\hbar\nu + Sm$
02631 E-T $\hbar\nu + Sn$
01861 E-T $\hbar\nu + Sr$
01861 E-T $\hbar\nu + Tb$
02631 E-T $\hbar\nu + Tu$
01861 E-T $\hbar\nu + Th$
01861 E-T 02630 E-T $\hbar\nu + Tb$
02631 E-T $\hbar\nu + Ti$
01861 E-T 02630 E-T $\hbar\nu + U$
01861 E-T 02630 E-T $\hbar\nu + V$
02113 E-T 02631 E-T $\hbar\nu + Tb$
02631 E-T $\hbar\nu + Za$
01861 E-T**Uncat**
02515 T

H03

PHOTON COLLISIONS WITH HEAVY PARTICLES
AND ELECTRONS ($\hbar\nu < 100$ keV)

Plastic Scattering

 $\hbar\nu + Al$
01845 T $\hbar\nu + O$
02599 E $\hbar\nu + H_2$
01922 T $\hbar\nu + H_2$
01922 T $\hbar\nu + Pb$
01885 T

REACTANT INDEX

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PHOTON COLLISIONS WITH HEAVY PARTICLES
AND ELECTRONS ($\hbar\nu < 100$ keV)

Excitation

 $\hbar\nu + Ag$
02195 E 02196 E $\hbar\nu + Al$
02143 T $\hbar\nu + Ar$
02263 T $\hbar\nu + As$
01803 E $\hbar\nu + Ba$
02455 E $\hbar\nu + Bi$
01803 E $\hbar\nu + Ca$
02263 T $\hbar\nu + Cd$
02195 E 02196 E $\hbar\nu + Co$
01763 T $\hbar\nu + Cr$
01802 E $\hbar\nu + Fe$
02433 T

$\hbar\nu + Fe^{++}$
02623 T

$\hbar\nu + Fe^{3+}$
02263 T 02621 E-T

$\hbar\nu + H$
02418 T

$\hbar\nu + He$
02618 T

$\hbar\nu + In$
02195 E 02196 E

$\hbar\nu + Ir$
02565 E

$\hbar\nu + Bo$
02195 E 02196 E

$\hbar\nu + Nb$
02195 E 02196 E

$\hbar\nu + Ni^{++}$
01763 T

$\hbar\nu + Os^{++}$
02294 E

$\hbar\nu + Pb$
01803 E

$\hbar\nu + Pd$
02195 E 02196 E

$\hbar\nu + Rh$
02195 E 02196 E

$\hbar\nu + Ru$
02195 E 02196 E

$\hbar\nu + Sr^{++}$
02143 T

$\hbar\nu + Si^{++}$
02263 T

$\hbar\nu + Sb$
02195 E 02196 E

$\hbar\nu + Si^{3+}$
02143 T

$\hbar\nu + Sn$
02195 E 02196 E

$\hbar\nu + Sm^{2+}$
02263 T

$\hbar\nu + Ta^{++}$
02621 E-T

$\hbar\nu + Tb^{3+}$
02263 T

$\hbar\nu + Tm^{3+}$
02263 T

$\hbar\nu + U^{3+}$
02530 T

$2\hbar\nu + H$
02335 E

$2\hbar\nu + O$
02335 E

Undif
61927 T

105

PHOTON COLLISIONS WITH HEAVY PARTICLES
AND ELECTRONS ($\hbar\nu < 100$ keV)

Dissociation

$\hbar\nu + Ba^{2+}$
01846 T

$\hbar\nu + H_2$
02247 E

$\hbar\nu + OH^+$
02181 E

 $\hbar\nu + H_2$
02590 E

32733 2
DE-SEC-66109

301

heavy particle
DATA COMPILED BY

32955 2
isotopes

32733 2
isotopes

02961 2
isotopes power

32733 2
isotopes T

isotopes degrading power

32949 2
isotopes

32733 2
isotopes

32949 2
isotopes

isotopes

02279 2
he + he

508

isotopes

32954 2
he + he

32950 2
he + he

32282 2-T
he + he

HEAVY COLLISIONS WITH HEAVY PARTICLES
HEAVY COLLISIONS WITH HEAVY PARTICLES (p > 100 MeV)

02366 2
he + he

507

photodetectors

31866 2
he + he

32226 2
he + he

HEAVY COLLISIONS WITH HEAVY PARTICLES
HEAVY COLLISIONS WITH HEAVY PARTICLES (p > 100 MeV)

3 991C 3 991C
3 992C 3 992C
3 993C 3 993C
3 994C 3 994C
3 995C 3 995C

02055 2 02646 2 03059 2
32215 2 32256 2 32606 2-T
he + he

02066 2-T
he + he

32938 2
isotopes

32939 2
isotopes

isotopes

isotopes

REACTANT INDEX

J02

DATA COMPILATION

Electrons

Energy loss
02046 E-TOscillator strengths
02335 EExcitation
02293 E-TStopping power
02046 TBranching ratio
02334 E

J03

DATA COMPILATION

Photons

Oscillator strengths
02735 EBranching ratio
02334 E

J04

DATA COMPILATION

Particles on Surfaces and Solids

Chemical changes
02311 E-TDesorption
02471 E-Te secondary electron emission
02478 E-TElectron reflection
02438 E-TEvaporation
02434 E-TIon secondary electron emission
02404 E-TProton stopping power
02704 TReflection
02431 E-TSputtering
02435 E-T 02436 E-T 02731 ETrapping
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