

# NATIONAL INSTITUTE FOR FUSION SCIENCE

Bibliography of Electron and Photon Cross Sections with  
Atoms and Molecules

Published in the 20<sup>th</sup> Century

– Argon –

M. Hayashi

(Received - Jan. 17, 2003 )

NIFS-DATA-72

Jan. 2003

This report was prepared as a preprint of work performed as a collaboration research of the National Institute for Fusion Science (NIFS) of Japan. The views presented here are solely those of the authors. This document is intended for information only and may be published in a journal after some rearrangement of its contents in the future.

Inquiries about copyright should be addressed to the Research Information Center, National Institute for Fusion Science, Oroshi-cho, Toki-shi, Gifu-ken 509-5292 Japan.

E-mail: [bunken@nifs.ac.jp](mailto:bunken@nifs.ac.jp)

## <Notice about photocopying>

In order to photocopy any work from this publication, you or your organization must obtain permission from the following organization which has been delegated for copyright for clearance by the copyright owner of this publication.

### Except in the USA

Japan Academic Association for Copyright Clearance (JAACC)

41-6 Akasaka 9-chome, Minato-ku, Tokyo 107-0052 Japan

TEL:81-3-3475-5618 FAX:81-3-3475-5619 E-mail:[naka-atsu@muji.biglobe.ne.jp](mailto:naka-atsu@muji.biglobe.ne.jp)

### In the USA

Copyright Clearance Center, Inc.

222 Rosewood Drive, Danvers, MA 01923 USA

Phone: (978) 750-8400 FAX: (978) 750-4744

# Bibliography of Electron and Photon Cross Sections

with Atoms and Molecules

Published in the 20<sup>th</sup> Century

—— Argon ——\*

Makoto Hayashi

(Gaseous Electronics Institute)

A bibliography of original and review reports of experiments or theories of electron and photon cross sections and also electron swarm data are presented for atomic or molecular species with specified targets. These works covered 17 atoms and 51 molecules. The present bibliography is only for argon (Ar). About 1,960 papers were compiled. A comprehensive author index is included. The bibliography covers the period 1921 through 2000 for Ar. Finally, author's recommended Ar electron collision cross section set is given in numerical tables.

Keywords : Ar atom, collision cross section, electron, elastic scattering, electronic excitation, ionization, photon, photoabsorption, photodissociation, photoexcitation, photoionization, electron swarm, drift velocity, diffusion coefficient, ionization coefficient, excitation and ionization energies, transition probability, lifetimes of excited states

---

\* This work was carried out under the collaboration research program at National Institute for Fusion Science.

## Introduction

### History

This bibliography is the result of a continuing literature survey which was begun around 1970 and originally encompassed only electron collision cross section and electron swarm data. The organization responsible for undertaking this survey is Nagoya Institute of Technology, Nagoya. From 1994, the work continued to Gaseous Electronics Institute, Nagoya. In 1997, the collection of photon cross section references was begun. The search for references in both cases was retrospective and included all papers reporting measurements, calculations or reviews of such cross sections and electron swarm data.

### Scope

This bibliography contains references to original research papers which report experiments or theoretical calculations of cross sections for electron and photon collisions with argon (Ar) atom. The review papers on this subject are also included.

Some argon cluster papers are included. Some conference reports, company or agency reports and Ph.D. thesis are included. Argon ion papers and positron collision papers are not included in principle.

Papers reporting the following data are included.

For electron collision cross sections :

- 1) elastic scattering
- 2) electronic excitation
- 3) ionization
- 4) grand total scattering (sum of elastic and inelastic cross sections)
- 5) metastable argon
- 6) electron swarm parameters (drift velocity, diffusion coefficient)
- 7) excitation and ionization coefficients

For photon collision cross section :

- 1) photoabsorption
- 2) photoexcitation and fluorescence
- 3) photodissociation
- 4) photoionization

For some related data :

- 1) excitation and ionization energies
- 2) transition probabilities
- 3) lifetimes of excited states
- 4) others

The energy range for electron cross section data is usually 0 -10 keV, but some higher electron energy papers are included. The wavelength range for photon cross section data is from microwaves to X-rays. Most papers are concerned with infrared, visible and ultraviolet ray region.

The bibliography includes the papers published in the 20<sup>th</sup> century, from 1901 to 2000. But the oldest paper in this list is given by C. Ramsauer (1921). So for this argon bibliography, published papers from 1921 to 1999 are compiled in alphabetical order of the first author's surname of the paper. References published in 2000 and plus some old papers found very recently after compilation are added as "Addenda of References for Ar". In total, about 1,960 papers are compiled in the argon bibliography.

## Organization

This report consists of four parts : introduction, the bibliography and its addenda, author index and an electron collision cross section set recommended by the author.

## Bibliography

In this section the complete citation for all references are given. At first following classifications are shown :

E : Elastic collision

EX : electronic EXcitation

I : Ionization

ME: Metastable argon

S : electron Swarm

O : Others (photon cross sections and others)

All author's initials and surname, journal name, volume, inclusive pages and year of publication are given as well as the title, and some additional information in the square bracket [ ]. E and T in the square bracket mean experiment and theory.

## Author Index

In this section all authors are listed alphabetically by surname. After each author's name is a list of page numbers indicating which references he or she authored or coauthored.

## Electron Collision Cross Section Set for Argon (Ar)

Electron collision cross section set of elastic, electronic excitation and ionization collision for argon recommended by the author are given by the tables. Final conclusions are given and detailed discussions are not shown here. Elastic total and elastic momentum transfer cross sections are obtained from author's recommended elastic differential cross sections. These values of the set are not final, in other words, tentative values.

## Acknowledgments

The author would like to say many thanks to :

Kazuo Takayanagi and Yukikazu Itikawa of ISAS, Tokyo and Sagamihara,

Hiroyuki Tawara of NIFS, Nagoya and Toki,

Yoshiharu Nakamura of Keio University, Kanagawa,

Yoshihiko Hatano of Tokyo Institute of Technology, Tokyo

for continuous support and encouragement.

The author also would like to say many thanks to the librarians of the following organizations :

Nagoya Institute of Technology, Nagoya

Nagoya University, Nagoya (five libraries)

Institute of Plasma Physics, Nagoya University

National Institute for Fusion Science, Toki

Institute for Molecular Science, Okazaki

Finally, the author would like to say many thanks to Kayo Hirono for longstanding support for the preparation of these bibliographies.

# References for Ar (1900 - 1999)

(Argon)

[Inert gas. Noble gas]

|                                   |                                 |
|-----------------------------------|---------------------------------|
| E : Elastic collision,            | EX : Electronic excitation,     |
| I : Ionization,                   | QT : Grand total cross section, |
| ME : Metastable argon,            | S : Swarm, O : The others.      |
| $\alpha$ : Ionization coefficient | [ ] : Additional informations,  |
|                                   | E : Exp., T : Theory.           |

The oldest paper in this list is given by C. Ramsauer (1921).

- QT W. H. Aberth : Thesis, New York University, 1-57 (1963)  
Measurement of total cross sections for the scattering of low energy electrons by argon and molecular oxygen and nitrogen. [E, Ar, O<sub>2</sub>, N<sub>2</sub>]
- QT W. Aberth, G. Sunshine and B. Bederson : in Atomic Collision Processes, North-Holland, 3rd ICPEAC, London 53-58 (1964)  
Absolute measurement of total cross sections for the scattering of low energy electrons by argon, nitrogen and oxygen.  
[E, Ar, N<sub>2</sub>, O<sub>2</sub>; 1 - 25 eV]
- $\alpha$  R. R. Abdulla : Thesis, University of Wales, Swansea (1981)  
Ionization and breakdown in argon. [E, Ar; 15 - 3600 Td]
- O M. Y. Adam, F. Wuilleumier, S. Krummacher, N. Sandner, V. Schmidt and W. Mehlhorn :  
J. Elect. Spectrosc. Relat. Phenom. 15, 211-224 (1979)  
Recent progress in the study of photoionization processes of atomic species by electron spectroscopy using synchrotron radiation.  
[E,  $h\nu$ , Ar, He, Xe, Pb]
- O M. Y. Adam, P. Morin and G. Wendin : Phys. Rev. A31, 1426-1433 (1985)  
Photoelectron satellite spectrum in the region of the 3s Cooper minimum of argon. [E,  $h\nu$ , Ar; 40 - 70 eV]
- O D. L. Adams and W. Whaling : J. Opt. Soc. Am. 71, 1036-1038 (1981)  
Argon branching ratios for spectral-intensity calibration.  
[E,  $h\nu$ , Ar; 104 emission lines ; 2900 - 23000 Å]
- I B. Adamczyk : Ann. Univ. Maria Curie-Skłodowska, Lublin-Pol. Sect. AA24, 157- (1970a)
- I B. Adamczyk : Ann. Univ. Maria Curie-Skłodowska, Lublin-Pol. Sect. AA24, 171- (1970b)

- O V. A. Adamovich, A. V. Dem'yanov, N. A. Dyatko, I. V. Kochetov, A. P. Napartovich and A. P. Strel'tsov : Sov. Phys. Tech. Phys. 32, 568-572 (1987) -  
Kinetics of slow electrons in an electron-beam pumped excimer laser.  
[T, Ar, Xe, HCl]
- O V. A. Adamovich, A. V. Dem'yanov, I. K. Kochetov, D. D. Malyuta, Yu. B. Smakovskii and A. P. Strel'tsov : Sov. J. Quant. Elect. 20, 1303-1309 (1990)  
Modeling of an XeCl excimer laser excited by a fast electron beam.  
[T, Ar]
- O B. D. Adcock and W. E. G. Plumtree : J. Quant. Spectrosc. Radiat. Transf. 4, 29- (1964)  
On excitation temperature measurements in a plasma-jet, and transition probabilities for argon lines. [E,  $h\nu$ , Ar]
- EX V. V. Afrosimov, Yu. S. Gordeev, V. M. Lavrov and S. G. Shchemelinin : Sov. Phys. JETP I 28, 821-825 (1969) -  
Energy loss spectra of electrons colliding with inert gas atoms.  
[E, Ne - Xe; 4 keV]
- O M. Agentoft, T. Anderson, J. E. Handen, W. Persson and S. -G. Pettersson : Phys. Scr. 29, 57-60 (1984)  
A study of the  $ns^0np^6\ ^1S$  states in the rare gas ions. [E, Ne - Xe]
- E K. M. Aggarwal, N. Nath and C. S. G. K. Setty : Planet. Space Sci. 27, 753-768 (1979) -  
Collision frequency and transport properties of electrons in the ionosphere. [T, Ar, He, H, N, O, N<sub>2</sub>, O<sub>2</sub>]
- EX J. M. Ajello, G. K. James, B. Franklin and S. Howell : J. Phys. B23, 4355-4376 (1990)  
Study of electron impact excitation of argon in the extreme ultraviolet : emission cross section of resonance lines of Ar I, Ar II.  
[E, Ar; 104.8, 106.7 nm, 12 - 2000 eV]
- O H. Aksela, S. Aksela and H. Patana : Phys. Rev. A30, 858-864 (1984)  
Auger energies of free atoms : Comparison between experiment and relativistic theory. [E and T, Ne - Xe, Na, K, Cs, Cu, Cd, Hg, etc.]
- O H. Aksela, S. Aksela, H. Pulkkinen, A. Kivimaki and O. -P. Sairanen : Phys. Scr. 41, 425-428 (1990)  
Shake processes in Auger decay of resonantly excited states of rare gases.  
[E, Ne - Xe]
- O H. Aksela, J. Mursu, J. Jauhiainen, E. Nommiste, J. Karvonen and S. Aksela : Phys. Rev. A55, 3532-3538 (1997)  
Angular distribution of emitted electrons in the decay of Ar  $2p^{-1}4s$  states studied by high-resolution experiment. [E, Ar]
- S S. A. J. Al-Amin and J. Lucas : J. Phys. D20, 1590-1595 (1987)  
Time of flight measurements of the ratio of radial diffusion coefficient and mobility for electron swarms in helium, argon, neon and krypton at high E/N. [E, He - Kr; E/N = 56.5 - 5650 Td for Ar]

- S S. A. J. Al-Amin and J. Lucas : J. Phys. D21, 1261-1270 (1988)  
Electron swarms in mixtures of metal vapour and argon gas.  
[T, Ar + (Na, K, Cs)]
- EX R. Albat, N. Gruen and B. Wirsam : J. Phys. B8, L82-L85 (1975)  
Calculated Born and four-state cross sections of low lying Ar levels  
excited by proton and electron impact. [T, Ar; 4s and 4p levels]
- S S. S. Al-Dargazelli, T. R. Ariyaratne, J. M. Breare and B. C. Nandi : Nucl. Instrum.  
Meth. 176, 523-528 (1980)  
Measurement of the drift velocity of electrons in an argon-nitrogen  
mixture using a gas scintillation drift chamber. [E, Ar + N<sub>2</sub>]
- S N. L. Aleksandrov and I. Kochetov : J. Phys. D29, 1476-1483 (1996) ·  
Electron rate coefficients in gases under non-uniform field and electron  
density conditions. [T, Ar, CO<sub>2</sub>, N<sub>2</sub>]
- O V. Ya. Aleksandrov, D. V. Gurevich and I. V. Podmoshenskii : High Temp. 5, 672-675  
(1967)  
Exchange of kinetic energy in a dense, weakly ionized, argon plasma.  
[E, Ar; arc]
- E V. A. Alekseev and I. I. Sobelman : Sov. Phys. JETP 22, 882-888 (1966) ·  
A spectroscopic method for the investigation of elastic scattering of  
slow electrons. [T, Ne - Xe, Cs; mainly for Ar]
- E M. K. Ali and P. A. Fraser : J. Phys. B10, 3091-3104 (1977) ·  
The contribution of long-range forces to low-energy phaseshifts.  
[T, Ar, H]
- I N. L. Alinovskii, Yu. E. Nesterikhin and B. K. Pakhtusov : Sov. Phys. Tech. Phys.  
14, 96-98 (1969) ·  
Mean for ionization cross sections of neutral beams by electrons with a  
Maxwellian velocity distribution. [T, He - Kr, H, H<sub>2</sub>, D<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>]
- S H. W. Allen : Phys. Rev. 52, 707-710 (1937)  
Electron temperatures and mobilities in the rare gases. [T, He - Ar]
- S N. L. Allen and B. A. Prew : J. Phys. B3, 1113-1126 (1970)  
Some measurements of electron drift velocities in compressed gases.  
[E, Ar, N<sub>2</sub>, CO<sub>2</sub>; E/N = 0.6 - 6 Td]
- E W. P. Allis and P. M. Morse : Z. Phys. 70, 567-582 (1931)  
Theorie der Streuung langsamer Elektronen an Atomen.  
[T, He - Ar, Na, Zn, etc.; DCS for Ar]
- I D. P. Almeida, A. C. Fontes, I. S. Mattos and C. L. Godinho : J. Electron Spectrosc.  
Relat. Phenom. 67, 503-510 (1994)  
Electron impact multiple ionization cross section of argon ( $\sigma_{n+}$ ,  
n = 3 - 6). [E, Ar]

- I D. P. Almeida, K. H. Becker and H. Deutsch : Int. J. Mass Spectrom. Ion Process. 163, 39-45 (1997a) -  
Electron-impact ionization cross-section of argon ( $\sigma_{n+}$ ,  $n = 7, 8$ ).  
[E, Ar; 1100 - 3000 eV]
- O D. P. Almeida and C. F. L. Godinho : Nucl. Instrum. Meth. B114, 337-340 (1997b),  
Erratum 122, 167-167 (1997)  
Integrated oscillator strengths for multiionization processes under  
the Bethe-Born formulation. [T, Ne - Xe]
- I D. P. Almeida, A. C. Fontes and F. C. Pontes : Nucl. Instrum. Meth. B132, 280-287  
(1997c) -  
Multiple ionization of gases by collisions with electrons.  
[E, Ar, Ne, He ; 90 - 3000 eV]
- S H. Alvarez-Pol, I. Duran and R. Lorenzo : J. Phys. B30, 2455-2464 (1997)  
On the cross section of low-energy electron collision on CH<sub>4</sub> and CO<sub>2</sub>.  
[T, Ar + CH<sub>4</sub>, Ar + CH<sub>4</sub> + CO<sub>2</sub>, etc.; B. Eq.]
- S S. R. Amendolia, M. Binder, et al. (about 30 persons) : Nucl. Instrum. Meth. A244,  
516-520 (1986)  
Dependence of the transverse diffusion of drifting electrons on magnetic  
field. [E, Ar + CH<sub>4</sub>]
- O M. Ya. Amusia, N. A. Cherepkov, L. V. Chernysheva and S. I. Sheftel : Phys. Lett. A28,  
726-727 (1969) -  
On atomic photoionization cross section calculation. [T,  $h\nu$ , Ar]
- O M. Ya. Amusia, N. A. Cherepkov, L. V. Chernysheva and S. I. Sheftel : Sov. Phys. JETP  
29, 1018-1021 (1969) -  
Calculation of the photo-ionization cross section for Ar in the Hartree-  
Fock approximation. [T,  $h\nu$ , Ar]
- O M. Ya. Amusia, N. A. Cherepkov and L. V. Chernysheva : Phys. Lett. A31, 553-554  
(1970a) -  
Many-electron correlations in photoabsorption in the M-shell of Ar.  
[T,  $h\nu$ , Ar]
- EX M. Ya. Amusia, N. A. Cherepkov and S. I. Sheftel : Sov. Phys. JETP 31, 332-334  
(1970b) -  
Inelastic scattering of electrons by noble gas atoms.  
[T, Ne - Xe; DCS, 3 or 4 keV, Born approximation]
- O M. Ya. Amusia, N. A. Cherepkov and L. V. Chernysheva : Sov. Phys. JETP 33, 90-96  
(1971)  
Cross section for the photoionization of noble-gas atoms with allowance  
for multielectron correlations. [T,  $h\nu$ , Ne - Xe]
- EX M. Ya. Amusia, N. A. Cherepkov, R. K. Janev, S. I. Sheftel and J. Zivanovic : J. Phys.  
B6, 1028-1039 (1973)  
The role of many-electron correlations in fast electron-atom inelastic  
collisions. [T, Ar; 4 KeV]



- E M. Ya. Amusia, N. A. Cherepkov, L. V. Chernysheva and S. G. Shapiro : Phys. Lett. A46, 387-388 (1974a) -  
Elastic scattering of slow electrons and level shifts in Ar. [T. Ar]
- O M. Ya. Amusia, V. K. Ivanov, N. A. Cherepkov and L. V. Chernysheva : Sov. Phys. JETP 39, 752-758 (1974b)  
Intershell and intersubshell effects in photoionization of atoms.  
[T.  $h\nu$ , Ne - Xe, Ca, Zn]
- EX M. Ya. Amusia and N. A. Cherepkov : in Case Studies in Atomic Collision Physics 5, North-Holland 47-179 (1975)  
Many-electron correlations in scattering processes. [review]
- EX M. Ya. Amusia, V. K. Ivanov and S. A. Sheinerman : J. Phys. B9, 1537-1553 (1976a)  
Inner-shell correlation in the inelastic scattering of fast electrons of the outer subshells in Ar and Xe. [T. Ar, Xe]
- E M. Ya. Amusia, N. A. Cherepkov, L. V. Chernysheva, S. G. Shapiro and A. Tanchich : Sov. Phys. JETP 41, 1012-1016 (1976b) -  
Elastic scattering of slow electrons by atoms. [T. Ar, He, Xe]
- I M. Ya. Amusia, M. Y. Kuchiev, S. A. Sheinerman and S. I. Sheftel : J. Phys. B10, L535-L539 (1977a)  
Inter-shell correlations in the formation of singly charged ions near the Ar L-shell ionisation threshold. [T. Ar]
- O M. Ya. Amus'ya, S. A. Sheinerman and S. I. Sheftel' : Sov. Phys. Tech. Phys. 22, 822-828 (1977b) -  
Generalized oscillator strengths of inner atomic shells with outer-shell effects. [T. Ar;  $2p^6$  subshell]
- O M. Ya. Amusia, I. S. Li and S. I. Sheftel : Bull. Acad. Sci. USSR Phys. ser. 41, 57-64 (1977c)  
Photoionization from the excited state of argon and xenon atoms.  
[T.  $h\nu$ , Ar, Xe]
- I M. Ya. Amusia and S. A. Sheinerman : J. Phys. B12, 649-662 (1979a)  
Single-electron ionisation of Ar  $3s^2$  subshell by slow electrons.  
[T. Ar; th. - 100 eV]
- I M. Ya. Amusia, M. Yu. Kuchiev and S. A. Sheinerman : Sov. Phys. JETP 49, 238-244 (1979b) -  
Near-threshold effects in the ionization of atoms (the post-collision interaction). [T. Ar]
- O M. Ya. Amus'ya, V. K. Ivanov, S. A. Sheinerman, S. I. Sheftel' and A. F. Ioffe : Sov. Phys. JETP 51, 458-465 (1980)  
Manifestation of restructuring of the electron shells in atoms in the course of ionization. [T.  $h\nu$ , Ar, Xe, Cs, Ba]
- O M. Ya. Amusia, V. K. Ivanov and V. A. Kupchenko : J. Phys. B14, L667-L671 (1981a)  
Photoionizations of inner shells. [T.  $h\nu$ , Ar]

- O M. Ya. Amusia and A. S. Kheifets : Phys. Lett. 82A, 407-411 (1981b)  
The influence of "Two-electron-two-hole" excitations on the  $3s^{-1}4p$  autoionization profile in Ar atoms. [T.  $h\nu$ , Ar]
- E M. Ya. Amusia, N. A. Cherepkov, L. V. Chernysheva, D. M. Davidovic and V. Radojevic : Phys. Rev. A25, 219-225 (1982a)  
Slow-electron elastic scattering on argon. [T. Ar; 0.01 - 15 eV]
- O M. Ya. Amusia and A. S. Kheifets : Phys. Lett. 89A, 437-440 (1982b)  
The photoelectron angular-distribution  $\beta$  parameter in the region of the  $3s^{-1}4p$  resonance in Ar. [T.  $h\nu$ , Ar]
- I M. Ya. Amusia and A. S. Kheifets : J. Phys. B18, L679-L684 (1985)  
On our ability to measure the singly ionised rare-gas spectroscopic factors using the  $(\gamma, e)$  and  $(e, 2e)$  reactions. [T. Ar]
- O M. Ya. Amusia : Comments At. Mol. Phys. 16, 143-155 (1985) -  
Spectroscopic factor and the renormalization of interelectron interaction. [comments, Ar - Xe]
- O M. Ya. Amusia, I. M. Band, V. K. Ivanov, V. A. Kupchenko and M. B. Trzhaskovskaya : Bull. Acad. Sci. USSR Phys. Ser. 50, No. 7, 19-25 (1986)  
Nonphysical characteristics of the photoionization cross section of internal shells. [T.  $h\nu$ , Ar - Xe, Cu, Hg]
- O M. Ya. Amusia : Phys. Scr. T31, 43-55 (1990)  
Many-electron effects in the absorption and emission of VUV radiation by atoms and ions. [T.  $h\nu$ , Ar, Xe, etc.]
- O M. Ya. Amusia, Z. Chen, L. V. Chernysheva and A. Z. Msezane : 21st ICPEAC, Sendai 274 (1999) -  
Multielectron correlations in the generalized oscillator strengths. [T. Ar, Ne, Xe]
- EX N. Andersen, J. W. Gallagher, I. V. Hertel and F. J. da Paixao : 14th ICPEAC, Palo Alto 121-121 (1985)  
Analysis of orientation and alignment in electron impact excitation of heavy rare gases : the Ar  $4s\ ^1P$  and  $^3P$  case. [T. Ar; DCS of  $^3P_1$ , 16 eV]
- EX N. Andersen, J. W. Gallagher and I. V. Hertel : Phys. Rep. 165, 1-188 (1988)  
Collisional alignment and orientation of atomic outer shells. I. Direct excitation by electron and atom impact. [review, He - Xe, H, Li, Na, K, Hg, Ba]
- EX N. Andersen, J. T. Boad, E. E. B. Cambell, J. W. Gallagher and I. V. Hertel : Phys. Rep. 278, 107-289 (1997a)  
Collisional alignment and orientation of atomic outer shells. II. Quasi-molecular excitation, and beyond. [review, Ar + H(ls), etc.]
- EX N. Andersen, K. Bartschat, J. T. Broad and I. V. Hertel : Phys. Rep. 279, 251-396 (1997b)  
Collisional alignment and orientation of atomic outer shells. III. Spin-resolved excitation. [review, Xe, Li - Cs, H, Hg, etc.]

- S J. M. Anderson : Phys. Fluids 7, 1517-1526 (1964) -  
Hall effect and electron drift velocities in the plasma of the positive column. [E, He - Ar, N<sub>2</sub>]
- ME E. A. Andreev and A. E. Bodrov : Chem. Phys. Lett. 109, 450-455 (1984) -  
Inelastic scattering of low-energy electrons by metastable atoms.  
[T, He - Xe, C, N, O]
- E D. Andrick und H. Ehrhardt : Z. Phys. 192, 99-106 (1966)  
Die Winkelabhängigkeit der Resonanzstreuung niederenergetischer Elektronen an He, Ne, Ar, und N<sub>2</sub>. [E, He - Ar, N<sub>2</sub>]
- O D. Andrick and L. Langhans : J. Phys. B11, 2355-2360 (1978)  
Measurement of the free-free cross section of e<sup>-</sup>- Ar scattering.  
[E, Ar; 5 - 16 eV]
- α T. Aoyama : Nucl. Instrum. Meth. A234, 125-131 (1985)  
Generalized gas gain formula for proportional counters.  
[T, Ar + CH<sub>4</sub>, Xe + CO<sub>2</sub>, etc.]
- O G. S. Argyropoulos and M. A. Casteel : J. Appl. Phys. 41, 4162-4165 (1970)  
Tables of interaction parameters for computation of Ohm's law coefficients in various gases. [T, Ar, Xe, He, CO<sub>2</sub>, CO]
- O G. B. Armen, T. Aberg, Kh. R. Karim, J. C. Levin, B. Crasemann, G. S. Brown, M. H. Chen and G. E. Ice : Phys. Rev. Lett. 54, 182-185 (1985)  
Threshold double photoexcitation of argon with synchrotron radiation.  
[E, hν, Ar]
- O G. B. Armen, J. Tulkki, T. Aberg and B. Crasemann : Phys. Rev. A36, 5606-5614 (1987)  
Quantum theory of post-collision interaction in inner-shell photoionization : Final-state interaction between two continuum electrons.  
[T, hν, Ar, Xe]
- O G. B. Armen, J. Tulkki, T. Aberg and B. Crasemann : Phys. Rev. A36, 5606-5614 (1987)  
Quantum theory of post-collision interaction in inner-shell photoionization : Finite-state interaction between two continuum electrons.  
[T, hν, Ar, Xe]
- O G. B. Armen, J. C. Levin and I. A. Sellin : Phys. Rev. A53, 772-784 (1996)  
Radiationless resonant Raman scattering interpretation of argon photoion yields measured in coincidence with K-L Auger decay. [T, hν, Ar]
- O L. Armstrong, Jr. and W. R. Fielder, Jr. : Phys. Scr. 21, 457-462 (1980)  
Photoionization cross sections using the multiconfiguration Hartree-Fock and its extensions. [T, hν, Ar, Cl]
- E F. L. Arnot : Proc. Roy. Soc. London A133, 615-636 (1931)  
The diffractions of electrons in gases.  
[E, Ne - Xe, H<sub>2</sub>, N<sub>2</sub>, CO, CH<sub>4</sub>; 42 - 780 eV, 20 - 120° for Ar]

- 0 U. Arp, J. W. Cooper, T. LeBrun, S. H. Southworth, M. Jung and M. A. MacDonald : J. Phys. B29, L837-L842 (1996)  
Angular correlation between  $K\alpha$  photons and  $L_{2,3} - M_{2,3}M_{2,3}$  Auger electrons following argon  $1s$  photoionization. [T,  $h\nu$ , Ar]
- 0 U. Arp, T. LeBrun, S. H. Southworth, M. A. MacDonald and M. Jung : Phys. Rev. A55, 4273-4284 (1997)  
X-ray fluorescence and Auger-electron coincidence spectroscopy of vacancy cascades in atomic argon. [E,  $h\nu$ , Ar]
- EX H. Arriola, P. J. O. Teubner, A. Ugbabe and E. Weigold : J. Phys. B8, 1275-1279 (1975)  
Electron-photon angular correlations in the electron impact excitation of argon. [E, Ar; 80.4 and 113.4 eV]
- 0 T. U. Arslanbekov, F. A. Iskanderov and R. Y. Pirogovskii : Bull. Acad. Sci. USSR Phys. Ser. 52, No. 6, 122-123 (1988)  
Highly charged inert-gas ions produced by nanosecond laser pulses. [E,  $h\nu$ , Ar - Xe]
- 0 U. Asaf, W. S. Felps and S. P. McGlynn : Phys. Rev. A40, 5458-5460 (1989) Z  
Electron scattering in dense He - Ar gas mixtures : A pressure shift study. [E, Ar + He]
- 0 U. Asaf, K. Rupnik, G. Reisfeld and S. P. McGlynn : J. Chem. Phys. 99, 2560-2566 (1993) -  
Pressure shifts and electron scattering lengths in atomic and molecular gases. [E and compilation, He - Xe,  $H_2$ ,  $N_2$ ,  $CH_4$ ,  $C_2H_6$ ,  $C_3H_8$ ,  $CO_2$ ]
- 0 E. I. Asinovskii and V. M. Batenin : High Temp. 3, 485-489 (1965)  
Experimental investigation of the continuous spectrum of argon plasma. [E, Ar]
- 0 G. E. Assousa, L. Brown and W. K. Ford, Jr. : J. Opt. Soc. Am. 60, 1311-1314 (1970)  
Radiative lifetime measurements of excited levels in neon I and argon II. [E, Ar, Ne]
- I R. K. Asundi : 6th ICPEAC, Paris 29-32 (1963a)  
Ionization cross-section near the threshold for the rare gases. [E, He - Xe]
- I R. K. Asundi and M. V. Kurepa : J. Elect. Control 15, 41-50 (1963b)  
Ionization cross sections in He, Ne, Ar, Kr and Xe by electron impact. [E, He - Xe; th. - 100 eV]
- EX V. M. Atrazhev : Sov. Phys. Tech. Phys. 21, 1212-1214 (1976) -  
Excitation rate in a weakly ionized plasma in a strong external field. [E, Ar only]
- 0 V. M. Atrazhev, I. T. Iakubov and V. I. Roldugin : J. Phys. D9, 1735-1742 (1976)  
 $\alpha$  The Townsend coefficient of ionization in dense gases and fluids. [T, Ar, Xe,  $CH_4$ ]

- S V. M. Atrazhev and I. T. Yakubov : J. Phys. D10, 2155-2163 (1977)  
The electron drift velocity in dense gases. [T, Ar, He, H<sub>2</sub>, N<sub>2</sub>, CH<sub>4</sub>]
- O T. Auguste, P. Monot, L. A. Lompre, G. Mainfray and C. Mnus : J. Phys. B25, 4181-4194 (1992)  
Multiply charged ion produced in noble gases by a 1 ps laser pulse at  $\lambda = 1053$  nm. [E,  $h\nu$ , He - Ar, Xe]
- I L. Avaldi, R. Camilloni, E. Fainelli and G. Stefani : J. Phys. B21, L359-L364 (1988)  
An Ar valence-shell study of asymmetric (e, 2e) experiments.  
[E, Ar; 1000 eV]
- I L. Avaldi, G. Stefani, I. E. McCarthy and X. Zhang : J. Phys. B22, 3079-3082 (1989a)  
Distorted-wave Born approximation for asymmetric ionisation of argon by electron impact. [E and T, Ar; 1000 eV]
- I L. Avaldi, I. E. McCarthy and G. Stefani : J. Phys. B22, 3305-3314 (1989b)  
Electron impact ionisation of argon at intermediate energy and momentum transfer : an (e, 2e) investigation. [E, Ar; 1000 eV]
- I L. Avaldi, R. Camilloni, C. Dal Cappello, E. Fainelli, A. Lahmam-Bennani and G. Stefani : Z. Phys. D16, 107-112 (1990) -  
Ionisation dynamics at intermediate transfer : an (e, 2e) investigation on argon. [E, Ar]
- O L. Avaldi, G. Dawber, N. Gulley, H. Rojas, G. C. King, R. Hall, M. Stuhel and M. Zitnik : J. Phys. B30, 5197-5212 (1997)  
A study of Ne<sup>2+</sup> and Ar<sup>2+</sup> satellite states observed by 'threshold photoelectron coincidence' spectroscopy. [E,  $h\nu$ , Ar, Ne]
- O A. Aymar : Physica 57, 178-190 (1972)  
Etude theorique des probabilites de transitions et des interactions de configurations proches dans les spectres des gaz rares. [T, Ne - Xe]
- $\alpha$  T. L. R. Ayres : Phil. Mag. 45, 353-368 (1923)  
The ionization by collision of hydrogen, nitrogen, and argon.  
[E, Ar, H<sub>2</sub>, N<sub>2</sub>]
- O R. Ch. Baas and R. H. J. Jansen : Comput. Phys. Commun. 12, 267-276 (1976)  
Computer analysis of experimental results on differential scattering of electrons by gases. [program]
- O H. Bader : J. Phys. B18, L235-L237 (1985)  
Measurement of the free-free cross section of e<sup>-</sup> + Ar scattering at  $\lambda_0 = 5.3 \mu\text{m}$ . [E, Ar]
- E H. Bader : J. Phys. B19, 2177-2188 (1986)  
Resonance structures in the cross section for free-free radiative transitions in e - Ne and e - Ar scattering. [E, Ar, Ne]

- O Y. K. Bae, J. R. Peterson, A. S. Schlachter and J. W. Stearns : Phys. Rev. Lett. 54, 789-791 (1985)  
Observation of the metastable negative argon ion  $\text{Ar}^-$ .  
[E, Ar; 350 ns]
- O P. Baessler and M. Kock : J. Phys. B13, 1351-1361 (1980)  
An interferometric and spectroscopic study on a high-current argon arc.  
[E, Ar; transition probabilities]
- S A. Bagheri, K. L. Baluja and S. M. Datta : Z. Phys. D32, 211-217 (1994) -  
Density dependence of electron mobility in dense gases.  
[T, He - Xe,  $\text{H}_2$ ,  $\text{N}_2$ ,  $\text{O}_2$ ,  $\text{CO}_2$ ; multiple-scattering approach]
- O M. A. Baig and M. Ohno : Z. Phys. D3, 369-373 (1986)  
On the 3s-subshell excitation spectrum of argon. [E,  $h\nu$ , Ar]
- O M. A. Baig, S. Ahmad, J. P. Connerade, W. Dussa and J. Hormes : Phys. Rev. A45, 7963-7968 (1992) -  
Overlapping sequence of doubly excited series in the VUV spectrum of argon.  
[E,  $h\nu$ , Ar]
- E P. Baille, J. -S. Chang, A. Claude, R. M. Hobson, G. L. Ogram and A. W. Yau : J. Phys. B14, 1485-1495 (1981) -  
Effective collision frequency of electrons in noble gases.  
[T, He - Xe; assuming Maxwellian distribution]
- O J. Bakos, J. Szigeti and L. Varga : Phys. Lett. 20, 503-504 (1966)  
The lifetimes of ionized argon states. [E, Ar]
- O J. Bakos and J. Szigeti : Acta Phys. Hung. 23, 341-347 (1967)  
Measurement of the lifetime of atomic excited levels by time analysis.  
[E, Ar, Ne]
- O V. V. Balashov, A. N. Grum-Grzhimailo, N. M. Kabachnik, A. I. Magunov and S. I. Strakhova:  
10th ICPEAC, Paris 2, 1192-1193 (1977)  
The angular distribution and polarization of photoelectrons in the region of  
autoionizing states of neon and argon. [T,  $h\nu$ , Ar, Ne]
- EX V. V. Balashov, A. N. Grum-Grzhimailo, N. M. Kabachnik, A. I. Magunov and S. I. Strakhova:  
Phys. Lett. A67, 266-268 (1978)  
Decay of collisional-aligned autoionizing state  $3s^{-1}4p^1P$  in argon.  
[T, Ar; triple differential c. s. for excitation]
- EX V. V. Balashov, A. N. Grum-Grzhimailo, N. M. Kabachnik, A. I. Magunov and S. I. Strakhova:  
Opt. Spectrosc. 49, 577-581 (1980) -  
Excitation of autoionization states of the atoms of noble gases by fast  
electrons : argon. [T, Ar;  $(3s)^{-1}(4p)^1P$  resonance]

- E V. V. Balashov, E. G. Berezhko, N. M. Kabachnik and A. I. Magunov : J. Phys. B14, EX 357-364 (1981a)  
Excitation of resonance transition in argon atoms by electron impact in the distorted-wave Born approximation : role of the imaginary part of the optical potential.  
[T, Ar; DCS, elast, 50 eV; ex. 30, 50, 100 eV, 0 - 180°]
- EX V. V. Balashov, I. V. Kozhevnikov and A. I. Magunov : J. Phys. B14, 2059-2067 (1981b)  
Inelastic scattering of electrons from atoms in the multichannel diffraction approximation. [T, Ar, Ne ; DCS, 50, 100 eV, 0 - 66° for Ar]
- E G. C. Baldwin and S. I. Friedman : Rev. Sci. Instrum. 38, 519-531 (1967)  
Time-of-flight electron velocity spectrometer.  
[E, Ar, He;  $q_t$ , 0.18 - 1.4 eV]
- EX J. K. Ballou, C. C. Lin and F. E. Fajen : Phys. Rev. A8, 1797-1807 (1973)  
Electron-impact excitation of the argon atoms.  
[E, Ar; emission c.s.]
- O M. Balucinska-Church and D. McCammon : Astrophys. J. Part 1, 1, 400, 699-700 (1992)  
Photoelectronic absorption cross sections with variable abundances.  
[compilation,  $h\nu$ , He - Ar, H, O, Na, Cl, etc.]
- O I. M. Band, V. I. Fomichev and M. B. Trzhaskovskaya : J. Phys. B12, 3187-3200 (1979)  
The influence of the hole and exchange terms in the Dirac-Slater potential on the photoionisation cross sections and interval conversion coefficients.  
[T,  $h\nu$ , Ne - Xe;  $Z = 6 - 92$ ]
- S I. Yu. Baranov and N. B. Kolokolov : Sov. Tech. Phys. Lett. 7, 495-495 (1981a)  
ME Effect of stepwise excitation on the electron energy distribution in argon. [E, Ar]
- ME I. Yu. Baranov, V. I. Demidov and N. B. Kolokolov : Opt. Spectrosc. 51, 316-318 (1981b) -  
O Temperature dependence of rate constants for metastable atomic-argon deactivation by slow electrons. [E, Ar; afterglow]
- S I. Yu. Baranov and N. B. Kolokolov : Sov. Tech. Tech. Phys. 27, 1096-1099 (1982)  
ME Effect of stepwise excitation processes on the electron velocity distribution function in argon. [E, Ar]
- ME I. Yu. Baranov, N. B. Kolokolov and N. P. Penkin : Opt. Spectrosc. 58, 160-164 (1985) -  
O Investigation of step-wise excitation processes in the plasma of an argon afterglow. [E, Ar;  $T_e$  3000 - 11000 K]
- E M. Barat, J. Baudon et S. Bliman : J. Physique 28, 363-376 (1967)  
Les resonances dans les collisions atomiques. I. Resonances elastiques electrons-atomes, electrons-molecules.  
(Resonances in atomic collisions. I. Elastic electron-atom, electron-molecule resonances.) [T and E, He - Xe, H, H<sub>2</sub>]

- S D. Barbieri : Phys. Rev. 84, 653-658 (1951)  
Energy distribution, drift velocity and temperature of slow electrons in helium and argon. [T, Ar, He, Ne]
- O M. C. Barnes, T. J. Colter and M. E. Elta : J. Appl. Phys. 61, 81-89 (1987).  
Erratum 61, 4711-4711 (1987)  
Large-signal time-domain modeling of low-pressure rf glow discharges.  
[T, Ar; 13.56 MHz]
- S A. Bartels : Phys. Lett. 44A, 403-404 (1973) -  
Density dependence of the electron drift velocity in argon. [E, Ar]
- I J. E. Bartmess and R. M. Georgiadis : Vacuum 33, 149-153 (1983)  
Empirical methods for determination of ionization gauge relative sensitivities for different gases.  
[E, He - Xe, many molecules, polarizability]
- EX K. Bartschat and D. H. Madison : J. Phys. B20, 5839-5863 (1987) -  
Erratum 25, 1361-1361 (1992)  
Electron impact excitation of rare gases : Differential cross sections and angular correlation parameters for neon, argon, krypton and xenon.  
[T, Ne - Xe;  $^1P_1$  and  $^3P_1$ , DCS, 20, 50 and 80 eV]
- E K. Bartschat, R. P. McEachran and A. D. Stauffer : J. Phys. B21, 2789-2800 (1988a)  
Optical potential approach to electron and positron scattering from noble gases : I. Argon. [T, Ar; DCS, 15 - 100 eV]
- I K. Bartschat and P. G. Burke : J. Phys. B21, 2969-2975 (1988b)  
Electron impact ionisation of argon. [T, Ar]
- EX K. Bartschat : Phys. Rep. 180, 1-81 (1989) -  
I Excitation and ionization of atoms by interaction with electrons,  
O positrons, protons and photons.  
[review, T, He - Xe, Cs, Zn, Ba, Hg]
- EX K. Bartschat and D. H. Madison : J. Phys. B25, 4619-4626 (1992) -  
Non-statistical branching ratios for excitation of  $[np^5(n+1)s]^{1,3}P^{\circ}_{0,1,2}$  states in noble gases. [T, Ne - Xe; cross section ratio, 30 eV]
- E K. Bartschat : Comput. Phys. Commun. 114, 168-182 (1998)  
The R-matrix with pseudo-states method : Theory and applications to electron scattering and photoionization. [program]
- ME K. Bartschat and V. Zeman : Phys. Rev. A59, R2552-R2554 (1999) -  
Electron-impact excitation from the  $(3p^54s)$  metastable states of argon.  
[T, Ar]
- O N. L. Bashlov and N. A. Timofeev : Opt. Spectrosc. 66, 728-730 (1989) -  
Processes of excitation of mercury atoms in a pulsed periodic discharge in a mixture of mercury vapor and argon. [E, Ar + Hg]



- EX A. D. Bass, P. Hammond, S. J. Buckman, G. C. King and F. H. Read : 15th ICPEAC, Brighton 220-220 (1987)  
High resonance electron excitation functions for the lowest excitate states of argon and krypton. [E, Ar, Kr; 12.8 - 14 eV, 90°]
- O A. Bastida, N. Halberstadt, J. A. Beswick, F. X. Gadea, U. Buck, R. Galonska and I C. Lauenstein : Chem. Phys. Lett. 249, 1-6 (1996)  
Electron impact ionization of small argon clusters. [T, Ar<sub>3</sub>, Ar<sub>4</sub>]
- I A. K. Batabyal, A. K. Barua and B. N. Srivastava : Indian J. Phys. 39, 219-226 (1965)  
Ionization cross-section of atoms and molecules by electron impact. [E, He - Xe, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>; at 70 eV]
- O V. M. Batenin and V. F. Chinnov : Sov. Phys. JETP 34, 30-33 (1972) -  
Electron bremsstrahlung in the field of argon or helium atoms. [E, Ar, He]
- E E. Bauer and H. N. Browne : in Atomic Collision Processes, North-Holland, 3rd ICPEAC, London 16-27 (1964)  
Elastic scattering of electrons by the many-electron atom. [T, He - Kr, H, Zn, Li - K, N, O]
- O A. O. Bawagan and C. E. Brion : Chem. Phys. 144, 167-178 (1990)  
A new method for incorporating momentum resolution effects and defining the momentum scale in electron momentum spectroscopy. [E, Ar, H<sub>2</sub>O, D<sub>2</sub>O]
- O N. Beatham, I. P. Grant, B. J. McKenzie and S. J. Rose : Phys. Scr. 21, 423-431 (1980)  
Spectroscopic studies with a multiconfiguration Dirac-Fock program. [T, hν, Ar - Xe, Hg, Ba]
- I E. C. Beaty : Radiat. Res. 64, 70-79 (1975)  
Measurements of the energy and angular distribution of secondary electrons. [E, Ar, He, N<sub>2</sub>, O<sub>2</sub>]
- S E. C. Beaty, J. Dutton and L. C. Pitchford : JILA Report No. 20, Boulder 1-240 (1979)  
A bibliography of electron swarm data. [compilation]
- O H. B. Bebb and A. Gold : Phys. Rev. 143, 1-24 (1966)  
Multiphoton ionization of hydrogen and rare-gas atoms. [T, hν, He - Xe, H]
- O A. Bechler and R. H. Pratt : Phys. Rev. A42, 6400-6413 (1990)  
Higher multipole and retardation corrections to the dipole angular distributions of L-shell photoelectrons ejected by polarized photons. [T, hν, Ar, Kr, Fe, C]

- O A. Becker and F. H. M. Faisal : J. Phys. B32, L335-L343 (1999)  
S-matrix analysis of ionization yields of noble gas atoms at the focus of Ti:sapphire laser pulses. [T,  $h\nu$ , He - Xe]
- EX K. Becker, A. Crowe and J. W. McConkey : J. Phys. B25, 3885-3913 (1992)  
A critical look at electron-photon coincidence experiments with heavy noble gases in the regime of large impact parameters.  
[review, Ne - Xe]
- I K. H. Becker and V. Tarnovsky : Plasma Source Sci. Technol. 4, 307-315 (1995)  
Electron impact ionization of atoms, molecules, ions and transient species.  
[review, He - Xe, CF<sub>2</sub>, NF<sub>3</sub>, SO, SiF<sub>3</sub>, etc.]
- I P. M. Becker and F. W. Lampe : J. Am. Chem. Soc. 86, 5347-5349 (1964)  
Structure in the ionization efficiency curves of Ar<sup>2+</sup> by pulsed mass spectrometry. [E, Ar]
- O U. Becker, B. Langer, H. G. Kerkhoff, M. Kupsch, D. Szostak, R. Wehlitz, P. A. Heimann, S. H. Liu, D. W. Lindle, T. A. Ferrett and D. A. Shirley : Phys. Rev. Lett. 60, 1490-1493 (1988)  
Observation of many new argon valence satellites near threshold.  
[E,  $h\nu$ , Ar; synchrotron-radiation]
- O U. Becker, R. Wehlitz, O. Hemmers, B. Langer and A. Menzel : Phys. Rev. Lett. 63, 1054-1057 (1989)  
Observation of participator Auger decay following valence photoionization with excitation. [E,  $h\nu$ , Ar, Ne]
- O U. Becker and D. A. Shirley : Phys. Scr. T31, 56-66 (1990) -  
Threshold behaviour and resonances in the photoionization of atoms and molecules. [review,  $h\nu$ , Ne - Xe, Li, CO, N<sub>2</sub>]
- QT B. Bederson and L. J. Kieffer : Rev. Mod. Phys. 43, 601-640 (1971) -  
Total electron-atom collision cross sections at low energies - A critical review. [review, He - Xe, H, Li - Cs, Zn, Cd, Hg, Tl, N, O, H<sub>2</sub>, etc.]
- E M. J. M. Beerlage, Z. Qing and M. J. van der Wiel : J. Phys. B14, 4627-4635 (1981)  
The polarisation of electrons elastically scattered from argon and krypton at energies between 10 and 50 eV. [E, Ar, Kr; 10 - 50 eV]
- EX J. F. Behnke, H. Deutsch and H. Scheibner : Beitr. Plasmaphys. 25, 41-56 (1985) -  
Investigation about stepwise excitation cross sections in rare gases.  
[E, He - Ar]
- I C. Belenger, P. Defrance, E. Salzborn, V. P. Shevelko, H. Tawara and D. B. Uskov : J. Phys. B30, 2667-2679 (1997)  
Double ionization of neutral atoms, positive and negative ions by electron impact. [E and T, Ne - Xe, Cu, etc.]
- O Ph. Belenguer, J. Ph. Blondeau, L. Boufendi, M. Toogood, A. Plain, A. Bouchoule, C. Laure and J. P. Boeuf : Phys. Rev. A46, 7923-7933 (1992)  
Numerical and experimental diagnostics of rf discharges in pure and dusty argon. [E and T, Ar and Ar + dust]

- S P. Belenguer and L. C. Pitchford : IEEE Int. Conf. on Plasma Sci., Raleigh 269 (1998)  
Numerical study of electron backscattering in argon and neon-xenon mixtures. [T, Ar, Ne + Xe]
- S P. Belenguer and L. C. Pitchford : J. Appl. Phys. 86, 4780-4785 (1999)  
Effect of anisotropy in the elastic scattering cross sections on the ionization source terms in glow discharges in argon. [T, Ar; MCS]
- E K. L. Bell, N. S. Scott and M. A. Lennon : J. Phys. B17, 4757-4765 (1984)  
The scattering of low-energy electrons by argon atoms.  
[T, Ar; R-matrix, DCS, 0.02 - 19 eV]
- O K. L. Bell and K. A. Berrington : J. Phys. B20, 1329-1335 (1987)  
The free-free absorption coefficient of the negative argon ion.  
[T, Ar;  $e^- + h\nu + \text{Ar} \longleftrightarrow e^- + \text{Ar}$ ]
- I S. Bell, C. T. Gibson and B. Lohmann : Phys. Rev. A51, 2623-2625 (1995)  
Triple-differential cross section for electron-impact ionization of argon in a coplanar symmetric geometry at intermediate energies.  
[E, Ar; 115.8 and 215.8 eV]
- O I. Ben-Itzhak, O. Heber, I. Gertner and B. Rosner : Phys. Rev. A38, 4870-4871 (1988) -  
Production and mean-lifetime measurement of metastable  $\text{Ar}^-$  ions.  
[E, Ar; 260 ns]
- O S. W. Bennett, J. B. Tellinghuisen and L. F. Phillips : J. Phys. Chem. 75, 719-721 (1971)  
Absorption coefficients and ionization yields of some small molecules at 58.4 nm. [E,  $h\nu$ , Ar, CO, CO<sub>2</sub>, mostly; and review for many molecules]
- O W. R. Bennett, Jr., P. J. Kindlmann, G. N. Mercer and J. Sunderland : Appl. Phys. Lett. 5, 158-160 (1964)  
Relaxation rates of the  $\text{Ar}^+$  laser levels. [E, Ar]
- EX W. R. Bennett, Jr., G. N. Mercer, P. J. Kindlmann, B. Wexler and H. A. Hyman : Phys. Rev. Lett. 17, 987-991 (1966)  
Direct electron excitation cross sections pertinent to the argon ion laser.  
[E, Ar; th. - 110 eV]
- O E. Benova, Ts. Petrova, A. Blagoev and I. Zhelyazkov : J. Appl. Phys. 84, 147-153 (1998) -  
Modeling of an axially inhomogeneous microwave argon plasma column at a moderate pressure. [T, Ar]
- I J. A. Beran and L. Kevan : J. Phys. Chem. 73, 3866-3876 (1969)  
Molecular electron ionization cross sections at 70 eV.  
[E, He - Xe, 57 hydrocarbons, fluorocarbons and others]
- I E. G. Berezhko and N. M. Kabachnik : J. Phys. B10, 2467-2477 (1977) -  
Theoretical study of inner-shell alignment of atoms in electron impact ionisation : angular distribution and polarisation of X-ray and Auger electrons. [T, Ar - Xe, Mg]

- O H. F. Berg and W. Ervens : Z. Phys. 206, 184-188 (1967)  
Absolutmessung einiger Argon-II-Übergangswahrscheinlichkeiten.  
[E,  $h\nu$ , Ar; Ar II transition probabilities]
- E H. P. Berg : Physica 122C, 129-138 (1983)  
Calculation of elastic electron scattering cross sections for argon and krypton at low energies. [T, Ar, Kr; 10 - 50 eV]
- E R. A. Berg, J. E. Purcell and A. E. S. Green : Phys. Rev. A3, 508-510 (1971) -  
Addendum to "potential-scattering model for electrons on helium and other atoms." [T, Ar - Xe; DCS, 100, 150, 200 eV]
- I R. A. Berg and A. E. S. Green : in Advances in Quantum Chemistry, Vol. 7, Academic 277-288 (1973)  
An analytic independent particle model for atoms. III. Ionization of rare gas atoms by electrons in the Born approximation. [review, T, Ne - Xe]
- E A. S. Berman : Thesis, Ohio State University 1-88 (1949)
- EX Elastic and inelastic scattering of electrons by argon and neon.  
[E, Ar, Ne]
- O K. Bernhardt, E. Haug and K. Wieseemann : Atomic Data Nucl. Data Tables 28, 461-475 (1983)  
Differential bremsstrahlung cross sections for collisions of electrons with unscreened nuclei of low atomic numbers.  
[T, Ar, O, Fe, Kr; 5 - 100 keV]
- O N. Berrah, B. Langer, J. Bozek, T. W. Gorczyca, O. Hemmers, D. W. Lindle and O. Toader : J. Phys. B29, 5351-5365 (1996)  
Angular-distribution parameters and R-matrix calculations of Ar  $3s^{-1} \rightarrow np$  resonances. [E, Ar; 26 - 29.3 eV]
- E D. Bessis, A. Haffad and A. Z. Msezane : Phys. Rev. A49, 3366-3375 (1994)
- EX Momentum-transfer dispersion relations for electron-atom cross sections.  
[T, Ar - Xe; opt. osc. strength, 100 - 500 eV]
- QT H. Beuthe : Dissertation, Greifswald (1926)  
(from E. Bruche (1927))
- O H. Beutler : Z. Phys. 93, 177-196 (1935)  
Über Absorptionsserien von Argon, Krypton und Xenon zu Termen zwischen den beiden Ionisierungsgrenzen  $2P^0_{3/2}$  und  $2P^0_{1/2}$ .  
[E, Ar - Xe; 1070 - 600 Å]
- E J. D. E. Beynon and P. G. Brooker : J. Phys. B5, 849-859 (1972)  
The determination of the electron collision cross sections for momentum transfer of argon and potassium by measuring the DC conductivity of a high pressure plasma.  
[E, Ar, K;  $q_m = 2.2 \times 10^{-17} \text{ cm}^2$  at 0.17 eV for Ar]

- EX N. N. Bezuglov, Yu. B. Golubevskii, V. N. Gorshkov and A. L. Osherovich : Opt. Spectrosc. 42, 141-143 (1977)  
Effect of radiation trapping on the spatial distribution of line intensity in an electron beam. [E. Ar, He]
- O N. N. Bezuglov, E. N. Borisov and Ya. F. Verolainen : Sov. Phys. Usp. 34, 1-15 (1991) -  
Distribution of the radiative lifetimes over the excited states of atoms and ions. [review, He - Ar, Xe, Li - Cs, Hg]
- $\alpha$  A. K. Bhattachaya : J. Appl. Phys. 54, 3059-3065 (1983a)  
Effect of hydrogen impurity on the electrical characteristics of neon-argon gas mixtures. I. Measurement of ionization coefficients.  
[E, Ar + Ne, Ar + Ne + H<sub>2</sub>]
- O A. K. Bhattachaya : J. Appl. Phys. 54, 3066-3073 (1983b)  
Effect of hydrogen impurity on the electrical characteristics of neon-argon gas mixtures. II. Deionization processes in afterglow plasmas.  
[E, Ar + Ne, Ar + Ne + H<sub>2</sub>]
- S S. F. Biagi : Nucl. Instrum. Meth. A273, 533-535 (1988) -  
Accurate solution of the Boltzmann transport equation. [T. Ar, i-C<sub>4</sub>H<sub>10</sub>]
- S S. F. Biagi : Nucl. Instrum. Meth. A283, 716-722 (1989) -  
A multiterm Boltzmann analysis of drift velocity, diffusion, gain and magnetic-field effects in argon-methane-water vapour mixtures.  
[T, Ar + CH<sub>4</sub> + H<sub>2</sub>O]
- I M. M. Bibby, B. J. Toubelis and G. Carter : Electron. Lett. 1, 50-51 (1965)  
Ionisation and dissociation in CF<sub>4</sub>.  
[E, Ar, CF<sub>4</sub>; ionization of Ar, th. - 17 eV]
- E L. M. Biberman and G. E. Norman : Sov. Phys. JETP 18, 1353-1358 (1964)  
Semi-empirical method of calculating the cross section for elastic scattering of slow electrons by atoms. [T, Ar, Ne]
- I P. Bickert, W. Hink, C. Dal Cappello and A. Lahmam-Bennani : J. Phys. B24, 4603-4614 (1991)  
Triple differential cross section of single Ar(2p) ionization by electron impact in the keV region. [E, Ar; 2, 3, and 8 keV]
- O A. Bielski, R. S. Trawinski, J. Wolnikowski and J. Szudy : Phys. Scr. 44, 141-144 (1991)  
Pressure effects on the 506 nm argon line. [E, Ar, Ar + He, Ar + Ne]
- S D. M. Binnie : Nucl. Instrum. Meth. A234, 54-60 (1985)
- A Drift and diffusion of electrons in argon/CO<sub>2</sub> mixtures.  
[E, Ar + CO<sub>2</sub>; attachment coeff.]
- M. A. Biondi : in Advances in Electronics and Electron Physics, Vol. 18, Academic Press 67-165 (1963) -  
Atomic collisions involving low energy electron and ions.  
[review, Ar - Xe, H<sub>2</sub>, H, O, He, N<sub>2</sub>, O<sub>2</sub>, H<sub>2</sub>O, CO<sub>2</sub>, N<sub>2</sub>O, NH<sub>3</sub>, SF<sub>6</sub>; ref. 253]

- O S. Bivona, R. Burlon, R. Zangara and G. Ferrante : J. Phys. B18, 3149-3160 (1985)  
Electron scattering in strong laser fields. Theoretical models versus recent experiments. [T, Ar; CO<sub>2</sub> laser]
- QT H. J. Blaauw : PhD Thesis, Amsterdam 1-174 (1979)  
On the forward dispersion relation for electron-atom scattering.  
[T and E, He - Xe, N<sub>2</sub>; 15 - 750 eV for Ar]
- O H. E. Blackwell, G. S. Bajwa, G. S. Shipp and G. L. Weissler : J. Quant. Spectrosc. Radiat. Transf. 4, 249-269 (1964)  
Vacuum ultraviolet radiation as a probe of rare gas plasmas.  
[E, Ar, Kr, Xe]
- ME A. B. Blagoev, T. M. Mishonov and Tc. K. Popov : J. Phys. B17, 435-441 (1984) -  
Superelastic collisions between slow electrons and excited Kr and Xe atoms.  
Possible reaction mechanism for rare-gas atoms. [E, Ar - Xe]
- O A. J. Blake and J. H. Carver : J. Chem. Phys. 47, 1038-1044 (1967)  
Determination of partial photoionization cross sections by photoelectron spectroscopy. [E,  $h\nu$ , Ar, H<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, H<sub>2</sub>O]
- I C. Blanc, D. Blanc, A. Degeilh et C. Malesset : J. Phys. Radium 23, 219-222 (1962)  
Application de la spectrometrie de masse a l'etude de l'ionisation des gaz. [E, He - Xe, C<sub>6</sub>H<sub>6</sub>]
- EX F. Blanco, J. A. Sanchez, J. A. Aquilera and J. Campos : Anales de Fisica B85, 267-277 (1989)  
Experimental system to measure excitation cross-sections by electron impact. Measurements for Ar I and Ar II. [E, Ar; optical method]
- EX F. Blanco, J. A. Sanchez and J. Campos : J. Phys. B25, 3531-3539 (1992)  
Electron excitation cross sections for some Ar I 5d(J=2) levels.  
[E, Ar; optical method, level cross sections, th. - 10<sup>3</sup> eV]
- I W. Bleakney : Phys. Rev. 36, 1303-1308 (1930)  
Ionization potentials and probabilities for the formation of multiply charged ions in helium, neon and argon.  
[E, He - Ar; relative, th. - 500 eV]
- E J. E. Bloor and R. E. Sherrod : J. Phys. Chem. 90, 5508-5518 (1986)  
A continuum multiple scattering method for the treatment of elastic electron-molecule scattering. Total and DCS cross sections for argon and methane. [T, Ar, CH<sub>4</sub>; 1 - 30 eV]
- EX K. Blum, F. J. da Paixao and Gy. Csanak : J. Phys. B13, L257-L261 (1980)  
Comments on the interpretation of electron-photon coincidence experiments.  
[T, Ar, Ne, Kr, Hg]
- EX K. Blum and H. Kleinpoppen : in Advances in Atomic and Molecular Physics,  
I Vol. 19, Academic 187-264 (1983) -  
Spin-dependent phenomena in inelastic electron-atom collisions.  
[review, T, Ar, Ne, Hg, etc.]

- O L. Bober and R. S. Tankin : J. Quant. Spectrosc. Radiat. Transf. 9, 855-874 (1969)  
Emission and absorption measurements on a strongly self-absorbed argon  
atom line. [E,  $h\nu$ , Ar]
- O O. P. Bochkova, E. A. Sukiasyan and Yu. A. Tolmachev : Opt. Spectrosc. 38, 104-105  
(1975a) -  
Decay of metastable argon atoms by thermal electrons. [E,  $\text{Ar}^m + e$ ]
- O J. P. Boeuf : Phys. Rev. A46, 7910-7922 (1992)  
Characteristics of a dusty nonthermal plasma from a particle-in-cell  
Monte Carlo simulation. [T, dusty Ar]
- ME J. B. Boffard, G. A. Piech, M. F. Gehrke, M. E. Lagus, L. W. Anderson and C. C. Lin : J.  
Phys. B29, L795-L800 (1996) ○  
Electron impact excitation out of the metastable levels of argon into  
the  $3p^5 4p$   $J=3$  level. [E, Ar;  $1s_5 \rightarrow 2p_9$ , th. - 800 eV]
- ME J. B. Boffard, G. A. Piech, M. F. Gehrke, L. W. Anderson and C. C. Lin : Phys. Rev. A59,  
2749-2763 (1999) ○  
Measurement of electron-impact excitation cross sections out of  
metastable levels of argon and comparison with ground-state excitation.  
[E, Ar]
- O A. Bogaerts, R. Gijbels and J. Vlcek : J. Appl. Phys. 84, 121-136 (1998) -  
Collisional-radiative model for an argon glow discharge. [T, Ar]
- EX I. P. Bogdanova, V. D. Marusin and V. E. Yakhontova : Opt. Spectrosc. 44, 368-371  
(1978) -  
Some special features of the excitation of argon atoms by slow electrons.  
[E, Ar; emission c.s.]
- O I. P. Bogdanova and V. I. Yakovleva : Opt. Spectrosc. 52, 136-138 (1982) -  
Observation of the dissociation of argon ionic-molecular species in an  
electron beam. [E,  $\text{Ar}_2^+$ ,  $\text{Ar}_2^{++}$ ]
- EX I. P. Bogdanova and S. V. Yurgenson : Opt. Spectrosc. 62, 21-24 (1987a)  
Pulsed electron-beam excitation of argon ions from the atomic ground  
state. [E, Ar; emission c.s., 455 - 497 nm, th. - 200 eV]
- EX I. P. Bogdanova and S. V. Yurgenson : Opt. Spectrosc. 62, 281-282 (1987b) ○  
Cross sections for direct electronic excitation of atomic levels :  
Measurements using a pulsed electron beam and time-base scanning of  
radiation. 2 : Argon,  $3p^5 4p$  level. [E, Ar; nine levels, 200 eV]
- EX I. P. Bogdanova and S. V. Yurgenson : Opt. Spectrosc. 68, 730-731 (1990) -  
Electron-impact excitation of  $3p^5 4s - 3p^5 5p$  spectral transitions of the  
argon atom. [E, Ar; emission c.s.]
- EX E. Bolduc, J. J. Quemener and P. Marmet : Can. J. Phys. 49, 3095-3098 (1971)  
Electron-impact excitation of  $3s3p6nl$  states of Ar. [E, Ar]

- O J. Bommels, J. M. Weber, A. Gopalan, N. Herschbach, E. Leber, A. Schramm, K. Ueda, M. -W. Ruf and H. Hotop : J. Phys. B32, 2399-2414 (1999)  
Odd Rydberg spectrum of  $^{40}\text{Ar}(\text{I})$  : high-resolution laser spectroscopy and MQDT analysis of the nd, J=4 levels and the ng', J=4 resonances.  
[E, Ar; 4s  $^3\text{P}_2$  metastable atoms, see J. W. Weber (1999)]
- EX R. A. Bonham : J. Chem. Phys. 36, 3260-3269 (1962)  
Inelastic scattering from atoms at medium energies. I. Bound states.  
[T, Ar; 40 keV]
- E R. A. Bonham : J. Chem. Phys. 43, 1933-1940 (1965)  
Inelastic electron scattering from atoms at medium energies. II. Polarization effects. [T, Ar, U; 40 keV]
- E R. A. Bonham and H. L. Cox, Jr. : J. Chem. Phys. 47, 3508-3517 (1967)  
40-kV electron scattering from Ne, Ar, Kr, and Xe measured by the sector-microphotometer electron-diffraction method. [E, Ne - Xe]
- EX R. A. Bonham and E. W. Ng : Chem. Phys. Lett. 4, 355-357 (1969) -  
On the calculation of total electron inelastic scattering cross sections for neutral atoms in the keV energy range.  
[T, He - Xe, H, N, O, F, Cl, etc.; 40 keV]
- EX R. A. Bonham and E. W. Ng : Chem. Phys. Lett. 6, 403-406 (1970) -  
Improved total inelastic scattering cross section for the rare gases.  
[E, He - Xe, H]
- I R. A. Bonham and M. R. Bruce : Comments At. Mol. Phys. 29, 19-38 (1993)  
Ratios of the electron impact cross sections for multiple ionization of neutral atoms to single ionization of neutral atoms : Argon, case study of a long-standing problem. [compilation, Ar]
- O M. J. G. Borge and J. Campos : J. Quant. Spectrosc. Radiat. Transf. 24, 263-268 (1980)  
Lifetime of levels belonging to the  $3p^54p$  configuration of Ar(I).  
[E, Ar]
- O M. J. G. Borge and J. Campos : Physica C119, 359-366 (1983a)  
Transition probabilities for lines arising from levels belonging to the  $3p^5np$  ( $n = 4, 5, 6$ ) configurations of Ar I. [E, Ar]
- O M. J. G. Borge and J. Campos : J. Quant. Spectrosc. Radiat. Transf. 30, 433-438 (1983b)  
Transition probabilities of  $4p\text{-}nd$  ( $n = 4, 5, 6, 7$ ) lines of Ar(I).  
[E, Ar]
- S A. F. Borghesani, M. Santini and P. Lamp : Phys. Rev. A46, 7902-7909 (1992)  
Excess electron mobility in high-density argon gas. [E, Ar; 162.7 K]
- S A. F. Borghesani, M. Santini, P. Lamp and G. Buschhorn : in Gaseous Dielectrics VII, Plenum 63-69 (1994)  
Electron mobility in high-density argon gas. [E, Ar]



- S A. F. Borghesani, D. Neri and M. Santini : Int. Sympo. on Electron-Molecule Collision and Swarms, Engelberg P70 (1997)  
Evidence of electron mobility maximum in high-density Ar gas. [E, Ar]
- S A. F. Borghesani and M. Santini : in Gaseous Dielectrics VIII, Academic 91-96 (1998)  
Electron mobility maximum in high-density Ar gas. [E, Ar; 152 - 163 K]
- O W. L. Borst : Rev. Sci. Instrum. 42, 1543-1544 (1971)  
Secondary electron yields from Cu-Be-O surface by thermal CO, N<sub>2</sub>, and noble gas metastables. [E, He<sup>m</sup> - Xe<sup>m</sup>, CO<sup>m</sup>, N<sub>2</sub><sup>m</sup>]
- ME W. L. Borst : Phys. Rev. A9, 1195-1200 (1974)  
Excitation of metastable argon and helium atoms by electron impact.  
[E, Ar, He; th. - 50 eV, Auger electron detection]
- S T. E. Bortner, G. S. Hurst and W. G. Stone : Rev. Sci. Instrum. 28, 103-108 (1957)  
Drift velocities of electrons in some commonly used coating gases.  
[E, Ar, Ar + CO<sub>2</sub>, CO<sub>2</sub>, C<sub>3</sub>H<sub>6</sub>, etc.]
- O J. F. Bott : Phys. Fluids 9, 1540-1547 (1966)  
Spectroscopic measurement of temperatures in an argon plasma arc.  
[E, Ar; lifetimes]
- I B. Bouvellou, S. Rioual and A. Pochat : J. Physiq. IV 9, Pr 6, 35-39 (1999)  
Triple differential cross section of rare gas atoms in different low energy kinematics. [E, He - Ar; 20 eV excess energy]
- S J. C. Bowe : Phys. Rev. 117, 1411-1415 (1960a)  
Drift velocity of electrons in nitrogen, helium, neon, argon, krypton and xenon. [E, He - Xe, N<sub>2</sub>]
- E J. C. Bowe : Phys. Rev. 117, 1416-1420 (1960b) -  
Transport collision cross sections from electron drift-velocity data.  
[T, He - Xe, N<sub>2</sub>]
- S J. C. Bowe : Am. J. Phys. 31, 905-912 (1963) -  
Electron velocity distributions in gases. [T,
- S J. C. Bowe : Phys. Rev. 134, A355-A361 (1964)  
Mobility of electrons in the noble gases. [T, Ne - Xe]
- S J. V. Bozin, V. V. Urosevic and Z. Lj. Petrovic : Z. Phys. A312, 349-356 (1983)  
Experimental investigation of excitation of argon metastables by an electron swarm in argon nitrogen gas mixtures. [E, Ar + N<sub>2</sub>]
- J. W. Brackett : Thesis, Purdue University, Indiana 1-228 (1963)  
Application of quantum scattering theory to low energy electron diffraction and molecular collisions. [T,

- E G. L. Braglia, G. M. deMunari and G. Mambriani : Comitato Nazionale Energia Nucleare RT/FI (65) 60, 1-14 (1965)  
Elastic cross sections of low energy electrons in rare gases.  
[compilation, He - Xe;  $10^{-3}$  - 10 eV]
- S G. L. Braglia and L. Ferrari : Nuovo Cimento B4, 245-261 (1971)  
Time-dependent electron speed distribution function in an electric field in a gas. I. "Stationarization" in Ar, Kr and Xe. [T, Ar - Xe]
- S G. L. Braglia and V. Dallacasa : Phys. Rev. A18, 711-717 (1978)  
Theory of the density dependence of electron drift velocity in gases.  
[T, Ar, N<sub>2</sub>, H<sub>2</sub>, He]
- S G. L. Braglia, J. Wilhelm and R. Winkler : Lett. Nuovo Cimento 44, 365-378 (1985)  
Multi-term solution of Boltzmann's equation for electrons in real gases Ar, CH<sub>4</sub> and CO<sub>2</sub>. [T, Ar, CO<sub>2</sub>, CH<sub>4</sub>]
- S G. L. Braglia, R. Winkler and J. Wilhelm : Nuovo Cimento D7, 681-699 (1986)  
Longitudinal- and transversal-diffusion coefficients for electrons in CH<sub>4</sub>, Ar and CO<sub>2</sub>. [T, Ar, CO<sub>2</sub>, CH<sub>4</sub>]
- S G. L. Braglia, M. Diligenti, J. Wilhelm and R. Winkler : Nuovo Cimento 12D, 257-277 (1990) -  
Multiterm calculations of electron energy distributions and transport coefficients in Ar and Hg. I. Atoms at rest.  
[T, Ar, Hg; see R. Winkler (1990)]
- E H. S. Brandi and G. F. Koster : Phys. Rev. A8, 1303-1315 (1973)  
Parametrization of the cross section for low-energy electron-atom scattering. [T, Ar only]
- E B. H. Bransden and M. R. C. McDowell : Phys. Rep. 46, 249-394 (1978)
- EX Electron scattering by atoms at intermediate energies. II. Theoretical and experimental data for light atoms.  
[review, He - Xe, H, O, N, C. etc.; ionization is not covered]
- O M. Breinig, M. H. Chen, G. E. Ice, F. Parente, B. Crasemann and G. S. Brown : Phys. Rev. A22, 520-528 (1980)  
Atomic inner-shell level energies determined by absorption spectrometry with synchrotron radiation. [E,  $h\nu$ , Ar - Xe]
- S M. J. Brennan : IEEE Trans. Plasma Sci. 19, 256-261 (1991) -  
Optimization of Monte Carlo codes using null collision techniques for experimental simulation at low E/N. [T, Ar, He, model gas]
- S M. J. Brennan and K. F. Ness : Nuovo Cimento D14, 933-945 (1992)  
Comments on electron transport in gases with particular reference to argon.  
[T, Ar]
- EX J. Bretagne, J. Goodart and V. Puech : Beitr. Plasmaphys. 23, 295-312 (1983)  
Kinetic study of electron beam excited argon. [E and T, Ar]

- EX J. Bretagne, G. Callede, M. Legentil and V. Puech : J. Phys. D19, 761-777 (1986a)  
Relativistic electron-beam-produced plasmas. I : Collision cross section and loss function in argon. [T, Ar; c.s. set for Ar]
- EX J. Bretagne, G. Callede, M. Legentil and V. Puech : J. Phys. D19, 779-793 (1986b) -  
Relativistic electron-beam-produced plasmas. II : Energy apportionment and plasma formation. [T, Ar only]
- EX C. E. Brion and L. A. R. Olsen : J. Phys. B3, 1020-1033 (1970)  
Threshold electron impact excitation of the rare gases.  
[E, He - Xe; zero-energy electrons are scavenged by SF<sub>6</sub>]
- EX C. E. Brion and L. A. R. Olsen : Chem. Phys. Lett. 22, 400-402 (1973)  
Threshold electron impact excitation of argon in the region of the M<sub>1</sub> edge. [E, Ar]
- O C. E. Brion : Radiat. Res. 64, 37-52 (1975)  
"Photoelectron" spectroscopy by electron impact. Coincidence studies of scattered and ejected electrons. [E, e and hν, Ne - Kr, H<sub>2</sub>O, NH<sub>3</sub>]
- O C. E. Brion and A. Hamnett : in Advances in Chemical Physics, Vol. 45, John Wiley & Sons 1-80 (1981) -  
Continuum optical oscillator-strength measurements by electron spectroscopy in the gas phase.  
[review, E and T, Ne - Xe, H<sub>2</sub>, N<sub>2</sub>, CO, CH<sub>4</sub>, etc.]
- O C. E. Brion, K. H. Tan and G. M. Bancroft : Phys. Rev. Lett. 56, 584-587 (1986a)  
Synchrotron radiation studies of the Ar 3s<sup>-1</sup> binding-energy spectrum : A comparison of experimental intensities and theory. [E and T, hν, Ar]
- O C. E. Brion : Int. J. Quant. Chem. 29, 1397-1428 (1986b)  
Looking at orbitals in the laboratory : The experimental investigation of molecular wavefunctions and binding energy by electron momentum spectroscopy. [review, He - Ar, H, H<sub>2</sub>, NO, H<sub>2</sub>O, CF<sub>4</sub>, CO<sub>2</sub>, COS, CS<sub>2</sub>]
- O C. E. Brion, A. O. Bawagan and K. H. Tan : Chem. Phys. Lett. 134, 76-82 (1987)  
The argon 3s photoelectron satellite spectrum at high resolution (hν = 60 - 170 eV). [E, hν, Ar]
- O C. E. Brion, A. O. Bawagan and K. H. Tan : Can. J. Chem. 66, 1877-1889 (1988)  
Investigation of electron correlation effects in the inner-valence photoelectron spectra of argon and xenon using synchrotron radiation at high resolution. [E, hν, Ar, Xe; 60 - 170 eV]
- O D. J. Bristow, J. S. Tse and G. M. Bancroft : Phys. Rev. A25, 1-6 (1982)  
Experimental and theoretical shake-up studies. The rare gases.  
[E and T, hν, Ne - Xe]
- QT R. B. Brode : Phys. Rev. 25, 636-644 (1925)  
The absorption coefficient for slow electrons in gases.  
[E, Ar, He, H<sub>2</sub>, N<sub>2</sub>, CO, CH<sub>4</sub>; 20 - 300 eV for Ar]

- QT R. B. Brode : Phys. Rev. 39, 547-547 (1932)  
The collision cross-section of argon atoms for 300 to 2500 volt electrons.  
[E, Ar]
- QT R. B. Brode : Rev. Mod. Phys. 5, 257-279 (1933) -  
The quantitative study of the collisions of electrons with atoms.  
[review, He - Xe, Na - Cs, CO<sub>2</sub>, N<sub>2</sub>O, etc.]
- O J. E. Brolley, L. E. Porter, R. H. Sherman, J. K. Theobald and J. C. Fong : J. Geophys. Res. 78, 1627-1632 (1973)  
Photoabsorption cross sections of H<sub>2</sub>, D<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, Ar, Kr, and Xe at the 584-Å line of neutral helium. [E, hν, Ar - Xe, H<sub>2</sub>, D<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>]
- E J. P. Bromberg : J. Chem. Phys. 61, 963-969 (1974) ○  
Absolute differential cross sections of electrons elastically scattered by the rare gases. I. Small angle scattering between 200 and 700 eV.  
[E, He - Xe; 200 - 700 eV, 2 - 30°]
- I I. K. Bronic, M. Kimura, M. Inokuti and M. A. Dillon : Nucl. Instrum. Meth. B71, 366-370 (1992) -  
The Fano factor for electrons in gas mixtures.  
[T, He - Xe, Ar + CH<sub>4</sub>, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO<sub>2</sub>, CH<sub>4</sub>, C<sub>2</sub>H<sub>2</sub>]
- O I. K. Bronic and M. Kimura : J. Chem. Phys. 104, 8973-8988 (1996)  
Electron thermalization in rare gases and their mixtures. [T, He - Xe]
- α I. K. Bronic and B. Grosswendt : 23th ICPIG, Toulouse 1, 78-79 (1997)  
Ionization coefficient in argon-isobutane mixtures.  
[E, Ar + C<sub>4</sub>H<sub>10</sub>]
- I M. J. Brothers and R. A. Bonham : J. Phys. B19, 3801-3814 (1986)  
Approximate factorised plane-wave Born calculations of the dipole (e, 2e) cross sections for the Ne 2s and 2p and Ar 2p and 3p orbitals.  
[T, Ar, Ne]
- O R. T. Brown : Atomic Data Nucl. Data Tables 15, 111-139 (1975)  
Differential cross sections for coherent photon scattering by elements Z=2 through Z=26. [compilation, hν, He - Ar, etc.]
- E R. Browning, T. Z. Li, B. Chui, J. Ye, R. F. W. Pease, Z. Czyzewski and D. C. Joy : J. Appl. Phys. 76, 2016-2022 (1994) -  
Empirical forms for the electron/atom elastic scattering cross sections from 0.1 to 30 keV. [semiempirical, Z = 1 - 92]
- I M. R. Bruce and R. A. Bonham : Z. Phys. D24, 149-154 (1992)  
Problem in the measurement of the Ar<sup>2+</sup>/Ar<sup>+</sup> partial ionization cross-section ratio by use of the pulsed-electron-beam time-of-flight method.  
[E, Ar]
- I M. R. Bruce and R. A. Bonham : J. Mol. Struct. 352/353, 235-243 (1995)  
Electron-ion coincidence experiments : absolute detector efficiencies and neutral dissociation cross sections.  
[E, Ar, He, Kr, N<sub>2</sub>, CF<sub>4</sub>; 40 eV for Ar]

- QT E. Bruche : Ann. Phys. 81, 537-571 (1926)  
 Über den Querschnitt von Wasserstoff- und Stickstoffmolekulan gegenüber  
 langsamen Elektronen. [E. Ar. H<sub>2</sub>. N<sub>2</sub>; 1.2 - 36 eV for Ar]
- QT E. Bruche, D. Lilienthal und K. Schrodter : Ann. Phys. 84, 279-291 (1927)  
 Über den Wirkungsquerschnitt der Edelgase Ar, Ne, He gegenüber langsamen  
 Elektronen. [E, He - Ar; 1 - 48 eV]
- QT E. Bruche : Ergebn. der exakt. Naturwiss. 8, 185-228 (1929) ·  
 Freie Elektronen als Sonden des Baues der Molekeln. (Kenninis von  
 Wirkungsquerschnitt und Molekelbau. [review, He - Xe, Cd, Zn, Hg, H<sub>2</sub>,  
 N<sub>2</sub>, O<sub>2</sub>, CO, NO, HCl, N<sub>2</sub>O, H<sub>2</sub>O, CO<sub>2</sub>, NH<sub>3</sub>, CH<sub>4</sub>, C<sub>2</sub>H<sub>2</sub>, C<sub>2</sub>H<sub>4</sub>, C<sub>2</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>8</sub>]
- O J. Bruneau : J. Phys. B16, 4135-4151 (1983)  
 MCDF calculation of argon Auger process.  
 [T. hν, Ar; multiconfiguration Dirac-Fock]
- I M. J. Brunger, I. E. McCarthy and E. Weigold : Phys. Rev. A59, 1245-1252 (1999)  
 High-resolution electron-momentum spectroscopy of argon : Validation  
 of technique and approximations. [E. Ar; 500 - 1800 eV]
- EX J. N. H. Brunt, G. C. King and F. H. Read : J. Phys. B9, 2195-2207 (1976) ·  
 A study of resonance structure in neon, argon, krypton and xenon using  
 metastable excitation by electron impact with high energy resolution.  
 [E. Ne - Xe; th. - 16 eV]
- EX J. N. H. Brunt, G. C. King and F. H. Read : J. Phys. B10, 1289-1301 (1977a)  
 Resonance structure in elastic electron scattering from helium, neon and  
 argon. [E, He - Ar]
- EX J. N. H. Brunt, G. C. King and F. H. Read : J. Phys. B10, 3781-3796 (1977b) ○  
 Near-threshold electron impact excitation of ultraviolet-emitting levels  
 of neon, argon, krypton and xenon atoms. [E. Ne - Xe; th. - 13.8 eV]
- QT R. S. Brusa, G. P. Karwasz and A. Zecca : Z. Phys. D38, 279-287 (1996) ·  
 Analytical partitioning of total cross sections for electron scattering  
 on noble gases. [empirical formula, He - Xe, 20 - 5000 eV]
- O R. Bruzzese, A. Sasso and S. Solimeno : Riv. Nuovo Cimento 12, 1-105 (1989)  
 Multiphoton excitation and ionization of atoms and molecules.  
 [review, T, hν, He - Xe, Cs, NO<sub>2</sub>, etc.]
- EX V. E. Bubelev and A. N. Grum-Grzhimailo : Opt. Spectrosc. 69, 178-182 (1990) ·  
 Excitation of the 2p levels of inert gases by electrons in the  
 distorted-wave approximation : Neon and argon. [T, Ar, Ne; 20 - 200 eV]
- EX V. E. Bubelev and A. N. Grum-Grzhimailo : J. Phys. B24, 2183-2199 (1991) ·  
 Excitation of Ar I 3p<sup>5</sup>4p, 3p<sup>5</sup>3d and 3p<sup>5</sup>5s configurations by electrons  
 in the distorted-wave approximation. [T, Ar; 16 - 100 eV]

- E R. A. Buckingham, H. S. W. Massey and S. R. A. Tibbs : Proc. Roy. Soc. London A178, 119-134 (1941) ·  
Self-consistent field for methane and its applications.  
[T, Ar, CH<sub>4</sub>; DCS]
- EX S. J. Buckman, G. C. King and F. H. Read : 12th ICPEAC, Gatlinburg I, 200-201 (1981) ·  
High resolution electron impact excitation of negative ion resonances in  
Ne, Ar, Kr and Xe. [E, Ne - Xe]
- EX S. J. Buckman, P. Hammond, G. C. King and F. H. Read : J. Phys. B16, 4219-4236 (1983) ○  
High-resolution electron impact excitation functions of metastable  
states of neon, argon, krypton and xenon. [E, Ne - Xe]
- QT S. J. Buckman and B. Lohmann : J. Phys. B19, 2547-2564 (1986) ○  
Low-energy total cross section measurements for electron scattering  
from helium and argon. [E, Ar, He; 0.12 - 20 eV, 3 - 6 %]
- E S. J. Buckman and J. Mitroy : J. Phys. B22, 1365-1384 (1989)  
Analysis of low-energy electron scattering cross sections via effective-  
range theory. [T, Ne - Kr; MERT, 0.01 - 1 eV]
- EX S. J. Buckman and C. W. Clark : Rev. Mod. Phys. 66, 536-655 (1994) ○  
Atomic negative-ion resonances. [review]
- E S. J. Buckman and M. J. Brunger : Aust. J. Phys. 50, 483-509 (1997) ·  
A critical comparison of electron scattering cross sections measured by  
single collision and swarm techniques.  
[compilation, He - Ar, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, NO, CO<sub>2</sub>, CH<sub>4</sub>, etc.]
- O I. Bues, T. Haag and J. Richter : Astron. Astrophys. 2, 249-250 (1969)  
Spectroscopic investigation of an argon arc plasma. [E, Ar]
- E W. Buhring : Z. Phys. 208, 286-298 (1968)  
Polarization of slow electrons (100 - 2000 eV) elastically scattered from  
heavy atoms. [T, Ne - Kr, I, Hg; Mott polarization]
- E E. M. Bulewicz : J. Chem. Phys. 36, 385-391 (1962)  
Electron-molecule and electron-atom collision cross sections from a  
cyclotron resonance study of flame gases.  
[E, He - Ar, N<sub>2</sub>, H<sub>2</sub>O, CO<sub>2</sub>, etc.]
- E E. C. Bullard and H. S. W. Massey : Proc. Roy. Soc. London A130, 579-590 (1931a)  
The elastic scattering of slow electrons in argon.  
[E, Ar; DCS, -4 - 40 eV]
- E M. C. Bullard and H. S. W. Massey : Proc. Roy. Soc. London A133, 637-651 (1931b)  
The elastic scattering of slow electrons in gases. - II.  
[E, Ar, He, Ne, N<sub>2</sub>, H<sub>2</sub>, CH<sub>4</sub>; DCS]
- O C. F. Bunge, M. Galan, R. Jauregui and A. V. Bunge : Nucl. Instrum. Meth. 202, 299-305 (1982)  
Systematic search of excited states of negative ions lying above the  
ground state of the neutral atom. [T, Ar, H - Ca; Ar<sup>-</sup>]

- EX M. M. Burgers and R. Cooper : J. Chem. Phys. 106, 6385-6389 (1997) -  
 I Experimental observations of high-energy electron degradation in argon.  
 [E, Ar]
- $\alpha$  A. L. J. Burgmans and A. H. M. Smeets : J. Phys. D16, 755-762 (1983)  
 The ionisation coefficient in Ar - Hg mixtures.  
 [E, Ar + Hg; E/N = 6 - 2000 Td]
- I A. L. J. Burgmans and H. J. H. Merks-Eppingbroek : J. Phys. D17, L93-L96 (1984)  
 Ionization by highly excited argon states in mixtures of argon with krypton. [E, Ar + Kr]
- E P. G. Burke and J. F. B. Mitchell : J. Phys. B7, 665-673 (1974)  
 Polarized pseudo-states for low energy electron-atom scattering.  
 [T, Ar, He, Ne, N]
- O P. G. Burke and K. T. Taylor : J. Phys. B8, 2620-2639 (1975a)  
 R-matrix theory of photoionization. Application to neon and argon.  
 [T,  $h\nu$ , Ar, Ne]
- O P. G. Burke and K. T. Taylor : 9th ICPEAC, Seattle 2, 1175-1176 (1975b)  
 Photoionization of neon and argon. [T,  $h\nu$ , Ar, Ne]
- E P. G. Burke and J. F. Williams : Phys. Rep. 34, 325-369 (1977) -  
 R Electron scattering by atoms and molecules.  
 V [review, Ar, He, H, Na, K, H<sub>2</sub>, N<sub>2</sub>, F<sub>2</sub>, KI, CH<sub>4</sub>]
- EX P. G. Bruke : in Advances in Atomic, Molecular, and Optical Physics, Vol. 32, Academic 39-55 (1994)  
 Electron-atom scattering theory and calculations. [review]
- I C. J. Burkley and M. C. Sexton : Brit. J. Appl. Phys. 18, 443-445 (1967)  
 Ionization rates in the inert gases. [E, Ar, He, Xe; microwave]
- QT R. S. Bursa, G. P. Karwasz and A. Zecca : Z. Phys. D38, 279-287 (1996) -  
 Analytical partitioning of total cross sections for electron scattering on noble gases. [empirical formula, He - Xe]
- $\alpha$  C. G. Buursen and L. H. Van Montfort : Physica 63, 540-552 (1973) -  
 The pressure dependence of primary ionization in neon-argon mixtures.  
 [E, Ne + Ar]
- S J. Byrne, F. Shaikh and J. Kyles : Nucl. Instrum. Meth. 79, 286-292 (1970) -  
 Avalanche chain development in an argon-methane proportional counter.  
 [E, Ar + CH<sub>4</sub>]
- E F. W. Byron, Jr. and C. J. Joachain : Phys. Rep. 34, 233-324 (1977)  
 Eikonal theory of electron- and positron-atom collisions. [review]
- O R. B. Cairns and J. A. R. Samson : J. Geophys. Res. 70, 99-104 (1965)  
 Absorption and photoionization cross sections of CO<sub>2</sub>, CO, Ar and He at intense solar emission lines. [E,  $h\nu$ , Ar, He, CO, CO<sub>2</sub>; 300 - 1040 Å]

- O R. B. Cairns, F. F. Marmo and J. A. R. Samson : J. Opt. Soc. Am. 60, 211-213 (1970)  
Photon scattering by argon in the vacuum ultraviolet.  
[E,  $h\nu$ , Ar; ratio of Ar<sub>2</sub> to Ar at 100 Torr is deduced to be  $8.6 \times 10^{-5}$ ]
- O C. Camhy-Val et A. -M. Dumont : Compt. Rend. Acad. Sci. 267B, 689-691 (1968)  
Mesure absolue de la duree de vie du niveau  $4p^4S_{3/2}^0$  de l'argon II par la methode de correlation de photons emis en cascade. [E, Ar]
- O C. Camhy-Val, A. M. Dumont, D. Dreux and R. Vitry : Phys. Lett. A32, 233-234 (1970)  
Absolute measures of mean lifetimes of excited states using the method of correlated photons in cascade. [E, Ar, Hg]
- O J. Campos and B. Zurro : An. Fis. 69, 299-302 (1973) in Spanish  
The half life of the  $5d(7/2)_4$  level in neutral argon.  
[E, Ar; delayed coincidence method]
- O R. W. Carlson, D. L. Judge, M. Ogawa and L. C. Lee : Appl. Opt. 12, 409-412 (1973)  
Photoabsorption cross section of argon in the 180 - 700-A wave-length region. [E,  $h\nu$ , Ar]
- O T. A. Carlson : Phys. Rev. 156, 142-149 (1967)  
Double electron ejection resulting from photo-ionization in the outer-most shell of He, Ne, and Ar, and its relationship to electron correlation.  
[E,  $h\nu$ , Ar, He, Ne]
- I T. A. Carlson, W. E. Moddeman and M. O. Krause : Phys. Rev. A1, 1406-1410 (1970)  
Electron shake-off in neon and argon as a function of energy of the impact electron. [E, Ar, Ne; L-Auger spectrum of argon]
- O T. A. Carlson and A. E. Jonas : J. Chem. Phys. 55, 4913-4924 (1971)  
Angular distribution of the photoelectron spectra for Ar, Kr, Xe, H<sub>2</sub>, N<sub>2</sub> and CO. [E,  $h\nu$ , Ar - Xe, etc.]
- O T. A. Carlson, D. R. Mullins, C. E. Beall, B. W. Yates, J. W. Taylor, D. W. Lindle and F. A. Grimm : Phys. Rev. A39, 1170-1185 (1989)  
Angular distribution of ejected electrons in resonant Auger processes of Ar, Kr, and Xe. [E,  $h\nu$ , Ar - Xe]
- S R. J. Carman : J. Phys. D22, 55-66 (1989)
- EX A simulation of electron motion in the cathode sheath region of a glow discharge in argon. [T, Ar]
- S C. H. H. Carmichael : Int. J. Electron. 32, 49-56 (1972)  
Electron drift speed and multiplication in a pulsed positive column.  
[ , Ar,
- O S. L. Carter and H. P. Kelly : J. Phys. B9, L565-L568 (1976)  
Double photoionization cross section of argon. [T,  $h\nu$ , Ar]
- O S. L. Carter and H. P. Kelly : Phys. Rev. A16, 1525-1534 (1977)  
Double photoionization of neon and argon. [T,  $h\nu$ , Ar, Ne]



- I S. Cavanagh and B. Lohmann : J. Phys. B30, L231-L236 (1997)  
On (e, 2e) investigation of inner-shell ionization in argon.  
[E, Ar; 1000 eV]
- E Ma Ce, P. B. Liescheski and R. A. Bonham : Rev. Sci. Instrm. 60, 3661-3672 (1989) Z  
A new method for measuring absolute total electron-impact cross sections  
with forward scattering corrections. [E, Ar; 300 eV]
- ME R. J. Celotta, H. Brown, R. Molof and B. Bederson : Phys. Rev. A3, 1622-1628 (1971)  
Measurements of the total cross section for the scattering of low-energy  
electrons by metastable argon. [E, Ar<sup>m</sup>; 0.4 - 6.8 eV]
- EX V. Cermak and Z. Herman : Collect. Czech. Chem. Commun. 29, 953- (1964)  
The mass spectrometric detection of highly excited long-lived states of  
noble gas atoms. [E,
- O V. Cermak : J. Chem. Phys. 44, 1318-1323 (1966) .
- EX Detection of long-lived excited states of molecules by Penning ionization.  
[E, Ar, He, Ne, N<sub>2</sub>, etc.; th. - 32 eV]
- EX G. E. Chamberlain, H. G. M. Heideman, J. A. Simpson and C. E. Kuyatt : 4th ICPEAC,  
Quebec 378-381 (1965)  
Electron impact spectra of helium and argon.  
[E, Ar, He; EELS for 40.7 eV electrons in Ar]
- O W. F. Chan, G. Cooper, X. Guo, G. R. Burton and C. E. Brion : Phys. Rev. A46, 149-171  
(1992), Erratum A48, 858-858 (1993)  
Absolute optical oscillator strengths for the electronic excitation of  
atoms at high resolution. III. The photoabsorption of argon, krypton, and  
xenon. [E, hν, Ar - Xe]
- I S. Chandra, H. P. Mital and U. Narain : Physica C83, 384-388 (1976) .  
Ionization cross sections and rate coefficients for atoms, ions and  
molecules. [T, Ar - Xe, Hg, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, NO, etc.]
- I D. W. Chang and P. L. Altick : J. Phys. B29, 2325-2335 (1996)  
Doubly, singly differential and total ionization cross sections of rare-  
gas atoms. [T, Ne - Kr]
- O R. S. F. Chang and D. W. Setser : J. Chem. Phys. 69, 3885-3897 (1978)  
Radiative lifetimes and two-body deactivation rate constants for  
Ar(3p<sup>5</sup>, 4p) and Ar(3p<sup>5</sup>, 4p') states. [E, Ar]
- O T. N. Chang : Phys. Rev. A15, 2392-2395 (1977a)  
Application of the many-body theory of atomic transitions to the  
photoionization of neon and argon. [T, hν, Ar, Ne]
- O T. N. Chang : Phys. Rev. A16, 1171-1178 (1977b)  
Many-body calculation on the photoionization of neon and argon  
isoelectronic sequences. [T, hν, Ar, Ne]
- O T. N. Chang and Y. S. Kim : Phys. Rev. A26, 2728-2732 (1982)  
Photoionization from the excited p states of the rare-gas atoms.  
[T, hν, Ne - Xe]

- O T. W. Chang : Phys. Rev. A18, 1448-1453 (1978)  
Quantitative assessment of the many-body interactions in the M-shell photoionization of argon. [T,  $h\nu$ , Ar]
- S Y. Chang, M. E. Sarakinos, U. J. Becker, G. E. Sasser and B. R. Smith : Nucl. Instrum. Meth. A311, 490-497 (1992)  
Gases for muon drift chambers at high energy hadron colliders.  
[E, Ar + CH<sub>4</sub> + CO<sub>2</sub>, Ar + CO<sub>2</sub>, etc.]
- O J. Chapelle, A. Sy, F. Cabannes and J. Blandin : J. Quant. Spectrosc. Radiat. Transf. 8, 1201-1216 (1968)  
Etude de largeurs et de probabilités de transition de raies de l'argon a l'aide d'un chalumeau a plasma. [E,  $h\nu$ , Ar]
- O R. D. Chapman and R. J. W. Henry : Astrophys. J. 173, 243-245 (1972)  
Photoionization cross-sections for atoms and ions of aluminum, silicon, and argon. [T,  $h\nu$ , Ar, Al, Si]
- O D. Charalambidis, D. Xenakis, C. J. G. J. Uiterwaal, P. Maragakis, J. Zhang, H. Schroder, O. Faucher and P. Lambropoulos : J. Phys. B30, 1467-1479 (1997)  
Multiphoton ionization saturation intensities and generalized cross sections from ATI spectra. [E,  $h\nu$ , Ar, He; above-threshold ionization]
- QT M. Charlton, T. C. Griffith, G. R. Heyland and T. R. Twomey : J. Phys. B13, L239-L244 (1980)  
Total scattering cross sections for low-energy electrons in helium and argon. [E, Ar, He; 2 - 50 eV]
- I M. Charlton, L. Brum-Mielsen, B. I. Deutch, P. Hvelplund, F. M. Jacobsen, H. Knudsen, G. Laricchia and M. R. Poulsen : J. Phys. B22, 2779-2788 (1989) ·  
Double ionisation of noble gases by positron and electron impact.  
[E, Ar, Ne; th. - 5 keV]
- S Y. Chatelus, P. Ramanantsizehena, J. Gresser and G. Schultz : Nucl. Instrum. Meth. 171, 127-134 (1980)  
Drift velocities in argon-ethane and xenon-ethane gas mixtures.  
[E, Ar + C<sub>2</sub>H<sub>6</sub>, Xe + C<sub>2</sub>H<sub>6</sub>, etc.]
- I M. A. Chaudhry, A. J. Duncan, R. Hippler and H. Kleinpoppen : Phys. Rev. A39, 530-536 (1989)  
Partial doubly differential cross sections for multiple ionization of argon, krypton and xenon atoms by electron impact. [E, Ar - Xe]
- I M. A. Chaudhry, A. J. Duncan, R. Hippler and H. Kleinpoppen : Phys. Rev. A41, 4056-4057 (1990) ·  
Angular variation of the partial doubly differential cross sections for multiple ionization of argon atoms by electron impact. [E, Ar]
- O M. H. Chen, B. Crasemann and H. Mark : Phys. Rev. A21, 436-441 (1980a)  
Relativistic K-shell Auger rates, level widths, and fluorescence yields.  
[T, Ar - Xe, Ba, Hg, etc.]

- O M. H. Chen, B. Crasemann and H. Mark : Phys. Rev. A21, 442-448 (1980b)  
Relativistic K-LL Auger spectra in the intermediate-coupling scheme with configuration interaction. [T. Ar, Z = 18 (Ar) - 96 (Cm)]
- O M. H. Chen, B. Crasemann and H. Mark : Phys. Rev. A24, 177-182 (1981a)  
Widths and fluorescence yields of atomic L-shell vacancy states.  
[T, Z = 18 - 100]
- O M. H. Chen, B. Crasemann and H. Mark : Phys. Rev. A24, 1158-1161 (1981b)  
Interaction with Auger continua as a source of atomic-energy-level shifts. [T,  $h\nu$ , Ar, Kr, Hg; Z = 18 - 92]
- O M. H. Chen : Phys. Rev. A31, 177-186 (1985)  
Effects of relativity and correlation on L-MM Auger spectra.  
[T,  $h\nu$ , Ar - Xe, Hg; ten elements with Z = 18 - 92]
- EX Z. Chen and A. Z. Msezane : J. Phys. B31, 4655-4661 (1998) .  
Integral cross sections from measured electron-impact differential cross sections. [T, Ar, He, Na; Ar  $3p^6\ ^1S_0 - 2p^5\ [^5P_{1/2},\ ^2P_{3/2}\ 4s]$  transitions]
- O K. T. Cheng, K. -N. Huang and W. R. Johnson : J. Phys. B13, L45-L49 (1980)  
Spin polarisation of  $ns \rightarrow \varepsilon p$  photoelectrons from xenon, krypton and argon atoms. [T,  $h\nu$ , Ar - Xe]
- O M. Chenevier et P. A. Moskowitz : J. Physiq. 35, 401-409 (1974)  
Mesures par resonance magnetique de durees de vie et de facteurs de lande de niveaux excites d'atomes d'argon et de xenon. [E, Ar, Xe]
- O N. A. Cherepkov : J. Phys. B13, L689-L692 (1980)  
On the applicability of non-relativistic theory for photoelectron polarisation calculations. [T,  $h\nu$ , Ar, Xe]
- I V. E. Cherkovets and N. G. Shestakova : Sov. Phys. Tech. Phys. 23, 160-166 (1978)  
Low-temperature inert-gas, alkali-metal plasma by a fast electron beam.  
[T, Ar - Xe, Li - K, Cs, Ba]
- S R. V. Chiflikyan : High Temp. 34, 1-6 (1996) .  
Qualitative analysis of the relation between drift velocities of electrons in gas mixtures and pure gases forming these mixtures in gas-discharge plasma. [T, Ar, He, Kr, N<sub>2</sub>, O<sub>2</sub>, CO, etc.]
- S R. V. Chiflikyan : Phys. Plasmas 6, 4794-4796 (1999)  
Comment on "Calculation of electron transport in Ar - N<sub>2</sub> and He - Kr gas mixtures - implications for validity of Blanc's law method" [Phys. Plasmas 4, 551 (1997)]. [comment, T, Ar + N<sub>2</sub>, etc.]
- EX J. E. Chilton, J. B. Boffard, R. S. Schappe and C. C. Lin : Phys. Rev. A57, 267-277 (1998) ○  
Measurement of electron-impact excitation into the  $3p^5 4p$  levels of argon using Fourier-transform spectroscopy. [E, Ar; th. - 300 eV]

- EX J. E. Chilton and C. C. Lin : Phys. Rev. A60, 3712-3721 (1999) ○  
Measurement of electron-impact excitation into the  $3p^5 3d$  and  $3p^5 5s$  levels of argon using Fourier-transform spectroscopy. [E, Ar; th. - 200 eV]
- S V. T. Chiplonkar and V. V. Wagle : Curr. Sci. (India) 44, 725-727 (1975)  
Determination of electron drift velocity in gas discharge plasma by transit time measurements. [E, Ar]
- O P. D. Chopra and D. W. O. Heddle : J. Phys. B7, 2421-2428 (1974)  
Polarization free measurements of Rayleigh scattering of Lyman  $\alpha$ . [E,  $h\nu$ , Ar, Kr, Xe,  $H_2$ ,  $N_2$ ]
- EX D. J. Chornay, G. C. King and S. J. Buckman : J. Phys. B17, 3173-3182 (1984) -  
Lifetime measurements of VUV emitting levels in He, Ne, Ar and CO using the inelastic electron-photon delayed coincidence technique. [E, Ar, Ne, He, CO]
- E M. H. Choudhury : Phys. Rev. 186, 66-82 (1969) -  
Pressure shifts of high-series spectral lines and cross sections for scattering of very slow electrons from rare-gas atoms. [T, He - Xe; 0.03 - 0.2 eV]
- E M. H. Choudhury and J. Dunning-Davies : Phys. Rev. A7, 1549-1554 (1973) -  
Pressure shifts of high-series spectral lines and cross sections for scattering of very slow electrons from rare-gas atoms. II. [T, no example]
- O L. G. Christophorou : Atomic and Molecular Radiation Physics, Wiley Interscience (1971)
- S L. G. Christophorou, D. L. McCorkle, D. V. Maxey and J. G. Carter : Nucl. Instrum. Meth. 163, 141-149 (1979) -  
Fast gas mixtures for gas-filled particle detectors. [E, Ar,  $CH_4$ ,  $CF_4$ ,  $C_2H_2$ ]
- O L. G. Christophorou and E. Illenberger : Phys. Lett. A173, 78-82 (1993) -  
Scattering of slow electrons from excited atoms : The dominant role of the polarization potential. [compilation, Ar, He, Na, K, etc.]
- EX A. Chutjian and D. C. Cartwright : 10th ICPEAC, Paris 432-432 (1977)  
Inelastic differential cross sections for electron-impact excitation of argon. [E, Ar]
- EX A. Chutjian and D. C. Cartwright : Phys. Rev. A23, 2178-2193 (1981) ○  
Electron-impact excitation of electronic states in argon at incident energies between 16 and 100 eV. [E, Ar; 25 energy levels]
- I B. Cleff and W. Melhorn : J. Phys. B7, 593-604 (1974a)  
On the angular distribution of Auger electrons following impact ionization. [T, Ar, Kr]

- I B. Cleff and W. Melhorn : J. Phys. B7, 605-611 (1974b)  
Angular distribution of  $L_3M_{2,3}M_{2,3}$  ( $^1S_0$ ) Auger electrons of argon.  
[E. Ar; 497, 994 and 3976 eV]
- EX P. N. Clout and D. W. O. Heddle : J. Phys. B4, 483-493 (1971)  
Electron impact excitation of argon II lines. [E. Ar; emission c.s.]
- O P. B. Coates and A. G. Gaydon : Proc. Roy. Soc. London A293, 452-468 (1966)  
Temperature measurements in shock tubes; transition probabilities for argon lines. [E. Ar]
- O K. Codling, J. B. West, A. C. Parr, J. L. Dehmer and R. L. Stockbauer : J. Phys. B13, L693-L697 (1980)  
Measurement of  $\beta$  values and branching ratios in the region of the  $3s3p^64p$   $^1P_1^0$  resonance in Ar and the  $5s5p^66p$   $^1P_1^0$  resonance in Xe.  
[T,  $h\nu$ , Ar, Xe]
- O F. J. Coetzer, T. C. Kotze and P. van der Westhuizen : J. Quant. Spectrosc. Radiat. Transf. 38, 253-260 (1987)  
Radiative lifetimes of the  $4p^4P_{5/2,3/2}^0$  levels in Ar II from beam-foil experiments. [E. Ar]
- E J. D. Coffman, M. Fink and H. Wellenstein : Phys. Rev. Lett. 55, 1392-1394 (1985) ·  
Elastic small-angle electron scattering by He, Ne, and Ar at 35 keV.  
[E. He - Ar; 35 keV]
- O E. A. Colbourn and A. E. Douglas : J. Chem. Phys. 65, 1741-1745 (1976) ·  
The spectrum and ground state potential curve of  $Ar_2$ .  
[E.  $Ar_2$ ;  $v = 0 \rightarrow 1$ , 0.00319 eV]
- S L. Colli and U. Facchini : Rev. Sci. Instrum. 23, 39-43 (1952a) ·  
Drift velocity of electrons in argon. [E. Ar,  $N_2$ ]
- O L. Colli and U. Facchini : Phys. Rev. 88, 987-998 (1952b)  
 $\alpha$  Discharge mechanism in argon counters. [E. Ar, Ar +  $CO_2$ , Ar + Hg]
- O L. A. Collins and A. L. Merts : J. Quant. Spectrosc. Radiat. Transf. 26, 443-449 (1981)  
Comparison of models for the Gaunt factor for free-free absorption.  
[T,  $h\nu$ , He - Ar]
- O F. J. Comes und W. Lessmann : Z. Naturforsch. 16a, 1396-1397 (1961)  
Neue Anregungszustände des Argons oberhalb der Ionisationsgrenze  $^2P_{3/2}$ .  
[E. Ar]
- O F. J. Comes und A. Elzer : Z. Naturforsch. 19a, 721-727 (1964)  
Das Ionisationskontinuum von Helium, Neon und Argon. [E. He - Ar]
- S K. T. Compton : Phys. Rev. 22, 432-444 (1923)  
Mobilities of electrons in gases. [T. Ar, He,  $H_2$ ,  $N_2$ ,  $O_2$ ,  $CO_2$ ]
- I K. T. Compton and C. C. van Voorhis : Phys. Rev. 26, 436-453 (1925)  
Probability of ionization of gas molecules by electron impacts.  
[E. He - Ar, Hg,  $H_2$ ,  $N_2$ , HCl; relative, th. - 330 eV]

- I K. T. Compton and C. C. Van Voorhis : Phys. Rev. 27, 724-731 (1926) ·  
Probability of ionization of gas molecules by electron impact. II.  
Critique. [E, He - Ar, H<sub>2</sub>, N<sub>2</sub>, Hg, HCl; th. - 400 eV]
- S A. Comunetti and P. Huber : Helv. Phys. Acta 33, 911-932 (1960)  
Bestimmung von Elektronen-Wanderungsgeschwindigkeiten in Gasmischungen.  
[E, Ar + N<sub>2</sub>, Ar + CO<sub>2</sub>; E/N = 0.16 - 3 Td]
- O M. J. Conneely, L. Lipsky and K. Smith : 5th ICPEAC, Leningrad 619- (1967)  
Photoionization of atoms with configurations 1s<sup>2</sup>2s<sup>2</sup>2p<sup>6</sup>3s<sup>2</sup>3p<sup>4</sup>.  
[ , hν, Ar,
- O J. W. Cooper : Phys. Rev. 128, 681-693 (1962)  
Photoionization from outer atomic subshells. A model study.  
[T, hν, He - Kr, Na]
- O J. W. Cooper : Phys. Rev. Lett. 13, 762-764 (1964)  
Interaction of maxima in the absorption of soft X rays. [T, hν, Ar, Xe]
- O J. W. Cooper : Phys. Rev. A38, 3417-3424 (1988)  
Near-threshold K-shell absorption cross section of argon : Relaxation  
and correlation effects. [T, hν, Ar]
- O J. W. Cooper : Phys. Rev. A39, 3714-3716 (1989)  
Angular distributions of electrons in resonant Auger spectra.  
[T, hν, Ar]
- O J. W. Cooper, D. W. Lindle, T. A. Carlson, D. R. Mullins, C. E. Beall, B. W. Yates, J. W. Taylor  
and F. A. Grimms : J. Elect. Spectrosc. Relat. Phenom. 51, 397-406 (1990)  
Parity-unfavored transitions in resonant photoemission from Ar, Kr,  
and Xe : Experimental and theoretical results. [E and T, hν, Ar - Xe]
- O J. W. Cooper : Phys. Rev. A47, 1841-1851 (1993)  
Photoelectron-angular-distribution parameters for rare-gas subshells.  
[T, hν, He - Xe, Ba]
- O J. W. Cooper, S. H. Southworth, M. A. MacDonald and T. LeBrun : Phys. Rev. A50, 405-411  
(1994)  
Cascade effects on the Ar LMM Auger spectrum.  
[E, e and hν, Ar; 1000 - 3000 eV]
- O R. Cooper, F. Grieser, M. C. Sauer, Jr. and D. F. Sangster : J. Phys. Chem. 81,  
2215-2220 (1977)  
Formation and decay kinetics of the 2p levels of neon, argon, krypton  
and xenon produced by electron-beam pulses. [E, Ne - Xe]
- EX R. Cooper and M. C. Sauer, Jr. : Phys. Rev. A50, 4812-4818 (1994)  
Subexcitation electron interaction in rare gases : production of  
electronic excited states in helium or neon mixtures with argon, krypton  
or xenon. [E, (He, Ne) + (Ar, Kr, Xe)]

- EX G. H. Copley and C. S. Lee : Can. J. Phys. 53, 1705-1714 (1975)  
Electron excitation and deexcitation coefficients for the  $^3P_2$ ,  $^3P_1$ ,  $^3P_0$   
and  $^1P_1$  levels of argon. [E, Ar]
- O C. H. Corliss and J. B. Shumaker, Jr. : J. Res. Natl. Bur. Stand. A71, 575-581 (1967)  
Transition probabilities in argon I. [E,  $h\nu$ , Ar; 4100 - 9800 Å]
- EX J. J. Corr, P. J. M. van der Burgt, P. Plessis, M. A. Khakoo, P. Hammond and  
J. W. McConkey : J. Phys. B24, 1069-1085 (1991)  
Coherence parameter measurements for electron scattering off heavy noble  
gas targets. [E, Ne - Xe; 30 - 80 eV, 5 - 50°]
- EX J. J. Corr, S. Wang and J. W. McConkey : J. Phys. B25, 4929-4937 (1992)  
Coherent excitation of Ar 4s[3/2] $^{\circ}_1$  by low energy electrons.  
[E, Ar; Stokes param., 20, 30 eV]
- O M. Crance : J. Phys. B18, L155-L160 (1985)  
Multiphoton stripping of heavy atoms by UV light : a statistical  
interpretation. [T,  $h\nu$ , Ar - Xe, I, U]
- E R. W. Crompton : in Nonequilibrium Effects in Ion and Electron Transport,  
Plenum 11-36 (1990) .  
Beam, swarm and theoretical studies of low-energy electron scattering :  
Some exemplars. [review, Ar, Kr, Ne, Hg, H<sub>2</sub>, N<sub>2</sub>]
- S R. W. Crompton : in Advances in Atomic, Molecular, and Optical Physics,  
Vol. 32, Academic 97-148 (1994)  
Benchmark measurements of cross sections for electron collisions :  
Electron swarm method. [review, Ar, He, Ne, H<sub>2</sub>, etc.]
- I A. Crowe, J. A. Preston and J. W. McConkey : J. Chem. Phys. 57, 1620-1625 (1972)  
Ionization of argon by electron impact. [E, Ar; th. - 300 eV]
- E A. Crowe and D. Cvejanovic : Can. J. Phys. 74, 461-467 (1996)  
Differential elastic electron scattering. [E, Ar, Kr]
- EX G. Csanak, D. C. Cartwright, L. E. Machado and G. D. Meneses : Z. Phys. D30, 105-114  
(1994) .  
Electron impact polarization and correlation properties of the inert  
gases. [T, Ne - Kr; DCS]
- E D. Cvejanovic and A. Crowe : J. Phys. B27, L723-L727 (1994) .  
Comparison of electron and positron elastic scattering from argon.  
[E, Ar; DCS, 20 - 110 eV, 60 - 120° ]
- E D. Cvejanovic and A. Crowe : J. Phys. B30, 2873-2887 (1997) ○  
Differential cross sections for elastic scattering of electrons from  
argon and krypton as a continuous function of energy.  
[E, Ar, Kr; 40 - 120°, 20.43 - 110 eV for Ar]

- EX S. Cvejanovic and F. H. Read : J. Phys. B7, 1180-1193 (1974) -  
A new technique for threshold excitation spectroscopy.  
[E, Ar, He, N<sub>2</sub>; th. - 16.3 eV for Ar]
- O S. Cvejanovic and T. J. Reddish : J. Phys. B28, L1-L7 (1995)  
A method for extracting near-threshold partial cross sections from  
threshold photoelectron spectra. [E,  $h\nu$ , Ar]
- E J. W. Daiber and H. F. Waldron : 18th GEC, Minneapolis B8 (1965);  
Bull. Am. Phys. Soc. 11, 496-496 (1966) -  
Electron-scattering cross sections of N<sub>2</sub>, Ar, O<sub>2</sub> and O.  
[E, Ar, N<sub>2</sub>, O<sub>2</sub>, O]
- E J. W. Daiber and H. F. Waldron : Phys. Rev. 151, 51-55 (1966)  
Scattering cross sections of argon and atomic oxygen to thermal electrons.  
[E, Ar, O]
- I C. Dal Cappello and B. Joulikian : in (e, 2e) and Related Process, Kluwer  
Academic 341-355 (1993)  
Double ionization of noble gases by electron impact. [T, Ar, Kr]
- I C. Dal Cappello, H. Hda and A. C. Roy : Phys. Rev. A51, 3735-3744 (1995)  
Angular distributions in the double ionization of the noble gases by  
electron impact. [T, Ne - Xe; 5.5 keV]
- O A. Dalgarno : Proc. Phys. Soc. London A65, 663-667 (1952)  
The photo-ionization cross section of methane. [T,  $h\nu$ , Ar, CH<sub>4</sub>]
- S V. Dallacasa : Phys. Lett. 57A, 245-246 (1976)  
Single site scattering and drift velocity of electrons in gases.  
[T, Ar, He, H<sub>2</sub>; pressure dependence]
- S G. Dall'Armi, K. L. Beown, P. H. Purdie and J. Fletcher : Aust. J. Phys. 45, 185-191  
 $\alpha$  (1992) -  
Electron swarm transport through low pressure noble gases.  
[E, He - Xe; W, ND<sub>L</sub>,  $\alpha$ ]
- I N. R. Daly : Proc. Phys. Soc. London 85, 897-907 (1965)  
Higher autoionization processes in argon and xenon. [E, Ar, Xe]
- EX F. J. da Paixao, N. T. Padial and G. Csanak : Phys. Rev. A30, 1697-1713 (1984)  
Electron-photon coincidence parameters for the 4s' [1/2]<sup>o</sup><sub>1</sub> (<sup>1</sup>P<sub>1</sub>) and  
4s [3/2]<sup>o</sup><sub>1</sub> (<sup>3</sup>P<sub>1</sub>) states of argon. [T, Ar; 16 - 80.4 eV]
- E M. Dapor : Nucl. Instrum. Meth. B95, 470-476 (1995) -  
Elastic scattering of electrons and positrons by atoms : differential  
and transport cross section calculations. [T, Ar, Ne, Na, Cl, Hg, etc.]
- E M. Dapor : J. Appl. Phys. 79, 8406-8411 (1996) -  
Elastic scattering calculations for electrons and positrons in solid  
targets. [T, Ar, Hg, Cu, etc.; 100 - 5000 eV]



- O T. Darko, H. Siegbahn and P. Kelfve : Chem. Phys. Lett. 81, 475-478 (1981)  
Correlation effects in the Ar KLM Auger electron spectrum. [T, Ar]
- E A. Dasgupta and A. K. Bhatia : Phys. Rev. A32, 3335-3343 (1985)  
Scattering of electrons from argon atoms. [T, Ar; DCS, 0.136 - 50 eV]
- EX A. Dasgupta, J. L. Giuljani and P. C. Kapple : IEEE Int. Conf. on Plasma Sci.,  
Raleigh 165 (1998)  
Theoretical electron impact excitation to the low-lying metastable states  
of neutral argon. [T, Ar]
- EX H. Dassen, I. C. Malcolm and J. W. McConkey : J. Phys. B10, L493-L495 (1977) -  
Polarisation of the 104.8 and 106.7 nm Ar resonance lines following  
electron impact excitation. [E, Ar]
- EX H. W. Dassen, R. Gomez, G. C. King and J. W. McConkey : J. Phys. B16, 1481-1501 (1983)  
The observation, identification and classification of resonances in  
Ne, Ar and Kr in the doubly excited states region. [E, Ne - Kr]
- O V. V. Datsyuk, I. A. Izmailov and V. A. Kochelap : Phys. Usp. 41, 379-402 (1998)  
Vibrational relaxation of excimers. [review, ArF, KrF, XeCl, etc.]
- E S. K. Datta, S. K. Mandal, P. Khan and A. S. Ghosh : Phys. Rev. A32, 633-636 (1985)  
Elastic  $e^{\pm}$  - Ar scattering with the use of the model-potential method.  
[T, Ar; DCS for  $e^{-}$ , 3, 5, 15 eV;  $q_t$  and  $q_m$ , 0.1 - 20 eV]
- S H. Daum, C. W. Fabjan, S. H. Pordes, M. Franklin, P. Dam and A. F. Rothenberg : Nucl.  
Instrum. Meth. 152, 541-547 (1978) -  
Measurements of electron drift velocities as a function of electric and  
magnetic fields in several gas mixtures.  
[E, Ar + CH<sub>4</sub>, CH<sub>4</sub>, etc.]
- S A. J. Davies, J. Dutton, C. J. Evans, A. Goodings and P. K. Stewart : J. Phys. D17,  
287-299 (1984)  
Monte Carlo simulations of electron drift velocities in binary inert  
gas mixtures. [T, He - Xe, He/Ne + Kr/Xe]
- $\alpha$  D. E. Davis and J. G. C. Milne : Brit. J. Appl. Phys. 10, 301-306 (1959)  
First ionization coefficients in hydrogen, neon, and argon.  
[E, Ar, Ne, H<sub>2</sub>]
- O E. F. Dawson and S. Lederman : J. Appl. Phys. 44, 3066-3073 (1973) -  
Pulsed microwave breakdown in gases with a low degree of preionization.  
[E, Ar, N<sub>2</sub>, CO<sub>2</sub>, CH<sub>4</sub>]
- E A. G. Dean, D. Smith and N. G. Adams : J. Phys. B7, 644-656 (1974)  
Observations of electron temperature relaxation rates in rare gas  
afterglow plasmas. [E, Ne - Kr]
- EX I. L. de Carvalho : J. Phys. B25, 1287-1295 (1992)  
Application of a simplified second Born approximation to the inelastic  
scattering of electrons by argon atoms.  
[T, Ar; 4s' [1/2]<sup>o</sup><sub>1</sub>, 80 - 500 eV]

- O P. Declewa, G. De Alti, G. Fronzoni and A. Lisini : J. Phys. B23, 3777-3784 (1990)  
Theoretical study of the satellite structure in the photoelectron spectra of neon and argon. [T,  $h\nu$ , Ar, Ne; CI-calculations]
- O J. A. de Gouw, J. van Eck, J. van der Weg and H. G. M. Heideman : J. Phys. B28, 1761-1775 (1995)  
Threshold effects in the Auger decay of argon photoexcited below the  $2p_{3/2}$  threshold. [E,  $h\nu$ , Ar]
- F. J. de Heer : Ned. Tijdschr. Natuurk. 30, 353- (1964)  
Inelastic collisions of fast electrons and ions with atoms.  
[E, Ar, Kr, H<sub>2</sub>]
- E F. J. de Heer, R. H. J. Jansen and W. van der Kaay : J. Phys. B12, 979-1002 (1979) ○  
I Total cross sections for electron scattering by Ne, Ar, Kr and Xe.  
QT [E and compilation, Ne - Xe; 20 - 3000 eV]
- E R. C. Dehmelt, M. A. Fineman and D. R. Miller : Phys. Rev. A9, 1564-1568 (1974) -  
Ratios of forward to back scattering of low energy electrons by neutral gases. [E, Ar, He, O, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>; 3 - 20 eV]
- E R. C. Dehmelt, M. A. Fineman and D. R. Miller : Phys. Rev. A13, 115-122 (1976) -  
Angular scattering of low-energy electrons by atomic and molecular oxygen, argon and helium. [E, Ar, O, O<sub>2</sub>, He; DCS, 15 eV]
- O J. L. Dehmer, M. Inokuti and R. P. Saxon : Phys. Rev. A12, 102-121 (1975) -  
Systematics of moments of dipole oscillator-strength distributions for atoms of the first and second row. [T, Ar, Ne, etc.; Z = 2 - 18]
- EX J. P. de Jongh and J. van Eck : Physica 51, 104-112 (1971) -  
Oscillator strengths of the resonance lines of some rare gases.  
[E, He - Kr; 1048 Å for Ar]
- EX J. P. de Jongh : Thesis, University of Utrecht 1-99 (1971) -  
Electron excitation of noble gas atoms measured by vacuum ultraviolet spectrometry. [E, He - Xe]
- I F. de la Ripelle : J. Phys. Radium 10, 319-329 (1949)  
Etude sur les coefficients spécifiques d'ionisation.  
(A study of the specific coefficients of ionization).  
[T, He - Xe, H, Na]
- V J. L. Delcroix, C. M. Ferreira and A. Ricard : 11th ICPIG, Prague 301-411 (1973)  
EX Atomic and molecular metastables in the electrical discharges.  
O [review, He - Xe, N<sub>2</sub>, etc.]
- EX J. L. Delcroix, C. M. Ferreira and A. Ricard : in Principles of Laser Plasmas,  
O G. Bekefi (Ed), John Wiley & Sons, Chap. 5, 159-233 (1976)  
Metastable atoms and molecules in ionized gases.  
[review, He - Xe, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>]

- E J. F. Delpech et C. Sol : Compt. Rend. Acad. Sci. B275, 183-186 (1972)  
Interaction elastique electrons-neutres dans l'argon au voisinage du minimum Ramsauer.  
(Electron-neutral elastic interaction in Ar near the Ramsauer minimum.)  
[T, Ar;  $q_m$  at 0.25 eV is  $0.17 \text{ \AA}^2$ ]
- I G. De Maria, G. Balducci and L. Malaspina : Ann. Chim. (Rome) 53, 1039-1043 (1963)  
Molecular cross sections for electron ionization by mass-spectrometric determination. III. Cross sections for n- and iso-pentane,  $C_2H_2$ , EtBr,  $Et_2O$ ,  $CS_2$ , HCl, and CO. [E, Ar, CO, HCl,  $CS_2$ ,  $C_2H_2$ , etc.; under 75 eV]
- EX M. P. de Miranda and C. E. Bielschowsky : J. Mol. Struct. (Theochem) 282, 71-80 (1993) -  
Optical and generalized oscillator strengths for inner-shell excitations in Ar and  $CO_2$ . [T, Ar,  $CO_2$ ]
- O A. V. Dem'yanov, N. A. Dyatko, I. V. Kochetov, A. P. Napartovich, A. F. Pal', V. V. Pichugin and A. N. Starostin : Sov. J. Plasma Phys. 12, 359-364 (1986)  
Mechanism for instability of an externally sustained  $H_2$  - Ar discharge.  
[E, Ar +  $H_2$ ]
- S A. F. J. den Boggende and C. J. Schrijver : Nucl. Instrum. Meth. A220, 561-570 (1984)  
Electron cloud sizes in gas-field detectors.  
[T, Ar, Xe, Ar +  $CO_2$ , Ar + Xe, +  $CO_2$ , etc.]
- O A. Denis and M. Gaillard : Phys. Lett. A31, 9-10 (1970)  
Further lifetime measurements in the rare gas ions. [E,  $Ar^+$ ]
- O D. R. Denne : J. Phys. D3, 1392-1398 (1970)  
Measurements of the ultrasoft X-ray absorption of Ar, Ne,  $N_2$ ,  $O_2$ ,  $CH_4$ , He and  $H_2$ . [E,  $h\nu$ , He - Ar,  $H_2$ ,  $N_2$ ,  $O_2$ ,  $CH_4$ ]
- O E. Dershem and M. Schein : Phys. Rev. 37, 1238-1245 (1931)  
The absorption of the  $K\alpha$  line of carbon in various gases and its dependence upon atomic number.  
[E,  $h\nu$ , He - Xe, C, N, O,  $N_2$ ,  $O_2$ ,  $CO_2$ , etc.]
- O S. V. Desai and W. H. Corcoran : J. Quant. Spectrosc. Radiat. Transf. 8, 1721-1730 (1968)  
Some new transition probabilities of argon I in the range of 5000 - 6500 Å and the role of a nonuniform source temperature. [E, Ar]
- O R. Deslattes, R. E. LaVilla, P. L. Cowan and A. Henins : Phys. Rev. A27, 923-933 (1983)  
Threshold studies of a multivacancy process in the  $k\beta$  region of argon.  
[E,  $h\nu$ , Ar]
- S J. de Urquijo, I. Alvarez, E. Basurto and C. Cisneros : J. Phys. D32, 1646-1649 (1999)  
 $\alpha$  Measurement of ionization and electron transport in methane-argon mixtures.  
[E, Ar, Ar +  $CH_4$ ,  $CH_4$ ]

- I H. Deutsch and T. D. Mark : Int. J. Mass Spectrom. Ion Process. 79, R1-R8 (1987) -  
Calculation of absolute electron impact ionization cross-section  
functions for single ionization of He, Ne, Ar, Kr, Xe, N and F.  
[T, He - Xe, N, F]
- I H. Deutsch and T. D. Mark : Contrib. Plasma Phys. 34, 19-24 (1994a) -  
Calculation of absolute outer-shell electron impact ionization cross  
sections. [T, Ne - Xe]
- I H. Deutsch, D. Margreiter and T. D. Mark : Z. Phys. D29, 31-37 (1994b)  
A semi-empirical approach to the calculation of absolute inner-shell  
electron impact ionization cross sections. [T, all elements]
- I H. Deutsch, K. Becker and T. D. Mark : Contrib. Plasma Phys. 35, 421-431 (1995)  
Calculated cross sections for double and triple ionization of atoms by  
electron impact. [T, Ne - Xe, Cl, Cu, Bi, etc.]
- I H. Deutsch, K. Becker and T. D. Mark : J. Phys. B29, L497-L503 (1996) -  
A semiclassical method for the calculation of cross sections for multiple  
ionization of atoms by electron-impact. [T, Ne - Xe, Mg, Fe, Cu, U]
- I H. Deutsch, K. Becker, D. P. Almeida and T. D. Mark : Int. J. Mass Spectrom. Ion  
Process. 171, 119-126 (1997) -  
Extension of the DM formalism for the calculation of cross sections for  
the multiple ionization of atoms to the formation of highly charged ions.  
[T, Ar - Xe]
- I H. Deutsch, K. Becker and T. D. Mark : Int. J. Mass Spectrom. 177, 47-50 (1998)  
Improved low-energy dependence of calculated cross sections for the K-shell  
ionization of atoms using the Deutsch-Mark formalism.  
[T, Ar, O, Ne, Cu]
- I H. Deutsch, K. Becker, S. Matt and T. D. Mark : J. Phys. B32, 4249-4259 (1999)  
ME Calculated cross sections for the electron-impact ionization of  
metastable atoms. [T, He - Xe, Cd, Hg]
- E D. P. Dewangan and H. R. J. Walters : J. Phys. B11, 3983-4019 (1978) -  
I Electron loss from H(2s), H(1s), He(1<sup>1</sup>S), He(2<sup>3</sup>S), Li(2<sup>2</sup>S), H<sup>-</sup> and He<sup>-</sup>  
projectiles passing through the inert gases - the free-collision model.  
[T, électron, He - Xe]
- S W. Dezhnev and M. Tengcai : J. Phys. D24, 1367-1370 (1991)  
Electron energy distributions and transport parameters of direct-current  
argon discharges at low pressures.  
[T, Ar; B. eq., see C. M. Ferreira (1983a, b, c), (1984)]
- S T. H. V. T. Dias, A. D. Stauffer and C. A. N. Conde : J. Phys. D19, 527-545 (1986)  
A unidimensional Monte Carlo simulation of electron velocities and  
electroluminescence in argon, krypton and xenon. [T, Ar - Xe]
- O W. Dietrich : Z. Phys. 152, 87-97 (1958)  
Verscharfte Messung diskreter Energieverluste von 35 keV-Elektronen an  
Gasen. [E, He - Xe, N<sub>2</sub>, O<sub>2</sub>; 35 keV]

- EX M. A. Dillon and D. Spence : J. Chem. Phys. 74, 2654-2655 (1981)  
The angular dependence of scattered electron spectra of neon and argon in the region of quasidiscrete autoionizing states.  
[E, Ar, Ne; 200 eV, energy-loss spectra 24 - 33 eV for Ar]
- I A. J. Dixon, M. F. A. Harrison and A. C. H. Smith : 8th ICPEAC, Beograd 405-406  
ME (1973) -  
Ionization of metastable rare gas atoms by electron impact.  
[E, He - Ar; th. - 500 eV]
- O A. Dobay-Szegleth : Acta Phys. Acad. Sci. Hung. 21, 235-2 (1966)  
Calculation of atomic form factors from the statistical electron density distributions. [T, Ar, Kr]
- EX G. G. Dolgov-Savelev and V. E. Panchenko : Opt. Spectrosc. 25, 270-272 (1968)  
Cross sections for the excitation of the K series of argon by electron collision. [E, Ar]
- EX G. G. Dolgov-Savelev, V. A. Knyazev and V. V. Kuznetsov : Opt. Spectrosc. 27, 405-408 (1969)  
Excitation of inert gases by a beam of fast electrons.  
[E, He - Ar; 600 keV]
- EX G. G. Dolgov-Savelev and V. E. Panchenko : Opt. Spectrosc. 28, 575-578 (1970)  
Electron-excitation cross sections for X-ray series of chlorine, argon, and xenon. [E, Ar, Cl, Xe, 3 - 16 keV]
- O V. A. Donchenko, A. A. Zemlyanov, M. V. Kabonov and P. A. Pal'yanov : Sov. Phys. J. 28, 808-8 (1985)  
Rayleigh scattering of nanosecond light pulses. [ ,  $h\nu$ , Ar,
- O M. Dondera and V. Florescu : Phys. Rev. A48, 4267-4271 (1993) -  
Results from the nonrelativistic dipole-approximation theory of two-photon electron bremsstrahlung in the Coulomb field.  
[T,  $h\nu$ , Ar, Kr, Xe, Cu, etc.]
- O Q. Dong, Y. Kuang and R. H. Pratt : Nucl. Instrum. Meth. A280, 189-194 (1989)  
Photoionization of atoms and ions. [T,  $h\nu$ , Ar, Ne, Fe, U]
- O G. Doolen and D. A. Liberman : Phys. Scr. 36, 77-79 (1987) -  
Calculations of photoabsorption by atoms using a linear response method.  
[T,  $h\nu$ , Ar, Xe, Mn, U]
- O J. Doppelfeld, N. Anders, B. Esser, F. von Busch, H. Xcherer and S. Zinz : J. Phys. B26, 445-456 (1993)  
A close look at Ar photoion spectra around the K edge : non-diagram transitions and double photoionization. [E,  $h\nu$ , Ar]
- O P. Dore and A. Filabozzi : Can. J. Phys. 68, 1196-1190 (1990) -  
Far infrared absorption of gaseous CH<sub>4</sub> - Ar mixtures.  
[E,  $h\nu$ , Ar + CH<sub>4</sub>; 40 - 600 cm<sup>-1</sup>, 195 - 296 K]

- I F. H. Dorman, J. D. Morrison and A. J. C. Nicholson : J. Chem. Phys. 31, 1335-1337 (1959)  
Probability of multiple ionization by electron impact. [E, Ar, Xe]
- I F. H. Dorman and J. D. Morrison : J. Chem. Phys. 34, 1407-1410 (1961)  
Ionization potentials of multiply charged krypton, xenon and mercury.  
[E, Ar, Kr, Xe, Hg]
- E L. Dou, W. E. Kauppila, C. K. Kwan and T. S. Stein : Phys. Rev. Lett. 68, 2913-2916 (1992) -  
Observation of structure in intermediate-energy positron-argon differential elastic scattering. [E, Ar; electron, 300 eV]
- O J. -Cl. Dousse and J. Horszowska : Phys. Rev. A56, 4517-4531 (1997)  
L- and M-shell-electron shake processes following 1s photoionization in argon and krypton. [E,  $h\nu$ , Ar, Kr]
- EX J. T. Dowell : Thesis, University of California, Berkeley 1-49 (1966)  
Production of metastable atoms by electron impact. [ , Ar, Kr]
- I M. J. Downey : PhD Thesis, University of Liverpool (1962)  
[E,  $q_1$  at 75 eV,  $3.76 \times 10^{-16}$  cm<sup>2</sup> for Ar]
- O H. W. Drawin : Z. Phys. 146, 295-313 (1956)  
Wirkungsquerschnitte von neutralen Wasserstoff-, Helium- und Argonatomen gegenüber Elektronenstoss. [E, Ar, H, Ne; stabilized arc]
- O H. -J. Drewitz : Int. J. Mass Spectrom. Ion Phys. 19, 313-325 (1976)  
I Die Bestimmung relativer Ionisierungsquerschnitte und Reaktionskonstanten von Ionen-Molekul-Reaktionen bei Anfangsenergie-Diskriminierung. II.  
Relative Ionisierungsquerschnitte mehrfach geladener Ar-Ionen, Reaktionskonstanten von Ionen-Molekul-Reaktionen, Anfangsenergien von Sekundar-Ionen. [E, Ar; Ar<sup>+</sup>, Ar<sup>2+</sup>, Ar<sup>3+</sup>]
- O M. J. Druyvesteyn and F. M. Penning : Rev. Mod. Phys. 12, 87-174 (1940) -  
The mechanism of electrical discharges in gases of low pressure.  
[review, He - Xe, etc.]
- E D. Dube, D. Tremblay and D. Roy : Phys. Rev. A47, 2893-2903 (1993) -  
Analysis of the first Feshbach resonances in electron collisions in rare gases. [E and T, He - Xe]
- E R. D. du Bois and M. E. Rudd : J. Phys. B8, 1474-1483 (1975) -  
Absolute differential cross sections for 20 - 800 eV electrons elastically scattering from argon. [E, Ar; 12 - 153°, 12.5 eV at 28°]
- E R. D. du Bois and M. E. Rudd : J. Phys. B9, 2657-2667 (1976) ○  
Differential cross sections for elastic scattering of electrons from argon, neon, nitrogen and carbon monoxide.  
[E, Ar, Ne, N<sub>2</sub>, CO; DCS, 20 - 800 eV, 2 - 153°, 12 - 32 %]

- I R. D. du Bois and M. E. Rudd : Phys. Rev. A17, 843-848 (1978)  
Absolute doubly differential cross sections for ejection of secondary electrons from gases by electron impact. II. 100 - 500 eV electrons on neon, argon, molecular hydrogen and molecular nitrogen.  
[E, Ar, Ne, H<sub>2</sub>, N<sub>2</sub>; 100 - 500 eV]
- O P. Duffy, M. E. Casida, C. E. Brion and D. P. Chong : Chem. Phys. 159, 347-363 (1992)  
Assessment of Gaussian-weighted angular resolution functions in the comparison of quantum mechanically calculated electron momentum distributions with experiment. [T, Ne - Xe, H<sub>2</sub>O, H<sub>2</sub>S]
- E A. Duguet et A. Jaegle : J. Physique Lett. 36, L193-L195 (1975)  
Mesure des sections efficaces differentielles totales de diffusion des electrons de 40 keV par l'atome d'argon. Effet de correlations electroniques. [E, Ar; 40 keV]
- E A. Duguet, A. Lahmam-Bennani and M. Rouault : J. Chem. Phys. 79, 2786-2792 (1983)  
EX High energy elastic and inelastic electron scattering by the Ne and Ar atoms. Electron correlation effects. [E, Ar, Ne; 25 keV]
- I A. Duguet, C. Dupre and A. Lahmam-Bennani : J. Phys. B24, 675-682 (1991)  
Energy partitioning between ejected electrons following electron impact valence double ionization of argon. [E, Ar; 5.5 keV]
- I A. Duguet and A. Lahmam-Bennani : Z. Phys. D23, 383-388 (1992)  
Double, ionization mechanisms from e, (3-1)e and (e, 3e) experiments. [E, Ar, Kr; 5.5 keV]
- O A. Dullweber and D. J. Wales : Mol. Phys. 94, 651-657 (1998)  
Infrared spectra of argon clusters. [T, Ar<sub>n</sub>]
- E M. Dummier, G. F. Hanne and J. Kessler : J. Phys. B28, 2985-3001 (1995)  
EX Left-right asymmetries in elastic and inelastic scattering of polarized electrons from argon, krypton and xenon atoms. [E, Ar - Xe; 30 - 125°]
- O F. B. Dunning and R. F. Stebbings : Phys. Rev. A9, 2378-2382 (1974)  
ME Role of autoionization in the near-threshold photoionization of argon and krypton metastable atoms. [E, hν, Ar, Kr]
- EX D. Duston and J. Davis : Phys. Rev. A21, 932-941 (1980)  
Self-absorption of heliumlike satellite lines in high-density fusion plasmas. [T, Ar, Ne, Al; excitation rate coeff., 300 - 800 eV]
- O T. L. Dutt : J. Phys. B2, 234-246 (1966)  
Investigation of the afterglows of pulsed rare gas discharges in the frequency range 200 - 1500 MHz. [E, He, Ar - Xe]
- S J. Dutton : J. Phys. Chem. Ref. Data 4, 577-856 (1975) ○  
A survey of electron swarm data. [compilation, for Ar, p. 590 - 592, 612 - 614, 637 - 638, 651 - 653, 665, 670, 713, 724 and 744]

- 0 C. Duzy and H. A. Hyman : Phys. Rev. A22, 1878-1883 (1980)  
Photoionization of excited rare-gas atoms. [T,  $h\nu$ , Ne - Xe]
- 0 S. Dworetsky, R. Novick, W. W. Smith and N. Tolk : Rev. Sci. Instrum. 39, 1721-1723 (1968)  
Electron bombardment ion source for low energy beams. [E, Ar, N<sub>2</sub>, H<sub>2</sub>]
- 0 K. G. Dyall, F. P. Larkins, K. D. Bomben and T. D. Thomas : J. Phys. B14, 2551-2558 (1981)  
Satellite structure in the argon 2p X-ray photoelectron spectrum.  
[E,  $h\nu$ , Ar]
- 0 K. D. Dyall and F. P. Larkins : J. Phys. B15, 203-217 (1982a)  
Satellite structure in atomic spectra I. Theoretical framework and application to excited states of the singly ionised rare gases.  
[T, Ne - Xe]
- 0 K. D. Dyall and F. P. Larkins : J. Phys. B15, 219-231 (1982b)  
Satellite structure in atomic spectra II. The outer-shell photoelectron spectra of the rare gases. [T, Ne - Xe]
- 0 K. G. Dyall and F. P. Larkins : J. Phys. B15, 1021-1028 (1982c)  
Satellite structure in the argon 2s photoelectron spectrum.  
[T,  $h\nu$ , Ar]
- 0 K. G. Dyall and F. P. Larkins : J. Phys. B15, 1811-1829 (1982d)  
Satellite structure in atomic spectra III. The L X-ray emission spectrum of argon. [T,  $h\nu$ , Ar]
- 0 K. G. Dyall and F. P. Larkins : J. Phys. B15, 2793-2806 (1982e)  
Satellite structure in atomic spectra IV. The L<sub>23</sub>-MM Auger spectrum of argon. [T,  $h\nu$ , Ar]
- 0 K. G. Dyall and F. P. Larkins : J. Phys. B15, 4103-4112 (1982f)  
Theoretical investigation of the L<sub>1</sub> - L<sub>23</sub>M Coster-Kronig spectrum of argon. [T,  $h\nu$ , Ar]
- 0 K. G. Dyall : J. Phys. B16, 3137-3147 (1983)  
Shake theory predictions of excited-state populations following 1s ionisation in argon. [T,  $h\nu$ , Ar]
- 0 K. G. Dyall and I. P. Grant : J. Phys. B17, 1281-1300 (1984)  
The K<sub>α</sub> X-ray emission spectrum of argon : a theoretical account.  
[T,  $h\nu$ , Ar]
- S N. A. Dyatko, M. Capitelli and A. P. Napartovich : 23th ICPIG, Toulouse Vol. 1, 66-67 (1997)  
Negative electron mobility in Ar : F<sub>2</sub> mixtures : The dependence on the argon momentum transfer cross section. [T, Ar + F<sub>2</sub>, Ar + Cl<sub>2</sub>, Ar + NF<sub>3</sub>]
- 0 W. Eberhardt, S. Bernstorff, H. W. Jochims, S. B. Whitfield and B. Crasemann : Phys. Rev. A38, 3808-3811 (1988)  
Photoelectron recapture through post-collision interaction. [E,  $h\nu$ , Ar]



- O J. H. Eberly, J. Javanainen and K. Rzazewski : Phys. Rep. 204, 331-383 (1991)  
Above-threshold ionization. [review, T, e and  $h\nu$ , He - Xe, H, etc.]
- E W. F. Egelhoff, Jr. : Phys. Rev. Lett. 71, 2883-2886 (1993) -  
Semiclassical explanation of the generalized Ramsauer-Townsend minima in  
electron-atom scattering. [T, Ar - Xe]
- EX E. Eggarter : J. Chem. Phys. 62, 833-847 (1975)  
Comprehensive optical and collision data for radiation action. II. Ar<sup>+</sup>.  
[T, Ar]
- EX E. Eggarter and M. Inokuti : Argonne Natl. Lab., ANL-80-58, 1-28 (1980) ○  
Cross sections for electron inelastic collisions with argon.  
[T, Ar]
- I F. Egger and T. D. Mark : Z. Naturforsch. 33a, 1111-1113 (1978) -  
Cross section ratios for the electron impact production of singly and  
multiply ionized rare gas ions. [E, He - Xe; 100, 150 eV]
- E F. Ehlotzky, A. Jaron and J. Z. Kaminski : Phys. Rep. 297, 63-153 (1998)
- EX Electron-atom collisions in a laser field. [review, general theory]
- I H. Ehrhardt, K. H. Hesselbacher, K. Jung, M. Schulz, T. Tekaatt and K. Willmann : Z. Phys.  
244, 254-267 (1971)  
Measurements of double differential cross sections in electron impact  
ionization of helium and argon. [E, Ar, He]
- I H. Ehrhardt, K. H. Hesselbacher, K. Jung and K. Willmann : in Case Studies in  
Atomic Collision Physics, 2, North-Holland 159-208 (1972)  
Differential cross sections in electron impact ionization.  
[review, Ar, He]
- I H. Ehrhardt, K. H. Hesselbacher, K. Jung, E. Schubert and K. Willmann : J. Phys. B7,  
69-78 (1974)  
Electron impact ionization of argon : Measurements of triple differential  
cross sections. [E, Ar]
- EX A. V. Eletskii and R. V. Chiflikyan : Sov. J. Plasma Phys. 10, 219-220 (1984) -
- O Rate constant for electron-impact excitation of resonant atomic states  
in a weakly ionized plasma. [T, Ne - Xe]
- S M. T. Elford : in Case Studies in Atomic Collision Physics 2, North-Holland  
91-158 (1972) -  
Precision measurements of electron transport coefficients.  
[review, He - Xe, H<sub>2</sub>, D<sub>2</sub>, N<sub>2</sub>, CO, CO<sub>2</sub>, O<sub>2</sub>]
- S N. El-Hakeem and E. Mathieson : Nucl. Instrum. Meth. 166, 447-450 (1979)  
Measurement of electron drift velocity in counter gas mixtures.  
[E, Ar + CH<sub>4</sub>, CH<sub>4</sub>]
- EX E. Ellis and N. D. Twiddy : J. Phys. B2, 1366-1377 (1969)
- O Time-resolved optical absorption measurements of excited-atom concentra-  
tions in the argon afterglow. [E, Ar]

- I B. El Marji, A. Lahmam-Bennani, A. Duguet and T. J. Reddish : J. Phys. B29, L157-L161 (1996)  
Evidence for a shake-off mechanisms being responsible for electron-impact double-ionization of argon at 5.5 keV. [E, Ar]
- I B. El Marji, C. Schroter, A. Duguet, A. Lahmam-Bennani, M. Lecas and L. Spielberger : J. Phys. B30, 3677-3696 (1997)  
Dynamics of the double ionization process from (e, 3e) experiments :  
I. Absolute cross sections for argon. [E, Ar; 5.5 keV]
- I R. El Mkhater, C. Dal Cappello, A. Lahmam-Bennani and Yu. V. Popov : J. Phys. B29, 1101-1107 (1996)  
On the mechanisms for double ionization : a study of (e, 3-1e) experiments on argon. [T, Ar]
- $\alpha$  K. G. Emelius, R. W. Lunt and C. A. Meek : Proc. Roy. Soc. London A156, 394-411 (1936)
- S Ionization, excitation, and chemical reaction in uniform electric fields.  
I. — The Townsend coefficient of ionization.  
[T, Ar, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub> + O<sub>2</sub>]
- S A. G. Engelhardt and A. V. Phelps : Phys. Rev. 133, A375-A380 (1964) ○
- E Transport coefficients and cross sections in argon and hydrogen-argon mixtures. [E, Ar, Ar + H<sub>2</sub>; q<sub>m</sub>, 0.01 - 25 eV]
- O P. C. Engelking : J. Chem. Phys. 87, 936-940 (1987)  
Determination of cluster binding energy from evaporative lifetime and average kinetic energy release : Application to (CO<sub>2</sub>)<sub>n</sub><sup>+</sup> and Ar<sub>n</sub><sup>+</sup> clusters.  
[T, Ar<sub>n</sub>, (CO<sub>2</sub>)<sub>n</sub>]
- I P. Englander-Golden and D. Rapp : Report LMSC-6-74-64-12, Lockheed Missiles and Space Company 1-50 (1964)  
Total cross sections for ionization of atoms and molecules by electron impact. [E, He - Xe, etc.; These data are different from D. Rapp (1965)]
- S W. N. English and G. C. Hanna : Can. J. Phys. 31, 768-797 (1953) -  
Grid ionization chamber measurements of electron drift velocities in gas mixtures. [E, Ar + CO<sub>2</sub>, Xe + CO<sub>2</sub>, etc.]
- O B. Eriksson, S. Svensson, N. Martensson and U. Gelius : J. Phys. B21, 1371-1378 (1988)  
The 2p shake-up spectrum of argon : effects of intermediate coupling.  
[E, h $\nu$ , Ar; 1487 eV]
- O P. Erman and I. Martinson : Phys. Scr. 8, 269-273 (1973)  
Lifetimes of the 3p<sup>5</sup>5p levels in Ar I. [E, Ar]
- O P. Erman and S. Huldt : Phys. Scr. 17, 473-477 (1978)  
Trapping of non-resonance radiation in atoms and its influence on measured lifetimes of the 4p and 5p levels in Ar I. [E, Ar]
- S D. D. Errett : Thesis, Purdue University, Indiana 1-81 (1951)  
The drift velocity of electrons in gases. [E, Ar + H<sub>2</sub>O, Ar + N<sub>2</sub>, etc.]

- O J. J. Ewing : Phys. Today 31, No. 5, 32-39 (1978)  
Rare-gas halide lasers. [review, Ne - Xe, F - I, F<sub>2</sub>]
- I H. Ezumi, M. Kawamura and T. Yokota : J. Phys. Soc. Jpn. 43, 1060-1067 (1977)  
Ionization relaxation in shock-heated krypton-argon mixtures.  
[E, Ar + Kr]
- EX I. I. Fabrikant, O. B. Shpenik, A. V. Snegursky and A. N. Zaviopulo : Opt. Spectrosc. 56, 454-456 (1984)  
Characteristics of electron-impact excitation of metastable states of inert gas atom. [E, Ne - Xe; 11 - 100 eV for Ar]
- EX I. I. Fabrikant, O. B. Shpenik, A. V. Snegursky and A. N. Zaviopulo : Phys. Rep. 159, 1-97 (1988)  
Electron impact formation of metastable atoms.  
[review, He - Xe, H, Hg; for Ar, p. 34 - 37]
- O D. W. Fahey, W. F. Parks and L. D. Scheerer : J. Phys. E13, 381-383 (1980) -  
High flux beam source of thermal rare-gas metastable atoms. [E, He - Ar]
- I H. Falter, O. F. Hagen, W. Henkes and H. V. Wedel : Int. J. Mass Spectrom. Ion Phys. 4, 145-163 (1970)  
Einfluss der Elektronenenergie auf das Massenspektrum von Clustern in kondensierten Molekular-Strahlen. [E, Ar, CO<sub>2</sub>; 20 - 600 eV]
- O U. Fano : J. Opt. Soc. Am. 65, 979-987 (1975a)  
Unified treatment of perturbed series, continuous spectra and collisions.  
[T, Ar, H<sub>2</sub>]
- O U. Fano : Radiat. Res. 64, 217-232 (1975b)  
Platzman's analysis of the delivery of radiation energy to molecules.  
[T, Ar, He, H<sub>2</sub>]
- O F. C. Farnoux and M. Lamoureux : J. Phys. B9, 897-909 (1976)  
Photoionization of some neutral atoms and their ions.  
[T, h $\nu$ , Ar, Ne, Na, K, etc.]
- E H. Faxen und J. Holtsmark : Z. Phys. 45, 307-324 (1927)  
Beitrag zur Theorie des Durchganges langsamer Elektronen durch Gase.  
[T, Ar - Xe, H, Cs]
- O S. R. Federman, D. J. Beideck, R. M. Schectman and D. G. York : Astrophys. J. Part 1, 401, 367-370 (1992)  
Accurate oscillator strengths for ultraviolet lines of Ar I : implications for interstellar material. [E, h $\nu$ , Ar]
- E F. C. Fehsenfeld : J. Chem. Phys. 39, 1653-1661 (1963)  
Cyclotron resonance in slightly ionized gases.  
[E, Ar, He, O<sub>2</sub>, CO<sub>2</sub>; q<sub>m</sub> for thermal electrons]
- EX P. V. Feltsan and I. P. Zapesochnyi : Ukr. Fiz. Zh. 12, 586- (1967a)  
Excitation of inert gases during electron atom collisions.  
[E,

- EX P. V. Feltsan and I. P. Zapesochnyi : Ukr. Fiz. Zh. 12, 633-640 (1967b)  
Excitation of inert gases during electron-atom collisions. III. Argon.  
[E, Ar]
- EX P. V. Feltsan and M. M. Povch : Opt. Spectrosc. 28, 119-121 (1970)  
Excitation of argon ions by electron-atom collisions. [E, Ar]
- QT J. Ferch, C. Masche and W. Raith : 13th ICPEAC. Berlin 90 (1983)  
Precision measurements of Ramsauer minima in electron total cross sections.  
[E, Ar]
- QT J. Ferch, B. Granitza, C. Masche and W. Raith : J. Phys. B18, 967-983 (1985) ○  
Electron-argon total cross section measurements at low energies by  
time-of-flight spectroscopy. [E, Ar; 0.08 - 20 eV, 3 - 4 %]
- E J. M. Fernandez-Varea, R. Mayol and F. Salvat : Nucl. Instrum. Meth. B82, 39-45  
(1993)  
Cross sections for elastic scattering of fast electrons and positrons by  
atoms. [T, Hg, Al, Ag, U, etc., 20 elements, 1 keV - 10 MeV]
- O C. M. Ferreira et J. L. Delcroix : J. Physique 36, 1241-1248 (1975)  
Theorie de la decharge d'arc a cathode creuse. II. Bilan de metastables  
a l'interieur de la cathode. Application a l'argon. [T, Ar]
- O C. M. Ferreira and A. Ricard : J. Appl. Phys. 54, 2261-2271 (1983)  
Modelling of the low-pressure argon positive column. [T, Ar]
- S C. M. Ferreira and J. Loureiro : J. Phys. D16, 1611-1621 (1983)  
Electron transport parameters and excitation rates in argon.  
[T, Ar; B. Eq.]
- O C. M. Ferreira, L. L. Alves, M. Pinheiro and A. B. Sa : IEEE Trans. Plasma Sci. 19,  
229-239 (1991)  
Modeling of low-pressure microwave discharge in Ar, He, and O<sub>2</sub> : Similarity  
laws for the maintenance field and mean power transfer. [T, Ar, He, O<sub>2</sub>]
- O A. Fiala, L. C. Pitch and J. P. Boeuf : Phys. Rev. E49, 5607-5622 (1994)  
Two-dimensional hybrid model of low-pressure glow discharges.  
[T, Ar; MCS, c. s. set for Ar, 0.1 - 10<sup>3</sup> eV].
- E D. Filipovic : Master of Science Thesis, University of Belgrade (1984)
- EX Elastic and electronic excitation DCS measurement for Ar. [E, Ar; Elastic,  
10 - 100 eV, 20 - 150°; excitation, 16 - 80 eV, 10 - 150°, for 6 levels]
- E M. Fink und J. Kessler : Z. Phys. 196, 1-15 (1966)  
Absolute Wirkungsquerschnitte fur Elektronenstreuung um kleine Winkel.  
Experimente zum Gultigkeitsbereich der ersten Bornschen Naherung.  
[E, Ar - Xe; 37 - 100 keV]
- E M. Fink and A. C. Yates : Atomic Data 1, 385-456 (1970a) -  
Theoretical electron scattering amplitudes and spin polarizations.  
Selected targets, electron energies 100 to 1500 eV.  
[T, He - Xe; DCS, 100 - 1500 eV, p. 412 - 416 for Ar]

- E M. Fink and A. C. Yates : Technical Report No. 88, University of Texas, AD-711, 664,1-152 (1970b)  
Tables of scattering amplitudes and spin polarization of 25, 50, 75, 150, 175, 200, 300, 400, 600, 800 eV electrons scattered elastically from H, He, C, Ne, Ar, Kr, Rb, Xe, Cs, Au, Hg, Pb, and Bi-I. [T, Ar, etc.]
- E M. Fink and P. G. Moore : Phys. Rev. A15, 112-117 (1977) -
- EX Relativistic and electron correlation effects in neon and argon.  
[E, Ar, Ne; 40 keV]
- O M. G. J. Fink and W. R. Johnson : Phys. Rev. A42, 3801-3818 (1990)  
Electron correlations and spin-orbit interaction in two-photon ionization of closed-shell atoms : A relativistic time-dependent Dirac-Fock approach.  
[T,  $h\nu$ , He - Xe]
- O U. Fink, S. Bashkin and W. S. Bickel : J. Quant. Spectrosc. Radiat. Transf. 10, 1241-1256 (1970)  
Transitions and level lifetimes in Ne II, III, Ar II, III, Kr II, III and Xe II. [E, Ne - Xe]
- I F. Fiquet-Fayard : J. Chim. Phys. 59, 439-441 (1962a)  
Remarques sur l'ionisation multiple de l'argon par impact électronique de 0 a 500 volts. [E, Ar]
- I F. Fiquet-Fayard and M. Lahmani : J. Chim. Phys. 59, 1050-1055 (1962b)  
Effet Auger dans l'ionisation multiple de l'argon, du potassium et du calcium par impact électronique. [E, Ar, K, Ca]
- I F. Fiquet-Fayard : J. Chim. Phys. 62, 1065-1069 (1965)  
Comparaison des ionisations simple et double par impact électronique entre 250 et 2200 eV. [E, Ar, He, Kr, Na, K, CO<sub>2</sub>, H<sub>2</sub>O, C<sub>2</sub>H<sub>4</sub>]
- EX O. Fischer : Z. Phys. 86, 646-666 (1933)  
Messung der Lichtausbeute im Argon- und Quecksilberspektrum bei Anregung durch Elektronenstoss. [E, Ar, Hg; emission c.s.]
- O H. Fischle, J. Heintze and B. Schmidt : Nucl. Instrum. Meth. A301, 202-214 (1991) -  
Experimental determination of ionization cluster size distributions in counting gases. [E, Ar, He, CO<sub>2</sub>, CH<sub>4</sub>, C<sub>2</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>8</sub>, i-C<sub>4</sub>H<sub>10</sub>]
- E J. Fletcher and D. S. Burch : J. Phys. D5, 2037-2043 (1972)  
Experimental computation of the momentum transfer cross section in argon.  
[E, Ar; 1 - 40 eV]
- S J. Fletcher and D. S. Bruch : Phys. Rev. A7, 1341-1346 (1973a)  
Theoretical electron energy distribution functions for Townsend discharges in argon. [E, Ar]
- I J. Fletcher and I. R. Cowling : J. Phys. B6, L258-L261 (1973b) -
- $\alpha$  Electron impact ionization of neon and argon.  
[E, Ar, Ne; 16 - 500 eV for Ar]

- O M. Foltin, G. Walder, A. W. Castleman, Jr., and T. D. Mark : J. Chem. Phys. 94, 810-811 (1991)  
Magic metastable decay of singly charged argon clusters.  
[E, Ar<sub>n</sub>; Ar<sub>10</sub><sup>+</sup>]
- E W. C. Fon, K. A. Berrington, P. G. Burke and A. Hibbert : J. Phys. B16, 307-321 (1983)  
The elastic scattering of electrons from inert gases : III. Argon.  
[T, Ar; DCS, 3 - 150 eV]
- E W. C. Fon : 15th ICPEAC, Brighton 129 (1987)  
Low energy elastic scattering of electrons from argon.  
[T, Ar; 0.07 - 10 eV]
- I S. N. Foner and B. H. Nall : Phys. Rev. 122, 512-524 (1961)  
Structure in the ionization near threshold of rare gases by electron impact. [E, Ar - Xe]
- EX J. L. Forand, S. Wang, J. M. Woolsey and J. W. McConkey : Can. J. Phys. 66, 349-357 (1988)  
Measurement of absolute electron-impact excitation cross sections in Ar and N<sub>2</sub> using H and H<sub>2</sub> emissions as secondary standards. [E, Ar, N<sub>2</sub>]
- S L. Foreman, P. Kleban, L. D. Schmidt and H. T. Davis : Phys. Rev. A23, 1553-1557 (1981) -  
Drift velocities of electrons in methane-inert-gas mixtures.  
[E, Ar + CH<sub>4</sub>, He + CH<sub>4</sub>]
- O M. Forys, A. Jowko and I. Szamrej : J. Phys. Chem. 80, 1035-1041 (1976)  
Rare gas sensitized radiolysis of hydrogen sulfide in the low concentration range. [E, (Ar - Xe) + H<sub>2</sub>S]
- I R. E. Fox : J. Chem. Phys. 33, 200-205 (1960)  
Multiple ionization in argon and krypton by electron impact.  
[E, Ar, Kr; th. - 600 eV]
- I R. E. Fox : J. Chem. Phys. 35, 1379-1382 (1961)  
Ionization cross sections near threshold by electron impact.  
[E, He - Ar, Hg, CO, N<sub>2</sub>; th. - 16.5 eV for Ar]
- S R. L. Fox : Phys. Fluids 13, 1480-1482 (1970) -  
Effect of inelastic collisions on electron transport coefficients.  
[T, Ar, Li]
- S M. M. F. R. Fraga and C. M. Ferreira : 15th ICPEAC, Brighton 206-206 (1988)  
Transport coefficients of electrons in Ar, Kr, and Xe for intermediate E/p values. [E, Ar - Xe]
- O M. M. Fraga, E. P. de Lima, M. A. Alves, J. Escada, R. Ferreira Marques, M. Salete Leite and A. Policarpo : Nucl. Instrum. Meth. A323, 284-288 (1992) -  
Fragments and radicals in gaseous detectors. [E, Ar + CO<sub>2</sub>]
- S G. W. Fraser and E. Mathieson : Nucl. Instrum. Meth. A247, 544-565 (1986) -  
Monte Carlo calculation of electron transport coefficients in counting gas mixtures. I. Argon - methane mixtures. [T, Ar, Ar + CH<sub>4</sub>]

- S G. W. Fraser and E. Mathieson : Nucl. Instrum. Meth. A257, 339-345 (1987) -  
Monte Carlo calculation of electron transport coefficients in counting  
gas mixtures. III. Xenon or argon with ethane ; xenon with methane or  
carbon dioxide. [T, Ar + C<sub>2</sub>H<sub>6</sub>, etc.]
- S G. R. Freeman and N. H. March : Chem. Phys. 173, 451-455 (1993) -  
Common features in slow electron scattering by methane and the heavier  
noble gases. [T, Ar, Kr, Xe, CH<sub>4</sub>]
- E R. H. Freeman and J. A. Roberts : Plasma Phys. 16, 377-383 (1974) -  
Electron collision frequency observations in H<sub>2</sub>, D<sub>2</sub>, N<sub>2</sub>O, CO<sub>2</sub> and  
argon at pressures of 0.4 - 2 Torr. [E, Ar, H<sub>2</sub>, D<sub>2</sub>, N<sub>2</sub>O, CO<sub>2</sub>]
- EX R. S. Freund and W. Klemperer : J. Chem. Phys. 47, 2897-2904 (1967) -  
Molecular beam time-of-flight measurements for the study of metastable  
and repulsive electronic states. [E, He - Xe, N<sub>2</sub>, CO, C<sub>6</sub>H<sub>6</sub>, N<sub>2</sub>O, CO<sub>2</sub>]
- EX R. S. Freund : Rev. Sci. Instrum. 41, 1213-1218 (1970) -  
O High current low voltage electron bombarder for excitation of a molecular  
beam. [E, Ar, He, N<sub>2</sub>]
- O M. S. Frish : Opt. Spectrosc. 22, 9-11 (1967)  
Use of a plasma-jet generator to determine the transition probabilities  
of lines in the argon spectrum. [E, h $\nu$ , Ar; 390 - 450 nm]
- O D. C. Frost, C. A. McDowell and D. A. Vroom : Proc. Roy. Soc. London 296, 566-579 (1967)  
Photoelectron kinetic energy analysis in gases by means of a spherical  
analyser. [E, h $\nu$ , Ar - Xe, H<sub>2</sub>, HD, D<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>; 584 Å]
- S L. S. Frost and A. V. Phelps : Phys. Rev. 136, A1538-A1545 (1964) ○  
E Momentum-transfer cross sections for slow electrons in He, Ar, Kr and Xe  
from transport coefficients. [E, Ar - Xe, He; q<sub>m</sub>, 0.001 - 25 eV]
- I J. Fryar and J. W. McConkey : J. Phys. B9, 619-629 (1976)  
Analysis of the ejected-electron spectra of Ar following controlled  
electron impact. [E, Ar]
- O C. Fuchtbauer, P. Schulz und A. F. Brandt : Z. Phys. 90, 403-415 (1934)  
Verschiebung von hohen Serienlinien des Natriums und Kaliums durch  
Fremdgase. Berechnung der Wirkungsquerschnitte von Edelgasen gegen sehr  
langsame Elektronen. [E, Ar + Na, Ar + K, etc.]
- O C. Fuchtbauer und F. Gossler : Z. Phys. 93, 648-655 (1935)  
Verschiebung und Verbreiterung hoher Serierglieder des Cäsiums durch  
Quecksilber und Xenon. Verbreiterung von Kalium durch Argon.  
[E, h $\nu$ , Ar, Xe, Hg]
- S K. Fujii, J. Fujimoto, H. Hayashii, R. Kajikawa, Y. Masatani, H. Ozaki, A. Sugiyama,  
S. Suzuki, T. Takahashi, T. F. Tsukamoto, T. Y. Tsukamoto, M. Ueda and S. Uno :  
Nucl. Instrum. Meth. A245, 35-44 (1986)  
Automated monitoring and calibrating system of gas gain and electron  
drift velocity. Prototype system and accumulation of reference data.  
[E, Ar + CH<sub>4</sub>, Ar + C<sub>2</sub>H<sub>6</sub>, Ar + C<sub>2</sub>H<sub>6</sub> + C<sub>2</sub>H<sub>5</sub>OH]

- O T. Fujimoto, C. Goto, Y. Uetani and K. Fukuda : Phys. Scr. 28, 617-619 (1983)  
Effect of radiative relaxation of excitation anisotropy on the  
measurement of atomic lifetime. Demonstration on argon 2p<sub>4</sub> level.  
[E, Ar]
- E J. B. Furness and I. E. McCarthy : J. Phys. B6, L42-L45 (1973a)  
The optical model for 100 eV elastic electron scattering on argon.  
[T, Ar]
- I J. B. Furness and I. E. McCarthy : J. Phys. B6, L204-L207 (1973b)  
The (e, 2e) experiment as a probe for atomic structure.  
[T, Ar; 400 eV, see E. Weigold (1973)]
- E J. B. Furness and I. E. McCarthy : J. Phys. B6, 2280-2291 (1973c)  
Semiphenomenological optical model for electron scattering on atoms.  
[T, Ar, H; DCS, 60, 100 and 150 eV for Ar]
- E J. B. Furness and I. E. McCarthy : J. Phys. B7, 541-547 (1974)  
Optical model wavefunctions for atomic scattering.  
[T, Ar; 200 and 400 eV]
- E J. E. Furst, D. E. Golden, M. Mahgerefteh, J. Zhou and D. Mueller : Phys. Rev. A40,  
5592-5600 (1989)  
Absolute low energy e<sup>-</sup> - Ar scattering cross section.  
[E, Ar; DCS, 3 - 20 eV]
- EX J. E. Furst, W. M. K. P. Wijayarathna, D. H. Hadison and T. J. Gay : Phys. Rev. A47,  
3775-3787 (1993)  
Investigation of spin-orbit effects in the excitation of noble gases  
by spin-polarized electrons. [E, Ne - Xe; Stokes parameters]
- I I. Fuss, I. E. McCarthy, C. J. Nobel and E. Weigold : Phys. Rev. A17, 604-613 (1978)  
Factorized distorted-wave approximation for the (e, 2e) reaction on atoms :  
Coplanar symmetric. [E, He - Ar; 400 - 1200 eV for Ar]
- QT H. Gaertner : Ann. Phys. 8, 135-162 (1931)  
Wirkungsquerschnittsmessungen an Argon und Wasserstoff gegenuber  
Elektronen von 0.2 - 6 volt. [E, Ar, H<sub>2</sub>; 0.168 - 5.53 eV]
- O J. W. Gallagher, J. R. Rumble, Jr. and B. C. Beaty : NBS Special Publ. 426, Suppl. 1,  
1-106 (1979)  
Bibliography of low energy electron and photon cross section data.  
(January 1975 through December 1977). [see L. J. Kieffer (1976)]
- O J. W. Gallagher and B. C. Beaty : JILA Information Center Report No. 18, 1-142  
(1980)  
Bibliography of low energy electron and photon cross section data (1978).
- O J. W. Gallagher and B. C. Beaty : JILA Information Center Report No. 21, 1-122  
(1981)  
Bibliography of low energy electron and photon cross section data (1979).



- O J. Galy, H. Brunet, A. Birot et J. -L. Artigue : Compt. Rend. Acad. Sci. B276, 23-26 (1973)  
Post-luminescence de l'argon : processus de disparition de l'état  $2p_2$ .  
[E, Ar;  $\alpha$  particles]
- EX P. S. Ganas and A. E. S. Green : Phys. Rev. A4, 182-193 (1971)  
Electron impact excitation of the rare gases. [T, Ne - Xe; th. -  $10^3$  eV]
- E E. A. Garbaty and R. W. Labahn : Phys. Rev. A4, 1425-1431 (1971)  
Scattering of slow electrons by neon and argon.  
[T, Ar, Ne; 0.14 - 14 eV]
- O G. Garcia and J. Campos : J. Quant. Spectrosc. Radiat. Transf. 34, 85-94 (1985)  
Lifetimes and transition probabilities of Ar(II). [E, Ar]
- QT G. Garcia, F. Arqueros and J. Campos : J. Phys. B19, 3777-3785 (1986) ○  
Total cross sections for electron scattering from Ne, Ar, and Kr in the energy range 700 - 6000 eV. [E, Ne - Kr; error 6 %]
- QT G. Garcia, M. Roteta, F. Manero, F. Blanco and A. Williard : J. Phys. B32, 1783-1794 (1999) -  
Electron scattering by Ne, Ar and Kr at intermediate and high energies, 0.5 - 10 keV. [T, Ne - Kr]
- QT G. Garcia, A. Williard and F. Blanco : 21st ICPEAC, Sendai TH022 (1999)  
Electron scattering by noble gases (Ar, Kr and Xe) at intermediate and high energies, 30 - 10000 eV. [E, Ar - Xe]
- E J. Gaty : Acta Phys. Chim. Debrecina 15/16, 83-107 (1969)  
Theoretical studies on the elastic scattering of very low energy electrons by argon atoms using various effective potentials.  
[T, Ar; 8 - 9 eV]
- I A. Gaudin et R. Hagemann : J. Chim. Phys. 64, 1209-1221 (1967)  
Determinations absolues des sections efficaces totales et partielles d'ionisation de l'hélium, du neon, de l'argon et de l'acetylene, pour des electrons de 100 a 2000 eV. [E, Ar, He, Ne,  $C_2H_2$ ]
- I A. Gaudin and R. Botter : J. Chim. Phys. 65, 1126-1128 (1968)  
Calcul de sections efficaces d'ionisation d'atomes par impact électronique energique. III. Sections efficaces d'ionisation de Na, Mg, Al, Si, P, S, Cl, A. [T, Ar, Na, etc.]
- EX L. A. Gavallas and Yu. M. Kagan : Izvest. Vyssh. Uchebn. Zaved. Fiz. 58, 20-23 (1967a)  
On multiple scattering of slow electrons in gases. II. [ , Ar.
- EX L. A. Gavallas : Izv. Vyssh. Uchebn. Zaved. Fiz. 58, 142-144 (1967b)  
Investigation of excitation cross-sections of some inert gases near the threshold. [ , Ar,

- 0 T. J. Gay, J. E. Furst and W. M. K. P. Wijayarathna : in AIP Conf. Proc. 295, The Physics of Electronic and Atomic Collisions, Aarhus 276-285 (1996)  
Some new developments in polarized electron science and technology.  
[E, He - Xe]
- EX T. J. Gay, J. E. Furst, K. W. Trantham and W. M. K. P. Wijayarathna : Phys. Rev. A53, 1623-1629 (1996)  
Optical electron polarimetry with heavy noble gases.  
[E, He - Xe; th. - 100 eV]
- E J. Geiger : Z. Phys. 177, 138-148 (1964)  
Streuung von 25 keV-Elektronen an Gasen. II. Streuung an Neon, Argon, Krypton und Xenon. [E, Ne - Xe]
- 0 S. Geltman : J. Quant. Spectrom. Radiat. Transf. 13, 601-613 (1973)  
Free-free radiation in electron-neutral atom collisions.  
[T, He - Xe, C, N, O]
- 0 S. Geltman : Phys. Rev. A53, 3473-3483 (1996)  
Laser-assisted collisions : The Kroll-Watson formula and bremsstrahlung theory. [T,  $h\nu$ , Ar, He]
- 0 J. B. Gerardo and M. A. Gusinow : J. Appl. Phys. 40, 2533-2544 (1969) -  
Studies of the early afterglow in helium and argon plasma. [E, Ar, He]
- 0 G. N. Gerasimov and S. Ya. Petrov : Opt. Spectrosc. 43, 7-9 (1977) -  
Experimental study of deactivation of the metastable  $^3P_2$  state of argon in the afterglow. [E, Ar]
- 0 S. A. Gerasimov : Czech. J. Phys. B40, 425-431 (1990)  
Incoherent X-ray scattering by atoms in semiclassical approximation  
[T,  $h\nu$ , Ar, C, Mo]
- 0 S. A. Gerasimov : Phys. Scr. 48, 567-568 (1993) -  
On the scaling law for the atomic coherent scattering cross section.  
[T, Ar, Ne, C, Mo, Au; 0.3 - 7 keV]
- I K. Gerdorf, J. Puerta and K. Wieseemann : J. Phys. B27, 747-758 (1994)  
State-selective study of  $Ar^{2+}$ ,  $Ar^{3+}$  and  $N_2^{2+}$  formation by electron impact ionization near threshold. [E, Ar,  $N_2$ ]
- 0 W. E. Gericke : Z. Astrophys. 53, 68-79 (1961)  
Messung der Übergangswahrscheinlichkeit sowie Halbwertsbreite und verschiebung von - A I - Linien in thermisch leuchtenden Plasmen.  
[E, Ar; 4150 - 6060 Å, 38 lines]
- 0 L. Gerward : Nucl. Instrum. Meth. B69, 407-412 (1992)  
Theoretical upper and lower limits to experimental X-ray attenuation coefficients. [T,  $h\nu$ , Ar, Ne, C, N, O, F, Na, etc.]

- E F. A. Gianturco and J. A. Rodriguez-Ruiz : Phys. Rev. A47, 1075-1086 (1993) ·  
Correlation forces in electron-scattering processes via density-  
functional theory : Electron collisions with closed-shell atoms.  
[T. He - Ar; DCS, 5, 20 and 50 eV]
- E F. A. Gianturco and J. A. Rodriguez-Ruiz : Nuovo Cimento 16D, 267-279 (1994a) ·  
Elastic electron scattering from rare gases with exact exchange : a new  
correlation-polarization potential.  
[T. He - Ar; DCS, 5 - 50 eV for all atoms]
- E F. A. Gianturco, D. de Fazio and J. A. Rodriguez-Ruiz : An. Fis. (Spain) 90, 248-257  
(1994b)  
The calculation of correlation force in electron scattering from atoms  
and molecules. [T. rare gas atoms]
- E F. A. Gianturco, K. T. Tang, J. P. Toennies, D. De Fazio and J. A. Rodriguez-Ruiz :  
Z. Phys. D33, 27-37 (1995) ·  
A semiclassical model of polarisation forces in atomic scattering. II.  
Electron collisions with neon and argon.  
[T. Ar, Ne; DCS, 5 and 20 eV for Ar]
- O G. Gibson, T. S. Luk and C. K. Rhodes : Phys. Rev. A41, 5049-5052 (1990) ·  
Tunneling ionization in the multiphoton regime. [T.  $h\nu$ , He - Xe]
- E J. C. Gibson, R. J. Gulley, J. P. Sullivan, S. J. Buckman, V. Chan and P. D. Burrow :  
J. Phys. B29, 3177-3195 (1996) ○  
Elastic electron scattering from argon at low incident energies.  
[E. Ar; 1 - 10 eV, 15/30 - 130°]
- E J. R. Gibson and J. A. Rees : J. Phys. B9, L105-L109 (1976)  
A phaseshift analysis of electron-argon elastic scattering data.  
[E. Ar; 20 - 200 eV]
- O E. Gilberg, M. J. Hanus and B. Foltz : Rev. Sci. Instrum. 52, 662-672 (1981)  
High-resolution concave grating grazing incidence spectrometer for the  
spectral region of ultrasoft X rays. [E. Ar, etc.]
- E H. S. Glick and T. G. Jones : AIAA J. 7, 4-12 (1969)  
Microwave study of the elastic scattering of electrons from argon atoms.  
[E. Ar]
- α I. I. Glotov : Phys. Z. Sowjetunion 12, 256-268 (1937)  
Über die Messung des Ionisationskoeffizienten in reinem Neon und in Neon-  
Argon-Gemischen. [E. Ar + Ne, Ne]
- α I. I. Glotov : Phys. Z. Sowjetunion 13, 84-102 (1938)  
Calculation of the coefficient of volume ionization for pure neon and  
neon - argon mixtures. [E. Ar + Ne, Ne]

- O M. Goppert-Mayer : Ann. Phys. 9, 273-294 (1931)  
 Über Elementarakte mit zwei Quantensprungen. [T, general theory]
- O V. A. Godyak and R. B. Piejak : Phys. Rev. Lett. 65, 996-999 (1990) -  
 Abnormally low electron energy and heating-mode transition in a low-  
 pressure argon rf discharge at 13.56 MHz. [E, Ar]
- S V. E. Golant : Sov. Phys. Tech. Phys. 4, 680-682 (1959)  
 $\alpha$  Coefficient of ionization and mobility of electrons in argon. [T, Ar]
- $\alpha$  D. E. Golden and L. H. Fisher : Phys. Rev. 123, 1079-1086 (1961)  
 Anomalies in ionization coefficients and in uniform field breakdown in  
 argon for low values of E/p. [E, Ar]
- QT D. E. Golden and H. W. Bandel : Phys. Rev. 149, 58-59 (1966a)  
 Low-energy  $e^-$ -Ar total scattering cross sections : the Ramsauer-  
 Townsend effect. [E, Ar; 0.1 - 21.6 eV, 3%]
- E D. E. Golden : Phys. Rev. 151, 48-51 (1966b)  
 Comparison of low-energy total and momentum-transfer scattering cross  
 sections on helium and argon. [T, Ar, He;  $10^{-2}$  - 0.7 eV]
- I D. E. Golden, Z. Xu, J. Bernhard and D. W. Mueller : J. Phys. B29, 3741-3746 (1996)  
 Electron anticapture to the continuum in double-binary electron-atom  
 collisions. [E, Ar; 1000 eV; DCS for two electrons emission]
- I J. E. Golden and J. H. McGuire : Phys. Rev. A13, 1012-1017 (1976)  
 Glauber cross sections for inner-shell ionization multielectron targets  
 by electron impact. [T, Ar, Ne, He, B, Li]
- E K. S. Golovanivsky and A. P. Kabilan : Phys. Lett. 80A, 249-252 (1980)  
 A new approach to the problem of electron-atom collision cross section  
 measurements in the low-energy range.  
 [E, Ar; ECR exp.,  $5 \times 10^{-3}$  - 0.6 eV]
- E K. S. Golovanivsky and A. P. Kabilan : Sov. Phys. JETP 53, 1153-1158 (1981) -  
 Investigation of collisions of electrons with noble gas atoms at thermal  
 and subthermal energies by electron cyclotron resonance spectroscopy.  
 [E, He - Xe; 0.001 - 1 eV, 12th ICPEAC, Gatlinberg 106-107 (1981)]
- O Yu. B. Golubovskii, Yu. M. Kagan and L. L. Komarova : Opt. Spectrosc. 34, 127-128  
 (1973)  
 Emission of a continuous spectrum of electron deceleration by atoms in  
 the positive column of argon discharge. [E, Ar]
- O Yu. B. Golubovskii, V. M. Zakharova, Yu. M. Kagan and R. I. Lyagushchenko : Opt.  
 Spectrosc. 40, 557-559 (1976)  
 Population of excited levels in the positive column of a discharge in neon  
 and argon. [E, Ar, Ne]

- S N. A. Gorbunov and A. S. Mel'nikov : Tech. Phys. 44, 361-366 (1999)  
Effect of molecular nitrogen on the electron mobility in a mixture of argon and optically excited sodium vapor. [T, Ar + Na + N<sub>2</sub>]
- S E. B. Gordon, V. V. Khmelenko and O. S. Rzhevsky : Chem. Phys. Lett. 217, 605-612 (1994)  
O Critical phenomena in electron drift through condensed rare gases.  
[T, Ar - Xe]
- O T. W. Gorezyca and F. Robicheaux : Phys. Rev. A60, 1216-1225 (1999)  
Auger decay of the photoexcited 2p<sup>-1</sup>n<sub>l</sub> Rydberg series in argon.  
[T, hν, Ar]
- I D. Graf and W. Hink : J. Phys. B18, L803-L808 (1985)  
Measurements on PCI and threshold low in K-shell ionisation of Ar by electron impact. [E, Ar; 2.66 keV, post collision interaction]
- I D. Graf and W. Hink : J. Phys. B19, L221-L226 (1986)  
Measurements on post-collision interaction in L-shell ionisation of Ar by electron impact at large excess energies. [E, Ar; 0.1 - 10 keV]
- E W. J. Graham and A. J. Ruhlig : Phys. Rev. 94, 25-29 (1954)  
S Calculated values of the parameters of noble gas discharges. [T, He - Ar]
- S D. B. Graves and M. Surendra : in Nonequilibrium Effects in Ion and Electron Transport, Plenum 157-176 (1990)  
O Non-equilibrium effects in DC and RF glow discharges. [T, Ar, He]
- E D. P. Grechukhin and A. V. Lomonosov : JETP Lett. 60, 779-784 (1994) -  
Relativistic effect in low-energy elastic scattering of electrons by inert-gas atoms. [T, Ne - Xe]
- O A. E. S. Green and L. R. Peterson : J. Geophys. Res. 73, 233-241 (1968)  
Energy loss functions for electrons and photons in planetary gases.  
[T, He - Kr, C, N, O, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, H<sub>2</sub>O, CO<sub>2</sub>, CH<sub>4</sub>, etc.]
- O A. E. S. Green : Radiat. Res. 64, 119-140 (1975)  
The role of secondary electrons in charged particle degradation.  
[T, Ne - Xe, N<sub>2</sub>, O<sub>2</sub>, CO<sub>2</sub>, H<sub>2</sub>O]
- EX A. E. S. Green, C. H. Jackman and R. H. Garvey : J. Geophys. Res. 82, 5104-5111 (1977)  
Electron impact on atmospheric gases. 2. Yield spectra.  
[T, Ar, He, O, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, CO<sub>2</sub>, H<sub>2</sub>O]
- E A. E. S. Green, D. E. Rio and T. Ueda : Phys. Rev. A24, 3010-3018 (1981)  
Analytic velocity-dependent potential for bound and scattering states of electrons and atoms. [T, Ne - Xe; DCS]

- O M. C. Green : Phys. Rev. 36, 239-247 (1930)  
The effect of small angle scattering on the electron absorption coefficient.  
[E, Ar, He, Hg, H<sub>2</sub>]
- O A. E. Greene and C. A. Brau : IEEE J. Quant. Electron. 14, 951-957 (1978)  
Theoretical studies of UV-preionized transverse discharge KrF and ArF lasers. [T, Ar, Kr]
- O F. T. Greene and T. A. Milne : J. Chem. Phys. 39, 3150-3151 (1963)  
Mass spectrometric detection of polymers in supersonic molecular beams. [E, Ar<sub>N</sub>, (CO<sub>2</sub>)<sub>N</sub>]
- E D. C. Griffin, M. S. Pindzola, T. W. Gorczyca, N. R. Badnell : Phys. Rev. A51, 2265-2276 (1995)  
Elastic and inelastic scattering of electrons from Ar and Cl.  
[T, Ar, Cl; R-matrix and distorted-wave approx.]
- E D. C. Griffin and M. S. Pindzola : Phys. Rev. A53, 1915-1918 (1996) -  
Elastic scattering of electrons from singly ionized argon.  
[T, Ar, Ar<sup>+</sup>, Cl; DCS at 3 eV]
- I M. Grin and C. Dal Cappello : 21st ICPEAC, Sendai 206 (1999) -  
A study of the two step mechanism in the double ionisation of noble gases. [T, Ar; 5543 eV]
- EX J. T. Grissom, R. N. Compton and W. R. Garrett : Repoert Oak Ridge National Labo.,  
I ORNL-TM-2618, 1-163 (1970)  
Electron impact excitation and ionization studies of the rare gases.  
[E, He - Xe]
- I J. T. Grissom, R. N. Compton and W. R. Garrett : Phys. Rev. A6, 977-987 (1972)  
EX Slow electrons from electron-impact ionization of He, Ne and Ar.  
[E, He - Ar]
- O J. Groh, E. Schenuit and H. Spitzer : Nucl. Instrum. Meth. A293, 537-544 (1990) -  
Computer simulation of electron avalanches in argon-methane filled with chambers. [T, Ar + CH<sub>4</sub>]
- EX R. E. Grojean and J. F. Rendina : Anal. Chem. 43, 162-171 (1971)  
Quantitative gas phase analysis by means of electron impact spectrometry.  
[E, Ar, Kr, H<sub>2</sub>, N<sub>2</sub>, CO, NO, NO<sub>2</sub>]
- I B. Grosswendt : J. Phys. B17, 1391-1404 (1984) -  
Statistical fluctuations of the ionisation yield of low-energy electrons in He, Ne and Ar. [E, He - Ar]
- I A. N. Grum-Grzhimailo : J. Phys. B18, L695-L697 (1985)  
On the theory of the (e, 2e) process for the 2p subshell of argon.  
[T, Ar]
- S R. Grunberg : Z. Naturforsch. 23a, 1994-2004 (1968) -  
Messungen der Elektronengeschwindigkeit bei hohen Gasdrucken in Ar, He, N<sub>2</sub> und H<sub>2</sub>. [E, Ar, He, H<sub>2</sub>, N<sub>2</sub>]

- O R. F. Gruzdev and A. V. Loginov : Opt. Spectrosc. 38, 234-236 (1975)  
Radiation lifetimes of levels of the argon atom. [E, Ar]
- E M. Gryzinski : Phys. Rev. 115, 374-383 (1959)  
Classical theory of electronic and ionic inelastic collisions.  
[T, Ar, He, Hg, Na, H<sub>2</sub>, etc.; 0.2 - 100 eV]
- I M. Gryzinski : Phys. Rev. 138, A336-A358 (1965)  
Classical theory of atomic collisions. I. Theory of inelastic collisions.  
[T, Ar, H, He, Li, Na, H<sub>2</sub>, etc.]
- E M. Gryzinski : Phys. Rev. Lett. 24, 45-47 (1970)  
Ramsauer effect as a result of the dynamic structure of the atomic shell.  
[T, Ar only; 0 - 400 eV]
- E M. Gryzinski : J. Chem. Phys. 62, 2620-2628 (1975) .  
Classical theory of atomic collisions. II. Low energy scattering.  
[T, Ne - Xe, C<sub>n</sub>H<sub>2n+2</sub>, H<sub>2</sub>, H<sub>2</sub>O, NH<sub>3</sub>, Li, Na]
- I M. Gryzinski and J. A. Kunc : J. Phys. B19, 2479-2504 (1986)  
Collisional ionisation and the atomic model. [T, Ar, He, H, etc.]
- E S. C. Gupta and J. A. Rees : J. Phys. B7, L381-L384 (1974)  
The elastic scattering of electrons by argon.  
[E, Ar; 100 - 110 eV, 10 - 140°]
- E S. C. Gupta and J. A. Rees : J. Phys. B8, 1267-1274 (1975) .  
Absolute differential cross sections for 100 eV electrons elastically  
scattered by helium, neon and argon.  
[E, He - Ar; DCS, 100 eV, 10 - 140°]
- E Yu. K. Gus'kov, R. V. Savvov and V. A. Slobodyanyuk : Sov. Phys. Tech. Phys. 23,  
QT 167-171 (1978) .  
Time-of-flight measurement of the total cross section for elastic  
scattering of low-energy electrons (E = 0.025 - 1.0 eV) by He, Ne, Ar,  
Kr and Xe. [E, He - Xe]
- O H. Haberland, Y. T. Lee and P. E. Siska : in Advances in Chemical Physics, Vol. 45,  
John Wiley and Sons 487-585 (1981)  
Scattering of noble-gas metastable atoms in molecular beams.  
[review, E and T, Ar + He\*, Ar + Ne\*, etc.; not e and hν]
- E R. Haberland, L. Fritsche and J. Noffke : Phys. Rev. A33, 2305-2314 (1986)  
Elastic scattering of low-energy electrons by Ne, Ar, Kr and Xe.  
[T, Ne - Xe; DCS, 5 - 100 eV]
- S G. N. Haddad and T. F. O'Malley : Aust. J. Phys. 35, 35-39 (1982)  
E Scattering cross section in argon from electron transport parameters.  
[T, Ar; q<sub>t</sub> 0.01 - 1 eV, q<sub>m</sub> 0.01 - 4 eV]
- S G. N. Haddad : Aust. J. Phys. 36, 297-303 (1983)  
Drift velocities of electrons in nitrogen-argon mixtures. [E, Ar + N<sub>2</sub>]

- I Z. A. Hafidh and H. L. Hartnagel : J. Vac. Sci. Tech. 12, 1067-1071 (1975)  
Effect of excessive-trapping operation of sequential mass spectrometers shown for collision cross-section data of  $\text{BCl}_3$ .  
[E, Ar,  $\text{BCl}_3$ ; ionization of Ar]
- I H. D. Hagstrum : Phys. Rev. 104, 309-316 (1956)  
Metastable ions of the noble gases. [E, He - Xe]
- O Y. Hahn : Phys. Rev. A13, 1326-1333 (1976) -  
Inner-shell excitations and ionizations of atomic ions by high-energy electron impact. [T,  $\text{Ar}^+$ , Ne, O]
- EX Y. Hahn : Phys. Rev. A16, 1964-1973 (1977)  
I Distorted-wave theory of electron-ion collisions. I. Direct excitation and ionization. [T, Ar, Ne, Fe]
- O R. I. Hall, L. Avaldi, G. Dawber, P. M. Rutter, M. A. MacDonald and G. C. King : J. Phys. B22, 3205-3216 (1989)  
Observation of the argon photoelectron satellites near threshold.  
[E,  $h\nu$ , Ar; 32 - 49 eV]
- O R. I. Hall, A. G. McConkey, L. Avaldi, K. Ellis, G. Dawber and G. C. King : 17th ICPEAC, Brisbane 13-13 (1991)  
Photoelectron-photoion and photoelectron-photoelectron coincidence measurements of the rare gases Ne, Ar, Kr and Xe. [E,  $h\nu$ , Ne - Xe]
- O R. I. Hall, K. Ellis, A. McConkey, G. Dawber, L. Avaldi, M. A. MacDonald and G. C. King : J. Phys. B25, 377-388 (1992a)  
Double and single ionization of neon, argon and krypton in the threshold region studied by photoelectron-ion coincidence spectroscopy.  
[E,  $h\nu$ , Ar, Kr, Ne]
- O R. I. Hall, A. McConkey, K. Ellis, G. Dawber, M. A. MacDonald and G. C. King : J. Phys. B25, 799-810 (1992b) -  
Near-threshold single photon double ionization of neon, argon, krypton and xenon observed by electron-electron coincidence spectroscopy.  
[E,  $h\nu$ , Ne - Xe]
- O R. I. Hall, G. Dawber, A. G. McConkey, M. A. McDonald and G. C. King : Z. Phys. D23, 377-381 (1992c) -  
Threshold photoelectrons coincidence spectroscopy of the rare gases Ne, Ar, Kr and Xe. [E,  $h\nu$ , Ne - Xe]
- O R. I. Hall, Y. Lu, Y. Morioka, T. Matsui, T. Tanaka, H. Yoshii, T. Hayaishi and K. Ito : J. Phys. B28, 2435-2451 (1995)  
High resolution threshold photoelectron spectroscopy of rare gas dimer.  
[E,  $h\nu$ ,  $\text{Ar}_2$ ,  $\text{Ne}_2$ ]
- EX J. M. Hammer and C. P. Wen : J. Chem. Phys. 46, 1225-1230 (1967)  
Measurements of electron impact excitation cross sections of laser states of argon (II). [E, Ar]



- EX P. Hammond : PhD Thesis, University of Manchester (1982)
- EX P. Hammond, F. H. Read and G. C. King : J. Phys. B17, 2925-2941 (1984)  
Near-threshold electron impact excitation functions of high-n states of Ar, Kr, Xe, H<sub>2</sub>, N<sub>2</sub> and CO. [E, Ar - Xe, H<sub>2</sub>, N<sub>2</sub>, CO]
- O P. Hammond : J. Phys. B29, L231-L237 (1996)  
Benchmark energies of negative ion states of argon.  
[E, Ar; 11.1030 and 11.2763 eV]
- I A. Hamnett, W. Stoll, G. Branton, C. E. Brion and M. J. van der Wiel : J. Phys. B9, 945-957 (1976)  
A kinematic and experimental investigation of the (e, 2e) simulation of photoelectron spectroscopy. [E, He - Ar, N<sub>2</sub>, CO]
- EX W. Hanle und D. Riede : Z. Phys. 133, 537-540 (1952)  
I Anregungs- und Ionisierungsfunktionen beim Stoss schneller Elektronen.  
[E, Ar, He, Xe; emission cross section and ionization]
- EX W. Hanle, E. Kugler und A. Schmitten : Ann. Phys. 13, 252-273 (1964) -  
Über die Lumineszenz von Edelgasen bei Anregung mit schnellen Elektronen.  
(Luminescence of rare gases under excitation by fast electrons.)  
[E, Ne - Xe; 50 keV]
- EX G. F. Hanne : Phys. Rep. 95, 95-165 (1983) -  
Spin effects in inelastic electron-atom collisions. [review]
- O J. E. Hansen and W. Persson : J. Phys. B15, L269-L273 (1982)  
Identification of the 3p<sup>4</sup>(<sup>1</sup>D)5d <sup>2</sup>S term in Ar II. [T, hν, Ar]
- O J. E. Hansen and W. Persson : J. Phys. B20, 693-706 (1987)  
A revised analysis of the spectrum of Ar III. [T, hν, Ar]
- E R. Harberland, L. Fritzsche and J. Noffke : Phys. Rev. A33, 2305-2314 (1986)  
Elastic scattering of low energy electrons by Ne, Ar, Kr and Xe.  
[T, Ne - Xe; DCS, 5 - 100 eV]
- I P. W. Harland and C. Vallance : Int. J. Mass Spectrom. Ion Process. 171, 173-181 (1997) -  
Ionization cross sections and ionization efficiency curves from polarizability volumes and ionization potentials.  
[E, He - Xe, H, O, N, Cl, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, CO<sub>2</sub>, C<sub>6</sub>H<sub>6</sub>, etc.]
- I A. G. Harrison, E. G. Jones, S. K. Gupta and G. P. Nagy : Can. J. Chem. 44, 1967-1973 (1966) -  
Total cross sections for ionization by electron impact.  
[E, He - Xe, CH<sub>4</sub>, etc.; q<sub>1</sub> at 75 eV for many atoms and molecules]
- O T. W. Hartquist : J. Phys. B11, 2101-2106 (1978)  
Photoionisation cross sections of excited noble-gas atoms and dimers.  
[T, hν, He - Xe]

- E J. B. Hasted : *Contemp. Phys.* 14, 357-387 (1973)
- EX Electron scattering spectroscopy.  
[review, He - Xe, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, CS<sub>2</sub>, N<sub>2</sub>O, H<sub>2</sub>O, C<sub>6</sub>H<sub>6</sub>]
- O S. Hattori and T. Goto : *IEEE J. Quant. Electron.* 5, 531-538 (1969)  
Excitation mechanism and plasma parameters in pulsed argon-ion lasers.  
[E, Ar]
- O T. Hayaishi, Y. Morioka, Y. Kageyama, M. Watanabe, I. H. Suzuki, A. Mikuni, G. Isoyama, S. Asaoka and M. Nakamura : *J. Phys.* B17, 3511-3527 (1984)  
Multiple photoionization of the rare gases in the XUV region.  
[E, h $\nu$ , Ar - Xe]
- I T. Hayakawa and T. Sugiura : *Bull. Naniwa Univ.* 3, 193-202 (1955)  
Ionization and dissociation of molecules and atoms by electron impact.  
I. Relative abundance, relative efficiency of ionization, and neutral isotope abundance. [ ]
- S M. Hayashi : 4th ICGD, Swansea 1, 195-198 (1976)  
Monte Carlo simulation of electron avalanches. [T, Ar]
- E M. Hayashi : Institute of Plasma Physics, Nagoya Univ., IPPJ-AM-19, 1-62 (1981)
- QT Recommended values of transport cross sections for elastic collision and total collision cross section for electrons in atomic and molecular gases.  
[compilation, He - Xe, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, CO<sub>2</sub>]
- O M. Hayashi : *J. Phys.* D15, 1411-1418 (1982)  
Luminous layers in the prebreakdown region of low pressure noble gases.  
[T, He - Xe; ; very old c. s. set for Ar]
- S M. Hayashi and S. Ushiroda : *J. Chem. Phys.* 78, 2621-2625 (1983)  
Calculations of drift velocity of electrons in inert gases at low E/N.  
[T, He - Xe]
- E M. Hayashi : in Gaseous Electronics and Its Applications, KTK Scientific  
V Publishers 9-33 (1991)
- EX Electron collision cross sections of atoms and molecules.  
I [compilation and review]
- E M. Hayashi : 45th GEC, Boston, MA-5, 189-189 (1992) ○.
- EX *Bull. Am. Phys. Soc.* 37, 2007 (1992)  
Electron collision cross sections for He and Ar - compilation of DCS.  
[compilation, Ar, He; DCS values of A. Chutjian (1981) have revised]
- E S. Hayashi and K. Kuchitsu : *Chem. Phys. Lett.* 44, 1-4 (1976)  
A quasi-adiabatic polarization potential for elastic electron-atom scattering. Helium and other atoms. [T, Ar, Ne, He, Li, Na, etc.]
- O Ch. Heckenkamp, F. Schafers, U. Heinzmann, R. Frey and E. W. Schlag : *Nucl. Instrum. Meth.* 208, 805-808 (1983)  
Application of a threshold electron spectrometer in spin resolved photoelectron analysis. [E, h $\nu$ , Ar]

- O D. W. O. Heddle : J. Quant. Spectrosc. Radiat. Transf. 2, 349-357 (1962)  
Photon-scattering processes. [E,  $h\nu$ , Ar, H<sub>2</sub>, N<sub>2</sub>]
- EX D. W. O. Heddle and J. W. Gallagher : Rev. Mod. Phys. 61, 221-278 (1989) ○  
Measurements of electron impact optical excitation functions.  
[review, He - Xe, Li - Cs, Hg, etc.]
- O P. A. Heimann, D. W. Lindle, T. A. Ferrett, S. H. Liu, L. J. Medhurst, M. N. Piancastelli,  
D. A. Shirley, U. Vecker, H. G. Kerkhoff, B. Langer, D. Szostak and R. Wehlitz :  
J. Phys. B20, 5005-5022 (1987)  
Shake-off on inner-shell resonances of Ar, Kr and Xe. [E, Ar - Xe]
- O U. Heinzmann, G. Schonhense and J. Kessler : J. Phys. B13, L153-L156 (1980a)  
Wavelength dependence of polarisation of photoelectrons ejected by  
unpolarised VUV radiation from argon and krypton atoms. [E,  $h\nu$ , Ar, Kr]
- O U. Heinzmann and F. Schafers : J. Phys. B13, L415-L419 (1980b)  
Spin polarized photoelectrons from krypton and argon atoms exposed to  
circularly polarised synchrotron radiation. [E,  $h\nu$ , Ar, Kr]
- O U. Heinzmann : Appl. Opt. 19, 4087-4091 (1980c)  
Spin polarized photoelectrons from atoms and molecules.  
[review, E,  $h\nu$ , Ar - Xe, N<sub>2</sub>O]
- S A. P. Heison and D. Rowe : Nucl. Instrum. Meth. A321, 165-171 (1992)  
A comparison of CF<sub>4</sub> + hydrocarbon fast gases for drift chambers and straw  
tubes. [E, Ar + CH<sub>4</sub>, CH<sub>4</sub> + CF<sub>4</sub>, etc.]
- O H. Helm, K. Stephan and T. D. Mark : Phys. Rev. A19, 2154-2160 (1979)  
I Electron-impact ionization of Ar<sub>2</sub>, ArKr, Kr<sub>2</sub>, KrXe, and Xe<sub>2</sub>.  
[E, Ar<sub>2</sub>, ArKr, Kr<sub>2</sub>, Xe<sub>2</sub>, etc.]
- O B. L. Henke, P. Lee, T. J. Tanaka, R. L. Shimabukuro and B. K. Fujikawa : Atom. Data Nucl.  
Data Tables 27, 1-144 (1982)  
Low-energy X-ray interaction coefficients : Photoabsorption, scattering,  
and reflection. E = 100 - 2000 eV, Z = 1 - 94. [compilation, Ar, etc.]
- E W. Henneberg : Z. Phys. 83, 555-580 (1933)  
Zur Streuung von Elektronen an schweren Atomen. [T, Ar, Kr, Hg; DCS]
- E J. Herbak, A. Kober, E. Szmola, D. Berenyi and I. Cserny : Acta Phys. Hung. 58, 63-68  
(1985)  
Elastic scattering of electrons on He, Ne, Ar in the impact energy region  
from 1000 to 3000 eV. [E, He - Ar; 500 - 3000 eV, 50 - 130°]
- EX O. Herrmann : Ann. Phys. 25, 148-165 (1936)  
Intensitätsmessungen im Neon- und Argonspektrum bei Anregung durch  
Elektronenstoß. [T, Ar, Ne]
- O M. P. Hertlein, P. H. Bucksbaum and H. G. Muller : J. Phys. B30, L197-L205 (1997)  
Evidence for resonant effects in high-order ATI spectra. [E, Ar]

- S A. E. D. Heylen and T. J. Lewis : Proc. Roy. Soc. London A271, 531-550 (1963)  
Electron energy distribution functions and transport coefficients for the rare gases. [T, He - Ar; B.Eq.]
- O A. Hibbert and J. E. Hansen : J. Phys. B20, L245-L251 (1987)  
Accurate wavefunctions for  $^2S$  and  $^2P^o$  states in Ar II. [T, Ar]
- O A. Hibbert and J. E. Hansen : J. Phys. B22, L347-L351 (1989)  
Lifetimes of some  $3p^44p$  levels in Ar II. [T, Ar]
- I W. M. Hickam, R. E. Fox and T. Kjeldaas, Jr. : Phys. Rev. 96, 63-65 (1954)  
Probability curves near threshold for the formation of  $He^+$ ,  $Ne^{++}$ ,  $Ar^{++}$ ,  $Kr^{++}$ , and  $Xe^{++}$  by electron impact. [E, He - Xe; relative]
- O P. R. Hilton, S. Nordholm and N. S. Hush : Chem. Phys. 15, 345-361 (1976)  
Molecular photoionization cross sections calculated by an effective plane wave method. [T,  $h\nu$ , He - Kr,  $H_2$ , CO,  $H_2O$ ,  $C_2H_4$ ; 0 - 1500 eV]
- O P. R. Hilton, S. Nordholm and N. S. Hush : J. Chem. Phys. 67, 5213-5223 (1977)  
The ground state inversion potential method : Application to the calculation of photoionization cross sections. [T,  $h\nu$ , Ne - Kr]
- EX A. Hiltunen, T. Kylli, J. Mursu, O. -P. Sairanen, H. Aksela and S. Aksela : J. Elect. Spectrosc. Relat. Phenom. 87, 203-210 (1998)  
Resonant Auger decay in the  $L_{2,3}$  - MM spectrum of Ar excited by electron bombardment. [E, Ar]
- EX R. Hippler, K. Saeed, I. McGregor and H. Kleinpoppen : Z. Phys. A307, 83-87 (1982)  
Energy dependence of characteristic and bremsstrahlung cross sections of argon induced by electron bombardment at low energies. [E, Ar; 2.5 - 12 keV]
- I R. Hippler and W. Jitschin : Z. Phys. A307, 287-292 (1982)  
Plane wave Born cross sections including exchange for K-shell ionization of light atoms. [T, Ar, Ne, C, N, etc.]
- I R. Hippler, H. Klar, K. Saeed, I. McGregor, A. J. Duncan and H. Kleinpoppen : J. Phys. B16, L617-L621 (1983)  
Threshold behaviour of Ar, Kr and Xe  $L_3$  ionisation by electron impact. [E, Ar - Xe]
- I R. Hippler, K. Saeed, A. J. Duncan and H. Kleinpoppen : Phys. Rev. A30, 3328-3331 (1984)  
Electron spectroscopy of multiple ionization of argon by electron impact. [E, Ar; DDCS, 25 - 300 eV]
- I R. Hippler : Phys. Lett. A144, 81-85 (1990)  
Plane wave Born calculations of K-shell ionization at low velocities. [T, Ar, Ag, Cu]

- 0 R. Hippler : Phys. Rev. Lett. 66, 2197-2199 (1991)  
Two-photon bremsstrahlung of free atoms. [E,  $h\nu$ , Ar - Xe; 7 - 15 keV]
- 0 A. Hirabayashi, S. Okuda, Y. Nambu and T. Fujimoto : Phys. Rev. A35, 639-646 (1987)  
Saturated fluorescence method for determination of atomic transition probabilities : Application to the ArI 430.0-nm ( $1s_4 - 3p_8$ ) transition and the lifetime determination of the upper level. [E, Ar]
- E P. S. Hooper, W. Franzen and G. Gupta : Phys. Rev. 168, 50-55 (1968)  
Analysis of low-energy electron scattering by helium, neon and argon. [T, He - Ar; 1.1 - 10.3 eV, DCS, 2.4 - 12.5 eV]
- 0 D. Hofsaess : J. Quant. Spectrosc. Radiat. Transf. 19, 339-352 (1978)  
Emission continua of rare gas plasmas. [T,  $h\nu$ , He - Xe; 300 - 10000 Å]
- 0 D. M. P. Holland, K. Codling, J. B. West and G. V. Marr : J. Phys. B12, 2465-2484 (1979)  
Multiple photoionisation in the rare gases from threshold to 280 eV. [E,  $h\nu$ , He - Xe; 55 - 280 eV for Ar]
- 0 T. Holstein : Phys. Rev. 72, 1212-1233 (1947)  
Imprisonment of resonance radiation in gases. [general theory]
- 0 T. Holstein : Phys. Rev. 83, 1159-1168 (1951)  
Imprisonment of resonance radiation in gases. II. [general theory]
- E J. Holtsmark : Z. Phys. 48, 231-243 (1928)  
Zur Theorie der Streuung von langsamen Elektronen. [T, Ar, Ne;  $q_t$ ]
- E J. Holtsmark : Z. Phys. 55, 437-446 (1929)  
Der Ramsauereffekt im Argon. [T, Ar;  $q_t$ , 0 - 30 eV]
- I S. P. Hong and E. C. Beaty : Phys. Rev. A17, 1829-1836 (1978)  
Measurements of the triple-differential cross section for low-energy electron-impact ionization of argon. [E, Ar]
- I S. T. Hood, I. E. McCarthy, P. J. O. Teubner and E. Weigold : Phys. Rev. A8, 2494-2500 (1973)  
Angular correlation for (e, 2e) reactions on atoms. [T and E, Ar, He]
- I S. T. Hood, I. E. McCarthy, P. J. O. Teubner and E. Weigold : Phys. Rev. A9, 260-266 (1974) -  
Structure of atoms from the (e, 2e) reaction. [T, Ar]
- 0 A. N. Hopersky, V. A. Yavna and V. A. Popov : J. Phys. B29, 461-469 (1996)  
Many-electron effects in anomalous elastic scattering of X-ray photons by Ar near the K-edge. [T, Ar]
- 0 R. G. Houlgate, J. B. West, K. Codling and G. V. Marr : J. Phys. B7, L470-L473 (1974)  
Angular distribution and photoionization cross section measurements on the 3d and 3s subshells of argon. [E,  $h\nu$ , Ar]

- O R. G. Houlgate, J. B. West, K. Codling and G. V. Marr : J. Elect. Spectrosc. Relat. Phenom. 9, 205-209 (1976)  
The angular distribution of the 3p electrons and the partial cross section of the 3s electrons of argon from threshold to 70 eV. [E,  $h\nu$ , Ar]
- EX H. Hotop and A. Niehaus : Z. Phys. 215, 395-407 (1968)  
Reactions of excited atoms and molecules with atoms and molecules. I. Excited rare gas atoms and hydrogen.  
[E,  $(\text{He}^* - \text{Xe}^*) + (\text{H}_2, \text{HD})$ ; relative, th. - 40 eV, Auger electron detection]
- E Q. Hou, L. Liu and J. Li : Chinese Phys. Lett. 10, 11-14 (1993) -  
Theoretical calculation of differential cross section for  $e^+ - \text{Ar}$  and  $e^- - \text{Ar}$  elastic scattering. [T, Ar; DCS, 20, 50 eV]
- O K. -N. Huang, W. R. Johnson and K. T. Cheng : Phys. Lett. 77A, 234-236 (1980)  
Totally polarized electrons from photoionization of outer  $p_{1/2}$  subshells of rare gases : A relativistic random phase approximation calculations.  
[T,  $h\nu$ , Ar - Xe]
- O K. -N. Huang, W. R. Johnson and K. T. Cheng : Atomic Data Nucl. Data Tables 26, 33-45 (1981)  
Theoretical photoionization parameters for the noble gases argon, krypton, and xenon. [T,  $h\nu$ , Ar - Xe]
- S S. S. S. Huang and G. R. Freeman : Phys. Rev. A24, 714-724 (1981)  
Electron transport in gaseous and liquid argon : Effect of density and temperature. [E, Ar]
- O J. H. Hubbell, W. J. Veigele, E. A. Briggs, R. T. Brown, D. T. Cromer and R. J. Howerton : J. Phys. Chem. Ref. Data 4, 471-538 (1975)  
Atomic form factors, incoherent scattering functions, and photon scattering cross sections. [compilation, T,  $Z = 1 - 100$ ]
- I B. A. Huber : Comments At. Mol. Phys. 21, 15-39 (1987)  
Recent applications of translational energy spectroscopy in atomic collision processes. [comments]
- S W. Hubner und C. Klett : Z. Naturforsch. 19a, 240-245 (1964) -  
A Der Einfluss von Sauerstoff- und Wasserdampfzusätzen auf die Ionenbeweglichkeit und die Elektronen-Anlagerungswahrscheinlichkeit in Argon.  
(The influence of oxygen and water vapor admixtrures in the ion mobilities and electron attachment probabilities in argon.)  
[E, Ar]
- O R. D. Hudson and V. L. Carter : J. Opt. Soc. Am. 58, 227-232 (1968)  
Bandwidth dependence of measured UV absorption cross sections of argon.  
[E,  $h\nu$ , Ar]
- O R. D. Hudson and L. J. Kieffer : Atomic Data 2, 205-262 (1971)  
Compilation of atomic ultraviolet photoabsorption cross section for wavelengths between 3000 and 10 Å.  
[compilation,  $h\nu$ , He - Xe, Li - Cs, etc.]

- O R. E. Huffman, Y. Tanaka and J. C. Larrabee : J. Chem. Phys. 39, 902-909 (1963a)  
Absorption coefficients of xenon and argon in the 600 - 1025 Å  
wavelength regions. [E.  $h\nu$ , Ar, Xe]
- O R. E. Huffman, Y. Tanaka and J. C. Larrabee : 6th ICIPG, Paris 1, 145-148 (1963b)  
Helium and argon emission continua and their use in absorption cross-  
section measurements in the vacuum ultraviolet. [E.  $h\nu$ , Ar, He]
- O R. E. Huffman, J. C. Larrabee and Y. Tanaka : Appl. Opt. 4, 1581-15 (1965)  
Rare gas continuum light sources for photoelectric scanning in the vacuum  
ultraviolet. [E.  $h\nu$ , Ar - Xe, He; 1050 - 1550 Å for Ar]
- I A. L. Hughes and E. Klein : Phys. Rev. 23, 450-463 (1924) -  
Ionization of gases as a function of the energy of electron impacts.  
[E, He - Xe, H<sub>2</sub>, N<sub>2</sub>, CH<sub>4</sub>; th. - 300 eV]
- E A. L. Hughes and J. H. McMillen : Phys. Rev. 39, 585-600 (1932),  
EX Erratum 40, 469-470 (1932)  
Inelastic and elastic electron scattering in argon.  
[E, Ar; DCS, 50 - 550 eV, 10 - 170°]
- S S. R. Hunter, J. G. Carter and L. G. Christophorou : J. Appl. Phys. 58, 3001-3015 (1985)  
Electron transport studies of gas mixtures for use in e-beam controlled  
diffuse discharge switches. [E, Ar + CH<sub>4</sub>, CF<sub>4</sub>, etc.]
- S S. R. Hunter, J. G. Carter and L. G. Christophorou : J. Chem. Phys. 90, 4879-4891 (1986)  
Low energy electron attachment to SF<sub>6</sub> in N<sub>2</sub>, Ar, and Xe buffer gases.  
[E, Ar + SF<sub>6</sub>, etc.]
- I W. M. Huo and Y.-K. Kim : 21st ICPEAC, Sendai 229 (1999) -  
Use of relative effective core potential in the calculation of  
electron-impact total ionization cross sections. [T, Ar - Xe, WF<sub>6</sub>]
- I M. Hussain and L. Kerwin : Can. J. Phys. 44, 57-65 (1966)  
1001 reactions of the Ar and Kr ion doublets. [E, Ar, Kr]
- I R. Huster, W. Sandner and W. Mehlhorn : J. Phys. B20, L287-L293 (1987)  
Post-collision interaction in inner-shell ionisation by electron impact :  
energy shift of KLL Auger electrons of Ne and Ar.  
[E, Ar, Ne; 26.5 - 1600 eV for Ar]
- O H. A. Hyman : Appl. Phys. Lett. 31, 14-15 (1977)  
Photoionization cross sections for excited states of argon and krypton.  
[T,  $h\nu$ , Ar, Kr]
- ME H. A. Hyman : Phys. Rev. A18, 441-446 (1978) -  
Electron-impact excitation of metastable argon and krypton.  
[T, Ar, Kr; th. - 100 eV]
- ME H. A. Hyman : Phys. Rev. A20, 855-859 (1979)  
Electron-impact ionization cross sections for excited states of the rare  
gases (Ne, Ar, Kr, Xe), cadmium, and mercury. [T, Ne - Xe, Cd, Hg]

- EX H. A. Hyman : Phys. Rev. A24, 1094-1095 (1981) -  
Electron-impact-excitation cross sections for the transition  $(n-1)p^5ns \rightarrow (n-1)p^5np$  in the rare gases. [T, Ne - Xe]
- E I. T. Iakubov and A. G. Khrapak : Phys. Rev. A51, 5043-5044 (1995)  
Comments on "Relation between the electron scattering length and the van der Waals approximation to the equation of state".  
[T, He - Xe, Li - K, Cs, H<sub>2</sub>, N<sub>2</sub>, CO<sub>2</sub>, CH<sub>4</sub>, C<sub>2</sub>H<sub>4</sub>, C<sub>3</sub>H<sub>8</sub>]
- E I. Iga, M. -T. Lee, J. C. Nogueira and R. S. Barbieri : 14th ICPEAC, Palo Alto 105-105 (1985)  
Elastic cross sections for electron-argon scattering in the intermediate energy (300 - 1000 eV) range. [E, Ar; DCS, 300 and 800 eV]
- E I. Iga, M. -T. Lee, J. C. Nogueira and R. S. Barbieri : J. Phys. B20, 1095-1104 (1987)  
Elastic differential cross section measurements of electron scattering from Ar and O<sub>2</sub> in the intermediate-energy range.  
[E, Ar, O<sub>2</sub>; 400 - 1000 eV, 5 - 140°]
- E W. Ihra and H. Friedrich : Phys. Rev. A45, 5278-5281 (1992) -  
Simple local potentials for elastic scattering of electrons by noble-gas atoms. [T, He - Ar]
- I Y. Iketaki, T. Takayanagi, K. Wakiya, H. Suzuki and F. Koike : J. Phys. Soc. Jpn. 57, 391-394 (1988)  
Post-collision interaction in the spectral profile of Ar LMM Auger electrons studied by electron-impact ionization. [E, Ar; 257 - 2000 eV]
- O M. Inokuti : Rev. Mod. Phys. 43, 297-347 (1971)  
Inelastic collisions of fast charged particles with atoms and molecules - The Bethe theory revisited. [general theory]
- I M. Inokuti : Radiat. Res. 64, 6-22 (1975a)  
Ionization yields in gases under electron irradiation.  
[T, general theory]
- O M. Inokuti, R. P. Saxon and J. L. Dehmer : Int. J. Radiat. Phys. Chem. 7, 109-120 (1975b)  
Total cross-sections for inelastic scattering of charged particles by atoms and molecules - VIII. Systematics for atoms in the first and second row. [T,
- O M. Inokuti, Y. Itikawa and J. E. Turner : Rev. Mod. Phys. 50, 23-35 (1978)  
Addenda : Inelastic collisions of fast charged particles with atoms and molecules - The Bethe theory revisited [Rev. Mod. Phys. 43, 297 (1971)].  
[general theory]
- O M. Inokuti, T. Baer and J. L. Dehmer : Phys. Rev. A17, 1229-1231 (1978) -  
Addendum : Systematics of moments of dipole oscillator-strength distributions for atoms in the first and second row.  
[T, He - Ar, N, O, F, Cl, Li, Na, etc. Z = 1 - 18]
- O M. Inokuti, M. Kimura and K. Kowari : Chem. Phys. Lett. 152, 504-506 (1988)  
Energy spectra of subexcitation electrons. [T, Ar]



- O D. J. G. Irwin, A. E. Livingston and J. A. Kernahan : Nucl. Instrum. Meth. 110, 111-117 (1973)  
Beam-foil lifetimes in the third period elements silicon, sulfur and argon in the vacuum ultraviolet. [E, Ar]
- I H. Ishii, Y. Iketaki, T. Watabe, T. Takayanagi, K. Wakiya and H. Suzuki : Phys. Rev. A43, 134-142 (1991) -  
Post-collision interaction in Auger-electron emission of rare-gas atoms following electron-impact ionization. [E, Ar - Xe]
- S I. A. Ismail and A. A. Garamoon : J. Phys. D12, 1117-1123 (1979)  
Electron swarm characteristics in an argon discharge. [T, Ar; B. Eq.]
- E Y. Itikawa : Argonne Natio. Labo. Report, ANL-7939, 1-32 (1972) -  
Momentum transfer cross sections for electron collisions on atoms and molecules and their application to effective collision frequencies.  
[compilation, H, He - Xe, O, Cs, Hg, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, NO, H<sub>2</sub>O, CO<sub>2</sub>, N<sub>2</sub>O, NH<sub>3</sub>, CH<sub>4</sub>; 0.01 - 10 eV]
- E Y. Itikawa : Phys. Fluids 16, 831-835 (1973) -  
Effective collision frequency of electrons in gases.  
[T, He - Xe; H, O, Cs, Hg, ten molecules]
- E Y. Itikawa : Atomic Data Nucl. Data Tables 14, 1-10 (1974)  
Momentum-transfer cross sections for electron collisions with atoms and molecules. [compilation, He - Xe, etc.]
- E Y. Itikawa : Atomic Data Nucl. Data Tables 21, 69-75 (1978)  
Momentum-transfer cross sections for electron collisions with atoms and molecules. Revision and supplement, 1977.  
[compilation, He - Xe, H<sub>2</sub>O, CO<sub>2</sub>, etc.; 0.01 - 10 eV]
- O K. Ito, T. Namioka, Y. Morioka, T. Sakai, H. Noda, K. Goto, T. Katayama and M. Koike : Appl. Opt. 25, 837-847 (1986)  
High-resolution VUV spectroscopic facility at the photon factory.  
[E, h $\nu$ , Ar, Ne]
- ME V. A. Ivanov and I. V. Makasyuk : Opt. Spectrosc. 69, 308-310 (1990) -  
Destruction of Ar 4s (<sup>3</sup>P<sub>2</sub>) metastable atoms by slow electrons.  
[E, Ar; 0.03 - 1.7 eV]
- O S. Iwata and S. Nagakura : Mol. Phys. 27, 425-440 (1974)  
Theoretical study of the photoelectron intensities and angular distributions. [T, h $\nu$ , Ar, Ne, HF, H<sub>2</sub>O, H<sub>2</sub>S, NH<sub>3</sub>]
- O J. H. Jacob and J. A. Mangano : Appl. Phys. Lett. 28, 724-726 (1976a) -  
Modeling the KrF laser discharge. [E, Ar + Kr + F<sub>2</sub>]
- EX J. H. Jacob and J. A. Mangano : Appl. Phys. Lett. 29, 467-469 (1976b)  
Total electron impact excitation cross section of Ar and Kr. [E, Ar, Kr]

- S G. Jager und W. Otto : Z. Phys. 169, 517-525 (1962) ·  
Driftgeschwindigkeiten von Ionen und Elektronen in Argon und Wasserstoff.  
[E, Ar, H<sub>2</sub>; E/N = 54 - 90 Td]
- E A. Jain, B. Etemadi and K. R. Karim : Phys. Scr. 41, 321-328 (1990) ·
- EX Total (elastic plus inelastic) cross sections for electron scattering  
with argon and krypton atoms at energies 10 - 6000 eV.  
[T, Ar, Kr; elastic DCS, 20 - 3000 eV]
- I D. H. Jakubassa-Amundsen : Phys. Rev. A53, 2359-2366 (1996)  
Validity of the Coulomb-Born application for (e, Ze) reactions.  
[T, Ar, Ne, Ag, Au]
- EX W. Jans, B. Mobus, M. Kuhne, G. Ulm, A. Werner and K. -H. Scharfner : Appl. Opt. 34,  
3671-3680 (1995)  
Determination of absolute emission cross sections for electron-impact-  
induced line radiation in the vacuum ultraviolet. [E, Ar; 2 keV]
- EX W. Jans, B. Mobus, M. Kuhne, G. Ulm, A. Werner and K. -H. Scharfner : Phys. Rev. A55,  
1890-1898 (1997)  
Emission cross sections for electron-impact-induced line radiation in the  
VUV from Ne, Ar, and Kr : measurements and comparison with theory.  
[E, Ar, Ne, Kr]
- E R. H. Jansen : PhD Thesis, University of Amsterdam 1-164 (1975) ·  
Elastic scattering of electrons by noble gas atoms and nitrogen molecules.  
[E, He - Xe, N<sub>2</sub>]
- E R. H. Jansen, F. J. de Heer, H. J. Luyken, B. van Wengarden and H. J. Blaauw : J. Phys.  
B9, 185-212 (1976) ○  
Absolute differential cross sections for elastic scattering of electrons  
by helium, neon, argon and molecular nitrogen.  
[E, He - Ar, N<sub>2</sub>; 100 - 3000 eV, 5 - 55°]
- E G. Janzen, W. Staib, G. Kruppa, U. Schucker und H. Suhr : Ber. Bunsenges. Phys. Chem.  
79, 63-66 (1975)  
Messung der Stossfrequenz in Gasentladungen verschiedener mehratomiger  
Gase. [E, Ar, He, H<sub>2</sub>, N<sub>2</sub>, CO, O<sub>2</sub>, CO<sub>2</sub>, H<sub>2</sub>O, NH<sub>3</sub>, CH<sub>4</sub>, CH<sub>3</sub>OH, CH<sub>3</sub>COCH<sub>3</sub>]
- EX Z. M. Jelenak, J. V. Bozin, Z. Lj. Petrovic and B. M. Jelenkovic : 47th GEC,  
Gaithersburg; Bull. Am. Phys. Soc. 39, 1455-1455 (1994)  
Electron excitation cross sections for 2p levels of argon. [E, Ar]
- S B. -H. Jeon and Y. Nakamura : J. Phys. D31, 2145-2150 (1998)  
Measurement of drift velocity and longitudinal diffusion coefficient of  
electrons in pure oxygen and in oxygen-argon mixtures.  
[E, Ar + O<sub>2</sub>, O<sub>2</sub>]
- A B. -H. Jeon and Y. Nakamura : Trans. Inst. Electr. Eng. Jpn. 118A, 874-879 (1998) ·  
Measurement of electron attachment coefficient in oxygen and  
oxygen-argon mixtures. [E, Ar + O<sub>2</sub>, O<sub>2</sub>]

- I W. P. Jesse : Phys. Rev. 26, 208-220 (1925) -  
The relative ionization in different gases for slow-moving electrons.  
[E, He - Ar, H<sub>2</sub>, N<sub>2</sub>, CO, CH<sub>4</sub>]
- EX Q. Ji, S. L. Wu, R. F. Feng, X. J. Zhang, L. F. Zhu, Z. P. Zhong and K. Z. Xu : Phys. Rev. A54, 2786-2791 (1996)  
Absolute generalized oscillator strengths of 4s, 4s', 4p + 4p' excitations of argon determined by the angle-resolved electron-energy-loss spectrometer.  
[E, Ar; 1500 eV]
- E C. J. Joachain, K. H. Winters and F. W. Byron, Jr. : J. Phys. B8, L289-L292 (1975)  
Elastic scattering of fast electrons and positrons by argon.  
[T, Ar; 100 - 1000 eV, DCS at 500 eV]
- E C. J. Joachain, R. Vanderpooten, K. H. Winters and F. W. Byron, Jr. : J. Phys. B10, 227-238 (1977)  
Optical model theory of elastic electron- and positron-argon scattering at intermediate energies. [T, Ar; DCS at 100 - 1000 eV]
- E C. J. Joachain : Comments At. Mol. Phys. 6, 87-98 (1977) -  
Optical model theory of elastic electron- and positron-atom scattering at intermediate energies. [comments]
- O T. L. John and A. R. Williams : J. Phys. B6, L384-L385 (1973)  
The free-free transitions of neon and argon negative ions. [T, Ar, Ne]
- I L. P. Johnson and J. D. Morrison : Int. J. Mass Spectrom. Ion Phys. 18, 355-366 (1975) -  
Double ionization to low-lying states of the doubly-charged rare gases.  
[E, He - Xe; 43 - 50 eV]
- O T. H. Johnson, H. E. Cartland, T. C. Genoni and A. M. Hunter : J. Appl. Phys. 66, 5707-5725 (1989) -  
A comprehensive kinetic model of the electron-beam-excited xenon chloride laser. [T, Ar, Ne, Xe, Cl<sub>2</sub>, HCl]
- O W. R. Johnson and K. T. Cheng : Phys. Rev. A20, 978-988 (1979)  
Photoionization of the outer shells of neon, argon, krypton and xenon using the relativistic random-phase approximation. [T, h $\nu$ , Ne - Xe]
- O W. R. Johnson, K. T. Cheng, K. -N. Huang and M. Le Dourneuf : Phys. Rev. A22, 989-997 (1980a)  
Analysis of Beutler-Fano autoionizing resonances in the rare-gas atoms using the relativistic multichannel quantum-defect theory.  
[T, h $\nu$ , Ar - Xe]
- O W. R. Johnson, C. D. Lin, K. T. Cheng and C. M. Lee : Phys. Scr. 21, 409-422 (1980b)  
Relativistic random-phase approximation. [T, Ar - Xe, Be, etc.]
- O J. Jolly : J. Physique 38, 659-667 (1977) -  
Caractéristiques d'un plasma d'argon fortement ionisé dans une décharge pulsée à basse pression. [T, Ar; electron temp., density]

- O D. W. Jones and W. L. Wiese : Phys. Rev. A39, 110-114 (1989)  
Atomic transition probabilities for the Ar I 4s - 5p transition array.  
[E, Ar]
- I S. Jones, D. H. Madison and G. F. Hanne : Phys. Rev. Lett. 72, 2554-2556 (1994)  
Spin-resolved (e, 2e) coincidences for heavy rare-gas targets.  
[T, Ne - Xe]
- E K. Jost, M. Fink and D. Herrmann : 5th ICPEAC, Belgrade 277-277 (1973) -  
Elastic small angle electron scattering from rare gases.  
[E, ; 100 - 1000 eV, 3 - 135°]
- QT K. Jost, P. G. F. Bisling, F. Eschen, M. Felsmann and L. Walther : 13th ICPEAC,  
Berlin 91-91 (1983) ○  
Total cross sections for electron scattering from N<sub>2</sub>, Xe, Kr and Ar.  
[E, Ar - Xe, N<sub>2</sub>; 0.1 - 60 eV, see Table 3 of R. W. Wagenaar (1985)]
- O O. Judd : J. Appl. Phys. 47, 5297-5303 (1976)  
Electron-collisional excited-state kinetics in argon and mercury  
electrical discharges. [E, Ar, Hg]
- O M. Jung, B. Krassig, D. S. Gemmell, E. P. Kanter, T. LeBrun, S. H. Southworth and  
L. Young : Phys. Rev. A54, 2127-2136 (1996)  
Experimental determination of nondipolar angular distribution parameters  
for photoionization in the Ar K and Kr L shells. [E, hν, Ar, Kr]
- O N. M. Kabachnik and I. P. Sazhina : J. Phys. B9, 1681-1697 (1976)  
Angular distribution and polarization of photoelectrons in the region of  
resonances. [T, hν, Ar, Ne]
- O N. M. Kabachnik and I. P. Sazhina : J. Phys. B21, 267-276 (1988)  
Spin-polarised Auger-electron spectroscopy of the d atomic shell. Model  
calculation for noble-gas atoms. [T, Ar - Xe]
- I K. Kadota and Y. Kaneko : J. Phys. Soc. Jpn. 38, 524-531 (1975) -  
Neutralization method for detection of metastable ions and its application  
to the production of metastable rare gas ions by electron impact.  
[E, He - Xe, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO; relative c.s. of metastable ions, th. - 100 eV]
- O Yu. M. Kagan and K. S. Mustafin : Sov. Phys. Tech. Phys. 5, 881-889 (1960)  
Electron velocity distribution function in a positive, medium-high  
pressure discharge column. [T, Ar, Ne, Hg]
- O Yu. M. Kagan and R. I. Lyagushchenko : Sov. Phys. Tech. Phys. 7, 535-537 (1962)  
Energy distribution of electrons in a positive discharge column.  
[T, Ar, Ne, Hg]
- EX Yu. M. Kagan, R. I. Lyagushchenko and A. D. Khakhaev : Opt. Spectrosc. 15, 5-8 (1963a)  
O The excitation of inert gases in the positive column of a discharge at  
medium pressures. II. Argon. [E, Ar]

- O Yu. M. Kagan, L. A. Luizova, R. I. Lyaguschenko and A. D. Khakhaev : Opt. Spectrosc. 15, 241-244 (1963b)  
The excitation of inert gases in the positive column of a drift current discharge at medium pressures. III. Upper levels of neon and argon.  
[E, Ar, Ne]
- O Yu. M. Kagan, N. B. Kolokelov, R. I. Lyaguschenko, V. M. Milenin and A. M. Mirzabekov : Sov. Phys. Tech. Phys. 16, 561-564 (1971)  
Electron distribution functions in Hg + Ar and Hg + Kr mixtures.  
[E and T, Ar + Hg, Kr + Hg]
- I Yu. M. Kagan, R. I. Lyaguschenko and S. N. Khvorostovskii : Sov. Phys. Tech. Phys. 18, 1474-1477 (1974) -  
Electron energy and excitation distribution in a hollow-cathode inert-gas discharge. [T, Ar + He]
- O V. P. Kalanov, V. M. Milenin, G. Ju. Panasjuk and N. A. Timofeev : Phys. Lett. A126, 336-340 (1988) -  
Similarity rules for low-pressure gas discharges in a metal + rare gas mixtures. [T, Ar + Hg]
- I E. Y. Kamber, C. S. Enos and A. G. Brenton : Phys. Rev. A48, 338-342 (1994)  
Production of metastable Ar<sup>+</sup> ions by electron-impact ionization of Ar measured by translational-energy spectroscopy. [E, Ar]
- O J. Z. Kaminski and F. Ehlotzky : Phys. Rev. A55, 4625-4628 (1997)  
Sidelobes in multiphoton ionization of inert gases. [T, hν, Ne - Xe]
- I Y. Kaneko : J. Phys. Soc. Jpn. 16, 1587-1593 (1961) -  
Ionization efficiency curves for A<sup>+</sup>, Kr<sup>+</sup>, N<sub>2</sub><sup>+</sup>, and CO<sup>+</sup> by electron impact.  
[E, Ar, Kr, N<sub>2</sub>, CO]
- O F. Kannari and D. W. Kimura : J. Appl. Phys. 63, 4377-4387 (1988)  
High-energy electron beam excited Ar/Kr and Ne/Ar mixtures.  
[T, Ar + Kr, Ne + Ar]
- O K. R. Karim, M. H. Chen and B. Crasemann : Phys. Rev. A29, 2605-2610 (1984a)  
Effects of exchange, electron correlation, and relaxation on the L<sub>1</sub> - L<sub>23</sub>M<sub>1</sub> Coster-Kronig spectrum of argon. [T, Ar]
- O Kh. R. Karim and B. Crasemann : Phys. Rev. A30, 1107-1108 (1984b)  
L<sub>1</sub> - L<sub>23</sub>M<sub>1</sub> Coster-Kronig spectrum of argon in intermediate coupling.  
[T, Ar]
- O Kh. R. Karim and B. Craseman : Phys. Rev. A31, 709-713 (1985)  
Continuum interaction in low-energy radiationless transitions. [T, Ar]
- E K. R. Karim and A. Jain : Phys. Scr. 39, 238-242 (1989)  
Elastic scattering of electrons from argon atoms at 0.001 - 300 eV.  
[T, Ar; 10<sup>-3</sup> - 300 eV; DCS, 3 - 200 eV]

- E J. Karle and R. A. Bonham : J. Chem. Phys. 40, 1396-1401 (1964)  
Calculation of electron scattering factors. I. Nonrelativistic theory.  
[T, Ar, U; 40 keV]
- E G. P. Karwasz, R. S. Brusa and A. Zecca : J. Phys. B28, L443-L448 (1995) -  
On possible absorption effects in elastic scattering of electrons on  
molecules. [E, Ar, H<sub>2</sub>]
- I Y. Kato and S. Ishi : J. Phys. Soc. Jpn. 64, 114-123 (1995)  
Multiple-ionization effect on charge-state distribution in ECR source.  
[E, Ar, Ar<sup>+</sup>, etc.; electron cyclotron resonance]
- O H. Katori and F. Shimizu : Phys. Rev. Lett. 70, 3545-3548 (1993)  
Lifetime measurement of the 1s<sub>5</sub> metastable state of argon and krypton  
with a magneto-optical trap. [E, Ar, Kr; 38 and 39 s]
- O R. Kau, I. D. Petrov, V. L. Sukhorukov and H. Hotop : J. Phys. B31, 1011-1027 (1998)  
Experimental and theoretical cross sections for photoionization of  
metastable Ar\* and Kr\* atoms near threshold. [E and T, hν, Ar, Kr]
- QT W. E. Kauppila, T. S. Stein and G. Jesion : Phys. Rev. Lett. 36, 580-584 (1976) ○  
Direct observation of a Ramsauer-Townsend effect in positron-argon  
collisions. [E, Ar; electron, 1 - 16 eV]
- QT W. E. Kauppila, T. S. Stein, G. Jesion, M. S. Dababneh and V. Pol : Rev. Sci. Instrum.  
48, 822-828 (1977)  
Transmission experiment for measuring total positron-atom collision cross  
sections in a curved, axial magnetic field.  
[E, e<sup>-</sup>, Ar, He; 1 - 15.5 eV for Ar]
- QT W. E. Kauppila, T. S. Stein, J. H. Smart, M. S. Dababneh, Y. K. Ho, J. P. Downing and V. Pol :  
Phys. Rev. A24, 725-742 (1981) ○  
Measurements of total scattering cross sections for intermediate-energy  
positrons and electrons colliding with helium, neon and argon.  
[E, He - Ar; 15 - 800 eV]
- QT W. E. Kauppila and T. S. Stein : in Advances in Atomic, Molecular, and Optical  
Physics, Vol. 26, Academic Press 1-50 (1990) -  
Comparisons of positron and electron scattering by gases.  
[review, He - Xe, CH<sub>4</sub>, CF<sub>4</sub>, SiH<sub>4</sub>, SF<sub>6</sub>, etc.]
- EX S. Kaur, R. Srivastava, R. P. McEachran and A. D. Stauffer : J. Phys. B31, 4833-4852  
(1998)  
Electron impact excitation of the np<sup>5</sup>(n+1)p states of Ar (n=3), Kr (n=4)  
and Xe (n=5) atoms. [T, Ar - Xe; DCS, 20 - 100 eV]
- EX S. Kaur, R. Srivastava, R. P. McEachran and A. D. Stauffer : 21st ICPEAC, Sendai  
193 (1999a)  
Integrated state multipoles and Stokes parameters for the excitation of  
the (n+1)p states of the noble gases. [T, Ne - Xe]

- EX S. Kaur, R. Srivastava, R. P. McEachran and A. D. Stauffer : J. Phys. B32, 4331-4359 (1999b)  
Excitation of the  $np^5(n = 1)p$  ( $J = 1, 2$  and  $3$ ) states of the inert gases by spin-polarized electrons : integrated state multipoles and Stokes parameters. [T, Ne - Xe]
- EX S. Kaur and R. Srivastava : Indian J. Phys. 73B, 259-269 (1999c)  
Electron impact excitation of the  $np^5nd$  and  $np^5(n+2)s$  states of Ar( $n=3$ ) and Xe( $n=5$ ) atoms. [T, Ar, Xe; 15 - 100 eV]
- E P. A. Kazaks and E. J. Kuster : Am. J. Phys. 42, 474-477 (1974) -  
Absorption model for electron-rare gas atom scattering. [T, Ar - Xe]
- O S. A. Kazantsev and A. V. Subbotenko : Opt. Spectrosc. 55, 458-459 (1983)  
Lifetimes of the 2p levels of argon. [E, Ar]
- I P. Kebarle and E. W. Godbole : J. Chem. Phys. 36, 302-305 (1962)  
Ionization and fragmentation of some molecules by high-energy electrons. [E, He - Ar, CH<sub>4</sub>, C<sub>2</sub>H<sub>2</sub>, C<sub>2</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>8</sub>, n-C<sub>4</sub>H<sub>10</sub>, etc.; 0.1 - 6 keV]
- O W. Kedzierski and J. W. McConkey : J. Chem. Phys. 107, 6521-6525 (1997)  
Fluorescence following electron impact on argon clusters. [E, Ar<sub>n</sub>]
- I S. Keller, R. M. Dreizler, H. Ast, C. T. Whelan and H. R. J. Walters : Phys. Rev. A53, 2295-2302 (1996)  
Theory of (e, 2e) processes with spin-polarized relativistic electrons. [T, Ar, Au, etc.]
- O H. P. Kelly and R. L. Simons : Phys. Rev. Lett. 30, 529-532 (1973)  
Photoabsorption by neutral argon calculated by many-body perturbation theory. [T,  $h\nu$ , Ar]
- O H. P. Kelly : Compt. Phys. Comm. 17, 99-111 (1979)  
Many body perturbation calculations of photoionization. [T,  $h\nu$ , Ar, Ne, F, Cl, etc.]
- O R. L. Kelly and D. E. Harrison, Jr. : Atomic Data 3, 177-193 (1971)  
Ionization potentials, experimental and theoretical, of the elements hydrogen to krypton. [compilation, H - Kr, 15.759 eV for Ar]
- O R. L. Kelly : J. Phys. Chem. Ref. Data 16, (S1), 35- (1987),  
Erratum 17, 953-9 (1988) Suppl.  
Atomic and ionic spectrum lines below 2000 angstroms : Hydrogen through krypton. [review and compilation, He - Kr, etc.]
- O P. C. Kemeny, R. T. Poole, J. G. Jenkin, J. Liesegang and R. C. G. Leckey : Phys. Rev. A10, 190-199 (1974)  
Measurements of relative subshell photoionization cross sections in the noble gases by ultraviolet photoelectron spectroscopy. [E,  $h\nu$ , Ne - Xe]
- E F. Kemper, B. Awe, F. Rosicky and R. Feder : J. Phys. B16, 1819-1825 (1983)  
Elastic scattering of slow electrons from Ar and Kr atoms. [T, Ar, Kr; DCS, 10 - 50 eV]

- E F. Kemper, F. Rosicky and R. Feder : J. Phys. B18, 1223-1228 (1985)  
Relativistic two-channel calculations of the elastic scattering of slow electrons from Ar, Kr, and Xe atoms. [T, Ar - Xe; DCS, 20 - 200 eV]
- O D. J. Kennedy and S. T. Manson : Phys. Rev. A5, 227-247 (1972)  
Photoionization of the noble gases : Cross sections and angular distributions. [T,  $h\nu$ , Ne - Xe]
- I R. E. Kennerly and R. A. Bonham : Chem. Phys. Lett. 43, 245-249 (1976)  
High-resolution pulsed electron beam time-of-flight ejected-electron spectroscopy of He and Ar. [E, Ar, He]
- O C. Kenty : J. Appl. Phys. 21, 1309-1318 (1950) -  
Production of 2537 radiation and the role of metastable atoms in an argon-mercury discharge. [E, Ar + Hg]
- O C. Kenty : J. Chem. Phys. 47, 2545-2551 (1964) -  
Diffuse continua-emitting discharges in the rare gases with and without nitrogen. [E, Ar, Ne, Xe, Xe + N<sub>2</sub>]
- O J. A. Kernahan, C. C. Lin and E. H. Pinnington : J. Opt. Soc. Am. 60, 898-901 (1970)  
Radiative lifetime measurements of some Ar II and Ar III levels by the beam-foil techniques. [E, Ar]
- I L. Kerwin and P. Marmet : J. Appl. Phys. 31, 2071-2076 (1960)  
Recent appearance potential measurements using an electrostatic electron selector. [E, Ar, N<sub>2</sub>, H<sub>2</sub>]
- E J. Kessler : Z. Phys. 182, 137-152 (1964a)  
Streuung mittelschneller Elektronen um kleinste Winkel. — Vergleich von Absolutmessungen an Gasen mit theoretischen Ergebnissen nach Lenz. (Medium speed electron scattering at very small angles - comparison of absolute measurement in gases with Lenz's theoretical results.) [E, Ne - Xe; 100 keV]
- E J. Kessler : Z. Phys. 182, 153-165 (1964b)  
Bestimmung der Wirkungsquerschnitte für die Kleinstwinkelstreuung von Elektronen. (Determination of effective cross sections for small-angle scattering of electrons.) [E, Ne - Xe, O<sub>2</sub>]
- E J. Kessler : Phys. Lett. 15, 307-308 (1965) -  
Determination of screening angles from plural-scattering experiments in gases. [E, Ne - Xe; 100 keV]
- O J. W. Keto, R. E. Gleason, Jr., T. O. Bonifield, G. K. Walters and F. K. Soley : Chem. Phys. Lett. 42, 125-128 (1976)  
Collisional mixing of the lowest bound molecular states in xenon and argon. [E, Ar, Xe; Ar<sub>2</sub><sup>+</sup> + e]
- EX M. A. Khakoo and J. W. McConkey : J. Phys. B20, 5541-5556 (1987)  
Electron-photon polarisation correlation study of the electron impact excitation of neon, argon and krypton. [E, Ne - Kr; 60 - 80 eV, 10 - 30°]



- EX M. A. Khakoo, T. Tran, D. Bordelon and G. Csanak : Phys. Rev. A45, 219-224 (1992) ○  
Excitation of the  $| (n+1)^3P_2 \rangle$  and  $| (n+1)^3P_0 \rangle$  metastable levels of the heavy rare gases from the  $| n^1S_0 \rangle$  ground state by electron impact.  
[E; Ne - Xe; DCS ratio, 30 eV, 10 - 120°]
- EX M. A. Khakoo, C. E. Beckmann, S. Trajmar and G. Csanak : J. Phys. B27, 3159-3174 (1994) ○  
Electron-impact excitation of the  $ns[2/3]9_{=2,1}$  and  $ns'[1/2]9_{=0,1}$  levels of Ne, Ar, Kr and Xe. [E, Ne - Xe; relative DCS, 20, 30 eV, 0 - 130°]
- E S. P. Khare and P. Shobha : J. Phys. B7, 420-427 (1974a)  
Elastic scattering of electrons by neon and argon atoms and hydrogen molecules. [T; Ar, Ne, H<sub>2</sub>; 510 and 780 eV]
- I S. P. Khare, B. D. Padalia and R. M. Nayak : Can. J. Phys. 52, 1755-1758 (1974b) -  
Electron impact ionization of inert gases. [T, Ne - Xe; th. - 20 keV]
- E S. P. Khare and A. Kumar, Jr. : Pramana 10, 63-73 (1978)  
Elastic scattering of electrons by argon atoms. [T, Ar]
- I S. P. Khare, V. Saksena and J. M. Wadehra : Phys. Rev. A48, 1209-1213 (1993a)  
K-shell ionization of atoms by electron and positron impact.  
[T, Ar, Ne, C, N, O, Au, etc.]
- E S. P. Khare and D. Raj : J. Phys. B26, 4807-4814 (1993b)  
The spin polarization of electrons elastically scattered by argon atoms.  
[T, Ar; S( $\theta$ ), 40 - 300 eV]
- O A. S. Kheifets : Sov. Phys. JETP 62, 260-265 (1985)  
Difference between the atomic ionization spectra in ( $\gamma, e$ ) and ( $e, 2e$ ) reactions. [T, Ar]
- O A. L. Khomkin : High Temp. 12, 766-769 (1974) -  
Electrical conductivity of argon and xenon plasma. [T, Ar, Xe]
- O M. H. Kibel, F. J. Leng and G. L. Nyberg : J. Elect. Spectrosc. Relat. Phenom. 15, 281-286 (1979) -  
Angular-distribution He(I)/Ne(I) photoelectron spectra of H<sub>2</sub>, N<sub>2</sub> and other small molecules. [E, h $\nu$ , Ar, Xe, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, CO<sub>2</sub>]
- I L. J. Kieffer and G. H. Dunn : Rev. Mod. Phys. 38, 1-35 (1966)  
Electron impact ionization cross-section data for atoms, atomic ions, and diatomic molecules: I. Experimental data. [review]
- E L. J. Kieffer : Atomic Data 1, 19-89 (1969a),  
Erratum 1, 359-359 (1970)  
Low-energy electron-collision cross-section data. Part I : Ionization, dissociation, vibrational excitation. [compilation, for Ar, p. 34 - 35]

- E L. J. Kieffer : Atomic Data 1, 121-287 (1969b).  
 Errata and addenda 2, 393-399 (1971)  
 Low-energy electron-collision cross-section data. Part II : Electronic-excitation cross sections.  
 [compilation, He - Xe, CO<sub>2</sub>, etc.; for Ar, p.187 - 190]
- E L. J. Kieffer : Atomic Data 2, 293-391 (1971)  
 QT Low-energy electron-collision cross-section data. Part III : Total scattering ; Differential elastic scattering.  
 [compilation, He - Xe, CH<sub>4</sub>, etc., for Ar, p.303]
- O L. J. Kieffer : NBS Special Publication 426, 1-212 (1976)  
 Bibliography of low energy electron and photon cross section data (through December 1974). [compilation]
- O K. P. Killeen and J. E. Eden : J. Chem. Phys. 84, 6048-6074 (1986) ·  
 Gerade Rydberg states and  $ns\ ^3\Sigma_u^+ (1u, 0u^-)$  photoionization spectra of the rare gas dimers ( $n = 2 - 6$ ). [E,  $h\nu$ , He<sub>2</sub> - Xe<sub>2</sub>]
- I Y.-K. Kim : Radiat. Res. 61, 21-35 (1974)  
 Energy distribution of secondary electrons. I. Consistency of experimental data. [T, Ar, N<sub>2</sub>]
- EX A. Kimura, H. Kobayashi and M. Nishida and P. Valentin : J. Quant. Spectrosc. Radiat. Transfer 34, 189-215 (1985) ·  
 Calculation of collisional and radiative transition probabilities between excited argon levels. [T, Ar]
- O Ma. Kimura, T. Iwai and T. Horie : J. Phys. Soc. Jpn. 37, 1606-1611 (1974) ·  
 Micro-channel plate type image-intensifying detector system for spectroscopic study on electronic and atomic collisions by crossed-beam technique. [E, Ar, CO, He, CO<sub>2</sub>]
- E M. Kimura, M. Inokuti and K. Kowari : Phys. Rev. A40, 2316-2320 (1989)  
 EX Electron degradation and yields initial products. VI. Energy spectra of  
 I subexcitation electrons in argon and molecular hydrogen. [T, Ar, H<sub>2</sub>]
- I M. Kimura, I. Krajcar-Bronic, M. Dillon and M. Inokuti : Phys. Rev. A45, 7831-7837 (1992)  
 Electron degradation and yields of initial products : The Fano factor for mixtures of argon and molecular hydrogen. [T, Ar, H<sub>2</sub>]
- O M. Kimura, M. Inokuti and M. A. Dillon : in Advances in Chemical Physics, Vol. 84, John Wiley & Sons 193-291 (1993)  
 Electron degradation in molecular substances.  
 [review, Ar + H<sub>2</sub>, H<sub>2</sub>O, O<sub>2</sub> + N<sub>2</sub>, (He, Ne) + N<sub>2</sub>]
- O D. B. King and C. E. Head : Phys. Rev. A13, 1778-1780 (1976)  
 Experimental lifetimes for selected laser and other levels of Ar<sup>+</sup>.  
 [E, Ar]

- EX G. C. King, F. H. Read and R. C. Bradford : J. Phys. B8, 2210-2224 (1975)  
Structure near autoionizing energies in the excitation of bound states of helium, neon and argon by electron impact. [E, He - Ar]
- EX G. C. King, M. Tronc, F. H. Read and R. C. Bradford : J. Phys. B10, 2479-2495 (1977)  
An investigation of the structure near the  $L_{2,3}$  edges of argon, the  $M_{4,5}$  edges of krypton and the  $N_{4,5}$  edges of xenon, using electron impact with high resolution. [E, Ar - Xe]
- EX G. C. King : 14th ICPEAC, Palo Alto 215-225 (1985)  
Inner-shell excitation in atoms and molecules by high resolution electron impact. [review, Ar, N<sub>2</sub>, CO; 350 - 1500 eV for Ar]
- I A. E. Kingston : Proc. Phys. Soc. London 86, 467-476 (1965)  
The ionization of inert gas atoms by electron and proton impact at high energies. [T, He - Xe]
- I A. Kingston : J. Phys. B3, L45-L48 (1970)  
Ionization of complex atoms by electrons and protons. [T, Ar, Kr]
- O R. C. Kirkpatrick : Phys. Rev. A5, 470-471 (1972)  
Effect of core polarizability of photoionization cross-section calculations. [T,  $h\nu$ , Ar]
- S O. Kiselev, O. Prokofiev and A. Vorobyov : Nucl. Instrum. Meth. A367, 306-310 (1995)  
Measurements of electron drift velocities and Lorentz angles in fast gas mixtures. [E, Ar + CH<sub>4</sub>, Ar + C<sub>2</sub>H<sub>6</sub>, CO<sub>2</sub> + CF<sub>4</sub>, etc.]
- S K. Kitamori, H. Tagashira and Y. Sakai : J. Phys. D13, 535-550 (1980)  
Electron avalanches in argon — An exact Boltzmann equation analysis. [T, Ar]
- E B. Kivel : Phys. Rev. 116, 926-927 (1959a)  
Elastic scattering of low-energy electrons by argon. [T, Ar;  $q_{\perp}$ , 0 - 1.2 eV]
- E B. Kivel : Phys. Rev. 116, 1484-1485 (1959b)  
Electron scattering by noble gases in the limit of zero energy. [T, He - Xe;  $q_m$  for Ar at 0 eV 6.6 Å<sup>2</sup>]
- O H. Kjeldsen, T. D. Thomas, P. Lablanquie, M. Lavollee, F. Penent, M. Hochlaf and R. I. Hall : J. Phys. B29, 1689-1698 (1996)  
Post-collision interaction effects in near-threshold Ar  $L_2$ -shell photoionization. [E,  $h\nu$ , Ar]
- S E. D. Klema and J. S. Allen : Phys. Rev. 77, 661-665 (1950)  
Drift velocities of electrons in argon, nitrogen and argon-nitrogen mixtures. [E, Ar, Ar + N<sub>2</sub>, N<sub>2</sub>]
- O J. Z. Klose : J. Opt. Soc. Am. 57, 1242-1244 (1967)  
Lifetimes of some 4p levels in argon. [E, Ar]

- 0 J. Z. Klose : J. Opt. Soc. Am. 58, 1509-1512 (1968)  
Experimental lifetimes of the 5p levels in argon I. [E, Ar]
- 0 P. H. Kobrin, S. Southworth, C. M. Truesdale, D. W. Lindle, U. Becker and D. A. Shirley :  
Phys. Rev. A29, 194-199 (1984)  
Threshold measurements of the K-shell photoelectron satellites in Ne  
and Ar. [E,  $h\nu$ , Ar, Ne]
- 0 A. G. Kochur, V. L. Sukhorukov, A. I. Dudenko and Ph. V. Demekhin : J. Phys. B28,  
387-402 (1995)  
Direct Hartree-Fock calculation of the cascade decay production of  
multiply charged ions following inner-shell ionization of Ne, Ar, Kr  
and Xe. [T, Ne - Xe]
- 0 S. M. Koeckhoven, W. J. Buma and C. A. de Lange : Phys. Rev. A51, 1097-1109 (1995)  
Four-photon excitation of autoionizing states of Ar, Kr, and Xe between  
the  $^2P_{3/2}$  and  $^2P_{1/2}$  ionic limits. [E,  $h\nu$ , Ar - Xe]
- EX H. A. Koehler, L. J. Ferderber, D. L. Redhead and P. J. Ebert : Phys. Rev. A9, 768-781  
(1974)  
Vacuum-ultraviolet emission from high-pressure xenon and argon excited  
by high current relativistic electron beams. [E, Ar, Xe]
- E R. Kollath : Ann. Phys. 87, 259-284 (1928)  
Über die senkrechte Ablenkung langsamer Elektronen an Gasmoleküln.  
[E, He - Xe,  $H_2$ ,  $N_2$ , CO,  $CO_2$ ,  $N_2O$ ,  $CH_4$ ; DCS( $\varepsilon$ ) at  $90^\circ$ ]
- 0 N. B. Kolokolov and A. B. Blagoev : Phys. -Usp. 36, 152-170 (1993) -  
Ionization and quenching of excited atoms with the production of fast  
electrons. [review, He - Xe, Hg;  $A^* + e \rightarrow A + e$ ]
- EX T. Kondow, T. Kawai, O. K. Kunimori, T. Onishi and K. Tamaru : J. Phys. B6, L156-L158  
(1973)  
High resolution  $L_{2,3}M_{2,3}M_{2,3}$  Auger electron spectra of argon.  
[E, Ar; 860 eV]
- EX A. A. Konkov and A. V. Vorotsov : Opt. Spectrosc. 38, 10-11 (1975)  
Infrared radiation due to electron retardation by argon atoms.  
[E, Ar; 8000 - 12000 K, 4 - 30 atm.]
- EX S. H. Koozekanani : IEEE J. Quant. Elect. 2, 770-773 (1966) -  
Excitation cross section of some of the states of Ne II, Ar II, and Kr II  
by electron collision. [T, Ne - Kr]
- EX S. H. Koozekanani : Appl. Phys. Lett. 11, 107-108 (1967a) -  
An excitation mechanism for the  $A^+$  laser. [T, Ar]
- EX S. H. Koozekanani : IEEE J. Quant. Elect. 3, 206-206 (1967b)  
A note on excitation cross section of some of the states of Ne II, Ar II,  
and Kr II by electron collision. [T, Ne - Kr]

- ME S. H. Koozekanani : Phys. Rev. 176, 160-163 (1968a)  
Formation of ionized excited states through the loss of the metastable electron in noble-gas atoms. [T, Ne - Kr]
- EX S. H. Koozekanani : J. Appl. Phys. 39, 4799-4806 (1968b)  
Excitation cross section for some of the doubly ionized states of argon, neon and krypton by fast electrons. [T, Ne - Kr]
- E M. Kopric, D. M. Davidovic and V. Radojevic : Fizika 19, 241-244 (1987)  
Momentum transfer cross section of electron elastically scattered on argon. [T, Ar;  $q_m$  from phase shifts]
- O V. V. Korobkin and M. Y. Romanovsky : JETP Lett. 53, 517-520 (1991)  
Impact self-ionization and self-excitation of an isolated atom in an ultrabright laser field. [E and T, Ar, Ne]
- O A. V. Korol : J. Phys. B27, 155-174 (1994)  
Calculation of the parameters of the 'ordinary' two-photon bremsstrahlung for a 8.82 keV electron on He, Ne, Ar, Kr and Xe. [T,  $h\nu$ , He - Xe]
- O A. V. Korol, A. G. Lyalin and A. V. Solovy'ov : J. Phys. B30, L115-L121 (1997)  
Total bremsstrahlung spectra of 1 - 25 keV electrons on Ne and Ar. [E,  $h\nu$ , Ar, Ne]
- O A. I. Korotkov and N. A. Khromov : Opt. Spectrosc. 69, 721-723 (1991a)  
Radiative lifetime of magnetic-dipole and magnetic-quadrupole transitions in atoms of inert gases. [T, Ne - Xe]
- EX A. I. Korotkov, L. K. Mitryukhin and O. B. Shpenik : Opt. Spectrosc. 70, 275-277 (1991b) -  
Near-threshold differential cross sections for electron excitation of lower levels of inert gas atoms.  
[E, Ar, Kr; DCS,  $90^\circ$ , lowest 4 levels, th. - 13 eV]
- I H. R. Koslowski, J. Binder, B. A. Huber and K. Wiesemann : J. Phys. B20, 5903-5915 (1987)  
Multiple ionisation of Ar atoms by single-electron impact at energies near threshold. [E, Ar; 84.5 - 800 eV]
- O H. Kossmann, B. Krassig, V. Schmidt and J. E. Hansen : Phys. Rev. Lett. 58, 1620-1623 (1987)  
High-resolution measurements of the 3s satellite spectrum of argon between 77 and 120 eV photon energy. [E,  $h\nu$ , Ar]
- O K. Koura : J. Chem. Phys. 82, 2566-2572 (1985a)  
Monte Carlo simulation of electron thermalization in gases. V. subexcitation electrons in rare gases. [T, He - Xe]
- O K. Koura : J. Chem. Phys. 82, 4724-4726 (1985b)  
On the empirical equation for electron energy-loss rate in rare gases. [T, He - Xe]

- I A. Kover, G. Laricchia and M. Charlton : J. Phys. B26, L575-L580 (1993)  
Ionization by positrons and electrons of Ar at zero degrees.  
[E, Ar; 100 - 250 eV]
- I A. Kover, G. Laricchia and M. Charlton : J. Phys. B27, 2409-2416 (1994a)  
Doubly differential cross sections for collisions of 100 eV positrons and electrons with argon atoms. [E, Ar]
- I A. Kover, G. Laricchia and M. Charlton : Hyperfine Interact. 89, 129-131 (1994b) -  
Differential ionization studies at forward angles. [E, Ar; 100 eV]
- $\alpha$  T. Z. Kowalski : Nucl. Instrum. Meth. A244, 533-536 (1986)  
On the generalized gas gain formula for proportional counters.  
[E and compilation, Ar - Xe, Xe + H<sub>2</sub>, etc.]
- O T. Z. Kowalski, A. R. Stopczynski and Z. -B. Group : Nucl. Instrum. Meth. A323,  
289-293 (1992) -  
The gas gain process in Ar/CO<sub>2</sub> filled proportional tubes.  
[E, Ar + CO<sub>2</sub>; amplification factor, temperature dependence]
- O K. Kowari: Phys. Rev. A41, 2500-2505 (1990a)  
EX Validity of the continuous-slowing-down approximation in degradation,  
I with numerical results for argon. [T, Ar]
- O K. Kowari, M. Inokuti and M. Kimura : Phys. Rev. A42, 795-802 (1990b)  
Time-dependent aspects of electron degradation. V. Ar - H<sub>2</sub> mixtures.  
[T, Ar + H<sub>2</sub>]
- O A. Koyama, M. Kawasaki, H. Zenba, Y. Nakajima, A. Yoneda and M. Uda : Nucl. Instrum.  
Meth. A422, 309-313 (1999)  
Electron counting by a double cylindrical open counter in mixtures of N<sub>2</sub>  
and inert gases of various concentrations. [E, (Ar, Ne, He) + N<sub>2</sub>]
- O G. I. Kozlov : High Temp. 3, 467-474 (1965a)  
E Conductivity of argon and recombination coefficient. [E, Ar, He, N<sub>2</sub>]
- E G. I. Kozlov : Sov. Phys. Tech. Phys. 10, 690-697 (1965b) -  
Determination of collision cross sections of electrons with atoms and  
molecules of certain gases by a double-beam radio probe method.  
[E, Ar, He, O, N<sub>2</sub>, O<sub>2</sub>, CO, CO<sub>2</sub>]
- O G. Kracke, G. Alber and J. S. Briggs : J. Phys. B26, L561-L566 (1993)  
Two-photon bremsstrahlung in electron collisions with noble gas atoms.  
[T, He - Xe, example is for Kr]
- O B. Krassig, O. Schwarzkopf and V. Schmidt : J. Phys. B26, 2589-2599 (1993)  
Energy- and angle-resolved double photoionization in argon leading to  
the 3p<sup>-2</sup> 1D<sup>e</sup> final ionic state. [E, h $\nu$ , Ar]
- O B. Krassig, J. E. Hansen, W. Persson and V. Schmidt : J. Phys. B29, L449-L455 (1996)  
High-l satellite state in the threshold photoelectron spectrum of argon.  
[T, h $\nu$ , Ar]

- I M. Krauss, R. M. Reese and V. H. Dibeler : J. Res. Natl. Bur. Stand. 63A, 201-204 (1959)  
Multiple ionization of rare gases by electron impact. [E, He - Ar, Xe]
- O M. O. Krauss : Phys. Rev. Lett. 34, 633-635 (1975) -  
Argon KLL Auger spectrum : A test of theory. [E, Ar; 2450 - 2680 eV]
- O J. Kreile and A. Schweig : J. Elect. Spectrosc. Relat. Phenom. 20, 191-211 (1980)  
Photoelectron asymmetry parameters of Ar, Kr, Xe, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO and CO<sub>2</sub> : New measurements and a reconsideration of literature data.  
[E, h $\nu$ , Ar - Xe, H<sub>2</sub>, CO<sub>2</sub>, etc.]
- O J. Kreile, H. D. Kurland, W. Seibel and A. Schweig : Nucl. Instrum. Meth. A308, 621-634 (1991) -  
A new angle-resolving photoelectron spectrometer for photoionisation studies of free atoms and molecules using synchrotron radiation.  
[E, h $\nu$ , Ar, Kr]
- O J. Krenz : Inst. f. Plasmaphysik, Universitat Hannover, FRG (1987)  
Daten zur Reaktionskinetik von ArF-Lasern. [ , Ar, ]
- I E. Krishnakumar and S. K. Srivastava : J. Phys. B21, 1055-1082 (1988) ○  
Ionisation cross sections of rare-gas atoms by electron impact.  
[E, He - Xe; th. - 10<sup>3</sup> eV, normalized with the results of D. Rapp(1965)]
- I E. Krishnakumar : Int. J. Mass Spectrom. Ion Process. 97, 283-294 (1990) -  
A pulsed crossed beam apparatus for measurement of electron impact partial ionisation cross-sections : results on CO<sub>2</sub> + e<sup>-</sup> → CO<sub>2</sub><sup>+</sup> + 2e<sup>-</sup>.  
[E, Ar, CO<sub>2</sub>; th. - 500 eV for Ar]
- S J. M. Krishner and D. S. Toffolo : J. Appl. Phys. 23, 594-598 (1952)  
Drift velocities in argon and argon mixtures. [E, Ar, Ar + N<sub>2</sub>]
- α A. A. Kruithof and F. M. Penning : Physica 3, 515-533 (1936)  
Determination of the Townsend ionization coefficient α for pure argon.  
[E, Ar]
- α A. A. Kruithof and F. M. Penning : Physica 4, 430-449 (1937)  
Determination of the Townsend ionization coefficient α for mixtures of neon and argon. [E, Ne + Ar]
- α A. A. Kruithof : Physica 7, 519-540 (1940)  
Townsend's ionization coefficients for neon, argon, krypton and xenon.  
[E, Ne - Xe]
- O M. Yu. Kuchiev and S. A. Sheinerman : J. Phys. B18, L551-L556 (1985)  
The post collision interaction in the inner-shell photoionisation for Ar and Xe. [T, h $\nu$ , Ar, Xe]
- EX M. Yu. Kuchiev and S. A. Sheinerman : J. Phys. B21, 2027-2038 (1988)  
Resonant scattering with low-velocity outgoing charged particles.  
[T, Ar; (3s<sup>-1</sup>4p)<sup>1</sup>P autoionized state]

- 0 M. Yu. Kuchiev and S. A. Sheinerman : Sov. Phys. Usp. 32, 569-587 (1989) ·  
Post-collision interaction in atomic processes.  
[review, He - Xe]
- S H. N. Kucukarpaci and J. Lucas : J. Phys. D14, 2001-2014 (1981)  
Electron swarm parameters in argon and krypton. [E, Ar, Kr]
- 0 U. Kuetsgens and J. Hormes : Phys. Rev. A44, 264-267 (1991)  
Thresholds of the K + L double photoexcitation in argon.  
[E,  $h\nu$ , Ar; 3480 - 3540 eV]
- 0 V. I. Kukulín, V. N. Pomerantsev and J. Horacek : Phys. Rev. A42, 2719-2727 (1990) ·  
Reconstruction of the potential from scattering data. [T, Ne, Ar]
- I A. Kumar and B. N. Roy : Can. J. Phys. 56, 1255-1260 (1978)  
Binary encounter calculations on electron impact double ionization of  
noble gas atoms. [T, Ne - Xe]
- S A. Kundu and E. J. Morton : Nucl. Instrum. Meth. A422, 286-290 (1999)  
Numerical simulation of argon-methane gas filled proportional counters.  
[T, Ar + CH<sub>4</sub>; MCS]
- S T. Kunst, B. Gotz and B. Schmidt : Nucl. Instrum. Meth. A324, 127-140 (1993) ○  
Precision measurements of magnetic deflection angles and drift velocities  
in crossed electric and magnetic fields. [E, Ar + CH<sub>4</sub>, Kr + CH<sub>4</sub>, CH<sub>4</sub>]
- EX A. Kuppermann and L. M. Raff : Discuss. Faraday Soc. 35, 30-42 (1963)  
Electron-impact spectroscopy. [E, Ar, He, H<sub>2</sub>, C<sub>2</sub>H<sub>4</sub>]
- I S. E. Kupriyanov and Z. Z. Latypov : Sov. Phys. JETP 20, 36-41 (1965) ·  
0 Detection of long-lived excited ions of inert gases and mercury.  
[E, Ar - Xe, Hg]
- EX S. E. Kupriyanov : Opt. Spectrosc. 20, 85-86 (1966) ·  
Excitation functions of high energy long-lived states of inert gas atoms.  
[E, He - Xe; th. - 150 eV]
- EX S. E. Kupriyanov and A. A. Perov : Sov. Phys. JETP 29, 818-822 (1969) ·  
Long-lived autoionizing states of noble-gas atoms and ions. [E, Ar - Xe]
- α M. Kurachi and Y. Nakamura : Proc. 5th Int. Swarm Seminar, Birmingham 32-35  
(1987)  
Primary ionisation coefficients in SiH<sub>4</sub> - Ar mixtures.  
[E, Ar + SiH<sub>4</sub>]
- S M. Kurachi and Y. Nakamura : J. Phys. D21, 602-606 (1988)  
Electron swarm parameters in SiH<sub>4</sub> - Ar mixtures. [E, Ar + SiH<sub>4</sub>]
- I M. V. Kurepa : Bull. Boris Kidrich Inst. Nucl. Sci. 14, 187-197 (1963)  
Comparison of experimental and theoretical results for ionization cross  
sections of inert gases. [E, Ar, Kr]



- I M. V. Kurepa, I. M. Cadez and V. M. Pejcew : Fizika 6, 185-209 (1974)  
Absolute measurements of the electron-argon atom total ionization cross section. [E, Ar]
- I M. Kurepa, G. Josifov and D. Lukic : J. Res. Phys. (Yugoslavia) 28, 57-69 (1999)  
Influence of the Ishii-Nakayama effect on electron impact total ionization cross section measurements of inert gas atoms.  
[E, Ar; th. - 1000 eV]
- O M. Kutzner, Q. Shamblin, S. E. Vance and D. Winn : Phys. Rev. A55, 248-255 (1997)  
Effects of relaxation and Auger decay on photoionization calculations of argon. [T,  $h\nu$ , Ar]
- EX C. E. Kuyatt and J. A. Simpson : 6th ICPEAC. Paris 1, 33-36 (1963) -  
Structure beyond the ionization limit in inelastic electron scattering in the rare gases. [E, He - Xe]
- E C. E. Kuyatt, J. A. Simpson and S. R. Mielczarek : Phys. Rev. 138, A385-A399 (1965)  
Elastic resonances in electron scattering from He, Ne, Ar, Kr, Xe and Hg.  
[E, He - Xe, Hg]
- O P. Lablanquie, J. H. D. Eland, I. Nenner, P. Morin, J. Delwiche and M. -J. Hubin-Franskin : Phys. Rev. Lett. 58, 992-995 (1987)  
Threshold behavior in single-photon double ionization of argon.  
[E,  $h\nu$ , Ar]
- E P. Laborie, J. M. Rocard, J. A. Rees, J. L. Delcroix and J. D. Craggs : in Tables  
EX de Sections Efficaces Electroniques et Coefficients Macroscopiques.  
I 1 - Hydrogene et Gaz Rares. Dunod, Paris 131-164 (1968)
- S R. Lagushenko and J. Maya : J. Appl. Phys. 55, 3293-3300 (1984) -  
Electron swarm parameters in rare gases and mixtures.  
[E, He - Ar, Ne + Ar]
- O B. M. Lagutin, Ph. V. Demekhin, I. D. Petrov, V. L. Sukhorukov, S. Lauer, H. Liebel, F. Vollweiler, H. Schmoranzner, O. Wilhelmi, G. Mentzel and K. -H. Scharfner : J. Phys. B32, 1795-1807 (1999)  
Photoionization of Ar and Ar-line ions near the 3s-threshold.  
[T,  $h\nu$ , Ar,  $K^+$ ,  $Ca^{2+}$ ]
- I A. Lahmam-Bennani : J. Phys. B16, 121-130 (1983)  
Absolute triple differential cross sections for the 3p ionisation of argon by electron impact. [E, Ar; 8 keV]
- I A. Lahmam-Bennani, H. F. Wellenstein, A. Duguet and A. Daoud : Phys. Rev. A30, 1511-1513 (1984a)  
Absolute (e, 2e) cross sections measured for the 2p orbital of argon.  
[E, Ar]

- O A. Lahmam-Bennani, G. Stefani and A. Duguet : in Lecture Notes in Chemistry, Vol. 35, Wavefunctions and Mechanisms from Electron Scattering Processes, F. A. Gianturco and G. Stefani (Ed), Springer 191-19 (1984b) .  
Coincidence measurement of the anisotropy of  $L_3M_{23}M_{23}$  ( $^1S_0$ ) Auger electrons of argon. [E, Ar]
- I A. Lahmam-Bennani, C. Dupre and A. Duguet : Phys. Rev. Lett. 63, 1582-1585 (1989) .  
Electron-impact double ionization of argon studied by double and triple coincidence techniques : The first (e, 3e) experiment. [E, Ar]
- I A. Lahmam-Bennani, H. Ehrhardt, C. Dupre and A. Duguet : J. Phys. B24, 3645-3653 (1991)  
Identification of mechanisms of electron impact double ionizing collisions by e. (3-1)e experiments. [E, Ar; 5.5 keV]
- S C. S. Lakshminarasimha and J. Lucas : J. Phys. D10, 313-321 (1977) ○  
The ratio of radial diffusion coefficient to mobility for electrons in helium, argon, air, methane and nitric oxide.  
[E, He, Ar,  $N_2 + O_2$ ,  $CH_4$ , NO]
- S P. Lamp, R. Eibl and G. Buschhorn : IEEE Trans. Elect. Insul. 26, 574-577 (1991) .  
Measurements of electron mobility in liquid and gaseous Ar at low electric field strength and in the critical region. [E, Ar]
- S P. Lamp and G. Buschhorn : in Gaseous Dielectrics VII, Plenum 79-85 (1994)  
Measurement of electron transport in high density gaseous argon in crossed electric and magnetic fields. [E, Ar]
- I F. W. Lampe, J. L. Franklin and F. H. Field : J. Am. Chem. Soc. 79, 6129-6132 (1957)  
Cross sections for ionization by electrons.  
[E, He - Xe,  $H_2S$ ,  $NH_3$ , etc. ; 75 eV]
- O F. W. Lampe and G. G. Hess : J. Am. Chem. Soc. 86, 2952-2953 (1964)  
Specific reaction rate of the second-order formation of  $Ar_2^+$ .  
[E, Ar;  $Ar^+ + Ar \rightarrow Ar_2^+ + e$ ]
- O D. A. Landman : Phys. Rev. 173, 33-39 (1968)  
Lifetimes and alignment depolarization cross sections of the  $(3p^54p)^3D_3$  and  $^1D_2'$  levels in argon and the  $(1s2p)^3P$  term in helium. [E, Ar, He]
- O L. Langhans : J. Phys. B11, 2361-2366 (1978)  
Resonance structures in the free-free cross section of  $e^-$ - Ar scattering.  
[E, Ar; 11 - 11.5 eV]
- EX I. Langmuir and H. A. Jones : Phys. Rev. 31, 357-404 (1928)  
E Collisions between electrons and gas molecules.  
[E, He - Ar, Hg,  $H_2$ ,  $N_2$ ; 30 - 250 eV]
- O S. F. J. Larochelle, A. Talebpour and S. L. Chin : J. Phys. B31, 1201-1214 (1998a)  
Non-sequential multiple ionization of rare gas atoms in a Ti:sapphire laser field. [E,  $h\nu$ , Ar, Xe, Ne]

- O S. F. J. Larochelle, A. Talebpour and S. L. Chin : J. Phys. B31, 1215-1224 (1998b)  
Coulomb effect in multiphoton ionization of rare-gas atoms.  
[E,  $h\nu$ , He - Xe; Ti:sapphire laser pulses]
- EX E. N. Lassettre, A. Skerbele, M. A. Dillon and K. J. Ross : J. Chem. Phys. 48, 5066-5096 (1968)  
High-resolution study of electron-impact spectra at kinetic energies between 33 and 100 eV and scattering angles to  $16^\circ$ .  
[E, Ar, He, N<sub>2</sub>, O<sub>2</sub>, CO<sub>2</sub>, NO, H<sub>2</sub>O, NH<sub>3</sub>, C<sub>2</sub>H<sub>2</sub>, C<sub>2</sub>H<sub>4</sub>, C<sub>6</sub>H<sub>6</sub>]
- EX E. N. Lassettre : Can. J. Chem. 47, 1733-1744 (1969)  
Inelastic scattering of high energy electrons by atmospheric gases.  
[E, Ar, He, N<sub>2</sub>, O<sub>2</sub>, CO, CO<sub>2</sub>, H<sub>2</sub>O]
- EX I. D. Latimer and R. M. St. John : Phys. Rev. A1, 1612-1615 (1970)  
I Simultaneous excitation and ionization of argon by electrons to the upper laser states of Ar<sup>+</sup>. [E, Ar]
- O S. Lauer, H. Liebel, F. Vollweiler, H. Schomoranzer, B. M. Lagutin, Ph. V. Demekhin, I. D. Petrov and V. L. Sukhorukov : J. Phys. B32, 2015-2030 (1999)  
Lifetimes of the  $ns^1np^6\ ^2S_{1/2}$  states of singly ionized argon, krypton and xenon. [E, Ar - Xe]
- O S. V. Lavrentev, V. L. Sukhorukov, A. N. Khoperskii and I. D. Petrov : Opt. Spectrosc. 62, 278-279 (1987)  
Radial and angular rearrangement of electron shells on L<sub>1</sub> photoionization of Ar. [T,  $h\nu$ , Ar]
- O G. M. Lawrence : Phys. Rev. 175, 40-44 (1968) -  
Radiance lifetimes in the resonance series of ArI. [E, Ar]
- O M. Le Dourneuf : 10th ICPEAC, Paris 143-163 (1977)  
Correlation effects in low energy electron scattering and in photoabsorption. [T, e and  $h\nu$ , ]
- O C.-M. Lee and K. T. Lu : Phys. Rev. A8, 1241-1257 (1973)  
Spectroscopy and collision theory. II. The argon absorption spectrum.  
[T,  $h\nu$ , Ar]
- O P. Lee and G. L. Weissler : Phys. Rev. 99, 540-542 (1955)  
Absorption cross section of helium and argon in the extreme ultraviolet.  
[E,  $h\nu$ , Ar, He]
- EX D. Lefaivre and P. Marmet : Int. J. Mass Spectrom. Ion Phys. 18, 153-164 (1975)  
Electron excitation of Ar between 26 and 34 eV. [E, Ar]
- S H. Lehrke und K. G. Muller : Z. Naturforsch. 31a, 915-923 (1976) -  
Elektronentransport in nichtthermischen Edelgasplasmen.  
[T, He - Xe]
- E C. J. Lenander : Phys. Rev. 142, 1-7 (1966)  
Low-energy electron scattering from atoms and molecules : A Model.  
[T, Ar, Ne, N, O]

- I M. A. Lennon, K. L. Bell, H. B. Gilbody, J. G. Hughes, A. E. Kingston, M. J. Murray and F. J. Smith : J. Phys. Chem. Ref. Data 17, 1285-1363 (1988)  
Recommended data on the electron impact ionization of atoms and ions : Fluorine to nickel. [compilation, He - Ar, Li - K, etc.]
- O D. Leonhardt, C. R. Eddy, Jr., V. A. Shamamian, R. F. Fernsler and J. E. Butler : J. Appl. Phys. 83, 2971-2979 (1983)  
Argon metastables in a high density processing plasma. [E, Ar]
- O J. C. Levin, C. Biedermann, N. Keller, L. Liljeby, R. T. Short, I. A. Sellin and D. W. Lindle : Nucl. Instrum. Meth. B56/57, 124-128 (1991)  
Photoion Auger-electron coincidence measurements near threshold.  
[E,  $h\nu$ , Ar]
- S N. E. Levine and M. A. Uman : J. Appl. Phys. 35, 2618-2624 (1964) -  
Experimental determination of the drift velocity of low-energy electrons in Ar, N<sub>2</sub>, CO<sub>2</sub>, several Ar-N<sub>2</sub> mixtures, and several Ar-CO<sub>2</sub> mixtures.  
[E, Ar, Ar + N<sub>2</sub>, Ar + CO<sub>2</sub>, N<sub>2</sub>, CO<sub>2</sub>]
- O M. E. Levy and R. E. Huffman : J. Quant. Spectrosc. Radiat. Transf. 9, 1349-1358 (1969)  
Argon photoionization cross-sections and autoionized line profiles in the 580 - 304 Å region. [E,  $h\nu$ , Ar]
- E B. R. Lewis, J. B. Furness, P. J. O. Teubner and E. Weigold : J. Phys. B7, 1083-1090 (1974) ○  
The elastic scattering of electrons from argon.  
[E, Ar; DCS, 15 - 200 eV, 20 - 140°]
- EX B. R. Lewis, E. Weigold and P. J. O. Teubner : J. Phys. B8, 212-218 (1975)  
The inelastic scattering of electrons from argon and krypton.  
[E, Ar, Kr; relative DCS, 30 - 120 eV, 15 - 138°]
- E G. P. Li, T. Takayanagi, K. Wakiya, H. Suzuki, T. Ajiro, S. Yagi, S. S. Kano and H. Takuma :  
EX Phys. Rev. A38, 1240-1247 (1988a) ○  
Determination of cross sections and oscillator strengths for argon by electron-energy-loss spectroscopy.  
[E, Ar; 3P<sup>5</sup>(<sup>2</sup>P<sub>1/2</sub>) 4S, (<sup>2</sup>P<sub>3/2</sub>) 4S, DCS, 400 and 500 eV, 1.75 - 10.3°]
- EX G. P. Li, T. Takayanagi, K. Wakiya and H. Suzuki : Phys. Rev. A38, 1831-1838 (1988b)  
I Cross section for 3s ionization in argon by electron impact.  
[E, Ar; 30 - 1000 eV]
- S J. Li, Q. -M. Chen and Z. -G. Li : J. Phys. D28, 681-688 (1995) -  
Monte Carlo simulation of electron motion in the cathode region of a magnetron glow discharge in argon. [T, Ar]

- O Y. Liang, S. Augst, M. V. Ammosov, S. Lazarescu and S. L. Chin : J. Phys. B28, 2757-2764 (1995)  
Experimental investigation of the ellipticity dependence of high-harmonic generation and ionization in argon in the multiphoton regime.  
[E.  $h\nu$ , Ar]
- O W. Lichten : J. Chem. Phys. 26, 306-313 (1957)  
Lifetime measurements of metastable states in molecular nitrogen.  
[E, Ar - Xe, N<sub>2</sub>, CO, H<sub>2</sub>]
- I C. Lifshitz, J. Agam, A. Weinberg, D. Kantor, U. Shainok and M. Peres : Int. J. Mass. Spectrom. Ion Phys. 11, 243-253 (1973) ·  
Ionization efficiency curves for positive and negative ions obtained by an automated retarding potential difference method. [E, Ar, CO, SO<sub>2</sub>]
- O R. A. Lilly : J. Opt. Soc. Am. 66, 245-249 (1976)  
Transition probabilities in the spectra of Ne I, Ar I, and Kr I.  
[T, Ne - Kr]
- EX C. C. Lin and L. W. Anderson : in Advances in Atomic, Molecular, and Optical Physics, Vol. 29, Academic Press 1-32 (1992) ○  
Studies of electron excitation of rare-gas atoms into and out of metastable levels using optical and laser techniques. [review, He - Xe]
- O C. D. Lin : Phys. Rev. A9, 171-180 (1974)  
Channel interaction and theoretical behavior of photoionization.  
[T,  $h\nu$ , Ar, He, Ne, Xe]
- S S. L. Lin, R. E. Robson and E. A. Mason : J. Chem. Phys. 71, 3483-3498 (1979)  
Moment theory of electron drift and diffusion in neutral gases in an electrostatic field. [T, Ar, CH<sub>4</sub>]
- E F. Linder : 12th SPIG, Sibenik 49-69 (1984) ·
- V Cross beam electron scattering experiments at thermal energies.  
[review, Ar - Xe, CO, CO<sub>2</sub>; elast. 0.1 - 6 eV]
- O D. W. Lindle, L. J. Medhurst, T. A. Ferett, P. A. Heimann, M. N. Piancastelli, S. H. Liu, D. A. Shirley, T. A. Carlson, P. C. Deshmukh, G. Nasreen and S. T. Manson : Phys. Rev. A38, 2371-2374 (1988)  
Angle-resolved photoemission from the Ar 2p subshell.  
[E.  $h\nu$ , Ar; th. - 400 eV]
- S V. A. Lisovskiyy and A. Z. Zyman : IEEE Int. Conf. on Plasma Sci., Raleigh 314-3 (1998)  
Electron swarm parameters in Ar- Boltzmann equation analysis. [T, Ar]
- O G. G. Lister : J. Phys. D25, 1649-1680 (1992)  
Low-pressure gas discharge modelling.  
[review, Ar, He, Ne, Cl<sub>2</sub>, CO<sub>2</sub>, etc.]
- EX C. R. Lloyd, P. J. O. Teubner, E. Weigold and S. T. Hood : J. Phys. B5, L44-L47 (1972a)  
Excitation of the first excited state in argon by electron bombardment.  
[E, Ar; th. - 180 eV]

- EX C. R. Lloyd, E. Weigold, P. J. O. Teubner and S. T. Hood : J. Phys. B5, 1712-1718 (1972b)  
Excitation functions for the formation of metastable He and Ar by electron impact. [E, Ar, He; th. - 200 eV, channel electron multiplier]
- S D. Loffhagen, G. L. Braglia and R. Winkler : Contrib. Plasma Phys. 38, 527-551 (1998)  
Time-dependent multi-term treatment of plasma electrons acted upon by RF electric fields. [T, Ar, He, CO]
- I B. Lohmann : J. Phys. B24, L249-L254 (1991)  
Coincidence measurement of Auger lineshapes at two different excess energies. [E, Ar; 200 - 209 eV]
- I B. Lohmann, X.-K. Meng and M. Keane : J. Phys. B25, 5223-5231 (1992)  
Observation of anisotropic PCI effects at high excess energies. [E, Ar; 200 - 209 eV, PCI = post collision interaction]
- O B. Lohmann, U. Hergenhahn and N. M. Kabachnik : J. Phys. B26, 3327-3338 (1993a)  
Spin polarization of Auger electrons from noble gases after photo-ionization with circularly polarized light. [T,  $h\nu$ , Ar - Xe]
- I B. Lohmann : in (e, 2e) and Related Process, Kluwer Academic 393-402 (1993b)  
Investigation of the angular dependence of post collision interaction effect using coincidence techniques. [E, Ar]
- S W. H. Long, Jr., W. F. Bailey and A. Garscadden : Phys. Rev. A13, 471-475 (1976)  
Electron drift velocities in molecular-gas-rare gas mixtures. [E and T, Ar, N<sub>2</sub>, CO, Ar + (N<sub>2</sub>, CO), He + CO; B. Eq.]
- E R. G. Lord : J. Phys. D3, 1480-1485 (1970)  
Measurements of very small angle scattering of medium energy electrons in gases. [E, Ar, He, N<sub>2</sub>; 13 - 43 keV]
- S J. R. Losee and D. S. Burch : Phys. Rev. A6, 1652-1658 (1972)  
Experimental electron energy distribution for Townsend discharges in argon gas. [E, Ar]
- I W. Lots : Z. Phys. 206, 205-211 (1967a) -  
An empirical formula for the electron-impact ionization cross-section. [T, He - Xe, H, Li - Cs, N, O, Hg]
- I W. Lotz : Astrophys. J. Suppl. 14, 207-238 (1967b)  
Electron impact ionization cross-sections and ionization rate coefficients for atoms and ions. [compilation, Ar - Xe, H, K, Rb, Cs, Hg and ions]
- S J. J. Lowke and J. H. Parker, Jr. : Phys. Rev. 181, 302-311 (1969)  
Theory of electron diffusion parallel to electric fields. II. Application to real gases. [T, Ar, He, Kr, Xe, H<sub>2</sub>, D<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, CO<sub>2</sub>, H<sub>2</sub>O]
- $\alpha$  E. D. Lozanskii : Sov. Phys. Tech. Phys. 16, 212-213 (1973)  
First Townsend ionization coefficient in a mixture of inert gases. [T, Ar + He]

- O K. T. Lu : Phys. Rev. A4, 579-596 (1971)  
Spectroscopy and collision theory. The Xe absorption spectrum.  
[T,  $h\nu$ , Ar, Xe]
- E C. B. Lucas and J. Liedtke : 9th ICPEAC, Seattle 460-461 (1975) ·  
Critical energies for elastic electron scattering by argon, krypton  
and xenon atoms. [E, Ar - Xe]
- E C. B. Lucas : J. Phys. B12, 1549-1558 (1979)  
Critical positions in elastic electron scattering by argon. [T, Ar]
- O T. S. Luk, U. Johann, H. Egger, H. Pummer and C. K. Rhodes : Phys. Rev. A32, 214-224  
(1985)  
Collision-free multiple photon ionization of atoms and molecules at  
193 nm. [E,  $h\nu$ , He - Xe, etc.]
- O A. P. Lukirskii and T. M. Zimkina : Bull. Acad. Sci. USSR Phys. Ser. 27, 808-811  
(1963)  
Mass absorption coefficients of argon and ethyl alcohol in the ultrasoft  
X-ray region. [E,  $h\nu$ , Ar, C<sub>2</sub>H<sub>5</sub>OH]
- O A. P. Lukirskii, I. A. Brytov and S. A. Gribovskii : Opt. Spectrosc. 20, 203-204 (1966)  
Photoionization absorption of Ar, Xe, alcohol, and methylal in the  
7 - 44 Å wavelength range. [E,  $h\nu$ , Ar, Xe, C<sub>2</sub>H<sub>5</sub>OH, methylal]
- I B. F. J. Luyken, F. J. de Heer and R. Ch. Baas : Physica 61, 200-219 (1972) ·  
The role of the outer s shell in single ionization of Ne, Ar, Kr and Xe  
by electron impact. [E, Ne - Xe; th. - 20 keV]
- O M. J. Lynch, A. B. Gardner, K. Godling and G. V. Marr : Phys. Lett. A43, 237-238 (1973)  
The photoionisation of the 3s subshell of argon in the threshold region  
by photoelectron spectroscopy. [E,  $h\nu$ , Ar]
- I C. Ma, C. R. Sporleder and R. A. Bonham : Rev. Sci. Instrum. 62, 909-923 (1991)  
A pulsed electron beam time of flight apparatus for measuring absolute  
electron impact ionization and dissociative ionization cross sections.  
[T, Ar, N<sub>2</sub>, Ar<sup>+</sup>, Ar<sup>2+</sup>, Ar<sup>3+</sup>; 20 - 500 eV for Ar]
- S C. -M. Ma, Z.-P. Mao, J. Zhou and J. Yan : Chin. Phys. 5, 664-668 (1985)  
A drift chamber with uniform electric field and measurements of the  
electron drift velocity. [E, Ar + CH<sub>4</sub>, Ar + CO<sub>2</sub>, etc.]
- O R. P. Madden, D. L. Ederer and K. Codling : Phys. Rev. 177, 136-151 (1969)  
Resonances in the photo-ionization continuum of Ar I (20 - 150 eV).  
[E,  $h\nu$ , Ar]
- I D. H. Madison and R. Lang : J. Phys. B14, 4137-4147 (1981)  
Theoretical (e, 2e) cross sections for ionisation of the 3s state of Ar.  
[T, Ar]
- I D. H. Madison, V. D. Kravtsov, S. Jones and R. P. McEachran : Phys. Rev. A53, 2399-2406  
(1996)  
Fine-structure effect for (e, 2e) collisions. [T, Ar, Xe; TDCS]

- EX D. H. Madison, C. M. Maloney and J. B. Wang : J. Phys. B31, 873-893 (1998) -  
Integral and differential cross section for electron-impact excitation  
of 12 of the lowest states of argon. [T, Ar]
- O K. Maeda, K. Ueda and K. Ito : J. Phys. B26, 1541-1555 (1993) -  
High-resolution measurement for photoabsorption cross sections in the  
autoionization regions of Ar, Kr, and Xe. [E,  $h\nu$ , Ar - Xe]
- EX H. Maier-Leibnitz : Z. Phys. 95, 499-523 (1935)  
Ausbeutemessungen beim Stoss langsamer Elektronen mit Edelgasatomen.  
[E, Ar, Ne, He]
- O G. Mainfray and C. Manus : Rep. Prog. Phys. 54, 1333-1372 (1991)  
Multiphoton ionization of atoms. [review,  $h\nu$ , Ar, He, Xe, Cs, H]
- S T. Makabe and T. Mori : J. Phys. D15, 1395-1402 (1982)  
Variations in electron transport in argon with temperature near the  
Ramsauer-Townsend minimum. [T, Ar]
- S T. Makabe and M. Shimoyama : J. Phys. D19, 2301-2308 (1986)  
Diffusion tensor of electron swarm in electric field in gases : II. The  
influence of the conservative inelastic collisions. [T, Ar]
- O T. Makabe, N. Nakano and Y. Yamaguchi : Phys. Rev. A45, 2520-2531 (1992)  
Modeling and diagnostics of the structure of rf glow discharges in Ar at  
13.56 MHz. [T, Ar]
- O Yu. I. Malakhov and V. G. Potyomkin : Opt. Spectrosc. 32, 129-130 (1972)  
Lifetimes of some Ar I and Ar II levels. [E, Ar; 15 + 8 levels]
- O G. Malamud, A. Breskin, R. Chechik and A. Pansky : J. Appl. Phys. 74, 3645-3651 (1993)  
Specific primary ionization induced by minimum ionizing electron in CH<sub>4</sub>,  
C<sub>2</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>8</sub>, i-C<sub>4</sub>H<sub>10</sub>, argon, dimethylether, triethylamine, and tetrakis  
(dimethylamino) ethylene. [E, Ar, CH<sub>4</sub>, C<sub>2</sub>H<sub>6</sub>, C<sub>3</sub>H<sub>8</sub>, i-C<sub>4</sub>H<sub>10</sub>, etc.]
- EX I. C. Malcolm and J. W. McConkey : J. Phys. B12, 511-519 (1979)  
Electron-photon coincidence studies of the resolved argon resonance lines.  
[E, Ar; 50 eV]
- O B. S. Malone and W. H. Corcoran : J. Quant. Spectrosc. Radiat. Transf. 6, 443-449  
(1966) -  
Transition probability measurements in the blue-near-U.V. spectrum of  
argon I. [E, Ar]
- S G. N. Malovic, J. V. Bozin, B. M. Jelenkovic and Z. Lj. Petrovic : Eur. Phys. J. D7,  
129-135 (1999) -  
Electron excitation of neutral and ionic levels in Townsend discharges of  
argon at high E/N. [E, Ar]
- O A. Mandle and E. Salesky : J. Appl. Phys. 60, 1565-1568 (1986)  
Electron beam deposition studies of the rare gases.  
[E, Ar, Kr, Ne; 250 keV]



- O S. T. Manson and D. J. Kennedy : Chem. Phys. Lett. 7, 387-389 (1970a)  
Angular distribution of photoelectrons in argon and xenon.  
[T,  $h\nu$ , Ar, Xe]
- O S. T. Manson and J. W. Cooper : Phys. Rev. A2, 2170-2171 (1970b) -  
Angular distribution of photoelectrons : Outer shells of noble gases.  
[T,  $h\nu$ , Ne - Xe; 0 - 27.2 eV]
- EX S. T. Manson : Phys. Rev. A3, 1260-1267 (1971)  
Minima in atomic continuum generalized oscillator strengths.  
[T, Ar, Na, K]
- EX S. T. Manson : Phys. Rev. A5, 668-677 (1972) -  
Theoretical study of generalized oscillator strengths in atoms comparison  
with experiment and other calculations. [T, Ar, He, Xe, Hg, Na, K]
- O S. T. Manson and M. Inokuti : J. Phys. B13, L323-L326 (1980)  
Near-threshold structure in the atomic k-shell spectra for ionisation by  
photons or fast charged particles.  
[T, Li - Zn,  $Z = 3 - 30$ ; examples are for Cu and Cl]
- I P. Marchand, C. Paquet and P. Marmet : Phys. Rev. 180, 123-132 (1969) -  
Threshold behavior of the cross section for ionization of He and Ar by  
mono-energetic electrons. [E, Ar, He]
- EX P. Marchand and J. Cardinal : Can. J. Phys. 57, 1624-1633 (1979)  
Metastable yield of argon between 23 and 37 eV by electron impact.  
[E, Ar]
- O V. S. Marchenko : Sov. Phys. JETP 58, 292-298 (1983) -  
Dissociation of homonuclear ions by electron impact.  
[T,  $\text{He}_2^+$  -  $\text{Xe}_2^+$ ,  $\text{H}_2^+$ ; 1 - 10 eV]
- ME D. Margreiter, H. Deutsch and T. D. Mark : Contrib. Plasma Phys. 30, 487-495 (1990) -
- I Absolute electron impact cross sections for single ionization of  
metastable atoms of H, He, Ne, Ar, Kr, Xe and Rn.  
[T, H, He - Rn; semi-classical, semi-empirical]
- I D. Margreiter, H. Deutsch and T. D. Mark : Int. J. Mass Spectrom. Ion Process.  
139, 127-139 (1994) -  
A semiclassical approach to the calculation of electron impact ionization  
cross-sections of atoms : from hydrogen to uranium.  
[T, He - Xe, Li - Cs, Hg, from H to U; th. - 200 eV]
- I T. D. Mark and G. H. Dunn (Ed) : Electron Impact Ionization, Springer (1985)
- I T. D. Mark : in Electron Impact Ionization, Springer 137-197 (1985)  
Partial ionization cross sections. [review]

E T. D. Mark, Y. Hatano and F. Linder : IAEA Report, Atomic and Molecular Data for EX Radiotherapy and Radiation Research, Chapter 3, 163-275 (1994)

I Electron collision cross sections.  
[compilation, Ar, Ne, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, H<sub>2</sub>O, CO<sub>2</sub>, CH<sub>4</sub>, C<sub>3</sub>H<sub>8</sub>; 10<sup>-2</sup> - 10<sup>3</sup> eV]

I P. Marmet : J. Chem. Phys. 63, 249-255 (1975a)  
Relative cross sections in electroionization. [E, Ar, Xe, NO, O<sub>2</sub>]

EX P. Marmet, E. Bolduc and J. J. Quemener : Can. J. Phys. 53, 2438-2444 (1975b)  
Excitation de l'argon par impact électronique entre 43 et 60 eV.  
[E, Ar]

O G. V. Marr and J. B. West : Atomic Data Nucl. Data Tables 18, 497-508 (1976)  
Absolute photoionization cross-section tables for helium, neon, argon, and krypton in the VUV spectral regions. [compilation, hν, He - Kr]

EX A. R. Martin : J. Phys. B7, 1161-1166 (1974)  
I Atomic excitation processes in the discharges of rare gas ion engines.  
ME [T, Ne - Xe; influence of metastable and excited states]

O K. E. Martus, K. Becker and D. H. Madison : Phys. Rev. A38, 4876-4879 (1988)  
Effect of a finite angular resolution on the measurement of polarized correlation parameters in electron-heavy-noble-gas collision.  
[T, Ar, He; Ar(<sup>1</sup>P), Ar(<sup>3</sup>P), He(2<sup>1</sup>P), 16 - 100 eV]

EX K. E. Martus and K. Becker : J. Phys. B22, L497-L502 (1989)  
A measurements of the P<sub>1</sub> coherence parameter in forward scattering for excitation of the ns' [1/2]<sub>1</sub><sup>o</sup> state in Ar and Ne by electron impact.  
[E, Ar, Ne]

EX K. E. Martus, S. H. Zheng and K. Becker : Phys. Rev. A44, 1682-1693 (1991)  
Electron-photon coincidence study of heavy-noble-gas excitation at small scattering angles.  
[E, Ne - Xe; coherent parameters, 35 - 100 eV for Ar]

E Yu. V. Martynenko, O. B. Firsov and M. I. Chibisov : Sov. Phys. JETP 17, 154-157 (1963) -  
Scattering of slow electrons on atoms. [T, Ar - Xe, H, He]

EX N. J. Mason and W. R. Newell : J. Phys. B20, 1357-1377 (1987) ○  
Total cross sections for metastable excitation in the rare gases.  
[E, He - Xe; th. - 140 eV]

O N. J. Mason : Rep. Prog. Phys. 56, 1275-1346 (1993)  
Laser-assisted electron-atom collisions.  
[review, He - Ar, Xe, CO<sub>2</sub>, O<sub>3</sub>, etc.]

E H. S. W. Massey and C. B. O. Mohr : Proc. Roy. Soc. London A146, 880-900 (1934)  
EX The collisions of slow electrons with atoms. IV. [T, Ar, Ne, He, H]

O H. S. W. Massey and E. H. S. Burhop : Electronic and Ionic Impact Phenomena Vol. 1. Electron Collisions with Atoms, Oxford (1969)

- S E. Mathieson and N. El Hakeem : Nucl. Instrum. Meth. 159, 489-496 (1979) -  
Calculation of electron transport coefficients in counting gas mixtures.  
[T, B.Eq., Ar + CO<sub>2</sub>, Ar + CH<sub>4</sub>, etc.]
- I R. F. Mathis and D. A. Vroom : J. Chem. Phys. 64, 1146-1149 (1976)  
The energy distributions of secondary electrons from Ar, N<sub>2</sub>, H<sub>2</sub>O, and  
H<sub>2</sub>O with clusters present. [E, Ar, N<sub>2</sub>, H<sub>2</sub>O, (H<sub>2</sub>O)<sub>n</sub>; 1 keV]
- I D. Mathur and C. Badrinathan : Int. J. Mass Spectrom. Ion Phys. 57, 167-178 (1984)  
Single and multiple ionization of Ar and Kr by low energy electron  
impact using a cross beam apparatus.  
[E, Ar, Kr; th. - 100 eV, relative]
- O T. A. Matilsky and J. E. Hesser : J. Opt. Soc. Am. 59, 579-582 (1969)  
Radiative lifetimes of ultraviolet transitions of argon II.  
[E, Ar; 1900 - 4500 Å]
- QT H. F. Mayer : Ann. Phys. 64, 451-480 (1921) -  
Über das Verhalten von Molekülen gegenüber freien langsamen Elektronen.  
[E, Ar, He, H<sub>2</sub>, N<sub>2</sub>, CO<sub>2</sub>; 0.2 - 40 eV for Ar]
- O S. Mayer : in AIP Conf. Proc. No. 360, 19th ICPEAC, Whistler 163-172 (1995) -  
Recent progress in polarized-electron scattering from atoms and molecules.  
[review, E, Ar, Hg]
- E M. A. Mazing and N. A. Vrublevskaya : Sov. Phys. JETP 23, 228-231 (1966)  
Spectroscopic investigation of the elastic scattering of slow electrons  
by cesium and argon atoms. [E, Ar, Cs]
- I P. McCallion, M. B. Shah and H. B. Gilbody : J. Phys. B25, 1061-1071 (1992)  
A crossed beam study of the multiple ionization of argon by electron  
impact. [E, Ar; 18 - 5300 eV]
- O K. J. McCann and M. R. Flannery : Appl. Phys. Lett. 31, 599-601 (1977)  
Photoionization of metastable rare-gas atoms (He\*, Ne\*, Ar\*, Kr\*, Xe\*).  
[T, hν, He\* - Xe\*; 300 - 3000 Å]
- I I. E. McCarthy : Aust. J. Phys. 29, 561-572 (1976a) -  
Breakup reactions at intermediate energy. [T, Ar, He]
- I I. E. McCarthy and E. Weigold : Phys. Rep. 27C, 275-371 (1976b)  
(e, 2e) spectroscopy.  
[review, He - Xe, CO, N<sub>2</sub>, H<sub>2</sub>, D<sub>2</sub>, CH<sub>4</sub>, C<sub>2</sub>H<sub>6</sub>, NH<sub>3</sub>, H<sub>2</sub>O]
- E I. E. McCarthy, C. J. Noble, B. A. Phillips and A. D. Turnbull : Phys. Rev. A15,  
2173-2185 (1977)  
Optical model for electron scattering from inert gases.  
[T, He - Xe; DCS, 20 - 3000 eV]
- I I. E. McCarthy and A. T. Stelbovics : Phys. Rev. A28, 1322-1328 (1983)  
Ionization : Test of a continuum optical model for electron scattering.  
[T, He - Ar, Li - K, some ions]

- I I. E. McCarthy and E. Weigold : Phys. Rev. A31, 160-166 (1985)  
Noncoplanar symmetric (e, 2e) reaction on argon. [E, Ar; 1000 eV]
- I I. E. McCarthy and E. Weigold : Rep. Prog. Phys. 51, 299-392 (1988)  
Wavefunction mapping in collision experiments.  
[review, He - Xe, H<sub>2</sub>, N<sub>2</sub>, HF, HCl, H<sub>2</sub>O, etc.]
- EX I. E. McCarthy, R. Pascual, P. Storer and E. Weigold : Phys. Rev. A40, 3041-3053 (1989)  
Satellite structure in the argon valence shell by electron-momentum spectroscopy. [E, Ar; DCS, 500 - 1500 eV]
- EX I. E. McCarthy and E. Weigold : in Advances in Atomic, Molecular and Optical Physics, Vol. 27, Academic 165-200 (1991a)  
I Electron-atom scattering. [review]
- I I. E. McCarthy and E. Weigold : Rep. Prog. Phys. 54, 789-879 (1991b)  
Electron momentum spectroscopy of atoms and molecules.  
[review, He, Ar, Xe, H, H<sub>2</sub>, N<sub>2</sub>, H<sub>2</sub>O, NH<sub>3</sub>, CCl<sub>4</sub>, C<sub>6</sub>H<sub>6</sub>, etc.]
- I I. E. McCarthy : Z. Phys. D23, 287-293 (1992) ·  
Range of validity of distorted wave Born and impulse approximations for (e, 2e). [T, Ar, Ne, He, Xe, H]
- I J. W. McConkey, W. R. Newell and A. Crowe : J. Phys. B3, L55-L58 (1970)  
Angular distribution of ions resulting from electron impact on the rare gases. [E, Ar, He; 16 - 20 eV for Ar]
- I J. W. McConkey, A. Crowe and M. A. Hender : Phys. Rev. Lett. 29, 1-4 (1972) ·  
Differential cross sections in the electron impact ionization of atoms and molecules. [E, Ar, He, H<sub>2</sub>, N<sub>2</sub>, CO<sub>2</sub>, NH<sub>3</sub>; 50 - 300 eV]
- EX J. W. McConkey and J. A. Preston : J. Phys. B6, L138-L141 (1973a)  
Autoionizing states in argon. [E, Ar; 3s3p<sup>6</sup> np and 3s3p<sup>6</sup> nd states]
- EX J. W. McConkey and F. G. Donaldson : Can. J. Phys. 51, 914-921 (1973b)  
Excitation of the resonance lines of Ar by electrons. [E, Ar]
- E J. W. McConkey and J. A. Preston : 8th ICPEAC, Belgrade 273-274 (1973c) ·  
Elastic scattering of electrons by the rare gases.  
[E, He - Ar; 1.5 - 100 eV, 20 - 90°]
- EX J. W. McConkey, P. J. M. van der Burgt, J. J. Corr and P. Plessis : Proc. Int. Sympo. Correlation 115-120 (1990)  
Stokes parameter measurements in the heavy rare gases. [E, Ne - Xe]
- O K. E. McCulloh : J. Chem. Phys. 59, 4250-4259 (1973) ·  
Photoionization of carbon dioxide. [E, hν, Ar, CO<sub>2</sub>; 776 - 788 Å for Ar]
- E M. R. C. McDowell : J. Phys. B4, 1649-1660 (1971)  
A phase shift analysis of electron-atom scattering : IV. Scattering of slow electrons by neon and argon. [T, Ar, Ne; 0 - 0.6 eV]

- E R. P. McEachran and A. D. Stauffer : J. Phys. B16, 4023-4038 (1983)  
Elastic scattering of electrons from neon and argon. [T, Ne, Ar]
- E R. P. McEachran and A. D. Stauffer : Aust. J. Phys. 50, 511-524 (1997)  
Relativistic effects in low-energy electron-argon scattering.  
[T, Ar]
- O J. Wm. McGowan and L. Kerwin : Can. J. Phys. 41, 1535-1541 (1963)  
Metastable  $\text{Ar}^+$  ions near the  $\text{Ar}^{++}$  threshold. [E, Ar]
- O J. C. McGowan, D. A. Vroom and A. R. Comeaux : J. Chem. Phys. 51, 5626-5635 (1969)  
Atomic and molecular photoelectron angular distributions measured near threshold. [E,  $h\nu$ , Ar - Xe,  $\text{H}_2$ ,  $\text{N}_2$ ,  $\text{O}_2$ ]
- O E. J. McGuire : Phys. Rev. 175, 20-30 (1968)  
Photo-ionization cross sections of the elements helium to xenon.  
[T,  $h\nu$ , He - Xe]
- I E. J. McGuire : Phys. Rev. A3, 267-279 (1971)  
Inelastic scattering of electrons and photons by the elements He to Na.  
[T, Ar, He, Ne, Li, Na, etc.]
- I E. J. McGuire : Phys. Rev. A16, 62-72 (1977a)  
Electron ionization cross sections in the Born approximation.  
[T, Ne - Xe, O, N, etc.; 20 elements,  $Z = 19 - 54$ ]
- I E. McGuire : Phys. Rev. A16, 73-79 (1977b) .  
Scaled electron ionization cross sections in the Born approximation.  
[T, Ne - Xe, O, N, etc.]
- I E. McGuire : Phys. Rev. A28, 2091-2095 (1983)  
Cross sections for electron ionization of triply charged noble gases in the plane-wave Born approximation. [T, Ne - Xe]
- E J. H. McMillen : Phys. Rev. 36, 1034-1043 (1930) .  
Angle and energy distribution of electrons scattered by helium, argon and hydrogen. [E, Ar, He,  $\text{H}_2$ ; relative DCS, 50 - 150 eV, 10 - 35°]
- O A. McPherson, A. B. Borisov, K. Boyer and C. K. Rhodes : J. Phys. B29, L291-L297 (1996)  
Competition between multiphoton xenon cluster excitation and plasma wave Raman scattering at 248 nm. [E, Ar, Xe, Ne, Xe + Ar, Xe + Ne]
- E D. A. McPherson, R. K. Feeney and J. W. Hooper : Phys. Rev. A13, 167-179 (1976)  
Microwave transient-response measurements of elastic momentum-transfer collision frequencies. [E, Ar; 0.08 - 4 eV]
- O L. J. Medhurst, A. Schach von Wittenau, R. D. Van Zee, S. Zhang, S. H. Liu, D. A. Shirley and D. W. Lindle : J. Elect. Spectrosc. Relat. Phenom. 52, 671-675 (1990)  
Threshold photoelectron spectrum of the argon 3s satellites.  
[E,  $h\nu$ , Ar]

- EX W. Mehlhorn : Z. Phys. 208, 1-27 (1968)  
 Das Coster-Kronig- und Auger-Spektrum der  $L_1$ -Shell von Argon.  
 (The Coster-Kronig and Auger spectrum of the  $L_1$  shell of argon.)  
 [T and E, Ar]
- E J. Mehr : Z. Phys. 198, 345-350 (1967)  
 Winkelverteilungen elastisch an Edelgas-Atomstrahlen gestreuter  
 Elektronen; Spinpolarisation eines an Argon gestreuten 40 eV -  
 Elektronenstrahls. [E, Ar - Xe; DCS, relative, 5 - 1000 eV, 20 - 155°]
- O H. M. Meiners : J. Quant. Spectrosc. Radiat. Transf. 9, 1493-1506 (1969)  
 On the calculation of transition probabilities in the argon I spectrum.  
 [T, Ar; use of Hartree-Fock-Slater wave functions]
- S L. V. Meisel : J. Appl. Phys. 36, 1389-1393 (1965)  
 Method for the determination of electron drift velocity in gases from  
 the characteristics of high-pressure gas diodes. [E, Ar, He,  $N_2$ ]
- E H. J. Meister and H. F. Weiss : Z. Phys. 216, 165-171 (1968)  
 Numerical comparison between relativistic and nonrelativistic theory for  
 scattering of slow electrons from atoms. [T, Ar, Xe, Hg]
- EX C. E. Melton : J. Chem. Phys. 37, 562-566 (1962)  
 I Ionization and excitation processes in argon, krypton and the  $C_2$   
 hydrocarbons produced by various means.  
 [E, Ar, Kr,  $C_2H_2$ ,  $C_2H_4$ ,  $C_2H_6$ ; 3.5 keV]
- I C. E. Melton and P. S. Rudolph : J. Chem. Phys. 47, 1771-1774 (1967)  
 Radiolysis of methane in a wide-range radiolysis source of a mass  
 spectrometer. I. Individual and total cross sections for the production  
 of positive ions, negative ions, and free radicals by electrons.  
 [E, Ar,  $CH_4$ ; 100 eV for Ar]
- O L. B. Mendelsohn and F. Biggs : Phys. Rev. A5, 688-691 (1972) .  
 Thomas-Fermi-Dirac calculations of incoherent-scattering factors.  
 [T,  $h\nu$ , Ne - Xe]
- O A. J. Mendez : Thesis, University of Southern California 1-126 (1968)  
 A theoretical analysis of the rare gas autoionization between the  $^2P_{3/2}$  and  
 $^2P_{1/2}$  series limits, with applications to Ar. [T, Ar]
- EX J. E. Mentall and H. D. Morgan : Phys. Rev. A14, 954-960 (1976)  
 Electron impact excitation of argon in the extreme vacuum ultraviolet.  
 [E, Ar]
- EX G. N. Mercer : Thesis, Yale University 1-85 (1967)  
 Excitation processes in the argon ion laser. [ , Ar]
- O P. H. Metzger and G. R. Cook : J. Opt. Soc. Am. 55, 516-520 (1965)  
 Flux distribution of the Hopfield helium continuum from the photo-  
 ionization of Ar, Kr and Xe. [E,  $h\nu$ , Ar - Xe]

- O M. Meyer, E. von Raven, M. Richter, B. Sonntag and J. E. Hansen : J. Elect. Spectrosc. Relat. Phenom. 51, 407-416 (1990)  
Autoionization of the Ar, K and Ca  $2p^5 4s$ , 3d-resonances : Validity of the spectator model. [E,  $h\nu$ , Ar, K, Ca]
- O M. Meyyappan and J. R. Krekovsky : J. Appl. Phys. 68, 1506-1512 (1990)  
Glow discharge simulation through solutions to the moments of the Boltzmann transport equation. [T, Ar; B. Eq.]
- O M. Meyyappan : J. Appl. Phys. 69, 8047-8051 (1991)  
A continuum model for low-pressure radio-frequency discharges. [T, Ar; 13.56-MHz]
- O W. Miehle, O. Kandler, T. Leisner and O. Echt : J. Chem. Phys. 91, 5940-5952 (1989)  
Mass spectrometric evidence for icosahedral structure in large rare gas clusters : Ar, Kr, Xe. [E,  $Ar_n$ ,  $Kr_n$ ,  $Xe_n$ ;  $n = 11 \sim 960$ ]
- O E. Mikkola and J. Ahopelto : Phys. Scr. 27, 297-299 (1983)  
 $K\alpha^h$  hypersatellite spectrum and K shell double photoionization cross-section for Ar. [E,  $h\nu$ , Ar; 3120 - 3200 eV]
- EX V. N. Mileev, V. I. Safin and S. I. Strakhova : Phys. Lett. A55, 333-334 (1976)  
Inelastic scattering of electrons from inert gas atoms in the eikonal distorted-wave approximation. [T, Ar, Ne; DCS,  $^1P$ , 20 - 120 eV,  $30^\circ$ ]
- EX V. N. Mileev, V. I. Safin and S. I. Strakhova : J. Phys. B11, 2941-2947 (1978)  
The excitation of heavy atoms by electrons in multiple-collision theory. [T, Ar, Ne;  $3p^5 4s^1 P$  level, 25 - 2000 eV for Ar]
- I J. M. Miller and S. T. Mason : Phys. Rev. A29, 2435-2439 (1984)  
Differential cross sections for ionization of helium, neon and argon by fast electrons. [E, He - Ar; 100 - 5000 eV]
- S H. B. Milloy : J. Phys. B8, L414-L415 (1975)
- EX The onset of inelastic effects in electron-swarm experiments in He, Ne and Ar. [T, He - Ar]
- S H. B. Milloy and R. W. Crompton : Aust. J. Phys. 30, 51-60 (1977),  
Corrigendum 35, 105-106 (1982)  
The ratio of the lateral diffusion coefficient to mobility for electrons in argon at 294 K. [E, Ar;  $E/N = 10^{-3} - 10^{-1}$  Td]
- S H. B. Milloy, R. W. Crompton, J. A. Rees and A. G. Robertson : Aust. J. Phys. 30, 61-72 (1977)  
The momentum transfer cross section for electrons in argon in energy range 0 - 4 eV. [E, Ar;  $q_m$ , 0.014 - 4 eV]
- E D. J. R. Minnagh, R. P. McEachran and A. D. Stauffer : J. Phys. B26, 1727-1741 (1993)  
Elastic electron scattering from the noble gases including dynamic distortion. [T, Ne - Kr; DCS, 0.01 - 40 eV]
- EX R. Minkowski und H. Sponer : Z. Phys. 15, 399-408 (1923)  
Über die freie Weglänge langsamer Elektronen in Gasen. [E, He - Xe]

- O L. Minnhagen : Ark. Fys. 18, 97-132 (1960)  
The nf and ng levels of Ar II. [E,  $h\nu$ , Ar; 500 - 12500 Å]
- O L. Minnhagen : J. Opt. Soc. Am. 61, 1257-1262 (1971)  
Accurately measured and calculated ground-term combinations of Ar II.  
[E and T, Ar, Ne, Ge]
- O L. Minnhagen : J. Opt. Soc. Am. 63, 1185-1198 (1973)  
Spectrum and the energy levels of neutral argon, Ar I. [E, Ar]
- E A. C. G. Mitchell : Proc. Natl. Acad. Sci. 15, 520-5 (1929)  
On the theory of electron scattering in gases. [T, Ar; 120 - 15000 eV]
- O P. Mitchell and K. Codling : Phys. Lett. A38, 31-32 (1972)  
Variation of the angular distribution of photoelectrons from argon in  
the photon energy range 0 - 23 eV above threshold. [E,  $h\nu$ , Ar]
- E T. K. Mitra : Indian J. Phys. 35, 278-281 (1961)  
Scattering of electrons by a screened Coulomb field in higher Born  
approximation. [T, Ar - Xe, Hg; 150 KeV, 90°]
- I J. Mitroy, K. Amos and I. Morrison : J. Phys. B17, 1659-1674 (1984)  
The (e, 2e) spectrum of argon. [T, Ar]
- O J. Mitroy, I. E. McCarthy and E. Weigold : J. Phys. B18, L91-L95 (1985)  
Intensities of the 3s ionisation spectrum of argon.  
[T and E, Ar; 1000 eV]
- E J. Mitroy, I. E. McCarthy and A. T. Stelbovics : J. Phys. B19, 335-341 (1986)  
A method for solving the Lippmann-Schwinger equation : I. Single-channel  
case. [T, Ar, He]
- EX A. A. Mityureva and V. V. Smirnov : Opt. Spectrosc. 59, 303-305 (1985a)  
Effective cross sections of electron-impact excitation of Ar I into the  
 $^3P_2$  and  $^3P_0$  metastable states. [E, Ar; th. - 70 eV for  $^3P_2$ ]
- ME A. A. Mityureva : Opt. Spectrosc. 59, 826-828 (1985b) -  
Effective cross sections of stepwise excitation by electrons of the  $2P_9$   
level of the argon atom from metastable states. [E, Ar; 2 - 30 eV]
- EX A. A. Mityureva and V. V. Smirnov : Opt. Spectrosc. 61, 413-414 (1986)  
Cross section for electron-impact excitation of the  $^3p_2$  Ar I state.  
[E, Ar]
- EX A. A. Mityureva, N. P. Penkin and V. V. Smirnov : 15th ICPEAC, Brighton 189-189  
(1987)  
Electron excitation cross section of Ar, Kr, Xe to the metastable states.  
[E, Ar - Xe; th. - 64 eV]



- ME A. A. Mityureva, N. P. Penkin and V. V. Smirnov : Opt. Spectrosc. 66, 140-142 (1989a) ·  
Cross-section measurements of steplike excitation of inert gas atoms from metastable states by electron collision : Experimental procedure. [E, Ar; 22 eV]
- ME A. A. Mityureva, N. P. Penkin and V. V. Smirnov : Opt. Spectrosc. 66, 463-465 (1989b) ·  
Measurement of cross sections for stepwise excitation of inert gas atoms from metastable states by electron impact. Experimental results. Argon. [E, Ar<sup>m</sup>]
- ME A. A. Mityureva and V. V. Smirnov : Opt. Spectrosc. 74, (12- ) (1993)  
Measurement of cross-sections of stepwise excitation of noble-gas atoms metastable states by electron impact. [E, Ne - Kr]
- EX A. A. Mityureva and V. V. Smirnov : J. Phys. B27, 1869-1880 (1994) ○  
Excitation of heavy rare gases to metastable states by electron impact. [E, Ar - Xe; th. - 30/50 eV]
- O J. Mizuno, T. Ishihara and T. Watanabe : J. Phys. B17, L85-L87 (1984)  
Classical and quantal Auger profiles due to inner-shell photoionisation near threshold. [T,  $h\nu$ , Ar]
- O B. Mobus, B. Magel, K. -H. Scharfner, B. Langer, U. Becker, M. Wildberger and H. Schmoranzner : Phys. Rev. A47, 3888-3893 (1993)  
Measurements of absolute Ar 3s photoionization cross sections. [E,  $h\nu$ , Ar; 28.4 - 100 eV]
- I B. Mobus, G. Ulm, A. A. Sorokin, L. A. Shmaenok and S. V. Bobashev : 20th ICPEAC,  
O Vienna TU088 (1997)  
Determination of absolute electron-impact ionization cross sections of neon and argon. [E, Ar, Ne; 0.2 - 4 keV]
- O K. A. Mohamed, G. C. King and F. H. Read : J. Phys. B9, 3159-3164 (1976)  
Accurate lifetime measurements of excited states in argon II using the photon-photon delayed coincidence technique. [E, Ar]
- E C. B. O. Mohr and F. H. Nicoll : Proc. Roy. Soc. London A138, 229-224 (1932a)  
EX Inelastic electron scattering in gases. I.  
[E, Ar, He, Hg; DCS, 42 and 61 eV for Ar]
- E C. B. O. Mohr and F. H. Nicoll : Proc. Roy. Soc. London A138, 469-478 (1932b)  
The large angle scattering of electrons in gases. II.  
[E, Ar, Ne, H<sub>2</sub>, N<sub>2</sub>, CO<sub>2</sub>, H<sub>2</sub>S, PH<sub>3</sub>, CH<sub>4</sub>; 30 - 150 eV, 30 - 155°]
- E C. B. O. Mohr and F. H. Nicoll : Proc. Roy. Soc. London A144, 596-608 (1934)  
The scattering of electrons in ionizing collisions with gas atoms.  
[E, Ar, He, Ne, Hg, H<sub>2</sub>, N<sub>2</sub>, CH<sub>4</sub>]
- E C. B. O. Mohr and L. J. Tassie : Aust. J. Phys. 7, 217-229 (1954)  
The multiple scattering of electrons and positrons. [T, Ar, Au]

- E B. L. Moiseiwitsch : 2nd ICPEAC, Boulder 116-119 (1961)  
The elastic scattering of zero energy electrons by the inert gases.  
[T, He - Kr]
- E B. L. Moiseiwitsch : Proc. Phys. Soc. London 81, 35-40 (1963)  
Quantum defects and scattering lengths. [T, general theory]
- EX B. L. Moiseiwitsch and S. J. Smith : Rev. Mod. Phys. 40, 238-353 (1968),  
Erratum 41, 574-574 (1969) -  
Electron impact excitation of atoms. [review, He - Ar, Xe, H, etc.]
- O N. H. Møller : Ark. Fys. 18, 135-157 (1960)  
Calculation of atomic energy levels for electronic configurations with  
one electron outside a nearly closed shell and two holes in this shell  
for LS and pair couplings. [T, Ar]
- O J. J. Monaghan : Aust. J. Phys. 27, 667-672 (1974)  
Collective oscillations in many electron atoms. III. Photoabsorption.  
[T,  $h\nu$ , Ar, Xe]
- O C. E. Moore : Atomic Energy Levels, Vol. III, NSRDS-NBS Pub. 35, (1957)
- O D. V. Morgan, R. J. Bartlett and M. Sagurton : Phys. Rev. A51, 2939-2944 (1995)  
Single-photon multiple ionization of argon in the K-edge region.  
[E,  $h\nu$ , Ar]
- I E. J. Morgan and R. D. Morrison : Phys. Fluids 8, 1608-1615 (1965) -  
Ionization rates behind shock waves in argon. [T, Ar; e + Ar, Ar + Ar]
- S W. L. Morgan : JILA Report 33, Boulder 1-82 (1990)  
A bibliography of electron scattering data 1978 - 1989. [compilation]
- S W. L. Morgan : Phys. Rev. A44, 1677-1681 (1991)  
Use of numerical optimization algorithms to obtain cross sections from  
electron swarm data. [T, Ar, He, CH<sub>4</sub>; B. Eq.]
- I J. D. Morrison : J. Chem. Phys. 21, 1767-1772 (1953) -  
Studies of ionization efficiency. Part III. The detection and interpreta-  
tion of fine structure. [E, He - Xe, Hg, N<sub>2</sub>, HCl, CO<sub>2</sub>, C<sub>6</sub>H<sub>6</sub>]
- I J. D. Morrison and A. J. C. Nicholson : J. Chem. Phys. 31, 1320-1323 (1959)  
Probability of double ionization by electron impact for neon, argon,  
and xenon. [E, Ar, Ne, Xe]
- I J. D. Morrison and C. J. Traeger : Int. J. Mass Spectrom. Ion Phys. 7, 391-397  
(1971) -  
Electron-impact induced autoionization of the outer s electrons in the  
rare gases. [E, Ne - Xe; 12 - 32 eV]
- E F. Motte-Tollet, J. Heinesch, J. M. Gingell and N. J. Mason : J. Chem. Phys. 106,  
5990-6000 (1997)  
Vibrational excitation of methane by 15 and 30 eV intermediate-energy  
electron impact. [E, Ar, CH<sub>4</sub>; DCS at 15, 20, 30 eV, 20 - 115° for Ar]

- I J. Moxom, G. Laricchia and M. Charlton : J. Phys. B28, 1331-1347 (1995)  
Ionization of He, Ar and H<sub>2</sub> by positron impact at intermediate energies.  
[E, e<sup>-</sup>, Ar, He, H<sub>2</sub>; th. - 300 eV, error 10 % for Ar]
- S A. Mozumder : J. Chem. Phys. 72, 6289-6298 (1980)  
Electron thermalization in gases. II. Neon, argon, krypton and xenon.  
[T, Ne - Xe]
- O A. Msezane, R. F. Reilman, S. T. Manson, J. R. Swanson and L. Armstrong, Jr. : Phys. Rev. A15, 668-674 (1977)  
Photoionization of positive ions : Outer p subshells of the noble-gas isoelectronic sequence. [T, hν, Ne - Xe]
- S K. G. Muller and W. O. Muller : Z. Naturforsch. 30a, 1553-1559 (1975)  
Simulation of the electron energy relaxation in a weakly ionized plasma. [T, Ar only; MCS using c. s. set from 0 to 60 eV]
- O D. E. Murnick, R. B. Robinson, D. Stoneback, M. J. Colgan and F. A. Moscatelli : Appl. Phys. Lett. 54, 792-794 (1989) ·  
Optogalvanic signals from argon metastables in a rf glow discharge.  
[E, hν, Ar]
- O P. W. Murphy : J. Opt. Soc. Am. 58, 1200-1208 (1968)  
Transition probabilities in the spectra of Ne I, Ar I, and Kr I.  
[T, Ne - Kr]
- O J. Mursu, H. Aksela, O. -P. Sairanen, A. Kivimäki, E. Nommiste, A. Ausmees, S. Svensson and S. Aksela : J. Phys. B29, 4387-4399 (1996)  
Decay of the 2p<sup>5</sup>4s, 2p<sup>5</sup>3d and 2p<sup>5</sup>4d states of Ar studied by utilizing the Auger resonant Raman effect. [E and T, Ar]
- EX J. Musielok, K. H. Finken and U. Ackermann : Physica 125C, 361-368 (1984)  
I Simultaneous ionization and excitation of argon in an ionization wave.  
[E, Ar; q<sub>e</sub>]
- O K. Musiol, D. W. Jones and W. L. Wiese : J. Quant. Spectrosc. Radiat. Transf. 29, 321-327 (1983)  
Lifetime ratios for Ar I 4p levels. [E, Ar]
- I P. Nagy, A. Skutlaritz and V. Schmidt : J. Phys. B13, 1249-1267 (1980)  
Absolute ionisation cross sections for electron impact in rare gases.  
[E, He - Xe, 0.5 - 5 keV]
- O A. Nagy : Phys. Rep. 298, 1-79 (1998)  
Density functional. Theory and application to atoms and molecules.  
[review, He - Xe, Cl, Hg, etc.]
- S T. Nagy, L. Nagy and S. Desi : Nucl. Instrum. Meth. 8, 327-330 (1960)  
Drift velocities of electrons in argon, nitrogen and argon mixtures.  
[E, Ar, N<sub>2</sub>, Ar + N<sub>2</sub>]

- E S. N. Nahar and J. M. Wadehra : Phys. Rev. A35, 2051-2064 (1987)  
Elastic scattering of positrons and electrons by argon.  
[T, Ar; DCS, 3 - 300 eV]
- E S. N. Nahar and J. M. Wadehra : Phys. Rev. A43, 1275-1289 (1991)  
EX Relativistic approach for  $e^{+-}$  scattering from argon.  
I [T, Ar; 3 - 300 eV]
- O M. Nakamura, M. Sasanuma, S. Sato, M. Watanabe, H. Yamashita, Y. Iguchi, A. Ejiri, S. Nakai, S. Yamaguchi, T. Sagawa, Y. Nakai and T. Oshio : Phys. Rev. Lett. 21, 1303-1305 (1968)  
Absorption structure near the  $L_{II,III}$  edge of argon gas.  
[E,  $h\nu$ , Ar; 50 Å region]
- S Y. Nakamura and M. Kurachi : J. Phys. D21, 718-723 (1988)  
E Electron transport parameters in argon and its momentum transfer cross section. [E, Ar; W,  $ND_L$ , 0.25 - 50 Td ;  $q_m$ , 2.5 - 15 eV]
- S Y. Nakamura : Aust. J. Phys. 48, 357-363 (1995)  
Drift velocity and longitudinal diffusion coefficient of electrons in  $CO_2$  - Ar mixtures and electron collision cross sections for  $CO_2$  molecules.  
[E, Ar +  $CO_2$ ]
- E H. Nakanishi and D. M. Schrader : Phys. Rev. A34, 1823-1840 (1986)  
Simple but accurate calculations on the elastic scattering of electrons and positrons from neon and argon. [T, Ar, Ne; DCS, 0.01 - 20 eV]
- O G. Nasreen, S. T. Manson and P. C. Deshmukh : Phys. Rev. A40, 6091-6094 (1989)  
Photoionization of inner shells of the Mg and Ar isonuclear sequence.  
[T,  $h\nu$ , Ar, Mg]
- O F. Y. Naumkin and D. J. Wales : Mol. Phys. 96, 1295-1304 (1999)  
Rydberg excitations in rare gas clusters : Structure and electronic spectra of  $Ar_n^+$  ( $3 \leq n \leq 25$ ). [T,  $Ar_n^+$ ]
- O S. Neeser, T. Kunz and H. Langhoff : J. Phys. D30, 1489-1498 (1997)  
A kinetic model for the formation of  $Ar_2$  excimers. [E,  $Ar_2$ ]
- S D. R. Nelson and F. J. Davis : J. Chem. Phys. 51, 2322-2335 (1969) -  
Determination of diffusion coefficients of thermal electrons with a time-of-flight swarm experiment. [E, He - Xe,  $H_2$ ,  $N_2$ , CO,  $CO_2$ ,  $CH_4$ ,  $C_2H_4$ ]
- E R. K. Nesbet and S. Geltman : Phys. Rev. A33, 3815-3824 (1986)  
High-energy forward elastic scattering of electrons : partial-wave approximations. [T, Ar, H; 15 keV]
- O R. K. Nesbet : Phys. Rev. A56, 2778-2783 (1997) -  
Local response model of the generalized polarization potential.  
[T, He - Xe, H]
- $\alpha$  H. Neu : Z. Phys. 152, 294-305 (1958)  
Eine Erweiterung der Townsendschen Näherungsformel für die Ionisierung im homogenen elektrischen Feld. [T, He - Xe,  $H_2$ ,  $N_2$ ]

- O C. Y. Ng, D. J. Trevor, B. H. Mahan and Y. T. Lee : J. Chem. Phys. 66, 446-449 (1977) .  
Photoionization studies of the Kr<sub>2</sub> and Ar<sub>2</sub> van der Waals molecules.  
[E,  $h\nu$ , Ar<sub>2</sub>, Kr<sub>2</sub>, Xe<sub>2</sub>]
- O K. P. Nick and V. Helbig : Phys. Scr. T8, 100-103 (1984)  
Argon branching ratios and absolute transition probabilities in the  
4s - 4p transition array. [E, Ar]
- QT J. C. Nickel, K. Imre, D. F. Register and S. Trajmar : J. Phys. B18, 125-133 (1985) ○  
Total electron scattering cross sections : I. He, Ne, Ar, Xe.  
[E, He - Ar, Xe; 4 - 300 eV, 2 - 3 %]
- E F. H. Nicoll and C. B. O. Mohr : Proc. Roy. Soc. London A142, 320-332 (1933)
- EX The inelastic scattering of slow electrons in gases. III.  
[E, Ar, H<sub>2</sub>, He; 16 - 80 eV for relative DCS]
- O A. Niehaus and M. W. Ruf : Z. Phys. 252, 84-94 (1972)  
The variation of photoelectron angular distributions with energy.  
[E,  $h\nu$ , Ar - Xe, Hg]
- O A. Niehaus and C. J. Zwakhals : J. Phys. B16, L135-L142 (1983)
- I Angular momentum exchange in post collision interaction.  
[T,  $h\nu$ , Ar]
- S R. A. Nielsen : Phys. Rev. 50, 950-954 (1936)  
Absolute values of the electron drift velocity in nitrogen, helium, neon  
and argon. [E, He - Ar, N<sub>2</sub>]
- QT H. Nishimura and K. Yano : J. Phys. Soc. Jpn. 57, 1951-1956 (1988)  
Total electron scattering cross section for Ar, N<sub>2</sub>, H<sub>2</sub>O and D<sub>2</sub>O.  
[E, Ar, N<sub>2</sub>, H<sub>2</sub>O, D<sub>2</sub>O; 7 - 500 eV]
- O R. A. Nodwell, J. Meyer and T. Jacobson : J. Quant. Spectrosc. Radiat. Transf. 10,  
335-340 (1970)  
Radiative transition probabilities between the 3p<sup>5</sup>4p and 3p<sup>5</sup>4s configura-  
tions of neutral argon. [E, Ar]
- QT J. C. Nogueira, I. Iga and M. -T. Lee : J. Phys. B15, 2539-2549 (1982)  
Total cross sections for electrons scattered from gases : 0.5 - 3.0 keV  
range on Ar. [E, Ar; error 6 %]
- EX C. Noren, W. L. Karras, J. W. McConkey and P. Hammond : Phys. Rev. A54, 510-521 (1996)  
Polarization studies of rare-gas resonance radiation : Argon, krypton,  
and xenon. [E, Ar - Xe]
- QT C. E. Normand : Phys. Rev. 35, 1217-1225 (1930)  
The absorption coefficient for slow electrons in gases.  
[E, He - Ar, H<sub>2</sub>, N<sub>2</sub>, CO; 0.5 - 400 eV]
- O H. Nubbemeyer : J. Quant. Spectrosc. Radiat. Transf. 16, 395-404 (1976)  
Measurement of Ar(I) and Ar(II) transition probabilities in LTE arc  
plasmas. [E, Ar]

- O H. Nubbemeyer and B. Wende : 13th ICPIG, Berlin 147-148 (1977)  
Determination of Ar(I) and Ar(II) transition probabilities based on improved branching ratio measurements (Comparison with LTE based results).  
[E,  $h\nu$ , Ar]
- E J. K. O'Connell and N. F. Lane : Phys. Rev. A27, 1893-1903 (1983)  
Nonadjustable exchange-correlation model for electron scattering from closed-shell atoms and molecules. [T, He - Xe]
- O S. Ogata, S. Takahashi, S. Hara and M. Nakamura : J. Phys. B20, 3385-3393 (1987)  
High-resolution photoelectron angular distribution measurements of N<sub>2</sub>.  
[E,  $h\nu$ , Ar, N<sub>2</sub>]
- O I. Ogawa and T. Sugiyama : 10th ICPEAC, Paris 2, 646-647 (1977)  
Attachment of low-energy electrons to O<sub>2</sub> molecules in Ar - N<sub>2</sub> - O<sub>2</sub> gas mixtures. [E, Ar + O<sub>2</sub> + N<sub>2</sub>]
- S I. Ogawa : in Swarms of Ions and Electrons in Gases, Innsbruck, Springer Verlag 265-283 (1984)  
Electrons in inert gases. [review, He - Xe]
- S I. Ogawa, T. Koizumi, E. Shirakawa and S. Takasugi : 5th Int. Swarm Seminar, Birmingham 36-40 (1987)  
The characteristic energy of low-energy electrons in mixed gases.  
[E and T, Ar + N<sub>2</sub>, Ar + CO<sub>2</sub>, Ne + Kr, etc.]
- EX G. N. Ogurtsov : Sov. Phys. JETP 37, 584-586 (1973) -  
Energy distribution of electrons emitted by argon atoms under electron impact. [E, Ar; excit. of L shell, 260 - 3000 eV]
- O M. Ohno : J. Phys. B17, 195-208 (1984)  
Many-body calculations of L<sub>1</sub> XPS spectra of Ar to Kr.  
[T, Ar - Kr, Z = 18 - 36; Cu]
- EX S. Ohshima, T. Kondow, T. Fukuyama and K. Kuchitsu : Chem. Phys. Lett. 169, 331-336 (1990)  
Measurements of differential cross sections for electron-impact excitation to long-lived excited states of He, Ar, H<sub>2</sub> and N<sub>2</sub> by a molecular-beam recoil method. [E, Ar, He, H<sub>2</sub>, N<sub>2</sub>]
- EX M. Ohwa, T. J. Moratz and M. J. Kushner : J. Appl. Phys. 66, 5131-5145 (1989) -  
O Excitation mechanisms of the electron-beam-pumped atomic xenon (5d - 6p) laser in Ar/Xe mixtures. [E, Ar + Xe]
- E K. Ohya and I. Mori : Jpn. J. Appl. Phys. 29, 2145-2146 (1990)  
Anisotropy of elastic scattering of low-energy electrons in noble gases.  
[T, He - Xe; DCS, 0 - 16 eV]
- E P. C. Ojha, P. G. Burke and K. T. Taylor : J. Phys. B15, L507-L510 (1982)  
EX Near-threshold electron impact excitation of argon atoms.  
[T, Ar; 10.8 - 13.4 eV, <sup>3</sup>P and <sup>1</sup>P]
- O P. C. Ojha and P. G. Burke : J. Phys. B16, 3513-3529 (1983)  
Photoionisation of the 3p<sup>5</sup>4s excited states of argon. [T,  $h\nu$ , Ar]

- O T. Okada and M. Sugawara : J. Phys. D26, 1680-1686 (1993)  
Microwave determination of the coefficient of dissociative recombination of  $\text{Ar}_2^+$  in Ar afterglow. [E, Ar]
- O T. Okada and M. Sugawara : Jpn. J. Appl. Phys. 34, 5829-5835 (1995)  
Analysis of the light emission originating from dissociative recombination processes in argon afterglow. [E, Ar]
- O K. Okazaki, T. Makabe and Y. Yamaguchi : Appl. Phys. Lett. 54, 1742-1744 (1989)  
Modeling of a rf glow discharge plasma. [T, Ar]
- I S. Okudaira, Y. Kaneko and I. Kanomata : J. Phys. Soc. Jpn. 28, 1536-1541 (1970)  
Multiple ionization of Ar and Mg by electron impact.  
[E, Ar, Mg; 40 - 1000 eV]
- EX J. Olmsted III, A. S. Newton and K. Street, Jr. : J. Chem. Phys. 42, 2321-2327 (1965)  
Determination of the excitation functions for formation of metastable states of some rare gases and diatomic molecules by electron impact.  
[E, Ne - Kr,  $\text{H}_2$ ,  $\text{N}_2$ , CO]
- O T. N. Olney, N. M. Cann, G. Cooper and C. E. Brion : Chem. Phys. 223, 59-98 (1997)  
Absolute scale determination for photoabsorption spectra and the calculation of molecular  
[review,  $h\nu$ , He - Xe,  $\text{H}_2$ ,  $\text{D}_2$ ,  $\text{N}_2$ ,  $\text{O}_2$ , CO, NO,  $\text{Cl}_2$  -  $\text{I}_2$ ,  $\text{CH}_3\text{OH}$ , etc.]
- O H. N. Olsen : J. Quant. Spectrosc. Radiat. Transf. 3, 59-76 (1963a)  
Measurement of argon transition probabilities using the thermal arc plasma as a radiation source. [E,  $h\nu$ , Ar]
- O H. N. Olsen : J. Quant. Spectrosc. Radiat. Transf. 3, 305-333 (1963b)  
The electric arc as a light source for quantitative spectroscopy.  
[review, Ar, etc.; transition probabilities of Ar I, see p. 329]
- E T. F. O'Malley : Phys. Rev. 130, 1020-1029 (1963)  
Extrapolation of electron-rare gas atom cross sections to zero energy.  
[T, He - Xe; 0 - 1.16 eV]
- S T. F. O'Malley : Phys. Rev. A36, 2838-2841 (1987)  
Einstein relation for electrons in high-density argon. [T, Ar]
- O W. Ong and S. T. Manson : Phys. Rev. A19, 688-693 (1979)  
Dirac-Fock calculations of photoelectron angular distributions of the outer s shells of the noble gases. [T,  $h\nu$ , Ne - Xe]
- O W. Ong and S. T. Manson : Phys. Rev. A21, 842-850 (1980)  
Dirac-Fock calculations of atomic photoionization : Branching ratios and angular distributions in the outer p shells of the noble gas.  
[T,  $h\nu$ , Ne - Xe]
- E Y. Oono and Y. Nishimura : Bull. Chem. Soc. Jpn. 50, 1379-1381 (1977) ·  
I Simple relations between scattering cross sections and molecular diameters. [compilation, He - Xe, many atoms and molecules]

- I C. B. Opal, W. K. Peterson and B. C. Beaty : J. Chem. Phys. 55, 4100-4106 (1971a)  
Measurements of secondary-electron spectra produced by electron impact ionization of a number of simple gases. [E, He - Xe, H<sub>2</sub>, CO<sub>2</sub>, H<sub>2</sub>O, etc.]
- I C. B. Opal, E. C. Beaty and W. K. Peterson : JILA Report No. 108, Colorado 1-117 (1971b)  
Tables of energy and angular distribution of electrons ejected from simple gases by electron impact. [E, He - Xe, H<sub>2</sub>, N<sub>2</sub>, H<sub>2</sub>O, etc.]
- I C. B. Opal, E. C. Beaty and W. K. Peterson : Atomic Data 4, 209-253 (1972) -  
Tables of secondary-electron-production cross sections.  
[compilation, He - Xe, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, NO, CO<sub>2</sub>, H<sub>2</sub>O, NH<sub>3</sub>, CH<sub>4</sub>, C<sub>2</sub>H<sub>2</sub>]
- I J. W. Otvos and D. P. Stevenson : J. Am. Chem. Soc. 78, 546-551 (1956)  
Cross-sections of molecules for ionization by electrons.  
[E, He - Xe, CH<sub>4</sub> - C<sub>5</sub>H<sub>12</sub>, C<sub>2</sub>H<sub>4</sub> - C<sub>5</sub>H<sub>10</sub>, C<sub>6</sub>H<sub>6</sub>, etc.]
- S J. L. Pack and A. V. Phelps : Phys. Rev. 121, 798-806 (1961)  
Drift velocities of slow electrons in helium, neon, argon, hydrogen and nitrogen. [E, He - Ar, H<sub>2</sub>, N<sub>2</sub>]
- S J. L. Pack, R. E. Voshall and A. V. Phelps : Westinghouse Res. Labo., Research Report 62-928-113-RI, 1-21 (1962)  
Tables of drift velocities of slow electrons in helium, neon, argon, krypton, xenon, hydrogen, deuterium, nitrogen, carbon monoxide, carbon dioxide, water vapor, nitrous oxide, and ammonia.  
[E, He - Xe, H<sub>2</sub>, D<sub>2</sub>, N<sub>2</sub>, CO, CO<sub>2</sub>, H<sub>2</sub>O, N<sub>2</sub>O, NH<sub>3</sub>]
- S J. L. Pack, R. E. Voshall, A. V. Phelps and L. E. Kline : in Nonequilibrium Effects in Ion and Electron Transport, Plenum Press 371-372 (1990)  
Longitudinal diffusion to mobility ratios for electrons in noble gases.  
[E, Ar - Xe, He]
- S J. L. Pack, R. E. Voshall, A. V. Phelps and L. E. Kline : J. Appl. Phys. 71, 5363-5371 (1992)  
Longitudinal electron diffusion coefficients in gases : Noble gases.  
[E, Ar - Xe, He]
- EX N. Padial, G. D. Meneses, F. J. da Paixao, G. Csanak and D. C. Cartwright : Phys. Rev. A23, 2194-2212 (1981)  
Electron-impact excitation of the lowest four excited states of argon.  
[T, Ar]
- I R. Padma and P. C. Deshmukh : J. Phys. B27, 943-954 (1994)  
Generalized oscillator strength studies for electron-impact 2s ionization of some low- and intermediate-Z atoms.  
[T, Ar, Ne, O, Zn, etc.]
- E J. M. Paikeday and A. Longstreet : Int. J. Quant. Chem. 70, 943-950 (1998)  
Effective potential for e - neon and e - argon scattering by DCS minimization at intermediate energies. [T, Ar, Ne]



- E J. M. Paikeday : Int. J. Quant. Chem. 75, 399-407 (1999)  
Effective potential for e - argon and e - krypton scattering by DCS minimization at intermediate energies.  
[T, Ar, Kr; 50 - 200 eV for Ar]
- S V. Palladino and B. Sadoulet : Nucl. Instrm. Meth. 128, 323-335 (1975)  
Application of classical theory of electrons in gases to drift proportional chambers. [T, Ar, CH<sub>4</sub>, i-C<sub>4</sub>H<sub>10</sub>]
- I K. Paludan, G. Laaricchia, P. Ashley, V. Kara, J. Moxom, H. Bluhme, H. Knudsen, U. Mikkelsen, S. P. Moller, E. Uggerhoj and E. Morenzoni : J. Phys. B30, L581-L587 (1997)  
Ionization of rare gases by particle-antiparticle impact.  
[E and T, Ne - Xe]
- O C. Pan and H. P. Kelly : Phys. Rev. A39, 6232-6240 (1989)  
Photoionization cross sections of the Ar atom for production of singly and doubly charged ions near the 2p threshold. [T, h $\nu$ , Ar]
- O C. Pan, B. Gao and A. F. Starace : Phys. Rev. A41, 6271-6286 (1990)  
Two-photon ionization of the Ar atom and detachment of the F<sup>-</sup> ion.  
[T, h $\nu$ , Ar, F<sup>-</sup>]
- O C. Pan and A. F. Starace : Phys. Rev. A44, 324-329 (1991)  
Angular distribution of molecules following two-photon ionization of the Ar atom and two-photon detachment of the F<sup>-</sup> ion. [T, h $\nu$ , Ar, F<sup>-</sup>]
- I C. Pan and A. F. Starace : Phys. Rev. A45, 4588-4603 (1992)  
Angular distributions for near-threshold (e, 2e) processes for H, He, and other rare-gas targets. [T, He - Xe, H]
- E R. Panajotovic, D. Filipovic, B. Marinkovic, V. Pejcev, M. Kurepa and L. Vuskovic : J. Phys. B30, 5877-5894 (1997) ○  
Critical minima in elastic electron scattering by argon.  
[E, Ar; DCS, 10 - 100 eV, 20 - 150°]
- E S. R. Pandya and B. P. Shah : Eur. Phys. J. D6, 431-434 (1999)  
Elastic scattering of electrons from He, Ne and Ar atoms at 35 keV.  
[T, He - Ar]
- I W. -F. Z. Papp, V. S. Shevera and I. P. Zapesochnyi : JETP Lett. 25, 29-32 (1977) -  
Investigation of double ionization of inert-gas atoms by simultaneous knockout of s and p electrons by the bombarding electron beam.  
[E, Ne - Xe; th. - 400 eV]
- EX B. Paripas, G. Viktor and S. Ricz : J. Phys. B30, 403-412 (1997)  
Observation of electron impact inner-shell excitation of argon by means of satellite Auger spectra. [E, Ar; 275 - 1700 eV]
- O F. A. Parpia, W. R. Johnson and V. Radojevic : Phys. Rev. A29, 3173-3180 (1984)  
Application of the relativistic local-density approximation to photoionization of the outer shells of neon, argon, krypton, and xenon.  
[T, h $\nu$ , Ne - Xe]

- O L. G. Parratt : Phys. Rev. 56, 295-297 (1939)  
X-ray resonance absorption lines in the argon K spectrum. [E,  $h\nu$ , Ar]
- O R. K. Pathak, A. Kshirsagar, R. Hoffmeyer and A. J. Thakkar : Phys. Rev. A48, 2946-2951 (1993)  
Leading corrections to atomic impulse-approximation Compton profiles : A density-functional approach. [T, He - Kr]
- E S. H. Patil : J. Phys. B27, 1823-1832 (1994) -  
Electron charge density in neon and other inert gas atoms. [T, Ne - Xe]
- E S. H. Patil : Phys. Scr. 54, 471-482 (1996) -  
Extrapolated model potential for low-energy scattering of electrons from inert gas atoms, and Be, Mg, Zn, Cd, Hg. [T, He - Xe, etc.]
- E S. H. Patil : Phys. Scr. 56, 364-370 (1997)  
Asymptotically correct wave functions and densities in inert-gas isoelectronic sequences : Application to e-atom scattering. [T, He - Xe]
- I G. Peach : J. Phys. B1, 1088-1108 (1968)  
Ionization of neutral atoms with outer 2p and 3p electrons by electron and proton impact. [T, Ar, Ne, B, C, N, O, F, Al, Si, P, S, Cl]
- E J. L. Peacher and J. G. Wills : J. Chem. Phys. 46, 4809-4814 (1967)  
Rapid calculation of electron scattering factors. [T, Ar, U; keV energy range]
- O W. B. Peatman, G. B. Kasting and D. J. Wilson : J. Elect. Spectrosc. Relat. Phenom. 7, 233-246 (1975)  
The origin and elimination of spurious peaks in threshold electron photoionization spectra. [E and T,  $h\nu$ , Ar]
- O A. Pelc and L. Michalak : Nukleonika 44, 317-327 (1999)  
Electron impact study of argon clusters. [E,  $Ar_n$  ( $n \leq 21$ )]
- O Wm. B. Peatman, G. B. Kasting and D. J. Wilson : J. Elect. Spectrosc. Relat. Phenom. 7, 233-246 (1975)  
The origin and elimination of spurious peaks in threshold electron photoionization spectra. [E and T,  $h\nu$ , Ar]
- O W. B. Peatman and D. Dill : Chem. Phys. Lett. 53, 79-81 (1978)  
Measured and calculated variation of the photoionization cross section ratio for argon from 0 to 0.050 eV above the  $^2P^o_{3/2,1/2}$  photoionization threshold. [E and T,  $h\nu$ , Ar]
- O M. Pellarin, J. -L. Vialle, M. Carre, J. Lerme and M. Aymar : J. Phys. B21, 3833-3849 (1988)  
Even parity series of argon Rydberg states studied by fast-beam collinear laser spectroscopy. [E,  $h\nu$ , Ar]

- S B.M. Penetrante and J.N. Bardsley : in Nonequilibrium Effects in Ion and Electron Transport, Plenum 49-66 (1990)  
Higher-order electron transport in gases. [T. He - Ar]
- E I. Peres, M. C. Bordage and S. Segur : ESCAPIG-90, Orleans 116-117 (1990)  
Determination of methane cross sections and calculation of electron hydrodynamic parameters in argon-methane mixtures. [T. Ar + CH<sub>4</sub>, CH<sub>4</sub>]
- I J. Peresse : Meth. Phys. Anal. 133-141 (1965) ·  
Determination experimentale des sections efficaces d'ionisation de H<sub>2</sub>, He, Ne, A, Kr, Xe, par chocs electroniques. [E, He - Xe, H<sub>2</sub>]
- I J. Peresse, F. Tuffin and G. Sinou : Phys. Lett. 25A, 773-774 (1967) ·  
Ionisation de l'argon au voisinage du seuil par impacts electroniques. [E, Ar; at threshold region]
- I J. Peresse, F. Gelebart et A. N. Nadan : Compt. Rend. Acad. Sci. B275, 255-257 (1972)  
Autoionisation de l'argon par impacts d'electrons lents. [E, Ar]
- EX A. A. Perov, A. N. Stepanov and S. P. Kabanov : Sov. Tech. Phys. Lett. 14, 316-318 (1988)  
A distribution over Rydberg states of excited hydrogen atoms, oxygen and argon atoms forming by an electron impact. [E, Ar, H, O]
- O A. Pery-Thorne and J. E. Chamberlain : Proc. Phys. Soc. London 82, 133-141 (1963)  
Transition probabilities in the spectra of neutral neon, argon and krypton. [E, Ne - Kr]
- E R. Peterkop and V. Veldre : in Advances in Atomic and Molecular Physics, Vol. 2 Academic Press 263-326 (1966) ·  
The theory of electron-atom collisions. [review]
- I J. R. Peterson : Atomic Collision Processes, North-Holland, 3rd ICPEAC, London 465-473 (1964)  
Electron-impact ionization of atoms and molecules using a fast cross-beam method. [ , ]
- EX L. R. Peterson and J. E. Allen, Jr. : J. Chem. Phys. 56, 6068-6076 (1972)  
I Electron impact cross sections for argon. [T, Ar; 0.02 - 10 keV]
- O B. Petersson : Ark. Fys. 27, 317-319 (1964) ·  
Remeasured NeI, ArI, KrI, and XeI lines in the vacuum ultraviolet. [E, h $\nu$ , Ne - Xe]
- O D. Petrini and E. Kaslahn : J. Phys. B16, 491-498 (1983)  
Energies and widths for the series 2s2p<sup>6</sup> nl (neon and magnesium) and the series 3s3p<sup>6</sup> nl (argon). [T, Ar, Ne, Mg]

- O I. D. Petrov, V. L. Sukhorukov and H. Hotop : J. Phys. B32, 973-986 (1999)  
The influence of core polarization on photon-ionization of alkali and metastable rare gas atoms near threshold.  
[E,  $h\nu$ ,  $\text{Ne}^* - \text{Xe}^*$ , Na - Cs]
- O Z. Lj. Petrovic, S. Bzenic, J. Jovanovic and S. Djurovic : J. Phys. D28, 2287-2293 (1995)  
On spatial distribution of optical emission in radio frequency discharges.  
[E, Ar; GEC reference cell]
- S Z. Lj. Petrovic, T. F. O'Malley and R. W. Crompton : J. Phys. B28, 3309-3323 (1995)  
 $e^-$  - Ar scattering length from drift velocities measured in argon-hydrogen mixtures. [E and T, Ar + 5.45%  $\text{H}_2$ ]
- O Z. Lj. Petrovic and V. D. Stojanovic : Int. Sympo. on electron-Molec. Collisions and Swarm, Engelberg P64/1-3 (1997)  
Monte Carlo simulation of spatial line emission profiles in low current argon discharges at high E/N. [T, Ar]
- S Z. Lj. Petrovic and V. D. Stojanovic : J. Vac. Sci. Technol. A16, 329-336 (1998) -  
O The role of heavy particles in kinetics of low current discharges in argon at high electric field to gas number density ratio.  
[T, Ar; MCS]
- O L. Pettersson, J. Nordgren, L. Selander, C. Nordling, K. Siegbahn and H. Agren : J. Elect. Spectrosc. Relat. Phenom. 27, 29-37 (1982)  
Core-electron binding energies in the soft X-ray range obtained in X-ray emission. [E,  $h\nu$ , Ar, Ne,  $\text{N}_2$ ,  $\text{CO}_2$ ,  $\text{SF}_6$ ]
- $\alpha$  S. Pfau und H. Scheibner : Beit. Plasmaphys. 9, 425-433 (1966)  
Berechnung des I. Townsendschen Ionisierungskoeffizienten der Edelgase.  
[T, He - Xe]
- S S. Pfau and A. Rutscher : Ann. Phys. 22, 166-179 (1969)  
Beweglichkeit und Diffusionskoeffizient der Elektronen.  
[T, He - Xe; B. Eq.]
- E A. V. Phelps, O. T. Fundingsland and S. C. Brown : Phys. Rev. 84, 559-562 (1951)  
Microwave determination of the probability of collision of slow electrons in gases. [E, He - Xe,  $\text{H}_2$ ,  $\text{N}_2$ ]
- S A. V. Phelps, B. M. Jelenkovic and L. C. Pitchford : Phys. Rev. A36, 5327-5336 (1987)  
 $\alpha$  Simplified models of electron excitation and ionization at very high E/n.  
[E and T, Ar,  $\text{N}_2$ ]
- EX F. M. J. Pichanick and J. A. Simpson : Phys. Rev. 168, 64-70 (1968)  
Resonances in the total cross sections for metastable excitation of noble gases by electron impact. [E, He - Xe]
- ME G. A. Piech, J. B. Boffard, M. F. Gehrke, L. W. Anderson and C. C. Lin : Phys. Rev. Lett. 81, 309-312 (1998) ○  
Measurement of cross sections for electron excitation out of the metastable levels of argon. [E,  $\text{Ar}^*$ ]

- E A. N. Pilyankevich : Sov. Phys. Tech. Phys. 8, 938-941 (1964) -  
On the calculation of cross sections for inelastic electron scattering.  
[T, Ar, Li - O, Ne, Na, Ca, Ge]
- E M. S. Pindzola and H. P. Kelly : Phys. Rev. A9, 323-331 (1974)  
Low-energy elastic scattering of electrons by the neutral argon atom.  
[T, Ar; 0 - 300 eV]
- O M. S. Pindzola and H. P. Kelly : Phys. Rev. A12, 1419-1424 (1975)  
Comparison of the acceleration, length, and velocity forms of the dipole operator in photoionization calculations. [T,  $h\nu$ , Ar]
- O C. G. Pitt and D. Rosenthal : J. Chem. Soc. Faraday Trans. II, 69, 332-339 (1973)  
Determination of ionization potentials. Part I. The use of theoretical expressions with incorporate the effects of Maxwellian inhomogeneity.  
[T, Ar, N<sub>2</sub>, CO<sub>2</sub>, CH<sub>3</sub>OH, C<sub>6</sub>F<sub>6</sub>, etc.]
- S F. Pinz : Nucl. Instrum. Meth. 205, 425-436 (1983)  
Measurement of the longitudinal diffusion of a single electron in gas mixtures used in proportional counters. [E, Ar + CO<sub>2</sub>, Ar + CH<sub>4</sub>, etc.]
- I H. Platten, G. Schiwietz and G. Nolte : Phys. Lett. A107, 83-86 (1985) -  
Cross sections for K-shell ionization of Si and Ar by 4 keV to 10 keV electron impact. [E, Ar, Ne, O, Si]
- I I. Platzner, G. Levin and F. S. Klein : J. Chem. Phys. 55, 2276-2278 (1971)  
Method for estimating excess kinetic energy of ionization products in a pulsed ion source. [E, Ar, Kr, O<sub>2</sub>, SO<sub>2</sub>, N<sub>2</sub>O]
- E B. Plenkiewicz, P. Plenkiewicz, P. Baillargeon and J.-P. Jay-Gerin : Phys. Rev. A36, 2002-2007 (1987)  
Pseudopotential approach to low-energy (0 - 3 eV) elastic electron-argon scattering. [T, Ar; DCS, 0.05 - 3 eV]
- E B. Plenkiewicz, P. Plenkiewicz and J.-P. Jay-Gerin : Phys. Rev. A38, 4460-4469 (1988)  
Pseudopotential calculations for elastic scattering of slow electrons (0 - 20 eV) from noble gases. I. Argon. [T, Ar; DCS, 10<sup>-2</sup> - 20 eV]
- EX P. S. Pogrebnyak, E. V. Gnatchenko, E. T. Verkhovtseva and Y. M. Fogel : Bull. Acad. Sci. USSR, Phys. Ser. 40, 76- (1976)  
Ultrasoft X-ray emission of supersonic argon jet. [ , Ar]
- S A. Ya. Polischuk : J. Phys. B17, 4789-4795 (1984) -  
Concerning a theory of electron mobility in simple fluids. [T, Ar, Xe]
- E I. M. Polushkin and D. Y. Dudko : Ukr. Fiz. Zh. 11, 950-956 (1966a)  
Effective cross sections of plasma scattering of electrons in helium and in argon with cesium vapour admixture. [E, Ar + Cs, He]
- E I. M. Polushkin and D. Y. Dudko : Ukr. Fiz. Zh. 11, 1269-1271 (1966b)  
Effective cross-section of electron scattering in He and Ar plasma with admixture of potassium vapour and in pure potassium. [ , Ar, He, K]

- O C. H. Popenoe and J. B. Shumaker, Jr. : J. Res. Natl. Bur. Stand. A69, 495-509 (1965)  
Arc measurement of some argon transition probabilities. [E, Ar]
- E J. O. Porteus : 3rd ICPEAC, Amsterdam 72-79 (1964)
- EX Low-energy electron scattering by many electron atoms.  
[E, elastic DCS, 75 - 500 eV, 4 - 160°; ex. DCS, 150 eV, 4 - 10°]
- I S. S. Prasad and K. Prasad : Proc. Phys. Soc. London 82, 655-658 (1963)  
Classical calculation for impact ionization cross sections.  
[T, Ar, He, H, N, O, Hg, K - Cs, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO]
- O R. H. Pratt and C. M. Lee : Phys. Rev. A16, 1733-1735 (1977) ·  
Comment on the use of the low-energy theorem in determining the  
bremsstrahlung spectrum. [T, examples are for Al (Z=13) and Au (Z=79)]
- EX F. J. Preston, M. Tsuchiya and H. J. Svec : Int. J. Mass Spectrom. Ion Phys. 3,  
323-337 (1969)  
A mass spectrometer for the detection of neutral species formed by  
electron impact. [E, Ar, Ne, C<sub>3</sub>H<sub>8</sub>, CCl<sub>4</sub>]
- O R. C. Preston : J. Phys. B10, 1377-1384 (1977)  
Transition probabilities and continuum emission coefficients in an argon  
arc plasma. [E, Ar]
- O S. D. Price and J. H. D. Eland : J. Elect. Spectrosc. Relat. Phenom. 52, 649-660  
(1990)  
Photoelectron-photoelectron coincidence spectroscopy.  
[E,  $h\nu$ , Ar, Xe, HI, CH<sub>3</sub>I, OCS]
- S V. Puech and L. Torchin : J. Phys. D19, 2309-2323 (1986)  
Collision cross sections and electron swarm parameters in argon.  
[T, Ar; B. Eq.]
- E H. Qing, L. Lei and L. Jiaming : Chin. Phys. Lett. 10, 11-14 (1993)  
Theoretical calculation of differential cross section for  $e^+$  - Ar and  
 $e^-$  - Ar elastic scattering. [T, Ar; DCS, 20, 50 eV]
- E Z. Qing, M. J. M. Beerlage and M. J. van der Wiel : Physica C113, 225-236 (1982)  
Angular distributions of electrons elastically scattered from argon and  
krypton at energies between 10 and 50 eV.  
[E, Ar, Kr; 25 - 50 eV, 40 - 110°]
- O K. Radler and J. Berkowitz : J. Chem. Phys. 70, 216-220 (1979a)  
Photoionization mass spectrometry of neon using synchrotron radiation :  
Anomalous variation of resonance widths in the noble gases.  
[E,  $h\nu$ , Ne - Xe]
- O K. Radler and J. Berkowitz : J. Chem. Phys. 70, 221-227 (1979b)  
Photoionization of argon at high resolution : Collisional processes  
leading to formation of Ar<sub>2</sub><sup>+</sup> and Ar<sup>+</sup>. [E,  $h\nu$ , Ar]

- O S. B. Radovanov, R. J. Van Brunt, J. K. Olthoff and B. M. Jelenkovic : Phys. Rev. E51, 6036-6046 (1995)  
Ion kinetics and symmetric charge-transfer collisions in low-current, diffuse (Townsend) discharges in argon and nitrogen.  
[E, Ar, N<sub>2</sub>; 1 - 20 kTd]
- EX L. M. Raff : Thesis, University of Illinois, Urbana 1-108 (1962)  
Determination of electronic energy levels of molecules by low energy electron impact spectroscopy. [ ,
- EX V. Raible, H. Koschmieder and H. Kleinpoppen : J. Phys. B7, L14-L18 (1974)  
Structure in near threshold electron excitation of argon and neon.  
[E, Ar, Ne; 11 - 14 eV for Ar]
- E D. Raj and S. Tomar : Indian J. Pure Appl. Phys. 36, 512-515 (1998)  
Study of critical points and spin polarization in elastic scattering of electrons by Ne and Ar atoms. [T, Ar, Ne]
- QT C. Ramsauer : Ann. Phys. 64, 513-540 (1921a)  
Über den Wirkungsquerschnitt der Gasmoleküle gegenüber langsamen Elektronen. [E, Ar; 0.75, 1.1 eV]
- QT C. Ramsauer : Ann. Phys. 66, 546-558 (1921b)  
Über den Wirkungsquerschnitt der Gasmoleküle gegenüber langsamen Elektronen. I. Fortsetzung. [E, Ar - Xe; 15 - 35 eV]
- QT C. Ramsauer : Ann. Phys. 72, 345-352 (1923a)  
Über den Wirkungsquerschnitt der Gasmoleküle gegenüber langsamen Elektronen. II. Fortsetzung und Schluss. [E, Ar - Xe; 1 - 64 eV]
- QT C. Ramsauer : Jahrb. Radioakt. Elektron. 19, 345-354 (1923b)  
Über den Wirkungsquerschnitt der Edelgasmoleküle gegenüber langsamen Elektronen. [E, He - Xe, H<sub>2</sub>, N<sub>2</sub>]
- QT C. Ramsauer : Phys. Z. 29, 823-830 (1928)  
Über den Wirkungsquerschnitt neutraler Gasmoleküle gegenüber langsame Elektronen. [E, He - Xe, H<sub>2</sub>, N<sub>2</sub>]
- QT C. Ramsauer und R. Kollath : Ann. Phys. 3, 536-564 (1929)  
Über den Wirkungsquerschnitt der Edelgasmoleküle gegenüber Elektronen unterhalb 1 Volt. [E, He - Xe; 0.16 - 2 eV]
- E C. Ramsauer und R. Kollath : Ann. Phys. 9, 756-768 (1931a)  
Die Winkelverteilung bei der Streuung langsamer Elektronen an Gasmolekülen. [E, Ar, He, H<sub>2</sub>; DCS]
- E C. Ramsauer und R. Kollath : Ann. Phys. 10, 143-154 (1931b)  
Die Winkelverteilung bei der Streuung langsamer Elektronen an Gasmolekülen. I. Fortsetzung. [E, Ne - Xe, CO, N<sub>2</sub>, CO<sub>2</sub>, CH<sub>4</sub>; DCS]
- E C. Ramsauer und R. Kollath : Phys. Z. 32, 867-870 (1931c)  
Die Winkelverteilung bei der Streuung langsamer Elektronen an Gasmolekülen. [E, Ar, H<sub>2</sub>, CO<sub>2</sub>; DCS]

- E C. Ramsauer und R. Kollath : Ann. Phys. 12, 529-561 (1932a) ?  
Die Winkelverteilung bei der Streuung langsamer Elektronen an Gasmolekullen.  
I. Fortsetzung. [E,
- E C. Ramsauer und R. Kollath : Ann. Phys. 12, 529-561 (1932b)  
Die Winkelverteilung bei der Streuung langsamer Elektronen an Gasmolekullen.  
II. [E, He - Ar, H<sub>2</sub>, CO, CO<sub>2</sub>; DCS tables]
- E C. Ramsauer und R. Kollath : Ann. Phys. 12, 837-849 (1932c)  
Die Winkelverteilung bei der Streuung langsamer Elektronen an Gasmolekullen.  
III. Fortsetzung und Schluss. [E, Ar - Xe; DCS, 0.6 - 12.5 eV, 15 - 165.5°]
- O M. V. V. S. Rao, R. J. Van Brunt and J. K. Olthoff : Phys. Rev. E54, 5641-5656 (1996)  
Resonant charge exchange and the transport of ions at high electric-field  
to gas-density ratios (E/N) in argon, neon, and helium.  
[E, Ar, Ne, He]
- I D. Rapp and P. Englander-Golden : J. Chem. Phys. 43, 1464-1479 (1965) ○  
Total cross sections for ionization and attachment in gases by electron  
impact I. Positive ionization. [E, He - Xe, H<sub>2</sub>, etc.]
- I J. Rasch, C. T. Whelan, R. J. Allan, S. P. Lucey and H. R. J. Walters : Phys. Rev. A56,  
1379-1383 (1997)  
Strong interference effects in the triple differential cross section of  
neutral-atom targets. [T, Ar, He, Ne, Li]
- O L. P. Razumovskaya : Opt. Spectrosc. 23, 463-465 (1967)  
A determination of the effective cross sections for excitation and decay  
of the upper levels of helium, neon, and argon in a high-frequency  
discharge. [E, He - Ar]
- O F. H. Read, J. N. H. Brunt and G. C. King : J. Phys. B9, 2209-2219 (1976)  
The classification of resonances in electron impact on neon, argon, krypton  
and xenon. [E, Ne - Xe]
- I P. A. Readhead : Can. J. Phys. 45, 1791-1812 (1967)  
Multiple ionization of the rare gases by successive electron impacts  
(0 - 250 eV). I. Appearance potentials and metastable ion formation.  
[E, He - Xe]
- I P. A. Readhead : Can. J. Phys. 48, 1906-1916 (1970) -  
Sequential-impact mass spectrometry ; Pressure dependence of ion currents  
from trapped-ion sources. [E, Ar, Ne, Xe]
- I P. A. Readhead : Can. J. Phys. 49, 3059-3063 (1971) -  
Sequential-impact mass spectrometry ; Estimates of metastable ion cross  
sections. [E, Ar only; 40 - 100 eV]
- O R. E. Rebbert and P. Ausloos : J. Res. Natl. Bur. Stand. 75A, 481-485 (1971)  
Ionization quantum yields and absorption coefficients of selected  
compounds at 58.4 and 73.6 - 74.4 nm.  
[E, hν, Ar, Xe, H<sub>2</sub>, C<sub>2</sub>H<sub>5</sub>OH, CCl<sub>4</sub>, etc.; many molecules]



- O R. Redmer : Phys. Rep. 282, 35-157 (1997)  
Physical properties of dense, low-temperature plasmas. [review]
- E D. D. Reid and J. M. Wadehra : Phys. Rev. A50, 4859-4867 (1994a) -  
Low-energy differential scattering of electrons and positrons from noble gases. [T, He - Xe; DCS]
- E D. D. Reid and J. M. Wadehra : Hyperfine Interact. 89, 435-444 (1994b) -  
Differential cross section surfaces for low energy scattering of electrons and positrons from rare gas atoms. [T, He - Xe]
- O R. F. Reilman and S. T. Manson : Astrophys. J. Suppl. Ser. 40, 815-880 (1979)  
Photoabsorption cross sections for positive atomic ions with  $Z \leq 30$ .  
[T,  $h\nu$ , Ar,  $Ar^{+1}$  -  $Ar^{+16}$ , etc.; 5 - 5000 eV]
- O R. Reininger, V. Saile and A. M. Kohler : J. Phys. B20, 2239-2245 (1987)  
Photoionisation yield spectra below the atomic ionisation energy in argon and krypton. [E, Ar, Kr]
- E G. Reisfeld and U. Asaf : Phys. Rev. A49, 348-349 (1994) -  
Relation between the electron scattering length and the van der Waals approximation to the equation of state.  
[T, He - Xe; see K. Rupnik (1990)]
- EX E. Yu. Remeta, A. V. Snegurskii and A. N. Zaviolopulo : Opt. Spectrosc. 81, 12-18 (1996)  
Spectroscopy of metastable states of neon and argon atoms in the auto-ionization energy range. [E, Ar, Ne]
- O A. D. Richards, B. E. Thompson and H. H. Sawin : Appl. Phys. Lett. 50, 492-494 (1987)  
Continuum modeling of argon radio frequency glow discharges. [T, Ar]
- O R. W. Richardson and S. M. Berman : J. Appl. Phys. 72, 5571-5577 (1992) -  
Variational theory of the radiant emittance of the mercury argon discharge and the effects of isotopic enrichment. [T, Ar + Hg]
- O J. Richter : Z. Astrophys. 61, 57-66 (1965)  
Über Temperaturmessungen an thermischen Plasmen bekannter Zusammensetzung. [E, Ar]
- I F. F. Rieke and W. Prepejchal : Phys. Rev. A6, 1507-1519 (1972) -  
Ionization cross sections of gaseous atoms and molecules for high-energy electrons and positrons.  
[E, He - Xe, Hg, CO<sub>2</sub>, etc., total 40 gases; > 100 keV]
- S W. Riemann : Z. Phys. 122, 216-229 (1944)  
Untersuchung der Elektronenlawine mit der Neberlkammer.  
[E, Ar, CO<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, N<sub>2</sub> + O<sub>2</sub>, H<sub>2</sub>]
- E M. E. Riley, C. J. MacCallum and F. Biggs : Atomic Data Nucl. Data Tables 15, 443-476 (1975a) -, Erratum 28, 379-379 (1983)  
Theoretical electron-atom elastic scattering cross sections. Selected elements, 1 keV to 256 keV. [T, Ar, etc.; DCS]

- E M. E. Riley and D. G. Truhlar : J. Chem. Phys. 63, 2182-2191 (1975b)  
Approximations for the exchange potential in electron scattering.  
[T, Ar, He; phase shifts, 0.053 - 340 eV]
- I S. Rioual, B. Rouvellon, A. Pochat, J. Rasch, H. R. J. Walters, C. T. Whelan and  
R. J. Allan : J. Phys. B30, L475-L480 (1997)  
Triple differential cross sections for the electron-impact ionization of  
argon and neon. [E, Ar, Ne; 115.8, 85.8 and 50 eV for Ar]
- O J. S. Risley and W. B. Westerveld : Appl. Opt. 28, 389-400 (1989) -  
Electron-atom source as a primary radiometric standard for the EUV  
spectral region.  
[E, compilation, He - Xe, N<sub>2</sub>, O<sub>2</sub>, CS<sub>2</sub>, SO<sub>2</sub>, CH<sub>4</sub>, SF<sub>6</sub>, etc.]
- S A. G. Robertson : Aust. J. Phys. 30, 39-49 (1977)  
Drift velocities of low energy electrons in argon at 293 and 90 K.  
[E, Ar; E/N =  $2 \times 10^{-3}$  - 0.7 Td at 90 K]
- I B. B. Robinson : Phys. Rev. 140, A764-A768 (1965)  
Modifications of the impulse approximation for ionization and detachment  
cross sections. [T, Ar, Ne, N, O, Cl<sup>-</sup>]
- ME E. J. Robinson : Phys. Rev. 182, 196-200 (1969)  
Electron scattering by the metastable rare gases. [T, He - Xe]
- E R. E. Robson and A. Prytz : Aust. J. Phys. 46, 465-495 (1993) -  
The discrete ordinate/pseudo-spectral method : Review and application  
from a physicist's perspective. [T, Ne - Xe; q<sub>m</sub>, 0 - 10<sup>2</sup> eV]
- O G. S. Rostovikova, V. P. Samoilov and Yu. M. Smirnov : Opt. Spectrosc. 35, 222-223  
I (1973a)  
Excitation of Ar III by electron impact. [E, Ar]
- O G. S. Rostovikova, V. P. Samoilov and Yu. M. Smirnov : Opt. Spectrosc. 35, 343-343  
(1973b)  
Optical cross sections for ArI and KrI. [E, hν, Ar, Kr]
- I B. Rouvellon, S. Rioual, J. Roder, A. Rochat, J. Rasch, C. T. Whelan, H. R. J. Walters and  
R. J. Allan : Phys. Rev. A57, 3621-3626 (1998)  
Coulomb three-body effects in electron-impact ionization of argon.  
[E, Ar; triple DCS, V<sub>i</sub> + (2 - 40) eV]
- I B. Rouvellon, S. Rioual and A. Rochat : J. Physiq. IV, Proc. 9, No. 6, 35-39 (1999)  
Triple differential cross section of rare gas atoms in differential low  
energy kinematics. [E, He - Ar]
- E A. C. Roy and N. C. Sil : Phys. Rev. A15, 935-939 (1977),  
Erratum 17, 2119-2119 (1978)  
Elastic scattering of electrons from Ar and Kr in the second-order  
eikonal approximation. [T, Ar, Kr]

- E A. C. Roy and N. C. Sil : J. Phys. B11, 2729-2734 (1978)  
Elastic scattering of electrons and positrons from H and Ar in the second-order eikonal approximation. [T, Ar, H]
- I B. N. Roy, D. N. Tripathi and D. K. Rai : Can. J. Phys. 50, 2961-2966 (1972)  
Electron impact double ionization of noble gas atoms.  
[T, He - Xe; 50 - 500 eV for Ar]
- EX D. Roy and J. -D. Carette : J. Phys. B8, L157-L160 (1975) -  
Resonances in differential electron excitation cross section of argon in the autoionization region. [E, Ar;  $^1P$ , 24 - 32 eV]
- EX D. Roy and J. -D. Carette : J. Phys. B8, L157-L160 (1975) -  
Resonances in differential electron excitation cross section of argon in the autoionization region. [E, Ar; 24 - 32 eV]
- O R. I. Rudko and C. L. Tang : J. Appl. Phys. 38, 4731-4739 (1967)  
Spectroscopic studies of the Ar<sup>+</sup> laser. [E, Ar]
- O R. D. Rundel, F. B. Dunning and R. F. Stebbings : Rev. Sci. Instr. 45, 116-119 (1974) -  
Velocity distributions in metastable atom beams produced by coaxial electron impact. [E, He - Ar]
- E K. Rupnik, U. Asaf and S. P. McGlynn : J. Chem. Phys. 92, 2303-2304 (1990) -  
Electron scattering in dense atomic and molecular gases : an empirical correlation of polarizability and electron scattering length.  
[T, He - Xe, H<sub>2</sub>, N<sub>2</sub>, CH<sub>4</sub>]
- QT M. Rusch : Phys. Z. 26, 748-751 (1925)  
Über das Verhalten der Gasatome gegenüber langsamen Elektronen.  
[E, Ar, Kr, He, H<sub>2</sub>; 0.2 - 1.2 eV]
- QT M. Rusch : Ann. Phys. 80, 707-727 (1926)  
Über eine neue Methode zur Bestimmung des Wirkungsquerschnittes gegenüber langsamen Elektronen. [E, Ar; 3.5 - 29.1 eV]
- O A. Russek and W. Mehlhorn : J. Phys. B19, 911-927 (1986)  
Post-collision interaction and the Auger lineshape. [T,  $h\nu$ , Ar, Xe]
- O O. P. Rustgi : J. Opt. Soc. Am. 54, 464-466 (1964)  
Absorption cross sections of argon and methane between 600 and 170 Å.  
[E,  $h\nu$ , Ar, CH<sub>4</sub>]
- S T. Ruzicka, A. Rutscher und S. Pfau : Ann. Phys. 24, 124-135 (1970) -  
Thermodiffusions- und Energietransportkoeffizienten der Elektronen.  
Die Transportkoeffizienten der Elektronen in den Edelgasen bei mittleren reduzierten elektrischen Feldstärken (Teil II) ( $E/p_0 = 0.1 \dots 10$  V/cm Torr).  
[T, He - Xe]
- O H. P. Saha : Phys. Rev. A39, 2456-2460 (1989)  
Threshold behavior of the M-shell photoionization of argon. [T,  $h\nu$ , Ar]

- O H. P. Saha : Phys. Rev. A42, 6507-6511 (1990)  
Near-threshold K-shell photoionization of argon. [T,  $h\nu$ , Ar; 0 - 50 eV]
- E H. P. Saha : Phys. Rev. A43, 4712-4722 (1991)  
Accurate ab initio calculations on elastic scattering of low-energy electrons by argon atoms. [T, Ar; DCS, 3 - 50 eV]
- E H. P. Saha : Phys. Rev. A47, 273-277 (1993) -  
Ab initio calculation of scattering length and cross section at very low energies for electron-argon scattering. [T, Ar; DCS, 0 - 1 eV]
- O O. -P. Sairanen, A. Kivimaki, E. Nommiste, H. Aksela and S. Aksela : Phys. Rev. A54, 2834-2839 (1996)  
High-resolution pre-edge structure in the inner-shell ionization threshold region of rare gases Xe, Kr, and Ar. [E, Ar - Xe]
- O N. Saito and I. H. Suzuki : Int. J. Mass Spectrom. Ion Process. 115, 157-172 (1992)  
Multiple photoionization in Ne, Ar, Kr and Xe from 44 to 1300 eV. [E,  $h\nu$ , Ne - Xe]
- S Y. Sakai, H. Tagashira and S. Sakamoto : J. Phys. B5, 1010-1016 (1972)  
The variation of steady state electron mean energy between parallel plates in argon. [T, Ar]
- S Y. Sakai, H. Tagashira and S. Sakamoto : J. Phys. D10, 1035-1049 (1977)  
The development of electron avalanches in argon at high E/N values : I. Monte Carlo simulation. [T, Ar]
- S Y. Sakai, S. Sawada and H. Tagashira : J. Phys. D19, 1741-1750 (1986a)  
Effect of Penning ionisation on an electron swarm in Ar/Ne mixtures : Boltzmann equation analysis. [T, Ar + Ne]
- $\alpha$  Y. Sakai, S. Sawada and H. Tagashira : J. Phys. D19, 2393-2400 (1986b)  
Effect of Penning ionisation on the Townsend first ionisation coefficient of pulsed and steady-state Townsend experiments in Ar/Ne mixtures. [T, Ar + Ne]
- S Y. Sakai, S. Sawada and H. Tagashira : J. Phys. D24, 283-289 (1991)  
Boltzmann equation analysis of electron swarm parameters in Ar/Ne, Kr/Ne, Xe/Ne, Hg/Ar and Hg/Kr mixtures and derived effective excitation cross section for metastable states of rare atoms. [T, Ar + Ne, Ar + Hg, etc.;  $q_e$  for Ne - Xe, th. - 100 eV]
- E F. Salvat, F. Mayol, E. Molins and J. Parellada : J. Phys. D18, 1401-1414 (1985)  
A simple model for electron scattering : elastic cross sections. [T, Ar, He, Al, Hg]
- E F. Salvat, F. Mayol and J. D. Martinez : J. Phys. B20, 6597-6612 (1987) -  
Elastic scattering of electrons by atoms : A semiphenomenological approach. [T, He - Xe, Hg; 100 - 3000 eV]

- 0 V. P. Samoilov and Y. M. Smirnov : Zh. Prikl. Spektrosk. 18, 1082- (1973)  
Excitation cross-section for the lines of monocharged argon ion formed during electron impact.
- 0 J. A. R. Samson : Phys. Rev. 132, 2122-2124 (1963)  
Observed and predicted new autoionized energy levels in krypton, argon, and xenon. [E, Ar, Kr, Xe]
- 0 J. A. R. Samson : J. Opt. Soc. Am. 54, 420-421 (1964)  
Experimental photoionization cross sections in argon from threshold to 280 Å. [E,  $h\nu$ , Ar]
- 0 J. A. R. Samson and R. B. Cairns : Phys. Rev. 173, 80-85 (1968)  
Photoelectron spectroscopy of the rare gases. [E,  $h\nu$ , Ne - Xe]
- 0 J. A. R. Samson and J. L. Gardner : Phys. Rev. Lett. 33, 671-673 (1974)  
Photoionization cross section of the outer s-shell electrons in the rare gases. [E,  $h\nu$ , Ar - Xe]
- 0 J. A. R. Samson, J. L. Gardner and A. F. Starace : Phys. Rev. A12, 1459-1463 (1975)  
 $^2P_{3/2} : ^2P_{1/2}$  partial photoionization cross-section ratios in the rare gases. [E,  $h\nu$ , Ne - Xe]
- 0 J. A. R. Samson : Phys. Rep. 28C, 303-354 (1976)  
Photoionization of atoms and molecules.  
[review,  $h\nu$ , He - Xe, He, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, NO, CO<sub>2</sub>, etc.]
- 0 J. A. R. Samson, Y. Chung and E. -M. Lee : Phys. Lett. 127A, 171-174 (1988)  
Ar 3s, 3p satellite lines studied by fluorescence spectroscopy.  
[E,  $h\nu$ , Ar; 400 - 780 Å]
- 0 J. A. R. Samson and L. Yin : J. Opt. Soc. Am. B6, 2326-2333 (1989)  
Precision measurements of photoabsorption cross sections of Ar, Kr, Xe, and selected molecules at 58.4, 73.6, and 74.4 nm.  
[E,  $h\nu$ , Ar - Xe, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO, CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>]
- 0 J. A. R. Samson, E. -M. Lee and Y. Chung : Phys. Scr. 41, 850-852 (1990)  
Resonant satellite transitions in argon. [E,  $h\nu$ , Ar; 300 - 350 Å]
- 0 J. A. R. Samson, L. Lyn, G. N. Haddad and G. C. Angel : J. Physiq. IV, C1, 99-107 (1991)  
Recent progress on the measurement of absolute atomic photoionization cross sections. [E and review,  $h\nu$ , Ne - Xe, O, N, Cl; 100 - 300 Å for Ar]
- 0 L. Sanche and G. J. Schulz : Phys. Rev. A5, 1672-1683 (1972)  
Electron transmission spectroscopy : Rare gases. [E, He - Xe]
- EX J. A. Sanchez, F. Blanco, G. Garcia and J. Campos : Phys. Scr. 39, 243-245 (1989) .  
I Simultaneous excitation and ionization of Ar by electron impact.  
[E, Ar; emission cross sections of 18 levels, th. - 1000 or 6000 eV]

- EX J. A. Sanchez, J. A. Aguilera, B. Martinez and J. Campos : Phys. Rev. A41, 1392-1398 (1990) -  
Ionization and excitation of  $np^4(n+1)p$  levels of noble gases by electron-impact. [E, Ne - Kr; emission cross sections, 38 - 1000 eV]
- I W. Sandner : J. Phys. B19, L863-L869 (1986)  
Post collision interaction at high impact energies. [T, Ne - Kr]
- S K. Satoh, H. Itoh, Y. Sakai and H. Tagashira : J. Phys. D29, 2390-2394 (1996) -  
Computer simulation study of correspondence between experimental and theoretical electron drift velocities in Ar gas : III. Effect of the initial electron pulse shape. [T, Ar]
- S S. Sawada, Y. Sakai and H. Tagashira : J. Phys. D22, 282-288 (1989) -  
Boltzmann equation analysis of electron swarm parameters in Hg/Ar gas mixtures : effect of metastable Hg and Ar atoms. [T, Ar + Hg]
- EX T. Sawada, J. E. Purcell and A. E. S. Green : Phys. Rev. A4, 193-203 (1971) -  
Distorted-wave calculation of electron impact excitation of the rare gases. [T, Ar, Ne;  $(3p)^6 \rightarrow (3p)^5 4s$ , th. - 150 eV]
- E K. Schackert : Z. Phys. 213, 316-322 (1968)  
Spinpolarisation langsamer Elektronen durch elastische Streuung an Edelgasatomstrahlen. [E, He - Xe; relative DCS, 40 - 150 eV, 30 - 150°]
- O W. Schade, Z. W. Stryla, V. Helbig and G. Langhans : Phys. Scr. 39, 246-250 (1989)  
Radiative lifetimes of argon II and krypton II levels. [E, Ar, Kr]
- O F. Schaefers, G. Schonhense and U. Heinzmann : Phys. Rev. A28, 802-814 (1983)  
Analysis of Ar  $3p^6$  and Kr  $4p^6$  photoionization from photoelectron-spin-polarization data. [E,  $h\nu$ , Ar, Kr]
- EX M. Schaper und H. Scheibner : Beitr. Plasmaphys. 9, 45-57 (1969) -  
Absolutbestimmung der Gesamtanregungsquerschnitte der Edelgase durch Elektronenstoß. [E, He - Xe; th. - 15.5 eV for Ar]
- EX R. S. Schappe, M. B. Schulman, L. W. Anderson and C. C. Lin : Phys. Rev. A50, 444-461 (1994) ○  
Measurements of cross sections for electron-impact excitation into the metastable levels of argon and number densities of metastable argon atoms. [E, Ar;  $^3P_0$ ,  $^3P_2$ , th. - 200 eV]
- I K.-H. Scharfner, B. Kraus, H.-J. Flaig and K. Reymann : 14th ICPEAC, Palo Alto 165-165 (1985)  
Production of excited Ar II- and Ar III-ions by proton and electron-impact. [E, Ar; 10 - 10<sup>5</sup> keV]

- EX K.-H. Schartner, B. Kraus, W. Poffel and K. Reymann : Nucl. Instrum. Meth. B27, 519-526 (1987) .  
Electron impact excitation and radiometric applications.  
[E, He - Xe, H<sub>2</sub>, N<sub>2</sub>; 0.7 - 14 keV]
- O K.-H. Schartner, P. Lenz, B. Mobus, H. Schmoranzer and M. Wildberger : Phys. Lett. A128, 374-377 (1988)  
Photon induced fluorescence spectroscopy of Ar<sup>2+</sup> (3s<sup>2</sup>3p<sup>4</sup> - 3s3p<sup>5</sup>) and Ar<sup>+</sup> (3s<sup>2</sup>3p<sup>5</sup> - 3s<sup>2</sup>3p<sup>4</sup>nl) transitions. [E, hν, Ar; 29 - 120 eV]
- O K.-H. Schartner, P. Lenz, B. Mobus, B. Magel, H. Schmoranzer and M. Wildberger : Phys. Scr. 41, 853-856 (1990)  
Photon induced fluorescence spectroscopy of rare gas atoms. [E, hν, Ar]
- EX J. A. Schiavone, S. M. Tarr and R. S. Freund : Phys. Rev. A20, 71-81 (1979)  
Electron-impact excitation of the rare-gas atoms to high-Rydberg states.  
[E, He - Xe]
- O D. Schluter : Z. Phys. 210, 80-91 (1968)  
Die Emissionskontinua thermischer Edelgasatomstrahlen. [T, hν, Ne - Xe]
- S B. Schmidt : Nucl. Instrum. Meth. A252, 579-585 (1986) .  
Drift properties of electrons in methane and methane noble gas mixtures.  
[E, (He - Xe) + CH<sub>4</sub>, Ar + CF<sub>4</sub>, etc.]
- S B. Schmidt and S. Polenz : Nucl. Instrum. Meth. A273, 488-493 (1988) .  
Electron motion in counting gases - New answers and new questions.  
[E, Ar + CH<sub>4</sub>, Ar + CF<sub>4</sub>, CH<sub>4</sub>, CF<sub>4</sub>]
- S B. Schmidt, K. Berkhan, B. Gots and M. Muller : Phys. Scr. T53, 30-42 (1994) .  
New experimental techniques in the study of electron swarms in gases and their impact on the determination of low energy electron scattering cross sections. [E, Ar - Xe, H<sub>2</sub>]
- I V. Schmidt, N. Sandner and H. Kuntzemuller : Phys. Rev. A13, 1743-1747 (1976a)  
Double ionization of rare gases. I. Ion formation by electron impact.  
[E, He - Ar; 2000 eV]
- O V. Schmidt, N. Sandner, H. Kuntzemuller, P. Dhez, F. Wuilleumier and E. Kallne : Phys. Rev. A13, 1748-1755 (1976b)  
Double ionization of rare gases. II. Ion formation by photon impact.  
[E, hν, He - Ar; 70 - 200 eV of synchrotron radiation]
- O V. Schmidt : Z. Phys. D2, 275-283 (1986)  
Photoionization in rare gases with synchrotron radiation : some basic aspects for critical tests with theory. [E, hν, Ar, Xe, Ne]
- O V. Schmidt : Rep. Prog. Phys. 55, 1483-1659 (1992)  
Photoionization of atoms using synchrotron radiation.  
[review, hν, He - Xe]

- I A. Schmitt, U. Cerny, T. Falke, H. Moller, W. Raith and M. Weber : Hyperfine Interact. 89, 133-140 (1994) -  
Doubly-differential ionization cross sections of positron impact on argon. [E, Ar, He]
- EX H. Schmoranzer, R. C. Ulsh, R. A. Bonham and J. Ely : J. Chem. Phys. 59, 152-157 (1973)  
Observation of the Compton modified band for the scattering of keV electrons by H<sub>2</sub>, He, Ne and Ar. [E, He - Ar, H<sub>2</sub>; 45 keV]
- O H. Schmoranzer, P. Hartmetz and D. Marger : J. Phys. B19, 1023-1033 (1986)  
Radiative lifetimes of quartet fine-structure states in the Ar II 3p<sup>4</sup>4p configuration. [E, Ar]
- E B. I. Schneider : in Advances in Atomic, Molecular and Optical Physics,  
V Vol. 33, Academic 183-214 (1994)
- EX The role of theory in the evaluation and interpretation of cross-section  
I data. [review, Ar, He, N<sub>2</sub>, H<sub>2</sub>, SiH<sub>4</sub>, etc.]
- O H. W. Schnopper : Phys. Rev. 131, 2558-2560 (1963)  
Multiple excitation and ionization of inner atomic shells by X rays. [E, h $\nu$ , Ar; K edge, about 3.2 keV]
- O S. Schohl, D. Klar, T. Kraft, H. A. J. Meijer, M. -W. Ruf, U. Schmitz, S. J. Smith and H. Hotop : Z. Phys. D21, 25-39 (1991) -  
Absolute detection of metastable rare gas atoms by a cw laser photoionization method. [E, Ne - Kr; Ar (4s<sup>3</sup>P<sub>2</sub>)]
- O S. Schohl, D. Klar, N. A. Cherepkov, I. D. Petrov, K. Ueda, S. Baier, R. Kau and H. Hotop : J. Phys. B30, 609-631 (1997)  
Photoionization of polarized Ar\* (4p, J=3) atoms near threshold. [T and E, h $\nu$ , Ar]
- O E. Schonheit : Z. Naturforsch. 16a, 1094-1097 (1961)  
Massenspektrometrische Untersuchung der photoionisation von Argon. [E, h $\nu$ , Ar]
- O G. Schonhense : Phys. Rev. Lett. 44, 640-643 (1980)  
Angular dependence of the polarization of photoelectrons ejected by plane-polarized radiation from argon and xenon atoms. [E, h $\nu$ , Ar, Xe]
- I B. L. Schram, F. J. de Heer, M. J. van der Wiel and J. Kistemaker : Physica 31, 94-112 (1965a) -  
Ionization cross sections for electrons (0.6 - 20 keV) in noble and diatomic gases. [E, He - Xe, H<sub>2</sub>, D<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>]
- EX B. L. Schram and L. Vriens : Physica 31, 1431-1436 (1965b)  
I Cross section formulae for ionization and excitation of atoms by high energy electrons. [T, H, He, H<sub>2</sub>]
- I B. L. Schram : Physica 32, 197-208 (1966a)  
Partial ionization cross sections of noble gases for electrons with energy 0.5 - 18 keV. II. Argon, krypton and xenon. [E, Ar - Xe]



- I B. L. Schram, H. R. Moustafha-Moussa, J. Schutten and F. J. de Heer : Physica 32, 734-740 (1966b) ·  
Ionization cross sections for electrons (100 - 600 eV) in noble and diatomic gases. [E, He - Xe, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>]
- I B. L. Schram, A. J. H. Boerboom, M. J. van der Wiel, F. J. de Heer and J. Kistemaker : Advan. Mass Spectrom. 3, 273-286 (1966c)  
Ionization cross-section measurements for 0.6- to 20-keV electrons in atomic and molecular gases. [E, He - Xe, H<sub>2</sub>, D<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, etc.]
- I B. L. Schram : PhD Thesis, University of Amsterdam 1-103 (1966d)  
Ionization of noble and molecular gases by high energy electrons.  
[E, He - Xe, H<sub>2</sub>, D<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CH<sub>4</sub> - n-C<sub>6</sub>H<sub>14</sub>, etc.]
- E E. Schultes, R. Schumacher und R. N. Schindler : Z. Naturforsch. 29a, 239-244 (1974) ·  
Bestimmung von Streuquerschnitten für thermische Elektronen aus der Linienform von ECR-Signalen.  
[E, Ar, He, H<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, CO, CO<sub>2</sub>, N<sub>2</sub>O, H<sub>2</sub>O, CH<sub>3</sub>NH<sub>2</sub>, CH<sub>3</sub>CN]
- S G. Schultz and J. Gresser : Nucl. Instrum. Meth. 151, 413-431 (1978) ·  
A study of transport coefficients of electrons in some gases used in proportional and drift chambers. [E, Ar, CO<sub>2</sub>, isobutane, CH<sub>4</sub>, methylal]
- E G. J. Schulz : Phys. Rev. 136, A650-A656 (1964)  
Experiments on resonances in the elastic cross section of electrons on rare-gas atoms. [E, He - Xe]
- E G. J. Schulz : Rev. Mod. Phys. 45, 378-422 (1973)
- EX Resonances in electron impact on atoms.  
[review, for Ar, p. 407-409 and 417]
- E W. H. E. Schwarz : Z. Phys. 254, 408-417 (1972a)  
Niederenergetische Elektronenstreuung als Potentialstreuung ?  
(Low energy electron scattering treatable as potential scattering ?)  
[T, He - Ar; 0 - 10 eV, DCS, 5 eV]
- E W. H. E. Schwarz : Chem. Phys. Lett. 16, 89-91 (1972b)  
Few-electron corrections of statistical exchange potential in low-energy electron scattering. [T, He - Xe; 0 - 10 eV]
- O J. H. Scofield : J. Elect. Spectrosc. Relat. Phenom. 8, 129-137 (1976)  
Hartree-Slater subshell photoionization cross-sections at 1254 and 1487 eV. [T, h $\nu$ , He - Xe, etc., Z = 1 - 96]
- EX D. A. Scott and A. V. Phelps : Phys. Rev. A43, 3043-3056 (1991)  
Excitation by fast atoms at very high electric field to gas-density ratios in argon. [E, Ar]
- O M. J. Seaton : Rep. Prog. Phys. 46, 167-257 (1983)  
Quantum defect theory. [review, He - Xe, H<sub>2</sub>, etc.]

- O R. J. Seebock and W. E. Kohler : J. Appl. Phys. 64, 3855-3862 (1988)  
Temporal intensity modulation of spectral lines in a low-frequency discharge in argon. [E, Ar; cross section set,  $0.1 - 10^2$  eV]
- $\alpha$  P. Segur, I. Peres, J. P. Boeuf and M. C. Bordage : Radiat. Prot. Docim. 29, 23-30 (1989) -  
Microscopic calculation of the gas gain in cylindrical proportional counters. [T, Ar, CH<sub>4</sub>, etc.]
- I P. Selles, J. Mazeau and A. Huetz : SPIG '88, Sarajevo 53-67 (1989)  
Electron correlations in double escape processes near threshold.  
[E, He - Kr]
- I P. Selles, J. Mazeau and A. Huetz : J. Phys. B23, 2613-2627 (1990)  
Near-threshold (e, 2e) measurements for neon, argon and krypton.  
[E, Ne - Kr; triple DCS, 12 - 26 eV]
- O V. Selvaraj and M. S. Gopinathan : J. Phys. B18, 3267-3283 (1985)  
Theoretical calculations of shake-up transitions and intensities using the relativistic local-density RE method. [T, Ne - Xe, Li - Cs]
- O M. Semaan and C. Quarles : Phys. Rev. A24, 2280-2283 (1981)  
Bremsstrahlung spectrum from low-energy-electron bombardment of rare-gas atoms. [E, Ne - Xe; 6 - 10 keV electrons]
- I D. K. Sen Sharma and J. L. Franklin : Int. J. Mass Spectrom. Ion Phys. 13, 139-150 (1974) -  
Measurement of translational energies of ionic dissociation fragments.  
[E, Ar, N<sub>2</sub>, CH<sub>4</sub>, C<sub>4</sub>H<sub>10</sub>]
- I E. C. Sewell and A. Crowe : J. Phys. B17, L547-L551 (1984a)  
Auger electron lineshapes measured in coincidence with scattered electrons.  
[E, Ar; 1000 eV]
- I E. C. Sewell : J. Phys. B17, 2913-2923 (1984b)  
Alignment produced in ionisation of the 2p shell of argon by specific momentum transfer electron collisions. [E, Ar; 1000 eV]
- O R. Shakeshaft : Z. Phys. D14, 271-272 (1989)  
Ejection of high-energy photoelectrons by intense laser light.  
[T,  $h\nu$ , no example]
- O Shardanand and Y. Mikawa : J. Quant. Spectrosc. Radiat. Transf. 7, 605-609 (1967) -  
Photon scattering cross sections at Lyman- $\alpha$  (1215.7 Å) for He and Ne.  
[E,  $h\nu$ , Ar, H<sub>2</sub>, N<sub>2</sub>, He, Ne]
- I S. G. Shchemelinin and E. P. Andreev : Sov. Phys. Tech. Phys. 20, 941-943 (1975) -  
Absolute cross sections for single and multiple electron-impact ionization of He, Ne and Ar. [E, He - Ar; 4.1 keV]

- I S. G. Shchemelinin, E. P. Andreev, N. A. Cherepkov and S. I. Sheftel : Sov. Phys. JETP 44, 261-268 (1976)  
Scattering of electrons by inert gas atoms with ejection of one or two electrons from the outer shell. [E, He - Ar; 4 keV]
- EX W. Shearer-Izumi : J. Phys. B5, L253-L253 (1972)  
Comment on the 'excitation functions for the formation of metastable helium and argon by electron impact'. [T, Ar, He; see C. R. Lloyd (1972b)]
- EX W. N. Shelton and E. S. Leherissey : J. Chem. Phys. 54, 1130-1136 (1971)  
Electron impact excitation of rare-gas atoms in the distorted-wave approximation. [T, no example]
- E V. B. Sheorey : J. Phys. B2, 442-457 (1969)  
Phase shifts for elastic scattering by neutral atoms using isoelectronic sequence extrapolation techniques. [T, Ar, Ne, He]
- I V. P. Shevelko and H. Tawara : Phys. Scr. 52, 649-653 (1995a) ·  
Semiempirical formula for multiple ionization cross sections of atoms by electron impact. [T, Ne - Xe, Mg, Fe, Cu, U, etc.]
- I V. P. Shevelko, H. Tawara and E. Salzborn : NIFS-DATA-27, 1-40 (1995b)  
Multiple-ionization cross sections of atoms and positive ions by electron impact. [T, Ne - Xe, etc.]
- I V. P. Shevelko and H. Tawara : At. Plasma Mater. Interact. Data Fusion 106, 101-115 (1995c)  
Multiple ionization of atoms and positive ions by electron impact.  
[semiempirical formula, Ar; th. -  $10^5$  eV]
- EX J. A. Shiavone, S. M. Tarr and R. S. Freund : Phys. Rev. A20, 71-81 (1979) ○  
Electron impact excitation of the rare-gas atom to high-Rydberg states.  
[E, He - Xe; 15 - 200 eV]
- E H. Shimamori and T. Sunagawa : J. Chem. Phys. 106, 4481-4490 (1997a) ·
- EX Electron energy loss rates in gaseous argon determined from transient microwave conductivity. [E, Ar]
- E H. Shimamori and T. Sunagawa : Int. Sympo. Electron-Molecule Collisions and Ion and Electron Swarms, Engelberg P57 (1997b)
- EX Electron energy-loss rates in Ar, Kr, and Xe determined from transient microwave conductivity. [E, Ar - Xe]
- E I. Shimamura : Sci. Paper Inst. Phys. Chem. Res. 82, 1-51 (1989) ·
- EX Cross sections for collisions of electrons with atoms and molecules.  
I, QT [compilation, He - Xe, etc., for Ar, p. 7, 13, 15 - 17, 19 - 20]
- O V. A. Shingarkina, R. V. Vasileva and N. M. Lobasheva : Sov. Phys. Tech. Phys. 17, 827-831 (1972)  
Inelastic losses in a plasma with molecules. [E, Ar + N<sub>2</sub>]

- S B. Shizgal and D. R. A. McMahon : J. Phys. Chem. 88, 4854-4862 (1984)  
Electron distribution functions and thermalization time s in inert gas moderators. [T, He - Xe]
- O B. Shizgal : Can. J. Phys. 68, 1213-1219 (1990) -  
Relaxation constants in electron thermalization : Comparison of WKB and SWKB eigenvalues with exact results. [T, Ar, He, Kr]
- EX O. B. Shpenik, A. N. Zaviolopulo, A. V. Snegursky and I. I. Fabrikant : J. Phys. B17, ME 887-904 (1984) ○  
Excitation of metastable levels of noble-gas atoms in crossed electron and gas dynamical atomic beams. [E, He - Xe]
- O J. B. Shumaker, Jr. and C. H. Popenoe : J. Opt. Soc. Am. 57, 8-10 (1967)  
Experimental transition probabilities for the ar I 4s - 4p array.  
[E, Ar]
- EX L. W. Sieck and J. A. Llewellyn : J. Chem. Phys. 42, 4300-4301 (1965)  
Collision-induced luminescence of gases. [E,  $h\nu$ , Ar,  $Ar_2^*$ ,  $Ar_2^{**}$ ]
- E J. E. Sienkiewicz and W. E. Baylis : J. Phys. B20, 5145-5156 (1987)  
A relativistic approach to the elastic scattering of electrons by argon.  
[T, Ar; DCS, 0.1 - 40 eV]
- O W. T. Silfvast, D. Y. Al-Salameh and O. R. Wood II : Phys. Rev. A34, 5164-5167 (1986)  
Multielectron photoionization to the  $3p^4 4p$  configuration of  $Ar^+$  :  
Experiment and theory. [E and T,  $h\nu$ , Ar]
- EX P. R. Simony, J. H. McGuire, J. E. Golden and B. R. Junker : Phys. Rev. A16, 1401-1406 (1977)  
Generalized Coulomb-projected Born-approximation cross sections for atomic excitation by charged-particle impact. [general theory]
- EX J. A. Simpson, S. R. Mielczarek and J. Cooper : J. Opt. Soc. Am. 54, 269-270 (1964)  
Observation of optically forbidden transitions in the continuum of the rare gases by electron energy loss measurements.  
[E, He - Xe, 100 or 90 eV]
- EX J. A. Simpson, G. E. Chamberlain and S. R. Mielczarek : Phys. Rev. 139, A1039-A1041 (1965)  
Excitation of optically forbidden states in the ionization continuum by electron impact. [E, He - Ar]
- QT G. Sinapius, W. Raith and W. G. Wilson : J. Phys. B13, 4079-4090 (1980)  
Scattering of low energy positrons from noble-gas atoms.  
[E, electron, Ne - Xe; 1 - 6 eV]
- EX Yu. F. Skachkov : Sov. Phys. JETP 25, 417-420 (1967)  
Investigation of the time correlation of photons emitted by excited argon atoms. [E, Ar]

- EX A. M. Skerbele : Thesis, Ohio State University, 1-123 (1960)  
The design of an electron source and its application to the study of electron impact spectra at zero scattering angle. [E]
- EX J. Slevin and P. S. Farago : J. Phys. B8, L407-L409 (1975)  
A comment on electron-photon angular correlations in electron impact excitation of helium and argon. [T, Ar, He; see H. Arriola (1975)]
- EX J. Slevin : Rep. Prog. Phys. 47, 461-512 (1984) .  
Coherence in inelastic low-energy electron scattering.  
[review, He - Kr, H, Na, Hg]
- EX J. Slevin and S. Chwirot : J. Phys. B23, 165-210 (1990)  
Coherence and correlation in electron-atom collisions.  
[review, T and E, He - Xe, H, H<sub>2</sub>, Hg, Ca, Mg]
- O N. E. Small-Warren and L. -Y. Chow Chiu : Phys. Rev. A11, 1777-1783 (1975)  
Lifetime of metastable 3P<sub>2</sub> and 3P<sub>0</sub> states of rare-gas atoms.  
[T, Ne - Xe]
- O H. Smid and J. E. Hansen : J. Phys. B14, L811-L818 (1981)  
The strength of the photoelectron satellites in the 3s photoelectron spectrum of Ar. [T, hν, Ar]
- O H. Smid and J. E. Hansen : J. Phys. B16, 3339-3370 (1983)  
The importance of continuum d states for the interaction  $nsnp^6 \leftrightarrow ns^2np^4d$  in the rare gases. [T, Ne - Kr, Cl]
- O H. Smid and J. E. Hansen : Phys. Rev. Lett. 52, 2138-2140 (1984)  
Influence of the energy of the incident photon on satellite intensities in photoelectron spectra of the rare gases. [E, hν, Ar - Xe]
- O B. M. Smirnov : Physics-Usp. 40, 1117-1147 (1997)  
Processes in plasma and gases involving clusters. [review]
- E K. Smith : in Reports on Progress in Physics, Vol. 29, The Inst. Phys. 373-443 (1966)  
Resonant scattering of electrons by atomic systems.  
[review, He - Xe]
- I P. T. Smith : Phys. Rev. 36, 1293-1302 (1930)  
The ionization of helium, neon and argon by electron impact.  
[E, He - Ar]
- O R. M. M. Smits and M. Prins : Physica 96C, 243-261 (1979) .  
The electron energy distribution function in medium pressure inert gas discharges. [T, Ar, Ne; B. Eq.]
- I H. D. Smyth : Rev. Mod. Phys. 3, 347-391 (1931)  
Products and processes of ionization by low speed electrons.  
[review, He - Ar, Hg, H<sub>2</sub>, HCl, I<sub>2</sub>, C<sub>3</sub>H<sub>8</sub>, C<sub>4</sub>H<sub>10</sub>, many molecules]

- E V. F. Sokolov, Yu. A. Sokolova and V. D. Khalimulina : Sov. Phys. J. 26, 869-873 (1983) - Frequency of collisions between electrons and gas and vapor atoms and molecules. [E, Ar, He, H<sub>2</sub>O, H<sub>2</sub>S, SO<sub>2</sub>, CsCl; 1 - 10 eV]
- I K. Sommermeyer and H. Dresel : Z. Phys. 141, 307-318 (1955)  
Die spezifische primäre Ionisation durch Elektronen mittlerer Energie in Wasserstoff, Stickstoff, Sauerstoff und Argon.  
[E, Ar, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>; 1 - 50 keV]
- O R. Sonnenburg and H. Grundel : Contrib. Plasma Phys. 27, 37-45 (1987)  
Computermodelling of fluorescent lamp plasmas. [T, Ar]
- I A. A. Sorokin, L. A. Shmaenok, S. V. Bobashev, M. Richter and G. Ulm : 21st ICPEAC, Sendai 242 (1999)  
Measurements of electron-impact ionization cross sections of argon, krypton, and xenon by comparison with photoionization.  
[E, Ar - Xe; error of  $q_i$  2 %]
- O S. H. Southworth, A. C. Parr, J. E. Hardis, J. L. Dehmer and D. M. P. Holland : Nucl. Instrum. Meth. A246, 782-786 (1986)  
Calibration of a monochromator/spectrometer system for the measurement of photoelectron angular distributions and branching ratios.  
[E,  $h\nu$ , Ne - Xe]
- EX L. T. Specht, S. A. Lawton and T. A. De Temple : J. Appl. Phys. 51, 166-170 (1980) -  
 $\alpha$  Electron ionization and excitation coefficients for argon, krypton and xenon in the low E/N region. [E, Ar - Xe;  $q_e$  for Ar, 11.5 - 19.9 eV]
- O D. Spence : Phys. Rev. A15, 883-887 (1977)  
New aid to the classification Feshbach resonances. Application to Ne, Kr, Ar, and Xe. [T, Ne - Xe]
- E F. E. Spencer, Jr. and A. V. Phelps : Proc. 15th Sympo. on Engineering Aspects of Magnetohydrodynamics, 103-111 (1976)  
Momentum transfer cross-sections and conductivity integrals for gases of MHD interest. [compilation]
- I V. Srinivasan and J. A. Rees : Brit. J. Appl. Phys. 18, 59-64 (1967)  
A note on the total ionization cross sections for electrons in the inert gases and carbon monoxide. [E, He - Xe, CO; th. - 100 eV]
- EX R. Srivastava, R. P. McEachran and A. D. Stauffer : J. Phys. B28, 869-877 (1995)  
Relativistic distorted-wave calculation of the excitation of the  $^3D_3$  state of heavy noble gases. [T, Ar - Xe;  $^3D_3$  state at 30 eV]
- EX R. Srivastava, K. Blum, R. P. McEacharan and A. D. Stauffer : J. Phys. B29, 5947-5960 (1996)  
Excitation of the lowest  $^3P_1$  and  $^1P_1$  states in argon and xenon by polarized electrons. [T, Ar, Xe; Stokes and spin asymmetry parameters]
- E S. K. Srivastava, H. Tanaka, A. Chutjian and S. Trajmar : Phys. Rev. A23, 2156-2166 (1981) ○  
Elastic scattering of intermediate-energy electrons by Ar and Kr.  
[E, Ar, Kr, 3 - 100 eV, 20 - 135°; 11th ICPEAC, Kyoto 102-103 (1979)]

- O D. N. Stacy and J. M. Vaughan : Phys. Lett. 11, 105-106 (1964)  
Pressure broadening and oscillator strengths in argon. [E,  $h\nu$ , Ar]
- O J. R. Stallcop : Astron. Astrophys. 30, 293-296 (1974)  
Free-free absorption of infrared radiation in collisions of electrons with neutral rare-gas atoms. [T, He - Xe]
- O W. L. Starr and M. Loewenstein : J. Geophys. Res. 77, 4790-4796 (1972)  
Total absorption cross sections of several gases of aeronomic interest at 584 Å. [E,  $h\nu$ , Ar, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, CO<sub>2</sub>, CO, NO, N<sub>2</sub>O, NH<sub>3</sub>, CH<sub>4</sub>, H<sub>2</sub>S]
- O A. F. Starace : Phys. Rev. A2, 118-121 (1970)  
Photoionization of argon and xenon including final-state correlation.  
[T,  $h\nu$ , Ar, Xe]
- E G. Staszewska, D. W. Schwenke, D. Thirumalai and D. G. Truhlar : J. Phys. B16, L281-L287 (1983)  
Non-empirical model for the imaginary part of the optical potential for electron scattering. [T, He - Ar; 30 - 400 eV]
- E G. Staszewska, D. W. Schwenke and D. G. Truhlar : Phys. Rev. A29, 3078-3091 (1984)  
Investigation of the shape of the imaginary part of the optical-model potential for electron scattering by rare gases.  
[T, He - Ar; DCS, 40 - 800 eV]
- EX H. Statz, C. L. Tange and G. F. Koster : J. Appl. Phys. 34, 2625-2632 (1963) -  
Approximate electromagnetic transition probabilities and relative electron excitation cross sections for rare-gases masers.  
[T, Ne - Xe]
- O H. Statz, F. A. Horrigan, S. H. Koozekanani, C. L. Tang and G. F. Koster : J. Appl. Phys. 36, 2278-2286 (1965)  
Transition probabilities for some Ar II laser lines. [T, At]
- E A. D. Stauffer, T. H. V. T. Dias and C. A. N. Conde : Nucl. Instrum. Meth. A242, 327-337 (1986) -  
Analytical expressions for phase shifts and cross sections for low energy electron-atom scattering in noble gases. [T, He - Xe; 0 - 20 eV]
- O R. F. Stebbings and F. B. Dunning : Phys. Rev. A8, 665-667 (1973)  
Autoionization from high-lying  $3p^5(2P_{1/2})np'$  levels in argon.  
[E,  $h\nu$ , Ar; 2945 - 3075 Å]
- O R. F. Stebbings, F. B. Dunning and R. D. Rundel : in Atomic Physics 4, Plenum, 4th Int. Conf. on Atomic Physics, Heidelberg 713-730 (1975)  
Photoionization and autoionization of excited rare gas atoms.  
[review, E,  $h\nu$ , Ar - Xe, He]
- E H. L. Steele, Jr. : J. Appl. Phys. 26, 1183-1184 (1955) -  
Wattage lost in a fluorescent lamp through elastic collisions.  
[T, Ar]

- I G. Stefani, L. Avaldi, A. Lahman-Bennani and A. Duguet : J. Phys. B19, 3787-3800 (1986)  
PCI effects in  $(e, e' \text{ Auger})$  and  $(e, 2e)$  cross sections : Ar 2p. [E, Ar]
- O N. Stein, C. Hattig and B. A. Hess : Chem. Phys. 225, 309-317 (1997)  
Calculation of total photoabsorption cross sections of Ar, Kr, N<sub>2</sub>, and CO.  
[T,  $h\nu$ , Ar, Kr, N<sub>2</sub>, CO]
- O M. Stener, P. Decleva and A. Lisini : J. Phys. B28, 4973-4999 (1995)  
Density functional-time-dependent local density approximation calculations of autoionization resonances in noble gases. [T, Ne - Kr]
- I K. Stephan, H. Helm and T. D. Mark : J. Chem. Phys. 73, 3763-3778 (1980)  
Mass spectrometric determination of partial electron impact ionization cross sections of He, Ne, Ar and Kr from threshold up to 180 eV.  
[E, He - Kr]
- I D. P. Stevenson and J. A. Hipple : Phys. Rev. 62, 237-240 (1942)  
Ionization of argon and neon by electron impact. [E, Ar, Ne]
- O R. E. Stewart : Mol. Phys. 30, 745-754 (1975)  
Simplified time-dependent Hartree-Fock calculations for atomic systems.  
[T, Ar, Cl<sup>-</sup>, K<sup>+</sup>, etc.]
- E H. C. Stier : Z. Phys. 76, 439-470 (1932)  
Zur Deutung des Ramsauereffektes bei symmetrischen, zweiatomigen Molekulen.  
[T, Ar, Kr, Xe, Zn, Cd, N<sub>2</sub>, H<sub>2</sub>]
- O A. D. Stokes : J. Phys. D4, 930-937 (1971)  
Transition probabilities in the neutral argon spectrum. [E, Ar]
- O S. I. Strakhova and T. M. Zayac : Phys. Lett. A105, 36-38 (1984)  
Argon photoionization in the region of the lowest resonance of the two-particle - two-hole type. [T,  $h\nu$ , Ar; <sup>1</sup>P resonance]
- I H. C. Straub, P. Remault, B. G. Lindsay, K. A. Smith and R. F. Stebbings : Phys. Rev. A52, 1115-1124 (1995)○  
Absolute partial and total cross sections for electron-impact ionization of argon from threshold to 1000 eV. [E, Ar; Ar<sup>+</sup> - Ar<sup>4+</sup>]
- I F. A. Stuber : J. Chem. Phys. 42, 2639-2643 (1965)  
Multiple ionization in neon, argon, krypton and xenon. [E, Ne - Xe]
- QT K. P. Subramanian and V. Kumar : J. Phys. B20, 5505-5515 (1987)○  
Total electron scattering cross sections for argon, krypton and xenon at low electron energies. [E, Ar - Xe; 0.73 - 9.14 eV, error 2.7%]
- S H. Sugawara, Y. Sakai and H. Tagashira : J. Phys. D29, 90-94 (1994)  
Analyses of electron swarms in gases under steady-state Townsend conditions. [T, Ar, Ar + F<sub>2</sub>; propagator method]



- O V. L. Sukhorukov, I. D. Petrov, P. V. Demekhin and S. V. Lavrentev : Bull. Acad. Sci. USSR. Phys. Ser. 49, No. 8, 6-13 (1985)  
X-ray processes with the participation of subvalent electrons in Ar, Xe, and HCl. [review,  $h\nu$ , Ar, Xe, HCl]
- O V. L. Sukhorukov, A. N. Hopersky, I. D. Petrov, V. A. Yavna and V. F. Demekhin : J. Physiq. 48, 1677-1683 (1987)  
Double photoexcitation processes at the near K-edge region of Ne, Na and Ar. [T,  $h\nu$ , Ar, Ne, Na]
- O V. L. Sukhorukov, B. M. Lagutin, H. Schmoranzner, I. D. Petrov and K. -H. Scharfner : Phys. Lett. A169, 445-451 (1992)  
Theoretical study of the Ar-35 electron photoionization and satellite production close to threshold including double excited states.  
[T,  $h\nu$ , Ar]
- E C. V. Sukumar, S. L. Lin and J. N. Bardsley : J. Phys. B8, 577-587 (1975)  
Regge poles and Watson-Sommerfeld transformation in low-energy atomic collisions. [T, Ar; DCS, 50 - 200 eV]
- I L. V. Sumin and M. V. Gur'ev : Sov. Phys. JETP 35, 1057-1061 (1972) .  
Ionization of atoms and molecules by electron impact. Energy loss and momentum transfer. [E, He - Kr, H<sub>2</sub>, N<sub>2</sub>, CO<sub>2</sub>, H<sub>2</sub>O; 30 - 300 eV]
- O J. Sun, Y. Gong and D. Wang : J. Phys. D26, 436-441 (1993)  
Monte Carlo simulation of electrons in the cathode region of a glow discharge in argon. [T, Ar]
- O M. Surendra, D. B. Graves and G. M. Jellum : Phys. Rev. A41, 1112-1125 (1990)  
Self-consistent model of a direct-current glow discharge : Treatment of fast electrons. [T, Ar]
- EX G. A. Surskii and S. E. Kupriyanov : Sov. Phys. JETP 27, 61-62 (1968)  
Excitation of Rydberg states in He, Ne, Ar, Xe and Hg atoms due to electron collision. [E, He - Ar, Xe, Hg]
- O E. Suzuki and Y. Hatano : J. Chem. Phys. 84, 4915-4918 (1986)  
Electron thermalization processes in rare gases with the Ramsauer minimum. [E, Ar - Xe]
- I H. Suzuki, T. Takayanagi, K. Morita and Y. Iketaki : in Electron-Molecule Collisions and Photoionization Processes, Verlag Chemie Interantional (1983)  
Measurements of cross sections for inner shell ionization in rare-gas atoms by electron impact. [E, - Xe]
- O A. Svensson, M. O. Krause and T. A. Carlson : J. Phys. B20, L271-L275 (1987a)  
Partial cross sections and  $\beta$  parameters for the Ar spin-orbit components in the 3s3p<sup>6</sup>np<sup>1</sup>P<sub>1</sub><sup>o</sup> resonance region. [E,  $h\nu$ , Ar]
- O S. Svensson, K. Helenelund and U. Gelius : Phys. Rev. Lett. 58, 1624-1627 (1987b)  
Ar valence-electron double-excitation satellites studies by high-energy photoelectron spectroscopy. [E,  $h\nu$ , Ar; 1487 eV photon]

- O S. Svensson, B. Eriksson, N. Martensson, G. Wendin and U. Gelius : J. Elect. Spectrosc. Relat. Phenom. 47, 327-384 (1988)  
Electron shake-up and correlation satellites and continuum shake-off distributions in X-ray photoelectron spectra of the rare gas atoms.  
[E, He - Xe, H]
- O P. Swan : Proc. Roy. Soc. London A228, 10-33 (1955)  
The relation between zero-energy scattering phase-shifts, the Pauli exclusion principle and the number of composite bound states.  
[T, He - Xe, H]
- O J. R. Swanson and L. Armstrong, Jr. : Phys. Rev. A15, 661-667 (1977a)  
Multiconfiguration Hartree-Fock calculation of photoionization cross sections of the rare gases. [T,  $h\nu$ , Ne - Xe]
- O J. R. Swanson and L. Armstrong, Jr. : Phys. Rev. A16, 1117-1123 (1977b)  
Multiconfiguration Hartree-Fock calculation of photoionization cross sections of the rare gases. II. Final-state correlation.  
[T,  $h\nu$ , Ne - Xe]
- O C. A. Swarts, D. L. Miller and J. D. Dow : Phys. Rev. A19, 734-740 (1979)  
Comparison of theoretical calculations of angular distributions of photoelectrons emitted from rare-gas atoms. [T, Ne - Xe]
- I J. A. Syage : Chem. Phys. Lett. 143, 19-25 (1988) -  
Measurements of electron-impact ionization and dissociation cross sections in a crossed electron-supersonic molecular beam.  
[E, Ne - Kr,  $\text{NH}_3$ ; 20 - 180 eV, partial]
- I J. A. Syage : J. Phys. B24, L527-L532 (1991)  
Electron impact cross sections for multiple ionization of Ar : detector gain effects revealed. [E, Ar;  $\text{Ar}^+ - \text{Ar}^{5+}$ , th. - 660 eV]
- E E. Szmola and J. Herbak : Atomki Report B/4, Hungarian Acad. Sci. 19-47 (1986)  
Elastic scattering of electrons by noble gases : the present state of the experiments and theory. [review, He - Xe]
- QT Cz. Szmytkowski, K. Maciag, G. P. Karwasz and D. Filipovic : Proc. 3rd ECAMP, Bordeaux 633- (1989)  
[E, Ar, ; 0.8 - 100 eV]
- QT Cz. Szmytkowski, K. Maciag and G. Karwasz : Phys. Scr. 54, 271-280 (1996) ○  
Absolute electron-scattering total cross section measurements for noble gas atoms and diatomic molecules.  
[E, He - Xe,  $\text{H}_2$ ,  $\text{N}_2$ , CO, NO,  $\text{O}_2$ ; 0.5 - 250 eV]
- E R. Szmytkowski : Fizika 22, 481-487 (1990) -  
Calculation of the electron scattering lengths for noble atoms.  
[T, He - Xe]

- E R. Szmytkowski : J. Phys. B24, 3895-3904 (1991)  
The relativistic polarized orbital theory of the elastic electron and positron scattering from closed-shell atoms. [T. general theory]
- E R. Szmytkowski : Phys. Rev. A51, 853-854 (1995) -  
Calculation of the electron-scattering lengths for rare-gas atoms.  
[T. He - Xe]
- E R. Szmytkowski : Few-Body Syst. 20, 175-180 (1996)  
Analytical independent-particle model for electron scattering by argon at low energy. [T. Ar]
- EX A. Szymanski and M. Kryszewski : Bull. Acad. Pol. Sci., Ser. Sci., Math. Astron. Phys. 12, 507- (1964)  
On the application of the rare gases radio luminescence increase by the electric field for the studies of inelastic scattering of electrons.  
[ ,
- EX K. Tachibana : Phys. Rev. A34, 1007-1015 (1986) ○  
Excitation of the  $1s_5$ ,  $1s_4$ ,  $1s_3$  and  $1s_2$  levels of argon by low-energy electrons. [E, Ar]
- S H. Tagashira, Y. Sakai and S. Sakamoto : J. Phys. D10, 1051-1063 (1977)  
The development of electron avalanches in argon at high E/N values : II. Boltzmann equation analysis. [T. Ar]
- S H. Tagashira : 15th ICPIG, Minsk 377-394 (1981) -  
Development of electron avalanchs at high electric fields.  
[review, Ar, Ne, etc.]
- S H. Tagashira : Aust. J. Phys. 45, 365-374 (1992)  
Some recent studies of electron swarms in gases. [review, Ar, Kr, CH<sub>4</sub>]
- O K. Takayanagi : Inst. Space Aeronaut. Science, RGAMP-Bibl. -5, 1-86 (1969)  
Atomic Collisions : Bibliography No. 8, XH. Electron collisions with atoms and molecules (experimental).
- O K. Takayanagi : Inst. Space Aeronaut. Science, RGAMP-Bibl. -6, 1-98 (1971)  
Atomic Collisions : Bibliography. Electron collisions with atoms and molecules (theoretical). Part I. (1924-1967)
- O K. Takayanagi : Inst. Space Aeronaut. Science, RGAMP-Bibl. -7, 1-117 (1973)  
Atomic Collisions : Bibliography. Electron collisions with atoms and molecules (experimental). Part II. (1961-1967)
- O K. Takayanagi : Inst. Space Aeronaut. Science, RGAMP-Bibl. -8, 1-91 (1974)  
Atomic Collisions : Bibliography. Electron collisions with atoms and molecules (theoretical). Part II. (1964-1967)
- O K. Takayanagi : Inst. Space Aeronaut. Science, RGAMP-Bibl. -9, 1-81 (1975) -  
Atomic Collisions : Bibliography. Electron collisions with atoms and molecules (theoretical). Part III. (1968-1970)

- EX T. Takayanagi : in AIP Conf. Proc. 295, 18th ICPEAC, Aarhus 326-335 (1993)  
 I Subshell and innershell excitation in rare gas atoms by electron impact.  
 [E, Ne, Xe, Ba<sup>+</sup>, etc.; 1 - 2 keV]
- O J. D. Talman, G. M. Bancroft and D. D. Johnston : Phys. Rev. A 24, 669-672 (1981)  
 Calculation of shake-up states in rare-gas ions using an optimized potential model. [F, Ne - Xe]
- EX W. -C. Tam and C. E. Brion : J. Elect. Spectrosc. Relat. Phenom. 2, 111-123 (1973)  
 Excitation of optically forbidden transitions in argon and neon by electron impact.  
 [E, Ar, Ne; relative DCS, <sup>3</sup>P<sub>2</sub>, <sup>1</sup>P<sub>1</sub>, <sup>3</sup>P<sub>1</sub>, 4p, 30 and 50 eV, 2 - 90°]
- EX K. -H. Tan and J. W. McConkey : Phys. Rev. A 10, 1212-1222 (1974a)  
 I Simultaneous ionization and excitation of Ar by electron with particular attention to configuration-interaction effects. [E, Ar]
- EX K. -H. Tan, F. G. Donaldson and J. W. McConkey : Can. J. Phys. 52, 786-794 (1974b) -  
 Excitation of the 3s3p<sup>6</sup> <sup>2</sup>S and 3s<sup>2</sup>3p<sup>4</sup>4s <sup>2</sup>P levels of Ar<sup>+</sup> and the 736 Å line of Ne by electrons. [E, Ar, Ne]
- O K. H. Tan and C. E. Brion : J. Elect. Spectrosc. Relat. Phenom. 13, 77-84 (1978)  
 Branching ratios and the partial photoionization cross-section for the 3s electron of argon. [E, hν, Ar]
- O Y. Tanaka and K. Yoshino : J. Chem. Phys. 53, 2012-2020 (1970)  
 Absorption spectrum of the argon molecule in the vacuum-uv region.  
 [E, hν, Ar; 780 - 1080 Å]
- I I. Taouil, A. Duquet, A. Lahmam-Bennani, B. Lohmann, J. Rasch, C. T. Whelan and H. R. J. Walters : J. Phys. B32, L5-L11 (1999)  
 (e, 2e) ionization of the 2p orbital of argon. [E, Ar]
- I V. Tarnovsky and K. Becker : Z. Phys. D22, 603-610 (1992)  
 The electron-impact ionization of Ar and Kr revisited : a critical analysis of double-to-single ionization cross section ratio measurements using the fast-atom-beam technique. [E, Ar, Kr]
- EX S. M. Tarr, J. A. Schiavone and R. S. Freund : Phys. Rev. A 22, 2899-2900 (1980) -  
 Direct excitation of high-orbital-angular-momentum states of rare-gas atoms by electron impact. [E, He - Xe; at threshold region]
- EX H. Tawara, K. G. Harrison and F. J. de Heer : Physica 63, 351-367 (1973) -  
 X-ray emission cross sections and fluorescence yields for light atoms and molecules by electron impact. [E, Ar, Ne, N<sub>2</sub>, O<sub>2</sub>, CH<sub>4</sub>]
- I H. Tawara, T. Kato and M. Ohnishi : Inst. of Plasma Physics, Nagoya University, IPPJ-AM-37, 1-321 (1985)  
 Ionization cross sections of atoms and ions by electron impact.  
 [compilation, He - Xe, etc.; for Ar, p. 117 - 124]

- I H. Tawara and T. Kato : Atomic Data Nucl. Data Tables 36, 167-353 (1987)  
Total and partial ionization cross sections of atoms and ions by electron impact. [compilation, He - Xe, etc.; for Ar, p. 246 - 248]
- O H. Tawara and R. A. Phaneuf : Comments At. Mol. Phys. 21, 177-193 (1988) -  
Atomic and molecular data requirements for fusion plasma edge studies.  
[comments, He - Xe, H, D, T, O, O<sub>2</sub>, H<sub>2</sub>O, Li, C<sub>m</sub>H<sub>n</sub>, CO, CO<sub>2</sub>]
- I H. Tawara and M. Kato : NIFS-DATA-51, National Institute for Fusion Science 1-256 (1999) -  
Electron impact ionization data for atoms and ions - updated in 1998.  
[compilation, He - Xe, etc.]
- O K. T. Taylor and N. S. Scott : J. Phys. B14, L237-L242 (1981)  
Photoionisation of argon in a pair-coupling scheme. [T,  $h\nu$ , Ar]
- O R. L. Taylor and G. Caledonia : J. Quant. Spectro. Radiat. Transf. 9, 657-679 (1969) -  
Experimental determination of the cross-sections for neutral bremsstrahlung. I. Ne, Ar and Xe. [E, Ar, Ne, Xe]
- O B. L. Tembe and A. Mozumder : Phys. Rev. A27, 3274-3278 (1983)  
Electron thermalization in gas mixtures. [T, Ar + N<sub>2</sub>, Xe + N<sub>2</sub>]
- S B. L. Tembe and A. Mozumder : J. Chem. Phys. 81, 2492-2495 (1984)  
Transient electron mobility in pulse-irradiated gaseous argon under a steady field. [T, Ar]
- EX P. G. A. Theuws, H. C. W. Beijerinck and N. F. Verster : J. Phys. E15, 328-333 (1982)  
Detection of ground state atoms by electron excitation to a metastable level. [E, He - Kr, N<sub>2</sub>; 20 - 100 eV, channel electron multiplier]
- O G. M. Thomas and T. M. Helliwell : J. Quant. Spectrosc. Radiat. Transf. 10, 423-448 (1970)  
Photoionization cross sections of nitrogen, oxygen, carbon and argon for the Slater-Klein Bruechner potential. [T,  $h\nu$ , Ar, N, O, C]
- E D. G. Thompson : Proc. Roy. Soc. London A294, 160-174 (1966)  
The elastic scattering of slow electrons by neon and argon.  
[T, Ar, Ne; 0 - 13.6 eV]
- E D. G. Thompson : J. Phys. B4, 468-482 (1971)  
The elastic scattering of electrons by nitrogen, neon, phosphorus and argon atoms. [T, Ar, Ne, P, N; 0 - 50 eV]
- E R. Tice and D. Kivelson : J. Chem. Phys. 46, 4743-4747 (1967)  
Cyclotron resonance in gases. I. Atoms and nonpolar molecules.  
[E, Ar, He, H<sub>2</sub>, D<sub>2</sub>, N<sub>2</sub>, CH<sub>4</sub>, CD<sub>4</sub>, CF<sub>4</sub>]
- E T. Tietz : Ann. Phys. 2, 387-392 (1959)  
QT Der totale Wirkungsquerschnitt und der Diffusionsstreuquerschnitt von Hartree-Potentialen. [T, He - Kr, N, O, F, Br, Hg, etc.]

- E I. S. Tilinin : Sov. Phys. JETP 67, 1570-1574 (1988) -  
Elastic scattering of electrons and positrons by complex atoms at medium energies. [E and T, Ar, Ne, Xe, N<sub>2</sub>, O<sub>2</sub>, Ti, Cu, etc.; 100 - 10<sup>4</sup> eV]
- I P. Tiwari, D. K. Rai and M. L. Rustgi : J. Chem. Phys. 50, 3040-3045 (1969)  
Maximum ionization cross section of atoms. [T, He - Zn, (Z = 2 - 30)]
- ME D. Ton-That and M. R. Flannery : Phys. Rev. A15, 517-526 (1977)  
Cross sections for ionization of metastable rare-gas atoms (Ne\*, Ar\*, Kr\*, Xe\*) and of metastable N<sub>2</sub>\*, CO\* molecules by electron impact.  
[E, Ne - Xe, N<sub>2</sub>, CO]
- S J. S. Townsend and V. A. Bailey : Phil. Mag. 43, 593-600 (1922a)  
The motion of electrons in argon. [E, Ar, H<sub>2</sub>, N<sub>2</sub>]
- S J. S. Townsend and V. A. Bailey : Phil. Mag. 43, 1127-1128 (1922b) ○  
Abnormally long free paths of electrons in argon. [E, Ar]
- S J. S. Townsend and V. A. Bailey : Phil. Mag. 44, 1033-1052 (1922c)  
The motion of electrons in argon and in hydrogen. [E, Ar, H<sub>2</sub>]
- I B. A. Tozer and J. D. Craggs : J. Elect. Control 8, 103-107 (1960)  
Cross sections for ionization of the inert gases by electron impact.  
[E, Ar - Xe; th. - 100 eV]
- S. Trajmar and J. W. McConkey : in Advances in Atomic, Molecular, and Optical Physics, Vol. 33, Academic Press 63-96 (1994)  
Benchmark measurements of cross sections for electron collisions :  
Analysis of scattered electrons. [review, He - Xe, H, H<sub>2</sub>, SF<sub>6</sub>, etc.]
- O D. N. Tripathi and D. K. Rai : J. Quant. Spectrosc. Radiat. Transf. 10, 1329-1334 (1970)  
Importance of the kinetic-energy expression for a bound electron in classical theory. [T, Ar, Kr, K - Cs]
- O G. Trommer : J. Quant. Spectrosc. Radiat. Transf. 35, 407-413 (1986)  
The argon resonance continuum in the far-VUV between 50 and 79 nm.  
[E, hν, Ar]
- O D. G. Truhlar, K. Onda, R. A. Eades and D. A. Dixon : Int. J. Quant. Chem. : Quant. Chem. Sympo. 13, 601-632 (1979)  
Effective potential approach to electron-molecule scattering theory.  
[T, Ar, H, He, Mg, H<sub>2</sub>, N<sub>2</sub>, CO, CO<sub>2</sub>, Li<sub>2</sub>]
- EX T. Tsuboi, N. Oda and Y. Hatano : Chem. Phys. Lett. 37, 499-501 (1976)  
Angular dependence of the energy loss spectra for argon by low energy electron impact. [E, Ar; DCS ratio, 30 eV, 15 - 70°]
- EX S. Tsurubuchi, K. Watanabe and T. Arikawa : J. Phys. Soc. Jpn. 59, 497-505 (1990)  
Optical oscillator strengths of the resonance lines of rare gases.  
[E, Ar, Ne, Kr; method of self-absorption, 1048 and 1067 Å for Ar]

- EX S. Tsurubuchi, K. Motohasi, S. Matsuoka and T. Arikawa : Atomic Colli. Res. in Jpn. 18, 13-13 (1992)  
Emission cross sections for the  $4p \rightarrow 4s$  transition of Ar by electron impact. [E, Ar; th. - 1000 eV, 1703 A]
- EX S. Tsurubuchi, K. Motohasi, H. Soshi and T. Miyazaki : Atomic Colli. Res. in Jpn. 19, 10-10 (1993)  
Emission cross sections for the  $5p \rightarrow 4s$  transition of Ar by electron impact. [E, Ar; th. - 1000 eV, 4259 A]
- EX S. Tsurubuchi, T. Miyazaki and K. Motohashi : J. Phys. Soc. Jpn. 63, 3996-3999 (1994) ·  
Excitation of the  $3s3p^6$  state of  $Ar^+$  by electron impact. [E, Ar]  
[E, Ar; emission c.s.,  $3s^3p^6 \rightarrow 3s^23p^5$  transition, 30 - 1000 eV]
- EX S. Tsurubuchi, T. Miyazaki and K. Motohashi : J. Phys. B29, 1785-1801 (1996) ○  
Electron-impact emission cross sections of Ar. [E, Ar; th. - 1000 eV]
- EX S. Tsurubuchi : J. Phys. Soc. Jpn. 66, 3070-3073 (1997)  
Emission cross sections of  $Ar^+$  measured in a wide range of electron energies. [E, Ar; th. - 1000 eV]
- S K. Tsurugida, K. Kouzuma, M. Otsubo and N. Ikuta : J. Phys. Soc. Jpn. 67, 858-862 (1998)  
A new method for electron drift velocity measurement using frequency response analysis. [E, Ar]
- O J. Tulkki : Phys. Rev. A27, 3375-3378 (1983)  
Evolution of the inelastic X-ray scattering by L and M electrons into K fluorescence in argon. [T,  $h\nu$ , Ar]
- O J. Tulkki and T. Aberg : J. Phys. B18, L489-L495 (1985)  
Near-threshold K-shell photoionisation in argon. [T,  $h\nu$ , Ar]
- O J. Tulkki, G. B. Armen, T. Aberg, B. Crasemann and M. H. Chen : Z. Phys. D5, 241-252 (1987)  
Quantum theory of post-collision interaction in inner-shell photoionization. [T,  $h\nu$ , Ar, Xe]
- O J. Tulkki : Phys. Rev. A48, 2048-2053 (1993a)  
Combined effect of relaxation and channel interaction of outer-shell photoionization in Ar,  $K^+$ , and  $Ca^{2+}$ . [T,  $h\nu$ , Ar, etc.]
- O J. Tulkki, H. Aksela and N. M. Kabachnik : Phys. Rev. A48, 2957-2961 (1993b)  
Evolution of the anisotropy of the Auger decay of  $2p^{-1}_{3/2}$  ns resonances into anisotropy of  $L_3MM$  Auger decay in Ar. [T, Ar]
- I R. J. Tweed, F. Gelebart and J. Peresse : J. Phys. B9, 2643-2656 (1976)  
Autoionization by electron impact : Experiments on Ar, Kr and Xe.  
[E, Ar - Xe]
- O K. Ueda, E. Shigemasa, Y. Sato, A. Yagishita, M. Ukai, H. Maezawa, T. Hayaishi and T. Sasaki : J. Phys. B24, 605-613 (1991)  
Threshold behaviour of the multiply-charged photoion yields near the Ar K edge. [E,  $h\nu$ , Ar]

- I A. Ugbabe, E. Weigold and I. E. McCarthy : Phys. Rev. A11, 576-585 (1975)  
(e, 2e) reaction in inert gases : Coplanar symmetric geometry.  
[E, He - Xe]
- O M. Uhrig, S. Hornemann, M. Klose, K. Becker and G. F. Hanne : Meas. Sci. Technol. 5, 1239-1247 (1994) -  
Calibration of a vacuum ultraviolet (VUV) polarization analyser.  
[E, Ne - Xe]
- O C. J. G. J. Uiterwaal, D. Xenakis, D. Charalambidis, P. Maragakis, H. Schroder and P. Lambropoulos : Phys. Rev. A57, 392-400 (1998)  
Generalized multiphoton-ionization cross sections of the rare gases for 500-fs, 248.6-nm pulses. [E,  $h\nu$ , He - Xe]
- S F. J. Uribe and E. A. Mason : Chem. Phys. 133, 335-344 (1989)  
Generalized Einstein relations for electron diffusion in monatomic gases. [T, He - Ar]
- O N. N. Ustinovskii and I. V. Kholin : Sov. Phys. Tech. Phys. 35, 808-814 (1990)  
Rate constant for mixing of the  $^3\Sigma_u^+$  and  $^1\Sigma_u^+$  states of the excimer  $Ar_2^*$  by electron impact. [E,  $Ar_2^*$ ]
- EX F. A. Uvarov and V. A. Fabrikant : Opt. Spectrosc. 18, 323-327 (1965)  
O Experimental determination of the effective probability of photon emission by plasma atoms. [E, Ar + Hg, Hg]
- O S. Vacquie, J. P. Dinguirard, H. Kafrouni and I. Pages : J. Quant. Spectr. Radiat. Transf. 17, 755-764 (1977) -  
Study of the evolution of the density of metastable atoms following interruption of an arc. [E, Ar]
- I L. A. Vainshtein and A. V. Vinogradov : JETP Lett. 5, 269-272 (1967a)  
Ionization of Ar atoms in the  $Ar^+$  excited state. [T, Ar]
- I L. A. Vainshtein and A. Vinogradov : Opt. Spectrosc. 23, 101-102 (1967b)  
The ionization of Ar atoms to an excited state of  $Ar^+$ . [T, Ar]
- I L. A. Vainshtein and V. P. Shevelko : Opt. Spectrosc. 63, 11-14 (1987) -  
Electron-impact ionization of atoms and ions.  
[T, Ar, Ne, He, H, Li, etc.]
- I C. Vallance, P. W. Harland and R. G. A. R. MacLagan : J. Phys. Chem. 100, 15021-15026 (1996) -  
Quantum mechanical calculation of maximum electron impact single ionization cross sections for the inert gases and small molecules.  
[T, He - Xe,  $H_2$ ,  $H_2O$ ,  $NH_3$ ,  $CH_4$ ,  $CH_3Cl$ , etc.]
- I C. Vallance, S. A. Harris, J. E. Hudson and P. W. Harland : J. Phys. B30, 2465-2475 (1997) -  
Absolute electron impact ionization cross sections for  $CH_3X$ , where  $X = H, F, Cl, Br$ , and  $I$ .  
[E and T, He - Xe,  $CH_4$ ,  $CH_3F$ ,  $CH_3Cl$ ,  $CH_3Br$ ,  $CH_3I$ ,  $CHCl_3$ ; th. - 200 eV]



- O O. Vallee, P. Ranson and J. Chapelle : J. Quant. Spectrosc. Radiat. Transf. 18, 327-336 (1977)  
Measurements of broadening of argon lines and oscillator strengths of resonance lines. [E,  $h\nu$ , Ar]
- E R. J. Van Brunt and A. C. Gallagher : 10th ICPEAC, Paris 940-941 (1977) -  
Feshbach resonances in elastic scattering of electrons from He, Ne, Ar and Kr observed with an ultra-high resolution photoionization electron source. [E, He - Kr; example is for Ar, at 11.07 eV]
- I J. P. van den Brink, P. N. den Outer, J. van Eck and H. G. M. Heideman : J. Phys. B23, 2349S-2362S (1990)  
Coherence and correlation in electron impact autoionisation of neon and argon. [E, Ar, Ne; 44.5 eV]
- EX P. J. M. van der Burgt, W. B. Westerveld and J. S. Risley : J. Phys. Chem. Ref. Data 18, 1757-1805 (1989) ○  
Photoemission cross sections for atomic transitions in the extreme ultraviolet due to electron collisions with atoms and molecules. [compilation, He - Xe, H<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>, CO, NO, CO<sub>2</sub>, H<sub>2</sub>O, NH<sub>3</sub>, CH<sub>4</sub>, etc.]
- O P. J. M. van der Burgt and J. W. McConkey : J. Chem. Phys. 102, 8414-8423 (1995)  
Detection of neutral metastable fragments from electron-impact on argon clusters. [E, Ar<sub>n</sub>]
- O P. van der Straten, R. Morgenstern and A. Niehaus : Z. Phys. D8, 35-45 (1988)  
Angular dependent post-collision interaction in Auger processes. [T,  $h\nu$ , Ar, Xe]
- I M. J. van der Wiel, Th. M. El-Sherbini and L. Vriens : Physica 42, 411-420 (1969)  
Multiple ionization of He, Ne and Ar by 2 - 16 keV electrons. [E, He - Ar]
- I M. J. van der Wiel : Physica 49, 411-424 (1970)  
Small-angle scattering of 10 keV electrons in He, Ne, and Ar. [E, He - Ar]
- I M. J. van der Wiel and G. Wiebes : Physica 53, 225-255 (1971a)  
Multiple ionization of Ar by 10 keV electrons as a function of the energy loss. [E, Ar]
- I M. J. van der Wiel : Thesis, University of Amsterdam 1-91 (1971b)  
Oscillator strengths for multiple ionization of He, Ne and Ar. [E, He - Ar]
- I M. J. van der Wiel, G. R. Wight and R. R. Tol : J. Phys. B9, L5-L9 (1976)  
Post-collision interaction in L-shell ionization of Ar. [E, Ar; 8 keV]
- O R. S. Van Dyck, Jr., C. E. Johnson and H. A. Shugart : Phys. Rev. A5, 991-993 (1972)  
Lifetime lower limits for the <sup>3</sup>P<sub>0</sub> and <sup>3</sup>P<sub>2</sub> metastable states of neon, argon, and krypton. [E, Ne - Kr; > 1.3 sec for Ar]

- O D. van Houwelingen and A. A. Kruithof : J. Quant. Spectrosc. Radiat. Transf. 11, 1235-1243 (1971)  
Transition probabilities of some Ar I and Ar II spectral lines.  
[E, Ar]
- EX A. F. J. van Raan : Physica 65, 566-578 (1973) .  
An absolute intensity-calibration method for vacuum ultraviolet spectrometry based on electron impact excitation.  
[E, He - Xe; emission c. s.]
- O A. V. Vasenkov : Phys. Rev. E57, 2212-2221 (1998)  
Nonequilibrium argon plasma generated by an electron beam.  
[T, Ar; MCS, 0.1 - 10 keV]
- O A. V. Vasenkov : Phys. Rev. E59, R4773-R4776 (1999a)  
Model of space- and energy-dependent electron flux density.  
[T, Ar; MCS, 0.3 - 3 keV]
- O A. V. Vasenkov : Phys. Rev. E60, 7382-7390 (1999b)  
EX Space-dependent aspects of electron degradation.  
I [T, Ar; 0.1 - 3 keV, MCS]
- O N. K. Vasil'eva, L. N. Gall, E. M. Kleshkov, E. B. Petrova, M. S. Stepanova and G. V. Fridlyanskii : Instrum. Exp. Tech. 3, 665- (1968)  
Electron-bombardment ion source with high luminosity. [ ,
- O E. Vatai : Phys. Rev. A38, 3777-3780 (1988)  
Energy dependence of the electron shakeup and shakeoff : Evidence of different levels of nonseparability. [T,  $h\nu$ , Ar, Ne, N<sub>2</sub>]
- O L. Vegard : Z. Phys. 75, 30-62 (1932)  
Ergebnisse fortgesetzter Untersuchungen über das Leuchten verfestigter Gase. Beziehungen zu den Elektronenzuständen und dem Nachleuchten des gasförmigen Stickstoffs. [E, Ar + N<sub>2</sub>, Ar + NO]
- EX P. Veillette et P. Marchand : Can. J. Phys. 52, 930-934 (1974) .  
Excitation par impact électronique des états 3s3p<sup>6</sup>n1 de l'argon.  
[E,  $h\nu$ , Ar; resonance]
- EX P. Veillette and P. Marchand : Int. J. Mass Spectrom. Ion Phys. 18, 165-178 (1975)  
Photon detection of doubly excited states of argon produced by electron impact. [E, Ar; 26 - 37 eV]
- O I. Velchev, W. Hogervorst and W. Ubachs : J. Phys. B32, L511-L516 (1999)  
Precision VUV spectroscopy of Ar I at 105 nm.  
[E,  $h\nu$ , Ar; <sup>40</sup>Ar, <sup>38</sup>Ar, <sup>36</sup>Ar,  $V_1 = 127109.842 \text{ cm}^{-1} = 15.75974 \text{ eV}$ ]
- EX V. Ya. Veldre, A. V. Lyash, L. L. Rabik and L. A. Fridkin : Latv. PSR Zinat. Akad. Vestis Fiz. Teh. Zinat. Ser. 4, 3-12 (1965a)  
Total effective cross sections of excitation of atoms by electron impact, using a classical approximation. [T, - Xe]

- EX V. Ya. Veldre, A. V. Lyash and L. L. Rabik : Akad. Nauk Latv. SSR Inst. Fiz. Riga. Atomic Collisions, Part 3, 85-144 (1965b)  
Excitation of noble gas atoms by electron bombardment. [T. He - Xe]
- V. Ya. Veldre : Latv. PSR Zinat. Akad. Vestis 5, 3- (1967)  
Theory of electron-atom collisions. [T.]
- EX E. T. Verkhovtseva, V. I. Yaremenko, A. E. Ovechkin and Ya. M. Fogel : Opt. Spectrosc. 37, 126-128 (1974a)  
Continuous spectrum in the vacuum ultraviolet region emitted by a supersonic argon jet excited by an electron beam. [E. Ar]
- O E. T. Verkhovtseva, V. I. Yaremanko, E. A. Katrunova and Ya. M. Fogel' : JETP Lett. 20, 218-219 (1974b)  
Band emission spectrum of Ar<sub>2</sub> molecule in the region of the argon  $\lambda = 1048 \text{ \AA}$  (<sup>1</sup>P<sub>1</sub> - <sup>1</sup>S<sub>0</sub>) resonance line. [E, h $\nu$ , Ar<sub>2</sub>]
- EX E. T. Verkhovtseva, V. I. Yaremenko, Ya. M. Fogel, A. E. Ovechkin and E. A. Katrunova : Opt. Spectrosc. 38, 98-100 (1975)  
Intensity distribution in the continuous emission spectrum of an argon jet in the 1074 - 1130  $\text{\AA}$  region. [E, Ar]
- EX E. T. Verkhovtseva, A. E. Ovechkin and Ya. M. Fogel : Opt. Spectrosc. 44, 111-112 (1978a)  
Radiation mechanism of the continuous spectrum of argon with an intensity maximum at 1920  $\text{\AA}$ . [E, Ar]
- EX E. T. Verkhovtseva, P. S. Pogrebnjak and Ya. M. Fogel' : Phys. Lett. 65A, 106-108 (1978b) -  
New interpretation of ultrasoft X-ray emission spectrum of argon in the range of 250 - 270 eV. [E, Ar]
- O D. A. Verner, E. M. Verner and G. J. Ferland : Atomic Data Nucl. Data Tables 64, 1-180 (1996) -  
Atomic data for permitted resonance lines of atoms and ions from H to Si, and S, Ar, Ca, and Fe.  
[compilation, H - Si (all atoms), Ar, S, Ca, Fe]
- EX Ya. F. Verolainen and A. L. Osherovich : Opt. Spectrosc. 25, 258-259 (1968)  
Experimental determination of radiation lifetimes and transition probabilities in ArI. [E, Ar]
- O P. Vervisch, M. Terrier et P. Valentin : J. Physique 38, 783-787 (1977)  
Etude de la cinétique du niveau 3p<sup>5</sup>4s dans une couche limite de plasma d'argon basse pression.  
(Kinetic evolution of 3p<sup>5</sup> 4s level in a boundary layer low-pressure argon plasma). [T. Ar]
- S W. Verweij : PhD Thesis, University of Utrecht (1960)  
Probe measurements and determination of electron mobility in the positive column of low-pressure mercury-argon discharges. [E, Ar + Hg]

- S W. Verweij : PhD Thesis, Philips Res. Rep. Suppl. No. 2, 1-112 (1961)  
Probe measurements and determination of electron mobility in the positive column of low-pressure mercury-argon discharges. [E, Ar + Hg]
- O M. Yu. Veselovskaya and V. R. Solov'ev : Plasma Phys. Rep. 21, 322-327 (1995) -  
Beam-produced plasma in Ar/Xe and Ne/Xe mixtures : Energetic costs of atomic ionization and excitation. [ , Ar + Xe, Ne + Xe]
- O L. Veseth : Phys. Rev. A44, 358-366 (1991)  
Method to compute atomic and molecular photoionization cross sections by use of basis sets. [T,  $h\nu$ , Ar, Ne]
- I D. Viktor, M. Minic, I. Cadez and M. Kurepa : Fizika 21, 345-354 (1989)  
Single and double ionization cross sections of the argon atom by electron impact. [E, Ar; th. - 100 eV]
- O F. I. Vilesov and S. N. Lopatin : Vestn. Leningr. Univ. Ser. Fiz. Khim. 4, 64-69 (1970)  
Angular distribution of fast electrons released during the photoionization of atoms and molecules. [ ,  $h\nu$ , Ar,
- O D. Villarejo, R. R. Herm and M. G. Inghram : J. Chem. Phys. 46, 4995-4996 (1967)  
Measurement of threshold electrons in the photoionization of Ar, Kr and Xe. [E,  $h\nu$ , Ar - Xe]
- O A. V. Vinogradov and O. I. Tolstikhin : Sov. Phys. JETP 69, 32-37 (1989a)  
Resonant photoabsorption and polarizability of inhomogeneous dielectric particles. [T,  $h\nu$ , general theory]
- O A. V. Vinogradov and O. I. Tolstikhin : Sov. Phys. JETP 69, 683-688 (1989b)  
Plasma approach to the theory of photoabsorption and polarizability of complex atoms. [T,  $h\nu$ , He - Xe, Rn]
- O A. V. Vinogradov and O. I. Tolstikhin : Phys. Scr. 41, 864-866 (1990)  
Classical resonance absorption in atoms and the theory of optical constants in XUV range. [T, He - Xe, Rn]
- O J. Vlcek : J. Phys. D22, 623-631 (1989)  
A collisional-radiative model applicable to argon discharge over a wide range of conditions. I : Formulation and basic data. [T, Ar]
- O J. Vlcek and V. Pelikan : J. Phys. D22, 632-643 (1989)  
A collisional-radiative model applicable to argon discharge over a wide range of collisions. II : Application to low-pressure, hollow-cathode arc and low pressure glow discharges. [T, Ar]
- E Yu. M. Volkov, O. A. Zinov'ev and D. D. Malyuta : High Temp. 6, 207-215 (1968) -  
Measurement of diffusion cross sections of slow electrons in inert gases by a microwave method. [E, He - Xe; 0.08 - 0.37 eV for Ar]
- EX L. M. Volkova and A. M. Devyatov : Opt. Spectrosc. 7, 480-480 (1959a)  
Effective excitation cross sections of certain special lines of argon. [E, Ar]

- EX L. M. Volkova : Bull. Acad. Sci. USSR Phys. Ser. 23, 957-9 (1959b)  
Excitation cross sections for some spectral lines of potassium and argon.  
[E, Ar, K]
- EX L. M. Volkova : Bull. Acad. Sci. USSR Phys. Ser. 23, 968-970 (1959c)  
Effective excitation cross sections of several spectral lines of potassium and argon. [E, Ar, K]
- O F. von Busch, U. Kuetgens, J. Doppelfeld and S. Fritzsche : Phys. Rev. A59, 2030-2042 (1999)  
 $L_{23}[L_{23}] - MM[L_{23}]$  and  $L_{23}[M^2] - MM[M^2]$  Auger vacancy satellite spectra of argon. [E, Ar]
- O E. von Raven, M. Meyer, M. Pahler and B. Sonntag : J. Elect. Spectrosc. Relat. Phenom. 52, 677-688 (1990)  
Electron-electron coincidence studies of the decay of photoexcited rare gas core resonances. [E,  $h\nu$ , Ar - Xe]
- O J. von Specht : Astron. Astrophys. 34, 363-370 (1964)  
A new plasma-oven of astrophysical interest. Application to the measurement of Ar-I transition probabilities. [E, Ar]
- S A. A. Vorob'ev, B. A. Ivanov, A. P. Komar and V. A. Korolev : Sov. Phys. Tech. Phys. 4, 1148-1153 (1960)  
The influence of the Ramsauer-Townsend effect upon electron mobility in spectrally pure argon. [E, Ar]
- S S. B. Vrhovac, S. B. Radovanov, Z. Lj. Petrovic and B. M. Jelenkovic : J. Phys. D25, 217-225 (1992)  
Electron energy distribution function in weakly ionized argon.  
[E, Ar;  $E/N = 500 - 5 \times 10^4$  Td]
- I L. Vriens : Phys. Lett. 8, 260-261 (1964)
- ME Calculation of absolute ionization cross sections of He, He\*, He<sup>+</sup>, Ne, Ne\*, Ne<sup>+</sup>, Ar, Ar\*, Hg and Hg\*. [T, He - Ar, Hg]
- EX L. Vriens : Physica 31, 385-395 (1965) -
- I A semi-empirical formula for calculation of absolute cross sections for ionization and excitation of atoms by electrons.  
[T, He - Xe, H, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>]
- O L. Vriens : J. Appl. Phys. 44, 3980-3989 (1973)  
Energy balance in low-pressure gas discharges. [T, Ar, Ar + Hg, Ar + Cs]
- O L. Vriens, R. A. J. Keijser and F. A. S. Ligthart : J. Appl. Phys. 49, 3807-3813 (1978)  
Ionization processes in the positive column of the low-pressure Hg - Ar discharge. [E, Ar + Hg]
- EX L. Vriens and A. H. M. Smeets : Phys. Rev. A22, 940-951 (1980)
- I Cross-section and rate formulas for electron-impact ionization, excitation, deexcitation, and total depopulation of excited atoms.  
[T, Ar, Ne, H, He, etc.]

- O D. A. Vroom : Thesis, University of British Columbia 1-202 (1967)  
Photoelectron spectroscopy of gases. [E,  $h\nu$ , Ar, etc.]
- O D. A. Vroom, A. R. Comeaux and J. W. McGowan : Chem. Phys. Lett. 3, 476-479 (1969)  
Angular distributions of photoelectrons emitted from argon by 584 Å and 744, 736 Å radiation. [E,  $h\nu$ , Ar]
- I D. A. Vroom, R. L. Palmer and J. W. McGowan : J. Chem. Phys. 66, 647-654 (1977)  
Measurement of energy distributions of secondary electrons ejected from argon by fast electrons. [E, Ar]
- O V. Vujnovic and W. L. Wiese : J. Phys. Chem. Ref. Data 21, 919-939 (1992)  
A critical compilation of atomic transition probabilities for singly ionized argon. [compilation, Ar<sup>+</sup>]
- E L. D. Vuskovic : PhD Thesis, University of Beograd (1972)  
[E, Ar; 60 - 150 eV, 5 - 150°]
- E L. Vuskovic and M. V. Kurepa : J. Phys. B9, 837-842 (1976)  
Differential cross sections of 60 - 150 eV electrons elastically scattered in argon. [E, Ar; 5 - 150°]
- QT R. W. Wagenaar and F. J. de Heer : J. Phys. B13, 3855-3866 (1980)○,  
Corrigenda 19, 2599-2599 (1986)  
Total cross sections for electron scattering from Ne, Ar, Kr and Xe.  
[E, Ne - Xe; 15 - 750 eV, error 5 %]
- E R. W. Wagenaar : PhD Thesis, Amsterdam 1-190 (1984) -  
Small angle elastic scattering of electrons by noble gas atoms.  
[E, He - Xe]
- QT R. W. Wagenaar and F. J. de Heer : J. Phys. B18, 2021-2036 (1985)○,  
Corrigenda 19, 2599-2599 (1986)  
Total cross sections for electron scattering from Ar, Kr and Xe.  
[E, Ar - Xe; 17.5 - 750 eV, error 5 %]
- E R. W. Wagenaar, A. de Boer, T. van Tubergen, J. Los and F. J. de Heer : J. Phys. B19, 3121-3143 (1986)○  
Absolute differential cross sections for elastic scattering of electrons over small angles from noble-gas atoms.  
[E, He - Xe; 18 - 100 eV, 1 - 9°]
- S E. B. Wagner, F. J. Davis and G. S. Hurst : J. Chem. Phys. 47, 3138-3147 (1967)  
Time-of-flight investigations of electron transport in some atomic and molecular gases. [E, Ar, He, H<sub>2</sub>, N<sub>2</sub>, CO, CO<sub>2</sub>, CH<sub>4</sub>, C<sub>2</sub>H<sub>4</sub>]
- S K. H. Wagner : Z. Phys. 178, 64-81 (1964a)  
Mittlere Energien und Driftgeschwindigkeiten von Elektronen in Stickstoff, Argon and Xenon, ermittelt aus Bildverstärkeraufnahmen von Elektronenlawinen. [E, Ar, N<sub>2</sub>, Xe]

- EX K. H. Wagner : Z. Naturforsch. 19a, 716-721 (1964b)  
 O Afterglow of Ar, N<sub>2</sub>, and N<sub>2</sub> plus CH<sub>4</sub> after impact excitation of electron avalanches. [E, Ar, N<sub>2</sub>, N<sub>2</sub> + CH<sub>4</sub>]
- S H. B. Wahlin : Phys. Rev. 37, 260-262 (1931)  
 The motion of electrons in argon. [E, Ar]
- O N. Wainfan, W. C. Walker and G. L. Weissler : Phys. Rev. 99, 542-549 (1955)  
 Photoionization efficiencies and cross sections in O<sub>2</sub>, N<sub>2</sub>, CO<sub>2</sub>, A, H<sub>2</sub>O, H<sub>2</sub> and CH<sub>4</sub>. [E, hν, Ar, O<sub>2</sub>, N<sub>2</sub>, etc.]
- E D. W. Walker : Adv. in Phys. 20, 257-323 (1971) ·  
 Relativistic effects in low energy electron scattering from atoms.  
 [T, review, He - Xe, Hg]
- I S. J. Wallace, R. A. Berg and A. E. S. Green : Phys. Rev. A7, 1616-1629 (1973) ·  
 Electron-impact ionization of Ne and Ar in the eikonal and Born approximations. [T, Ar, Ne; th. - 10 keV]
- E B. Wallbank, V. W. Connors, J. K. Holmes and A. Weingartshofer : J. Phys. B20, L833-L838 (1987)  
 Experimental differential cross sections for one-photon free-free transitions. [E, Ar; 10.55 eV]
- EX B. Wallbank, J. K. Holmes and A. Weingartshofer : J. Phys. B22, L615-L619 (1989)  
 Simultaneous electron-photon excitation of metastable state of rare-gas atoms. [E, He - Ar; Ar (<sup>3</sup>P<sub>2</sub>)]
- O B. Wallbank and J. K. Holmes : J. Phys. B27, 5405-5418 (1994)  
 E Differential cross sections for laser-assisted elastic electron scattering from argon. [E, Ar, He; 8 - 20 eV, 10 - 140°, high intensity CO<sub>2</sub> laser]
- E J. Wang, C. O. Reinhold and J. Burgdorfer : Phys. Rev. A44, 7243-7251 (1991)  
 Electron loss at backward observation angles. [T, Ar + e; 200 eV]
- EX S. Wang, P. J. M. van der Burgt, J. J. Corr, J. W. McConkey and D. H. Madison : J. Phys. B 27, 329-339 (1994)  
 Coherent excitation of Ar 4s' [1/2]° and 4s [3/2]° by low energy electrons.  
 [E, Ar; 20 and 30 eV]
- S Y. Wang and R. J. Van Brunt : Phys. Plasmas 4, 551-554 (1997)  
 Calculation of electron transport in Ar/N<sub>2</sub> and He/Kr gas mixtures -  
 Implication for validity of the Blanc's law method. [T, Ar + N<sub>2</sub>, He + Kr]
- S Y. Wang and R. J. Van Brunt : Phys. Plasmas 6, 4797-4797 (1999)  
 Response to "Comment on 'Calculation of electron transport in Ar/N<sub>2</sub> and He/Kr gas mixtures - Implication for validity of the Blanc's law method'"  
 [Phys. Plasmas 6, 4794 (1994)].
- O K. Wani : J. Appl. Phys. 58, 2968-2974 (1985)  
 Stepwise excitation of the Hg 6<sup>1</sup>P<sub>1</sub> level in the afterglow of a low-pressure Hg - Ar discharge. [E, Ar + Hg]

- O K. Wani : J. Appl. Phys. 63, 5683-5688 (1988)  
Evaluation of the electron energy distribution in a low-pressure Hg - Ar discharge with a two-temperature approximation. [T, Ar + Hg]
- O K. Wani : J. Appl. Phys. 68, 5052-5058 (1990) ·  
Analysis of a low-pressure mercury rare-gas positive column with a dynamic two-temperature representation of electron energy.  
[T, (Ar, Ne, Kr) + Hg]
- O B. Wannberg, H. Veenhuizen, K. -E. Norell, L. Karlsson, L. Mattsson and K. Siegbahn :  
J. Phys. B19, 2267-2277 (1986)  
Angular distribution of photoelectrons from p levels in Ar, Kr and Xe close to threshold. [E,  $h\nu$ , Xe, Kr, Ar]
- I G. H. Wannier : Phys. Rev. 90, 817-825 (1953) ·  
The threshold law for single ionization of atoms or ions by electrons.  
[T, 1.127th power of the energy excess]
- O L. Ward, A. Wannstrom, A. Arnesen, R. Hallin and O. Vogel : Phys. Scr. 31, 149-158 (1985)  
Radiative lifetimes of excited levels in the homologous ions Ar II, Kr II and Xe II. [E, Ar - Xe]
- O J. M. Warman and M. C. Sauer, Jr. : J. Chem. Phys. 62, 1971-1981 (1975)  
An investigation of electron thermalization in irradiated gases using CCl<sub>4</sub> as an electron energy probe.  
[E, He - Ar, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, N<sub>2</sub>O, CO<sub>2</sub>, etc.]
- S R. W. Warren and J. H. Parker, Jr. : Phys. Rev. 128, 2661-2671 (1962) ·  
Ratio of the diffusion coefficient to the mobility coefficient for electrons in He, Ar, N<sub>2</sub>, H<sub>2</sub>, D<sub>2</sub>, CO and CO<sub>2</sub> at low temperatures and low E/p. [E, Ar, CO<sub>2</sub>, etc.]
- O T. Watanabe, T. Ishihara and J. Mizuno : J. Phys. B16, L107-L111 (1983)  
Comparison of threshold effects in Auger process induced by electron and photon impact ionisation. [T, e and  $h\nu$ , Ar]
- I D. K. Waterhouse and J. F. Williams : J. Phys. B30, 2845-2858 (1997)  
Interference and PCI in argon Auger (e, 2e) spectra. [E, Ar]
- I D. K. Waterhouse, I. E. McCarthy and J. F. Williams : Phys. Rev. A57, 3565-3572 (1998)  
Equal-energy-sharing (e, 2e) ionizing collisions in argon.  
[E, Ar; TDCS, 420 - 2020 eV]
- O W. S. Watson : J. Phys. B5, 2292-2303 (1972)  
Photoionization of helium, neon and argon in the 60 - 230 eV photon energy range. [E,  $h\nu$ , He - Ar]
- O W. S. Watson and D. S. Stewart : J. Phys. B7, L466-L469 (1974)  
Photoelectron angular distributions for argon and krypton in the 0 - 20 eV electron energy range. [E,  $h\nu$ , Ar, Kr]



- O J. H. Waymouth and F. Bitter : J. Appl. Phys. 27, 122-131 (1956)  
Analysis of the plasma of fluorescent lamps. [T, (Ar - Xe) + Hg]
- E G. M. Webb : Phys. Rev. 47, 379-383 (1935)  
The elastic scattering of electrons in argon and krypton.  
[E, Ar, Kr; relative DCS, 25 - 780 eV, 5 - 150°]
- O J. M. Weber, K. Ueda, D. Klar, J. Kreil, M. -W. Ruf and H. Hotop : J. Phys. B32, 2381-2398 (1999)  
Odd Rydberg spectrum of  $^{40}\text{Ar}(I)$  : high-resolution laser spectroscopy and multichannel quantum defect analysis of the J=2 and 3 levels. [E,  $h\nu$ , Ar]
- I W. Weber, R. Huster, M. Kamm and W. Mehlhorn : Z. Phys. D22, 419-424 (1991)  
Alignment of  $\text{Ar}^+(2p^{-1} \ 2P_{3/2})$  ions after electron impact ionization in the range 1 keV to 268 eV. [E, Ar]
- I E. Weigold, S. T. Hood and P. J. O. Teubner : Phys. Rev. Lett. 30, 475-478 (1973) -  
Energy and angular correlations of the scattered and ejected electrons in the electron-impact ionization of argon. [E, Ar]
- I E. Weigold, S. T. Hood and I. E. McCarthy : Phys. Rev. A11, 566-575 (1975)  
Structure of inert gases from the (e, 2e) reaction.  
[E, Ne - Kr; mostly for Kr]
- I E. Weigold : in Electronic and Atomic Collisions, Adam Hilger, (1992)  
New application of (e, 2e) techniques. [ , Ar, He, Na,
- E A. Weingartshofer, K. Willmann and E. M. Clarke : J. Phys. B7, 79-90 (1974)  
Angular dependence of the elastic resonance scattering of slow electrons on argon and krypton. [E, Ar, Kr; DCS]
- O A. Weingartshofer, J. K. Holmes, G. Caudle, E. M. Clarke and H. Kruger : Phys. Rev. Lett. 39, 269-270 (1977)  
Direct observation of multiphoton processes in laser-induced free-free transitions. [E,  $h\nu$ , Ar; CO<sub>2</sub>-laser field]
- I K. Weisemann, J. Puerta and B. A. Huber : J. Phys. B20, 587-603 (1987)  
Double ionisation of Ar atoms by single electron impact.  
[E, Ar;  $\text{Ar}^{2+}$ , 44 - 600 eV]
- O A. W. Weiss and M. Krauss : J. Chem. Phys. 52, 4363-4368 (1970) -  
Bound-state calculation of scattering resonance energies.  
[T, Ar, He, Ne, HF, N<sub>2</sub>, H<sub>2</sub>O]
- E H. F. Weiss : Z. Phys. 229, 299-308 (1969)  
Influence of exchange and polarization on the elastic scattering of slow electrons from rare gases and mercury.  
[T, Ar, Kr, Hg; DCS, 5 and 20 eV for Ar]
- O G. L. Weissler, J. A. R. Samson, M. Ogawa and G. R. Cook : J. Opt. Soc. Am. 49, 338-349 (1959), Errata 49, 736-736 (1959)  
Photoionization analysis by mass spectroscopy.  
[E,  $h\nu$ , He - Ar, N<sub>2</sub>, O<sub>2</sub>, CO, NO, CO<sub>2</sub>, N<sub>2</sub>O, NO<sub>2</sub>; 430 - 1570 Å]

- EX H. F. Wellenstein and R. A. Bonham : Chem. Phys. Lett. 15, 530-535 (1972)  
Determination of optical sums from the small angle electron impact spectra of argon. [E, Ar; 25 keV]
- O B. Wende : Z. Phys. 213, 341-351 (1968)  
Optische Übergangswahrscheinlichkeiten der Konfigurationen  $3p^5 4s - 3p^5 5p$  des Argon I. [E, Ar]
- E S. Werner : Nature 131, 726-727 (1933)  
Elastic electron scattering in gases.  
[E, He - Ar; DCS,  $90^\circ$ , 20 - 1000 eV]
- I D. West : Proc. Phys. Soc. London A66, 306-308 (1953)  
Measurements of the energy loss distribution for minimum ionizing electrons in a proportional counter. [E, Ar +  $CH_4$ , Ar +  $CO_2$ ]
- O J. B. West and G. V. Marr : Proc. Roy. Soc. London A349, 397-421 (1976)  
The absolute photoionization cross sections of helium, neon, argon and krypton in the extreme vacuum ultraviolet region of the spectrum.  
[E,  $h\nu$ , He - Kr]
- O W. B. Westerveld and J. van Eck : J. Quant. Spectrosc. Radiat. Transf. 17, 131-138 (1977)  
Determination of oscillator strengths from the self-absorption of resonance radiation in rare gases. [E,  $h\nu$ , He, Ne]
- O W. B. Westerveld, Th. F. A. Mulder and J. van Eck : J. Quant. Spectrosc. Radiat. Transf. 21, 533-546 (1979)  
Determination of oscillator strengths from the self-absorption of resonance radiation in rare gases. - II. Neon and argon.  
[E,  $h\nu$ , Ar, Ne]
- E S. Westin : DKNVS Skrifter (Doctral dissertation of Trondheim) NR2, 1-136 (1949)  
Investigations on the elastic scattering of slow electron in helium, neon and argon. [E and T, He - Ar; DCS,  $90^\circ$ ,  $160^\circ$ ,  $170^\circ$ ,  $180^\circ$ ]
- I R. C. Wetzel, F. A. Baiocchi, T. R. Hayes and R. S. Freund : Phys. Rev. A35, 559-577 (1987) ○  
Absolute cross sections for electron-impact ionization of the rare-gas atoms by the fast-neutral-beam method. [E, He - Xe; th. - 200 eV]
- E M. Weyhereter, B. Barzick and F. Linder : 13th ICPEAC, Berlin 78-78 (1983)  
Measurements of differential cross sections for e - Ar, Kr, Xe scattering at  $E = 50 \text{ meV} - 2 \text{ eV}$ . [E, Ar - Xe]
- E M. Weyhereter, B. Barzick and F. Linder : 13th ICPEAC, Berlin 547-552 (1984) ·  
Measurements of differential cross sections for e - Ar, Kr, Xe scattering at  $E = 50 \text{ meV} - 2 \text{ eV}$ . [E, Ar - Xe]

- E M. Weyhereter, B. Barzick, A. Mann and F. Linder : Z. Phys. D7, 333-347 (1988) ○  
Measurements of differential cross sections for e - Ar, Kr, Xe scattering  
at E = 0.05 - 2 eV.  
[E, Ar - Xe; 0.05 eV, 70 - 100°; 0.2 eV, 40 - 100°; 1.5 eV, 20 - 100°]
- EX G. M. Weyl and D. Rosen : Phys. Rev. A31, 2300-2313 (1981)  
Laser-induced breakdown in argon at 0.35  $\mu$ m : theory and experiments.  
[T and E,  $h\nu$ , Ar; excitation cross section, 10 - 22 eV]
- S H. B. Whalin : Phys. Rev. 37, 260-262 (1931)  
The motion of electrons in argon. [E, W, Ar + 1.53 % N<sub>2</sub>]
- O W. Whaling, W. H. C. Anderson, M. T. Carie, J. W. Brault and H. A. Zarem : J. Quant.  
Spectrosc. Radiat. Transf. 53, 1-22 (1995)  
Argon ion linelist and level energies in the hollow-cathode discharge.  
[E,  $h\nu$ , Ar; 222 - 5865 nm]
- O J. E. G. Wheaton : Appl. Opt. 3, 1247-1249 (1967)  
Improvements in design and performance of the large aperture Lyman  
flashtube. [E,  $h\nu$ , Ar; 450 - 800 Å]
- I C. T. Whelan, R. J. Allan and H. R. J. Walters : J. Physique IV, 3, C6, 39-48 (1993) .  
PCI, polarisation and exchange effects in (e, 2e) collisions.  
[E, Ar, Xe, He, H; post collision interaction]
- EX R. Whiddington and J. E. Taylor : Proc. Roy. Soc. London A145, 465-474 (1934)  
Small angle inelastic electron scattering in helium, neon and argon.  
[E, He - Ar]
- O W. L. Wiese : 8th ICPIG, Vienna 447-447 (1967)  
Transition probabilities for prominent Ar I lines. [E and assesment, Ar]
- O W. L. Wiese, L. W. Smith and B. M. Miles : Atomic Transition Probabilities, Vol. II.  
Sodium through Calcium (NSRDS-NBS 22) (1969a)
- O W. L. Wiese, J. M. Bridges, R. L. Kornblith and D. E. Kelleher : J. Opt. Soc. Am. 59,  
1206-1212 (1969b)  
Transition probabilities for prominent Ar I lines in the near infrared.  
[E,  $h\nu$ , Ar; 9000 - 24000 Å]
- O W. L. Wiese : J. Quant. Spectrosc. Radiat. Transf. 40, 421-427 (1988) -  
The atomic transition probabilities of argon. - A continuing challenge to  
plasma spectroscopy. [E, Ar]
- O W. L. Wiese, J. W. Brault, K. Danzmann, V. Helbig and M. Kock : Phys. Rev. A39, 2461-2471  
(1989)  
Unified set of atomic transition probabilities for neutral argon.  
[E and compilation, Ar]
- O W. L. Wiese : in CRC Handbook of Chemistry and Physics, CRC Press (1990)  
NIST atomic transition probability tables. [compilation, atoms]

- I K. Wieseemann, J. Puerta and B. A. Huber : Ruhr 86-05-148, 1-33 (1986)  
Double ionization of Ar atoms by single electron impact. [E, Ar]
- I K. Wieseemann, J. Puerta and B. A. Huber : J. Phys. B20, 587-603 (1987)  
Double ionisation of Ar atoms by single electron impact.  
[E, Ar; th. - 600 eV]
- I G. R. Wight and M. J. van der Wiel : J. Phys. B9, 1319-1327 (1976)  
Oscillator strength for double ionization in the outer shells of He, Ne and Ar. [E, He - Ar]
- O W. Wijesundera and H. P. Kelly : Phys. Rev. A36, 4539-4542 (1987)  
Photoionization cross section with excitation of neutral argon.  
[T,  $h\nu$ , Ar]
- O W. Wijesundera and H. P. Kelly : Phys. Rev. A39, 634-643 (1989)  
Correlation satellites in the photoelectron spectrum of argon.  
[T,  $h\nu$ , Ar; 15.76 - 100 eV]
- I D. G. Wilden, J. Comer and P. J. Hicks : Nature 273, 651-653 (1978)  
Threshold effects in the excitation of autoionising states of argon atoms by electron impact. [E, Ar; energy loss from 24 to 28 eV]
- O H. M. J. Willems, K. Yuasa, B. van der Sijde and D. C. Schram : J. Quant. Spectrosc. Radiat. Transf. 41, 251-258 (1989)  
Laser-fluorescence experiments with a pulsed dye laser in an argon plasma.  
[E, Ar]
- E J. F. Williams and B. A. Willis : J. Phys. B7, L51-L55 (1974)  
Angular differential cross sections for the elastic scattering of electrons on argon atoms. [E, Ar]
- E J. F. Williams and B. A. Willis : J. Phys. B8, 1670-1682 (1975) ○  
The scattering of electrons from inert gases I. Absolute differential elastic cross sections for argon atoms.  
[E, Ar; 20 - 400 eV, 20 - 150°]
- E J. F. Williams : J. Phys. B12, 265-282 (1979) ○  
A phaseshift analysis of experimental angular distributions of electrons elastically scattered from He, Ne and Ar over the range 0.5 to 20 eV. [E and T, He - Ar]
- O R. R. Williams, Jr. : J. Phys. Chem. 63, 776-780 (1959)  
Chemical effects of low energy electrons. [E, Ar + CH<sub>4</sub>, CH<sub>4</sub>, C<sub>2</sub>H<sub>6</sub>]
- O A. A. Wills, A. A. Cafolla, F. J. Currell, J. Comer, A. Svensson and M. A. MacDonald : J. Phys. B22, 3217-3225 (1989)  
A photoelectron study of resonance structure in the argon correlation satellites. [E,  $h\nu$ , Ar]
- EX D. H. Winicur and E. L. Knuth : Chem. Phys. Lett. 12, 261-263 (1971)  
A method for the measurement of the electron-impact excitation cross section of argon. [E, Ar]

- I C. Winkler and T. D. Mark : Int. J. Mass Spectrom. Ion Process. 133, 157-164 (1994) - Experimental investigation of the electron impact ionization cross-section behaviour near threshold.  
[E, Ar, Kr, He, N<sub>2</sub>, O<sub>2</sub>, CO<sub>2</sub>; 13.9 - 15.5 eV for Ar]
- O R. B. Winkler, J. Wilhelm and R. Winkler : Beitr. Plasmaphys. 22, 401-413 (1982) Electron kinetic investigations of the glow discharge plasma in Ar - Hg mixtures. [T, Ar, Ar + Hg]
- S R. B. Winkler, J. Wilhelm and R. Winkler : Ann. Phys. 40, 90-118 (1983a) - Kinetics of the Ar - Hg plasma of fluorescent lamp discharges. I. Model-basic equation-Hg partial pressure variation. [T, Ar + Hg]
- S R. B. Winkler, J. Wilhelm and R. Winkler : Ann. Phys. 40, 119-139 (1983b) - Kinetics of the Ar - Hg plasma of fluorescent lamp discharges. II. Ar partial pressure and discharge current variation. [T, Ar + Hg]
- S R. Winkler, J. Wilhelm, G. L. Braglia and M. Diligenti : Nuovo Cimento 12D, 975-993 (1990) - Multiterm calculations of electron energy distributions and transport coefficients in Ar and Hg. II. - Gas temperature effect.  
[T, Ar, Hg; see G. L. Braglia (1990)]
- I R. E. Winters, J. H. Collins and W. L. Courchene : J. Chem. Phys. 45, 1931-1937 (1966) - Resolution of fine structure in ionization-efficiency curves.  
[E, Ar - Xe, CO, N<sub>2</sub>, O<sub>2</sub>; th. - 18 eV for Ar]
- O B. Woernle : Ann. Phys. 5, 475-506 (1930) Die Absorption langwelliger Rontgenstrahlen von 2 - 10 AE in leichten Elementen. [E, Ar, Ne, N<sub>2</sub>, O<sub>2</sub>, SO<sub>2</sub>, C<sub>6</sub>H<sub>12</sub>, CCl<sub>4</sub>]
- O K. Wojackzek : Beitr. Plasmaphys. 5, 307-329 (1965) Die positive Saule der Argon-Niederdruckentladung im Ubergangsbereich III. [ , Ar]
- O E. O. Wollan : Phys. Rev. 37, 862-872 (1931) Scattering of X-rays from gases. [E, h $\nu$ , He - Ar, H<sub>2</sub>, O<sub>2</sub>]
- S L. Wong, J. Armitage and J. Waterhouse : Nucl. Instrum. Method A273, 476-484 (1988) - Measurements of the anisotropy ratio between longitudinal and transverse diffusion in argon based gas mixtures. [E, Ar + CH<sub>4</sub>, Ar + C<sub>2</sub>H<sub>6</sub>, etc.]
- EX T. C. Wong, J. S. Lee and R. A. Bonham : Phys. Rev. A11, 1963-1967 (1975) - Maxima and minima in the angular dependence of the [np] (n + 1)s] transition in the rare gases observed by high-energy electron impact spectroscopy. [E, He - Xe; 25 keV]
- O Y. H. Woo and C. P. Sun : Sci. Rept. Natl. Tsing Hua Univ. Ser. A4, 398-418 (1947) On the absorption of X-rays. [ , h $\nu$ , Ar, Kr, Xe]

- O J. Z. Wu, S. B. Whitfield, C. D. Caldwell, M. O. Krause, P. van der Meulen and A. Fahlman : Phys. Rev. A42, 1350-1357 (1990)  
High-resolution photoelectron spectroscopy of selected ns' and nd' autoionization resonances in Ar, Kr, and Xe. [E,  $h\nu$ , Ar - Xe]
- EX S. L. Wu, Z. P. Zhong, R. F. Feng, S. L. Xing, B. X. Yang and K. Z. Xu : Phys. Rev. A51, 4494-4500 (1995)  
Electron-impact study in valence and autoionization resonance regions of argon. [E, Ar; EELS, 2.5 keV]
- O F. Wuilleumier : Compt. Rend. Acad. Sci. 257, 855-858 (1963)  
Mesure des coefficients d'absorption de l'argon et du neon pour des rayons X mous. [E,  $h\nu$ , Ar, Ne]
- O F. Wuilleumier : J. Physique 26, 776-784 (1965)  
Analyse continue du spectre d'absorption de l'argon et du neon entre 2 et 8 Å. [E,  $h\nu$ , Ar, Ne]
- O F. Wuilleumier : PhD Thesis, Universite de Paris (1969)  
[E,  $h\nu$ , Ar - Xe]
- O F. Wuilleumier : Compt. Rend. Acad. Sci. 270, 272-275 (1970)  
Etude de la photoionisation du neon et de l'argon entre 8 et 15 Å. [E,  $h\nu$ , Ar, Ne]
- O D. Xenakis, O. Faucher, D. Charalambidis and C. Potakis : J. Phys. B29, L457-L463 (1996)  
Observation of two-XUV-photon ionization using harmonic generation from a short, intense laser pulse. [E,  $h\nu$ , Ar, Xe]
- QT S. Xing, K. Xu, B. Yang, X. Chen, X. Fan, Y. Wang and F. Zhang : Chin. Sci. Bull. 37, 1778-1781 (1992)  
Total cross-section measurements for electron scattering from Ar in the energy range 350 - 1200 eV. [E, Ar; error 3.5%]
- QT K. Xu, S. Xing, X. Chen, B. Wang, Z. Zhou, B. Yang and S. Ohtani : 18th ICPEAC, Aarhus 250-250 (1993)  
Total cross sections of N<sub>2</sub>, Ar, and Ne by electron impact. [E, Ar, Ne, N<sub>2</sub>; 250 - 2600 eV]
- S C. Yamabe, S. J. Buckman and A. V. Phelps : Phys. Rev. A27, 1345-1352 (1983)
- EX Measurement of free-free emission from low-energy-electron collisions with Ar. [E, Ar]
- O C. Yamada, H. Kanamori and E. Hirota : J. Chem. Phys. 83, 552-555 (1985)  
Direct observation of the fine structure transitions in the Ne<sup>+</sup> and Ar<sup>+</sup> ions with diode lasers. [E, Ar, Ar<sup>+</sup>, Ne, Ne<sup>+</sup>]
- O K. Yamaguchi and T. Mukoyama : Nucl. Instrum. Meth. B124, 361-364 (1997)  
Calculations of discrete and continuum wave functions for atoms using wavelets. [T,  $h\nu$ , Ar, Ne]

- EX M. Yamamoto and H. Suzuki : J. Phys. Soc. Jpn. 30, 304-305 (1971)  
Energy spectra of electrons emitted in autoionization of Ar excited by electron impact. [E, Ar]
- O B. X. Yang and J. Kirz : Appl. Opt. 26, 3823-3826 (1987)  
Soft X-ray absorption cross section of argon determined by a variable technique. [E,  $h\nu$ , Ar; 1.225 - 3.80 nm]
- E A. C. Yates and T. G. Strand : Phys. Rev. 170, 184-189 (1968)  
Relativistic effects in electron scattering from atoms.  
[T, Ar, Kr, I; DCS, 20 eV - 40 keV]
- E A. W. Yau, R. P. McEachran and A. D. Stauffer : J. Phys. B11, 2907-2922 (1978)  
Electron scattering from noble gases. [T, He - Ar; 0 - 16 eV]
- E A. W. Yau, R. P. McEachran and A. D. Stauffer : J. Phys. B13, 377-384 (1980)  
Electron scattering from noble gases. II : Argon, krypton and xenon.  
[T, Ar - Xe]
- O J. J. Yeh and I. Lindau : Atomic Data Nucl. Data Tables 32, 1-155 (1985)  
Atomic subshell photoionization cross sections and asymmetry parameters :  
 $1 \leq Z \leq 103$ . [T,  $h\nu$ , He - Xe, etc.]
- O J. -J. Yeh : Atomic Calculation of Physics Cross-Sections and Asymmetry Parameters, AT & T Bell Lab., NJ (1993)
- O M. Yoshino, A. Ida, K. Wakiya and H. Suzuki : J. Phys. Soc. Jpn. 27, 976-980 (1969)  
Photoionization and absorption cross sections of  $I_2$  in the 600 - 1000 Å wavelength region. [E,  $h\nu$ , Ar,  $I_2$ ]
- I S. M. Younger : Phys. Rev. A26, 3177-3186 (1982)  
Distorted-electron impact ionization cross sections for the argon isoelectronic sequence. [T, Ar]
- O M. Yousfi, G. Zissis, A. Alkaa and J. J. Damelincoirt : Phys. Rev. A42, 978-988 (1990)  
S Boltzmann-equation analysis of electron kinetics in a positive column of low-pressure Hg-rare-gas discharges. [T, He - Xe, Hg]
- S M. Yousfi, A. Himoudi and A. Gaouar : Phys. Rev. A46, 7889-7901 (1992)  
Boltzmann-equation and Monte Carlo analysis of electron-electron interactions on electron distributions in nonthermal cold plasmas.  
[T, He - Xe,  $N_2$ ]
- E S. Y. Yousif and J. A. D. Matthew : J. Phys. B19, 3305-3311 (1986)  
Local density approximations to the elastic scattering of slow electrons from Ne, Ar, Kr, and Xe atoms. [T, Ne - Xe; DCS, 0.2 - 40 eV]
- E J. Yuan : J. Phys. B21, 3753-3758 (1988) ·  
Low-energy electron scattering from He, Ne and Ar atoms. [T, He - Ar]
- E J. Yuan and Z. Zhang : Z. Phys. D25, 285-286 (1993)  
Spin polarization of electrons elastically scattered from argon atoms in the Ramsauer-Townsend region. [T, Ar; DCS, 0.1 - 0.6 eV]

- E J. K. Yuan, Y. S. Sun and S. T. Zheng : J. Phys. B28, 457-466 (1995)  
Differential cross sections for the elastic scattering of electrons in hot plasma. [T, Ar, Fe]
- O K. Yuasa, H. M. J. Willems, B. van der Sijde and D. C. Schram : J. Quant. Spectrosc. Radiat. Transf. 40, 135-141 (1988)  
Laser-fluorescence experiments with a continuous argon-ion laser in an argon plasma. [E,  $h\nu$ , Ar]
- O K. Yuasa, K. Yamashita and T. Sakurai : Jpn. J. Appl. Phys. 36, 2340-2345 (1997)  
Ar lowest excited state densities in Ar and Ar - Hg hot cathode discharge. [E, Ar, Ar + Hg]
- O K. Yuasa, S. Matayoshi and T. Sakurai : Jpn. J. Appl. Phys. 37, 6615-6619 (1998)  
Decay of metastable argon atoms in the afterglow plasma. [E, Ar]
- O N. P. Yudin, A. V. Pavlitchenkov and V. G. Neudatchin : Z. Phys. A320, 565-573 (1985)  
Angular distributions of electrons in the ( $\gamma$ , 2e) reaction and ee-correlations in the atom. [T,  $h\nu$ , Ar]
- S E. Zachmann : Ann. Phys. 84, 20-60 (1927) -  
Über die Diffusion langsamer Elektronen (2 - 30 Volt) in Wasserstoff und Argon. [E, Ar, H<sub>2</sub>]
- O B. B. Zaikin, Yu. A. Piotrovskii, Yu. A. Tolmachev, O. Yu. Sid'ko and V. N. Nechaev :  
EX Opt. Spectrosc. 80, 160-163 (1996)  
Inelastic collisions of excited argon atoms with electrons.  
[E, Ar; quenching rate constant]
- O A. Zangwill and P. Soven : Phys. Rev. A21, 1561-1572 (1980)  
Density-functional approach to local-field effects in finite systems :  
Photoabsorption in the rare gases. [T,  $h\nu$ , Ne - Xe]
- EX I. P. Zapesochnyi and P. V. Feltsan : Ukr. Fiz. Zh. 10, 1197-1207 (1965)  
Excitation of inert gases in electron-atom collisions. [E]
- EX I. P. Zapesochnyi and P. V. Feltsan : Opt. Spectrosc. 20, 291-291 (1966)  
On the excitation cross sections of 2p levels of argon, krypton and xenon.  
[E, Ar - Xe; th. - 90 eV]
- EX I. P. Zapesochnyi, I. G. Zhukov and P. V. Feltsan : Sov. Phys. JETP 38, 675-679 (1974) -  
I Ultrasoft X-ray study of the s-ionization mechanism for noble gases.  
[E,  $h\nu$ , Ne - Xe; 920, 932 Å emission]
- EX A. N. Zaviolopulo, A. V. Snegurskii, O. B. Shpenik and N. N. Kutsina : Sov. Phys. JETP 54, 449-453 (1981) -  
Excitation of metastable states of inert-gas atoms by electron impact in the near-threshold energy region.  
[E, Ne - Kr; DCS, 11 - 15 eV, 1.5 - 6.5° for Ar]



- EX A. N. Zaviropulo, A. V. Snegursky and O. B. Shpenik : J. Appl. Spectrosc. 42, 125-128 (1985) -  
Total excitation cross sections of metastable levels of inert-gas atoms in electron impact. [E, He - Ar; 10 - 500 eV]
- O A. N. Zaviropulo, A. I. Dolgin and M. A. Khodorkovskii : Tech. Phys. Lett. 19, 455-456 (1993) -  
Near-threshold ionization of argon clusters by electron impact. [E, Ar<sub>n</sub>; n = 2 - 12]
- QT A. Zecca, S. Oss, G. Karwasz, R. Grisenti and R. S. Brusa : J. Phys. B20, 5157-5164 (1987) ○  
Absolute total cross section measurements for intermediate energy electron scattering : III. Ne and Ar. [E, Ar, Ne; 100 - 3000 eV, 2.4 %]
- E A. Zecca, G. P. Karwasz and R. S. Brusa : Rivista Nuovo Cimento 19, No. , 1-146 EX (1996) ○
- I One century of experiments on electron-atom and molecule scattering : A critical review of integral cross-sections. I. - Atomic and diatomic molecules. [compilation, He - Xe, Li - Cs, H<sub>2</sub>, N<sub>2</sub>, O<sub>2</sub>, etc.]
- EX V. Zeman, K. Bartschat, C. Noren and J. W. McConkey : Phys. Rev. A58, 1275-1281 (1998) ○  
Near-threshold electron-impact excitation of the vacuum-ultraviolet resonance transitions in Ne, Ar, Kr, and Xe. [E and T, Ne - Xe]
- I X. Zhang, C. T. Whelan and H. R. J. Walters : Z. Phys. D18, 309-310 (1991) -  
Electron impact ionization of the noble gases in coplanar symmetric geometry over the energy range 100 to 1000 eV. [E, He - Xe]
- I X. Zhang, C. T. Whelan, H. R. J. Walters, R. J. Allan, P. Bickert, W. Hink and S. Schonberger : J. Phys. B25, 4325-4335 (1992a)  
(e, 2e) cross sections for inner-shell ionization of argon and neon. [T, Ar, Ne; 2 - 3 keV]
- I X. Zhang, C. T. Whelan and H. R. J. Walters : Z. Phys. D23, 301-308 (1992b)  
Distorted-wave Born approximation calculations of (e, 2e) reactions. [T, Ar, He, Xe]
- I X. Zhang, C. T. Whelan and H. R. J. Walters : in (e, 2e) and Related Process, Kluwer Academic 409-421 (1993)  
Distorted-wave calculations of triple differential cross section for inner shell ionization. [T, Ar, Ne]
- O Y. Zhao, Q. Wang, S. Gao and J. Liu : Proc. SPIE, Beijing 16-18 (1998)  
The measurement and calculation of the small signal gain coefficients of the third continuum of argon. [E, Ar]
- O V. P. Zhdanov : Sov. J. Plasma Phys. 4, 71-75 (1978) -  
Bremsstrahlung spectra of electrons at 0.4 - 5 keV in collisions with neutral and weakly ionized atoms. [T, Ar, Xe, Cu, Pb, etc.]

- EX S. H. Zheng and K. Becker : Z. Phys. D23, 137-144 (1992)  
Electron-photon polarization correlation studies in neon and argon.  
[E, Ar, Ne; Stokes parameters, 30, 40, 50 eV]
- EX S. H. Zheng and K. Becker : J. Phys. B26, 517-526 (1993) -  
Electron-polarized-photon coincidence study of argon and krypton  
excitation by electron impact. [E, Ar, Kr]
- EX S. H. Zheng and K. Becker : Z. Phys. D30, 115-118 (1994) -  
Measurements of circular polarization correlations following excitation  
of Ar and Kr by electron impact. [E, Ar, Kr]
- O T. V. Zhikhareva, M. G. Vasil'ev and Yu. G. Morozov : Sov. Phys. Tech. Phys. 20,  
354-359 (1975) -  
Excitation, ionization, and electron heating in an argon shock front.  
[T, Ar]
- O B. Zhou, L. Kissel and R. H. Pratt : Phys. Rev. A45, 2983-2988 (1992a)  
Near-threshold structures in anomalous scattering factors.  
[T,  $h\nu$ , Ar, Xe, Ne, Zn]
- O B. Zhou, L. Kissel and R. H. Pratt : Phys. Rev. A45, 6906-6909 (1992b)  
Many-electron correlation effects on anomalous scattering factors.  
[T,  $h\nu$ , Ar only]
- E Q. Zhou, M. J. M. Beerlage and M. J. van der Wiel : Physica 113C, 225-236 (1982)  
Angular distributions of electrons elastically scattered from argon and  
krypton at energies between 10 and 50 eV. [E, Ar, Kr; see Z. Qing]
- EX I. G. Zhukov, I. P. Zapesochnyi and P. V. Feltsan : Opt. Spectrosc. 32, 569-570 (1972)  
On the excitation of the  $3p^5 4s$  Ar I and  $3s 3p^6$  Ar II states by electron  
impact. [E, Ar; th. - 150 eV]
- E V. J. Zigman and B. S. Milic : J. Plasma Phys. 38, 223-233 (1987)  
Kinetic theory of the high-frequency part of the slow electromagnetic mode  
in weakly ionized gas-discharge argon plasma with inelastic collisions.  
[T, Ar; viscosity cross section]
- E V. J. Zigman and B. S. Milic : J. Phys. B21, 2609-2620 (1988) -  
Evaluation of the viscosity cross sections for elastic electrons in  
argon and neon at low electron energies above 0.13 eV.  
[T, Ar, Ne; 0.136 - 15 eV]
- E G. Zissis, P. Benetrui and I. Bernat : Phys. Rev. A45, 1135-1148 (1992)
- EX Modeling the Hg - Ar low-pressure-discharge positive column :  
I A comparative study. [T, Ar + Hg; c. s. set for Hg]
- O R. J. Zollweg : J. Chem. Phys. 50, 4251-4261 (1969)  
Electron affinities of the heavy elements. [T, He - Xe, Cu, Hg, etc.]
- E M. Zubek, N. Gulley, G. C. King and F. H. Read : J. Phys. B29, L239-L244 (1996) ○  
Measurements of elastic electron scattering in the backward hemisphere.  
[E, Ar; DCS, 10 eV, 30 - 180°]

- E M. Zubek, J. M. Channing, G. C. King and F. H. Read : 20th ICPEAC, Vienna TH015 (1997) -  
 Observation of resonance structures in elastic electron scattering in the backward hemisphere. [E, Ar - Xe; relative DCS at 180°]
- E M. Zubek, B. Mielewska, J. Channing, G. C. King and F. H. Read : J. Phys. B32, 1351-1363 (1999) ○  
 A study of resonance structures in elastic electron scattering from helium, neon, argon, krypton and xenon over the angular range from 100° to 180°. [E, He - Xe; 10.9 - 11.4 eV for Ar]
- EX T. Zuo, R. P. McEachran and A. D. Stauffer : J. Phys. B25, 3393-3403 (1992) -  
 Relativistic distorted-wave calculation of electron excitation of heavy noble gases. [T, Ar - Xe; Lowest 4 levels at 20, 30, 50 eV; lowest emission level at 400, 500 eV]
- E F. Zwicky : Phys. Z. 24, 171-183 (1923)  
 Das Verhalten von langsamen Elektronen in Edelgasen. [T, Ar]

Addenda of References for Ar

(published in 2000, plus some old papers)

- O M. Ya. Amusya, L. V. Chernysheva, Z. Felfli and A. Z. Msezane : Phys. Rev. A64, 032711/1-12 (2001)  
Many-electron correlation effects in the generalized oscillator strengths of noble-gas atoms. [T, Ne - Xe]
- O O. P. Bochkova, R. I. Lyagushchenko, E. A. Sukiasyan and Yu. A. Tolmachev : Sov. Phys. Tech. Phys. 19, 475-477 (1974)  
Electron density in an argon afterglow. [E, Ar]
- O O. P. Bochkova and E. A. Sukiasyan : J. Appl. Spectrosc. (USSR) 23, 601-608 (1975b)  
Population of argon resonance levels during inelastic collisions of metastable atoms with slow electrons. [E, Ar]
- EX J. B. Boffard, M. F. Gehrke, M. E. Lagus, L. W. Anderson and C. C. Lin : Eur. Phys. J. D8, 193-198 (2000)  
User of a fast beam target for the determination and reduction of the cascade contribution to electron excitation cross-section measurements. [E, Ar]
- S A. F. Borghesani : J. Electrostat. 53, 89-106 (2001a)  
Electron mobility maximum in dense argon gas at low temperature. [E, Ar]
- S A. F. Borghesani and M. Santini : Int. J. Thermophys. 22, 1109-1121 (2001b)  
Electron mobility maximum in near-critical argon gas. [E, Ar]
- S G. L. Braglia and V. Dallacasa : in Electron and Ion Swarms, Pergamon Press, 83-92 (1981)  
Multiple scattering theory of electron mobility in dense gases. [T, Ar]
- O U. Buck and H. Meyer : J. Chem. Phys. 84, 4854-4861 (1986)  
Electron bombardment fragmentation of Ar van der Waals clusters by scattering analysis. [E, Ar<sub>n</sub> + He]
- O T. X. Carroll, J. D. Bozek, E. Kukk, V. Myrseth, L. J. Saethre and T. D. Thomas : J. Elect. Spectrosc. Relat. Phenom. 120, 67-76 (2001)  
Line shape and lifetime in argon 2p electron spectroscopy. [E, h $\nu$ , Ar; 6 - 80 eV above and 2p<sub>3/2</sub> threshold]
- O M. Chenevier et P. A. Moskowitz : J. Physiq. 35, 401-409 (1974)  
Mesures par resonance magnetique de durees de vie et de facteurs de Lande de niveaux excites d'atomes d'argon et de xenon.  
(Magnetic resonance measurements of lifetimes and Lande g factors of excited levels of argon and xenon.) [E, Ar, Xe]

- O F. Combet-Farnoux, P. Lablanquie, J. Mazeau and A. Huetz : J. Phys. B33, 1597-1615 (2000)  
Theoretical and experimental study of inner-valence-shell satellites above the double-photoionization threshold of argon. [T and E,  $h\nu$ , Ar]
- O J. W. Cooper : in Landolt-Bornstein, Photon and Electron Interactions with Atoms, Molecules and Ions, Subvolume A, Springer 1-1 - 1-77 (2000)  
Photon interactions with atoms. [review, He - Xe, O, N, Li - Cs]
- EX A. Dasgupta, M. Blaha and J. L. Giuliani : Phys. Rev. A61, 012703/1-10 (2000)  
Electron-impact excitation from the ground and the metastable levels of Ar I. [T, Ar]
- O P. Dehmer : J. Chem. Phys. 76, 1263-1272 (1982)  
Photoionization of Ar<sub>2</sub> at high resolution. [E,  $h\nu$ , Ar<sub>2</sub>]
- EX Y. De-Hong, Y. Feng, L. Zi-Ming, P. Guang-Yan and L. Jia-Rui : Acta Phys. Sin. 37, 1965-1971 (1988) in Chinese; Chin. J. Phys.  
Experimental studies of excited states in the collisions of electrons with helium and argon. [E, Ar, He; emission c.s., 200 - 500 eV]
- I H. Deutsch, K. Becker and T. D. Mark : Plasma Phys. Control. Fusion 42, 489-499 (2000)  
Calculated cross sections for the multiple ionization of nitrogen and argon atoms by electron impact. [T, Ar, N]
- O F. Ehlotzky : Can. J. Phys. 59, 1200-1211 (1981)  
Scattering phenomena in strong radiation fields.  
[review, general theory]
- O F. Ehlotzky : Can. J. Phys. 63, 907-932 (1985)  
Scattering phenomena in strong radiation fields. II.  
[review, general theory]
- E M. T. Elford and S. J. Buckman : in Landolt-Bornstein, Photon and Electron Interactions with Atoms, Molecules and Ions, Subvolume A, Springer 2-35 - 2-54 (2000)  
Momentum transfer cross sections.  
[review, He - Xe, H, Li - K, O, Mg, Mn, Cu, Zn, Cs, Ba, Hg]
- EX X. W. Fan and K. T. Leung : Phys. Rev. A62, 062703/1-9 (2000)  
Absolute generalized-oscillator-strength measurement of preionized-edge electronic excitation in the valence and 2p shells of argon. [E, Ar]
- O E. E. Ferguson, C. R. Albertoni, R. Kuhn, Z. Y. Chen, R. G. Keese and A. W. Castleman, Jr. : J. Chem. Phys. 88, 6335-6340 (1988)  
The role of rotational tunneling in the metastable decay of rare gas cluster ions. [E, Ar<sub>3</sub><sup>+</sup>]

- EX D. M. Filipovic, B. P. Marinkovic, V. Pejcev and L. Vuskovic : J. Phys. B33, 677-691 (2000a) ○  
Electron-impact excitation of argon : I. The  $4s' [1/2]_1$ ,  $4p [1/2]_1$  and  $4p' [1/2]_0$  states. [E, Ar]
- EX D. M. Filipovic, B. P. Marinkovic, V. Pejcev and L. Vuskovic : J. Phys. B33, 2081-2094 (2000b) ○  
Electron-impact excitation of argon : II. The lowest resonance  $4s [3/2]_1$  and metastable  $4s [3/2]_2$  and  $4s' [1/2]_0$  states. [E, Ar]
- O J. R. Fuhr and W. L. Wiese : in CRC Handbook of Chemistry and Physics, CRC Press, 81st (Ed), 10-88-146 (2000)  
NIST atomic transition probability tables. [compilation, atoms]
- O J. Galy, H. Brunet, A. Birot et J. L. Artigue : Compt. Rend. Acad. Sci. B276, 23-26 (1973)  
Post-luminescence de l'argon : processus de disparition de l'etat  $2p_2$ . [E,  $h\nu$ , Ar]
- EX A. Gleizes : These de doctorat d'Etat, Universite Paul Sabatier, Toulouse (1980)
- EX A. N. Grum-Grzhimailo and K. Bartschat : J. Phys. B34, L727-L73 (2001)  
Benchmark comparisons for near-threshold electron-impact excitation of Ar metastable levels. [T, Ar]
- O P. F. Gruzdev : Opt. Spectrosc. 22, 170-171 (1967)  
Oscillator strengths of resonance lines in the spectra of Ne I, Ar I, Kr I, Xe I atoms and Na II and Rb II ions. [T, Ne - Xe,  $Na^+$ ,  $Rb^+$ ]
- I M. A. Haynes and B. Lohmann : J. Phys. B33, 4711-4721 (2000)  
Low-energy triple differential cross sections for argon 3s electron impact ionization. [E, Ar; 113.5 eV]
- I M. A. Haynes and B. Lohmann : Phys. Rev. A64, 044701/1-4 (2001a)  
Comparative study of argon 3p electron-impact ionization at low energies. [E and T, Ar; 113.5 eV,  $15^\circ$ ]
- I M. A. Haynes and B. Lohmann : J. Phys. B34, L131-L136 (2001b)  
Coplanar symmetric (e, 2e) cross sections for argon 3s ionization. [E, Ar; binding energy 29.3 eV, incident energy 37.3 - 129.3 eV]
- QT M. Inokuti : in Landolt-Bornstein, Photon and Electron Interactions with  
E Atoms, Molecules and Ions, Subvolume A, Springer 2-1 - 2-34 (2000)
- EX Electron collisions with atoms.  
[review, He - Xe, H, Li, O, Na, Hg, etc.]
- O Y. Ji, M. Foltin, C. H. Liao and T. D. Mark : J. Chem. Phys. 96, 3624-3627 (1992)  
Size and temporal dependence of the metastable decay probabilities of ionized rare gas clusters. [E,  $Ar_N$ ,  $Kr_N$ ]

- E V. Konopinska, S. Telega and J. E. Sienkiewicz : TASK Q (Poland) 5, 13-16 (2001)  
Electron-argon scattering : A high angle minimum in differential cross sections. [T, Ar]
- O K. J. LaGattuta : J. Phys. B33, 2489-2494 (2000)  
Multiple ionization of argon atoms by long-wavelength laser radiation : a fermion molecular dynamics simulation. [T,  $h\nu$ , Ar]
- O P. G. Lethbridge and A. J. Stace : J. Chem. Phys. 89, 4062-4073 (1988)  
Reactivity-structure correlations in ion clusters : A study of the unimolecular fragmentation patterns of argon ion clusters,  $\text{Ar}_n^+$ , for  $n$  in the range 30 - 200. [E,  $\text{Ar}_n^+$ ]
- EX C. M. Maloney, J. L. Peacher, K. Bartschat and D. H. Madison : Phys. Rev. A61, 022701/1-5 (2000) ·  
Excitation of Ar  $3p^5 4s - 3p^5 4p$  transitions by electron impact. [T, Ar; see J. B. Boffard (1999)]
- O T. D. Mark, P. Scheier, K. Leiter, W. Ritter, K. Stephan and A. Stamatovic : Int. J. Mass Spectrom. Ion Process. 74, 281-301 (1986)  
Unimolecular decay of metastable Ar cluster ions. Evolution of magic numbers in Ar cluster mass spectra. [E,  $\text{Ar}_n$ ]
- EX S. Mayer and J. Kessler : 19th ICPEAC, Whistler 238-238 (1995b)  
Experimental confirmation of electron optic dichroism. [E, Ar]
- I B. S. Min and H. Cho : J. Korean Phys. Soc. 29, 170-175 (1996)  
The post-collision interaction in the Auger process of electron-impact ionization of argon. [ , Ar]
- O L. Minnhagen : Ark. Fys. 25, 203-285 (1963)  
The spectrum of singly ionized argon, Ar II. [E,  $h\nu$ ,  $\text{Ar}^+$ ]
- S R. R. Mitchell : in Electron and Ion Swarms, Pergamon, Oak Ridge 55-64 (1981)  
Non-equilibrium electron energy distributions. [ , Ar]
- S M. L. Mittal and G. P. Gowda : J. Appl. Phys. 59, 1042-1047 (1986)  
Transport coefficients of a chemically reacting plasma. [T, Ar + K]
- I D. L. Moores : Nucl. Instrum. Meth. B179, 316-324 (2001)  
Calculations of integral cross-sections for electron and positron impact of rare gas atoms. [T, He - Xe; ionization, th. - 1000 eV]
- I A. J. Murray, N. J. Bowring and F. H. Read : J. Phys. B33, 2859-2867 (2000)  
Comparison of argon and helium (e, 2e) differential cross sections at 64.6 eV using symmetric detection energies and angles. [E, Ar, He]
- S K. Ness and T. Makabe : Phys. Rev. E62, 4083-4090 (2000)  
Electron transport in argon in crossed electric and magnetic fields. [T, Ar]

- O G. Norlen : Phys. Scr. 8, 249-268 (1973)  
Wavelengths and energy levels of Ar I and Ar II based on new interferometric measurements in the region 3400 - 9800 Å. [E,  $h\nu$ , Ar]
- O K. Norwood, J. H. Guo and C. Y. Ng : J. Chem. Phys. 90, 2995-3003 (1989)  
A photoion-photoelectron coincidence study of Ar<sub>n</sub> (n = 2 - 4). [E, Ar<sub>n</sub>]
- E J. M. Paikeday : Int. J. Quant. Chem. 80, 989-998 (2000)  
Polarization potential for e-atom scattering by DCS minimization at intermediate energies. [T, Ne - Kr]
- I E. R. Peterson and P. H. Bucksbaum : Phys. Rev. A64, 053405/1-5 (2001)  
Above-threshold double-ionization spectroscopy of argon. [E,  $h\nu$ , Ar; Ti:sapphire laser, 800 nm]
- S Z. Lj. Petrovic : Aust. J. Phys. 39, 237-247 (1986)  
The application of Blanc's law to the determination of the diffusion coefficients for thermal electrons in gases. [ , Ar]
- I V. -F. Z. Rapp, V. S. Shevera and I. P. Zapesochny : JETP Lett. 25, 29-32 (1977)  
Investigation of double ionization of inert-gas atoms by simultaneous knockout of s and p electrons by the bombarding electron beam. [E, Ne - Xe; 50 - 400 eV]
- S A. V. Rokhlenko : Sov. Phys. JETP 48, 663-665 (1978)  
Absolute negative conductivity of a relaxing weakly ionized gas. [T, Ar]
- O P. Scheier and T. D. Mark : Phys. Rev. Lett. 59, 1813-1816 (1987)  
Observation of sequential decay series in metastable Ar cluster : Ar<sub>n</sub><sup>++</sup> → Ar<sub>n-1</sub><sup>++</sup> → Ar<sub>n-2</sub><sup>+</sup>. [E, Ar<sub>n</sub><sup>+</sup>]
- O P. Scheier, A. Stamatovic and T. D. Mark : J. Chem. Phys. 89, 295-301 (1989)  
Dynamics and kinetics of the metastable decay series : Ar<sub>3</sub><sup>++</sup> → Ar<sub>2</sub><sup>++</sup> → Ar<sup>+</sup>. [E, Ar<sub>n</sub>]
- O P. Scheier and T. D. Mark : Int. J. Mass Spectrom. Ion Process. 102, 19-44 (1990)  
Metastable decay of singly charged argon cluster ions Ar<sub>n</sub><sup>++</sup>. [E, Ar<sub>n</sub><sup>+</sup>]
- O D. Sengupta, S. K. Guharay, D. N. Ghoshroy and S. N. Sen Gupta : Paramana 11, 661-671 (1978)  
Electron neutral collision frequency from breakdown measurements in crossed electric and magnetic fields. [E, Ar]
- E J. E. Sienkiewicz, V. Konopinska, S. Telega and P. Syty : J. Phys. B34, L409-L418 (2001) -  
Critical minima in elastic electron scattering from argon. [T, Ar; DCS, 39.3 eV, 68° and 39.5 eV, 141° ]



- I A. A. Sorokin, L. A. Shmaenok, S. V. Bobashev, B. Mobus, M. Richter and G. Ulm : Phys. Rev. A61, 022723/1-11 (2000) ○  
Measurements of electron-impact ionization cross sections of argon, krypton, and xenon by comparison with photoionization.  
[E, Ar, Kr, Xe; 140 - 4000 eV, error about 2 %]
- O K. Stephan and T. D. Mark : Chem. Phys. Lett. 90, 51-54 (1982)  
Metastable  $\text{Ar}_3^+$  cluster ions : temperature dependence of the decay rate.  
[E,  $\text{Ar}_3^+$ ]
- O K. Stephan, A. Stamatovic and T. D. Mark : Phys. Rev. A28, 3105-3108 (1983)  
Unimolecular and collision-induced dissociation of  $\text{Ar}_2^+$  produced by electron ionization of  $\text{Ar}_2$ . [E,  $\text{Ar}_2$ ]
- I J. A. Syage : Phys. Rev. A46, 5666-5679 (1992)  
Electron-impact cross sections for multiple ionization of Kr and Xe.  
[E, Ar - Xe;  $\text{Ar}^+$ ,  $\text{Ar}^{2+}$ , ...  $\text{Ar}^{5+}$ , 18 - 660 eV for Ar]
- EX S. Tsurubuchi and H. Kobayashi : Atomic Coll. Res. Jpn. 27, 8-10 (2001)  
Excitation of the  $2p_9$  state of Ar by electron impact.  
[E, Ar; 20 - 100 eV]
- O W. L. Wiese, M. W. Smith and B. M. Miles : Atomic Transition Probabilities (Na through Ca) - A Critical Data Compilation, Vol. II, Natl. Stand. Data Ser., NBS 22 (1969)
- QT A. Williart and G. Garcia : Phys. Scr. 64, 343-345 (2001)  
Analytical formulae for total cross sections for electron scattering by atoms (N, O, F, Ne, P, S, Cl, Ar, As, Se, Br, Kr) between 0.5 - 10 keV.  
[T, Ne - Kr, etc.]
- O T. Wujec : Acta Phys. Pol. 36, 269-271 (1969)  
Measurement of the absolute transition of Ar I lines. [E,  $h\nu$ , Ar]
- QT A. Zecca, G. P. Karwasz and R. S. Brusa : J. Phys. B33, 843-845 (2000)  
Electron scattering by Ne, Ar and Kr at intermediate and high energies.  
0.5 - 10 keV. [T, Ne - Kr]
- O S. -H. Zhang, X. -Z. Qian, Y. -H. Jiang and J. -F. Sun : Chin. Phys. Lett. 17, 496-497 (2000)  
Electron scattering by Ar atoms in a laser field. [T, Ar; second Born]
- O B. Zurro, J. Campos and C. Snchez Del Rio : Phys. Lett. 43A, 527-528 (1973)  
Lifetimes of some excited levels of Ar I. [E, Ar; fourteen levels]

Author Index of Argon References

|                     |                      |                    |                  |
|---------------------|----------------------|--------------------|------------------|
| R. R. Abdulla       | 1                    | M. V. Ammosov      | 89               |
| T. Aberg            | 7, 139               | K. Amos            | 100              |
| W. H. Aberth        | 1                    | M. Ya. Amusia      | 4, 5, 6          |
| U. Ackermann        | 103                  | N. Anders          | 6, 41            |
| M. Y. Adam          | 1                    | N. Andersen        | 6                |
| B. Adamczyk         | 1                    | L. W. Anderson     | 19, 89, 112, 122 |
| V. A. Adamovich     | 2                    | M. Anderson        | 7                |
| J. D. L. Adams      | 1                    | T. Anderson        | 2                |
| N. G. Adams         | 37                   | W. H. C. Anderson  | 151              |
| B. D. Adcock        | 2                    | E. A. Andreev      | 7                |
| V. V. Afrosimov     | 2                    | E. P. Andreev      | 126, 127         |
| J. Agam             | 89                   | D. Andrick         | 7                |
| M. Agentoft         | 2                    | G. C. Angel        | 121              |
| K. M. Aggarwal      | 2                    | T. Aoyama          | 7                |
| H. Agren            | 112                  | J. A. Aquilera     | 18               |
| J. A. Aguilera      | 122                  | G. S. Argyropoulos | 7                |
| S. Ahmad            | 10                   | T. Arikawa         | 138, 139         |
| J. Ahopelto         | 99                   | T. R. Ariyaratne   | 3                |
| J. M. Ajello        | 2                    | G. B. Armen        | 7, 139           |
| T. Ajiro            | 88                   | J. Armitage        | 153              |
| H. Aksela           | 2, 64, 103, 120, 139 | L. Armstrong       | 7, 103, 134      |
| S. Aksela           | 2, 64, 103, 120      | A. Arnesen         | 148              |
| S. A. J. Al-Amin    | 2, 3                 | F. L. Arnot        | 7                |
| R. Albat            | 3                    | U. Arp             | 8                |
| G. Alber            | 82                   | F. Arqueros        | 53               |
| S. S. Al-Dargazelli | 3                    | H. Arriola         | 8, 129           |
| N. L. Aleksandrov   | 3                    | T. U. Arslanbekov  | 8                |
| V. Ya. Aleksandrov  | 3                    | J. -L. Artigue     | 53               |
| V. A. Alekseev      | 3                    | U. Asaf            | 8, 117, 119      |
| M. K. Ali           | 3                    | S. Asaoka          | 62               |
| N. L. Alinovskii    | 3                    | P. Ashley          | 109              |
| A. Alkaa            | 155                  | E. I. Asinovskii   | 8                |
| R. J. Allan         | 116, 118, 151, 157   | G. E. Assousa      | 8                |
| H. W. Allen         | 3                    | H. Ast             | 75               |
| J. E. Allen         | 111                  | R. K. Asundi       | 8                |
| J. S. Allen         | 79                   | V. M. Atrazhev     | 8, 9             |
| N. L. Allen         | 3                    | S. Augst           | 89               |
| W. P. Allis         | 3                    | T. Auguste         | 9                |
| P. L. Aitick        | 29                   | P. Ausloos         | 116              |
| D. P. Almeida       | 3, 4, 40             | A. Ausmees         | 103              |
| D. Y. Al-Salameh    | 128                  | L. Avaldi          | 9, 60, 132       |
| I. Alvarez          | 39                   | B. Awe             | 75               |
| H. Alvarez-Pol      | 4                    | A. Aymar           | 9                |
| L. L. Alves         | 48                   | M. Aymar           | 110              |
| M. A. Alves         | 50                   | T. L. R. Ayres     | 9                |
| S. R. Amendolia     | 4                    |                    |                  |

R. C. Baas 9  
 R. Ch. Baas 91  
 H. Bader 9  
 N. R. Badnell 58  
 C. Badrinathan 95  
 Y. K. Bae 10  
 T. Baer 68  
 P. Baessler 10  
 A. Bagheri 10  
 S. Baier 124  
 M. A. Baig 10  
 V. A. Bailey 138  
 W. F. Bailey 90  
 P. Baillargeon 113  
 P. Baille 10  
 F. A. Baiocchi 150  
 G. S. Bajwa 18  
 J. Bakos 10  
 V. V. Balashov 10, 11  
 G. Balducci 39  
 G. C. Baldwin 11  
 J. K. Ballou 11  
 M. Balucinska-Church 11  
 K. L. Baluja 10  
 G. M. Bancroft 23, 136  
 I. M. Band 6, 11  
 H. W. Bandel 56  
 I. Yu. Baranov 11  
 M. Barat 11  
 D. Barbieri 12  
 R. S. Barbieri 68  
 M. C. Barnes 12  
 N. Berrah 16  
 A. Bartels 12  
 R. J. Bartlett 102  
 J. E. Bartmess 12  
 K. Bartschat 6, 12, 157  
 A. K. Barua 13  
 B. Barzick 150, 151  
 S. Bashkin 49  
 N. L. Bashlov 12  
 A. D. Bass 13  
 R. C. Bass 13  
 A. Bastida 13  
 E. Basurto 39  
 A. K. Batabyal 13  
 V. M. Batenin 8, 13  
 J. Baudon 11  
 E. Bauer 13  
 A. O. Bawagan 13, 23  
 W. E. Baylis 128

C. E. Beall 28, 34  
 N. Beatham 13  
 E. C. Beaty 13, 65, 108  
 H. B. Bebb 13  
 A. Bechler 13  
 A. Becker 14  
 K. Becker 14, 40, 94, 136, 140, 158  
 K. H. Becker 4, 14  
 P. M. Becker 14  
 U. Becker 14, 80, 101  
 U. J. Becker 30  
 C. E. Beckmann 77  
 B. Bederson 1, 14, 29  
 M. J. M. Beerlage 14, 114, 158  
 J. F. Behnke 14  
 D. J. Beideck 47  
 H. C. W. Beijerinck 137  
 C. Belenger 14  
 P. Belenguer 15  
 Ph. Belenguer 14  
 S. Bell 15  
 K. L. Bell 15, 88  
 P. Benetruy 158  
 I. Ben-Itzhak 15  
 S. W. Bennett 15  
 W. R. Bennett 15  
 E. Benova 15  
 K. L. Beown 36  
 J. A. Beran 15  
 D. Berenyi 63  
 E. G. Berezhko 11, 15  
 H. F. Berg 16  
 H. P. Berg 16  
 R. A. Berg 16, 147  
 K. Berkhan 123  
 J. Berkowitz 114  
 A. S. Berman 16  
 S. M. Berman 117  
 I. Bernat 158  
 J. Bernhard 56  
 K. Bernhardt 16  
 S. Bernstorff 44  
 K. A. Berrington 15, 50  
 D. Bessis 16  
 J. A. Beswick 13  
 H. Beuthe 16  
 H. Beutler 16  
 J. D. E. Beynon 16  
 N. N. Bezuglov 17  
 A. K. Bhatia 37

A. K. Bhattachaya 17  
 S. F. Biagi 17  
 M. M. Bibby 17  
 L. M. Biberman 17  
 W. S. Bickel 49  
 P. Bickert 17, 157  
 C. Biedermann 88  
 C. E. Bielschowsky 39  
 A. Bielski 17  
 F. Biggs 98, 117  
 J. Binder 81  
 M. Binder 4  
 D. M. Binnie 17  
 M. A. Biondi 17  
 A. Birot 53  
 P. G. F. Bisling 72  
 F. Bitter 149  
 S. Bivona 18  
 H. J. Blaauw 18, 70  
 H. E. Blackwell 18  
 A. Blagoev 15  
 A. B. Blagoev 18, 80  
 A. J. Blake 18  
 C. Blanc 18  
 D. Blanc 18  
 F. Blanco 18, 53, 121  
 J. Blandin 30  
 W. Bleakney 18  
 S. Bliman 11  
 J. Ph. Blondeau 14  
 J. E. Bloor 18  
 H. Bluhme 109  
 K. Blum 18, 130  
 J. T. Boad 6  
 S. V. Bobashev 101, 130  
 L. Bober 19  
 O. P. Bochkova 19  
 A. E. Bodrov 7  
 A. J. H. Boerboom 125  
 J. P. Boeuf 14, 19, 48, 126  
 J. B. Boffard 19, 31, 112  
 A. Bogaerts 19  
 I. P. Bogdanova 19  
 E. Bolduc 19, 94  
 K. D. Bomben 44  
 J. Bommels 20  
 R. A. Bonham 20, 24, 29, 74, 76, 91,  
 124, 150, 153  
 T. O. Bonifield 76  
 M. C. Bordage 111, 126  
 D. Bordelon 77  
 M. J. G. Borge 20  
 A. F. Borghesani 20, 21  
 A. B. Borisov 97  
 E. N. Borisov 17  
 W. L. Borst 21  
 T. E. Bortner 21  
 J. F. Bott 21  
 R. Botter 53  
 A. Bouchoule 14  
 L. Boufendi 14  
 B. Bouvellou 21  
 J. C. Bowe 21  
 K. Boyer 97  
 J. Bozek 16  
 J. V. Bozin 21, 70, 92  
 J. W. Brackett 21  
 R. C. Bradford 79  
 G. L. Braglia 22, 90, 153  
 H. S. Brandi 22  
 A. F. Brandt 51  
 B. H. Bransden 22  
 G. Branton 61  
 C. A. Brau 58  
 J. W. Brault 151  
 J. M. Breare 3  
 M. Breinig 22  
 M. J. Brennan 22  
 A. G. Brenton 73  
 A. Breskin 92  
 J. M. Bridges 151  
 E. A. Briggs 66  
 J. S. Briggs 82  
 C. E. Brion 13, 23, 29, 43, 61, 107, 136  
 D. J. Bristow 23  
 R. B. Brode 23, 24  
 J. E. Brolley 24  
 J. P. Bromberg 24  
 I. K. Bronic 24  
 P. G. Brooker 16  
 M. J. Brothers 24  
 G. S. Brown 7, 22  
 H. Brown 29  
 L. Brown 8  
 R. T. Brown 24, 66  
 S. C. Brown 112  
 H. N. Browne 13  
 R. Browning 24  
 M. R. Bruce 20, 24  
 E. Bruche 25  
 L. Brum-Mielsen 30

J. Bruneau 25  
 H. Brunet 53  
 M. J. Brunger 25, 26  
 J. N. H. Brunt 25, 116  
 R. S. Brusa 25, 74, 157  
 R. Bruzzese 25  
 I. A. Brytov 91  
 V. E. Bubelev 25  
 U. Buck 13  
 R. A. Buckingham 26  
 S. J. Buckman 13, 26, 32, 55, 154  
 P. H. Bucksbaum 63  
 I. Bues 26  
 W. Buhring 26  
 E. M. Bulewicz 26  
 E. C. Bullard 26  
 M. C. Bullard 26  
 W. J. Buma 80  
 A. V. Bunge 26  
 C. F. Bunge 26  
 D. S. Burch 49, 90  
 J. Burgdorfer 147  
 M. M. Burgers 27  
 A. L. J. Burgmans 27  
 E. H. S. Burhop 94  
 P. G. Burke 12, 27, 50, 106  
 C. J. Burkley 27  
 R. Burlon 18  
 P. D. Burrow 55  
 R. S. Bursa 27  
 G. R. Burton 29  
 G. Buschhorn 20, 86  
 J. E. Butler 88  
 C. G. Buursen 27  
 J. Byrne 27  
 F. W. Byron 27, 71  
 S. Bzenic 112  
  
 F. Cabannes 30  
 I. Cadez 144  
 I. M. Cadez 85  
 A. A. Cafolla 152  
 R. B. Cairns 27, 28, 121  
 C. D. Caldwell 153  
 G. Caledonia 137  
 G. Calleda 23  
 E. E. B. Cambell 6  
 C. Camhy-Val 28  
 R. Camilloni 9  
 J. Campos 18, 20, 28, 53, 121, 122  
 N. M. Cann 107

M. Capitelli 44  
 J. Cardinal 93  
 J. -D. Carette 119  
 M. T. Carle 151  
 R. W. Carlson 28  
 T. A. Carlson 28, 34, 89, 133  
 R. J. Carman 28  
 C. H. H. Carmichael 28  
 M. Carre 110  
 G. Carter 17, 32, 67  
 J. G. Carter 32, 67  
 S. L. Carter 28  
 V. L. Carter 66  
 H. E. Cartland 71  
 D. C. Cartwright 32, 35, 108  
 J. H. Carver 18  
 M. E. Casida 43  
 M. A. Casteel 7  
 A. W. Castleman 50  
 G. Caudle 149  
 S. Cavanagh 29  
 Ma Ce 29  
 R. J. Celotta 29  
 V. Cermak 29  
 U. Cerny 124  
 G. E. Chamberlain 29, 128  
 J. E. Chamberlain 111  
 V. Chan 55  
 W. F. Chan 29  
 S. Chandra 29  
 D. W. Chang 29  
 J. -S. Chang 10  
 R. S. F. Chang 29  
 T. N. Chang 29  
 J. M. Channing 159  
 J. Chapelle 30, 141  
 R. D. Chapman 30  
 D. Charalambidis 30, 140, 154  
 M. Charlton 30, 82, 103  
 Y. Chatelus 30  
 M. A. Chaudhry 30  
 R. Chechik 92  
 M. H. Chen 7, 22, 30, 31, 73, 139  
 Q. -M. Chen 88  
 X. Chen 154  
 Z. Chen 6, 31  
 M. Chenevier 31  
 K. T. Cheng 31, 66, 71  
 N. A. Cherepkov 4, 5, 6, 31, 124, 127  
 V. E. Cherkovets 31  
 L. V. Chernysheva 4, 5, 6

M. I. Chibisov 94  
 R. V. Chiflikyan 31, 45  
 J. E. Chilton 31, 32  
 S. L. Chin 86, 87, 89  
 V. F. Chinnov 13  
 V. T. Chiplonkar 32  
 D. P. Chong 43  
 P. D. Chopra 32  
 D. J. Chornay 32  
 M. H. Choudhury 32  
 L. -Y. Chow Chiu 129  
 L. G. Christophorou 32, 67  
 B. Chui 24  
 Y. Chung 121  
 A. Chutjian 32, 62, 130  
 S. Chwirot 129  
 C. Cisneros 39  
 C. W. Clark 26  
 E. M. Clarke 149  
 A. Claude 10  
 B. Cleff 32, 33  
 P. N. Clout 33  
 P. B. Coates 33  
 K. Codling 33, 65, 66, 91, 100  
 F. J. Coetzer 33  
 J. D. Coffman 33  
 E. A. Colbourn 33  
 M. J. Colgan 103  
 L. Colli 33  
 J. H. Collins 153  
 L. A. Collins 33  
 T. J. Colter 12  
 A. R. Comeaux 97, 146  
 J. Comer 152  
 F. J. Comes 33  
 K. T. Compton 33, 34  
 R. N. Compton 58  
 A. Comunetti 34  
 C. A. N. Conde 40, 131  
 M. J. Conneely 34  
 J. P. Connerade 10  
 V. W. Connors 147  
 G. R. Cook 98, 149  
 G. Cooper 29, 107  
 J. Cooper 128  
 J. W. Cooper 8, 34, 93  
 R. Cooper 27, 34  
 G. H. Copley 35  
 W. H. Corcoran 39, 92  
 C. H. Corliss 35  
 J. J. Corr 35, 96, 147

W. L. Courchene 153  
 P. L. Cowan 39  
 I. R. Cowling 49  
 H. L. Cox 20  
 J. D. Craggs 85, 138  
 M. Crance 35  
 B. Crasemann 7, 22, 30, 31, 44, 73, 139  
 D. T. Cromer 66  
 R. W. Crompton 35, 99, 112  
 A. Crowe 14, 35, 36, 96, 126  
 G. Csanak 35, 36, 77, 108  
 Gy. Csanak 18  
 I. Cserny 63  
 F. J. Currell 152  
 D. Cvejanovic 35, 36  
 S. Cvejanovic 35, 36  
 Z. Czyzewski 24  
  
 M. S. Dababneh 74  
 J. W. Daiber 36  
 C. Dal Cappello 9, 17, 36, 46, 58  
 A. Dalgano 36  
 V. Dallacasa 22, 36  
 G. Dall'Armi 36  
 N. R. Daiy 36  
 P. Dam 37  
 K. Danzamn 151  
 A. Daoud 85  
 F. J. da Paixao 6, 18, 36, 108  
 M. Dapor 36  
 T. Darko 37  
 A. Dasgupta 37  
 H. Dassen 37  
 H. W. Dassen 37  
 V. V. Datsyuk 37  
 S. K. Datta 37  
 S. M. Datta 10  
 H. Daum 37  
 D. M. Davidovic 6, 81  
 A. J. Davies 37  
 D. E. Davis 37  
 F. J. Davis 104, 146  
 H. T. Davis 50  
 J. Davis 43, 104, 146  
 G. Dawber 9, 60  
 E. F. Dawson 37  
 G. De Alti 38  
 A. G. Dean 37  
 A. de Boer 146  
 I. L. de Carvalho 37

P. Decleva 38, 132  
 D. de Fazio 55  
 P. DeFrance 14  
 A. Degeilh 18  
 J. A. de Gouw 38  
 F. J. de Heer 38, 70, 91, 124, 125,  
 136, 146  
 R. C. Dehmel 38  
 J. L. Dehmer 33, 38, 68, 130  
 J. P. de Jongh 38  
 C. A. de Lange 80  
 F. de la Ripelle 38  
 J. L. Delcroix 38, 48, 85  
 E. P. de Lima 50  
 J. F. Delpech 39  
 J. Delwiche 85  
 G. De Maria 39  
 P. V. Demekhin 133  
 Ph. V. Demekhin 80, 85, 87  
 V. F. Demekhin 133  
 J. J. Damelincoirt 155  
 V. I. Demidov 11  
 M. P. de Miranda 39  
 G. M. deMunari 22  
 A. V. Dem'yanov 2, 39  
 A. F. J. den Boggende 39  
 A. Denis 39  
 D. R. Denne 39  
 P. N. den Outer 141  
 E. Dershem 39  
 S. V. Desai 39  
 P. C. Deshmukh 89, 104, 108  
 S. Desi 103  
 R. Deslattes 39  
 T. A. De Temple 130  
 J. de Urquijo 39  
 B. I. Deutch 30  
 H. Deutsch 4, 14, 40, 93  
 A. M. Devyatov 144  
 D. P. Dewangan 40  
 W. Dezhnev 40  
 P. Dhez 123  
 T. H. V. T. Dias 40, 131  
 V. H. Dibeler 83  
 W. Dietrich 40  
 M. Diligenti 22, 153  
 D. Dill 110  
 M. Dillon 78  
 M. A. Dillon 24, 41, 78, 87  
 J. P. Dingirard 140  
 A. J. Dixon 41  
 D. A. Dixon 138  
 S. Djurovic 112  
 A. Dobay-Szegleth 41  
 A. I. Dolgin 157  
 G. G. Dolgov-Savelev 41  
 F. G. Donaldson 96, 136  
 V. A. Donchenko 41  
 M. Dondera 41  
 Q. Dong 41  
 G. Doolen 41  
 J. Doppelfeld 41, 145  
 P. Dore 41  
 F. H. Dorman 42  
 L. Dou 42  
 A. E. Douglas 33  
 J. -Cl. Dousse 42  
 J. D. Dow 134  
 J. T. Dowell 42  
 M. J. Downey 42  
 J. P. Downing 74  
 H. W. Drawin 42  
 R. M. Dreizler 75  
 H. Dresel 130  
 D. Dreux 28  
 H. -J. Drewitz 42  
 M. J. Druyvesteyn 42  
 D. Dube 42  
 R. D. du Bois 42, 43  
 A. I. Dudenko 80  
 D. Y. Dudko 113  
 P. Duffy 43  
 A. Duguet 43, 46, 85, 86, 132  
 A. Dullweber 43  
 M. Dummier 43  
 A. M. Dumont 28  
 A. -M. Dumont 28  
 A. J. Duncan 30, 64  
 G. H. Dunn 77, 93  
 F. B. Dunning 43, 119, 131  
 J. Dunning-Davies 32  
 C. Dupre 43, 86  
 A. Duquet 136  
 I. Duran 4  
 W. Dussa 10  
 D. Duston 43  
 T. L. Dutt 43  
 J. Dutton 13, 37, 43  
 C. Duzy 44  
 S. Dworetzky 44  
 K. G. Dyall 44  
 N. A. Dyatko 2, 39, 44

R. A. Eades 138  
 W. Eberhardt 44  
 J. H. Eberly 45  
 P. J. Ebert 80  
 O. Echt 99  
 C. R. Eddy 88  
 J. E. Eden 78  
 D. L. Ederer 91  
 W. F. Egelhoff 45  
 E. Eggarter 45  
 F. Egger 45  
 H. Egger 91  
 F. Ehlotzky 45, 73  
 H. Ehrhardt 7, 45, 86  
 R. Eibl 86  
 A. Ejiri 104  
 A. V. Eletskii 45  
 M. T. Elford 45  
 N. El Hakeem 95  
 N. El-Hakeem 45  
 E. Ellis 45  
 K. Ellis 60  
 B. El Marji 46  
 R. El Mkhantter 46  
 Th. M. El-Sherbini 141  
 M. E. Elta 12  
 J. Ely 124  
 A. Elzer 33  
 K. G. Emeleus 46  
 A. G. Engelhardt 46  
 P. C. Engelking 46  
 W. N. English 46  
 C. S. Enos 73  
 B. Eriksson 46, 134  
 P. Erman 46  
 D. D. Errett 46  
 W. Ervens 16  
 J. Escada 50  
 F. Eschen 72  
 B. Esser 41  
 B. Etemadi 70  
 C. J. Evans 37  
 J. J. Ewing 47  
 H. Ezumi 47  
  
 C. W. Fabjan 37  
 I. I. Fabrikant 47, 128  
 U. Facchini 33  
 D. W. Fahey 47  
 A. Fahlman 153

E. Fainelli 9  
 F. H. M. Faisal 14  
 F. E. Fajen 11  
 T. Falke 124  
 H. Falter 47  
 X. Fan 154  
 U. Fano 47  
 P. S. Farago 129  
 F. C. Farnoux 47  
 O. Faucher 30, 154  
 H. Faxen 47  
 R. Feder 47, 75, 76  
 S. R. Federman 47  
 R. K. Feeney 97  
 F. C. Fehsenfeld 47  
 W. S. Felps 8  
 M. Felsmann 72  
 P. V. Feltsan 47, 48, 156, 158  
 R. F. Feng 71, 154  
 J. Ferch 48  
 L. J. Ferderber 80  
 T. A. Ferett 89  
 G. J. Ferland 143  
 J. M. Fernandez-Varea 48  
 R. F. Fernsler 88  
 G. Ferrante 18  
 L. Ferrari 22  
 C. M. Ferreira 38, 40, 48, 50  
 R. Ferreira Marques 50  
 T. A. Ferrett 14, 63  
 A. Fiala 48  
 F. H. Field 86  
 W. R. Fielder 7  
 A. Filabozzi 41  
 D. Filipovic 48, 109, 134  
 M. A. Fineman 38  
 M. Fink 33, 48, 49, 72  
 M. G. J. Fink 49  
 U. Fink 49  
 K. H. Finken 103  
 F. Fiquet-Fayard 49  
 O. B. Firsov 94  
 O. Fischer 49  
 H. Fischle 49  
 L. H. Fisher 56  
 H. -J. Flaig 122  
 M. R. Flannery 95, 138  
 J. Fletcher 36, 49  
 V. Florescu 41  
 Y. M. Fogel 113  
 Ya. M. Fogel 143



M. Foltin 50  
 B. Foltz 55  
 V. I. Fomichev 11  
 W. C. Fon 50  
 S. N. Foner 50  
 J. C. Fong 24  
 A. C. Fontes 3, 4  
 J. L. Forand 50  
 W. K. Ford 8  
 L. Foreman 50  
 M. Forys 50  
 C. Fotakis 154  
 R. E. Fox 50, 64  
 R. L. Fox 50  
 M. M. Fraga 50  
 M. M. F. R. Fraga 50  
 B. Franklin 2  
 J. L. Franklin 86, 126  
 M. Franklin 37  
 W. Franzen 65  
 G. W. Fraser 50, 51  
 P. A. Fraser 3  
 G. R. Freeman 51, 66  
 R. H. Freeman 51  
 R. S. Freund 51, 123, 127, 136, 150  
 R. Frey 62  
 S. I. Friedman 11  
 L. A. Fridkin 142  
 G. V. Fridlyanskii 142  
 H. Friedrich 68  
 M. S. Frish 51  
 L. Fritsche 59, 61  
 S. Fritzsche 145  
 G. Fronzoni 38  
 D. C. Frost 51  
 L. S. Frost 51  
 J. Fryar 51  
 C. Fuchtbauer 51  
 K. Fujii 51  
 B. K. Fujikawa 63  
 J. Fujimoto 51  
 T. Fujimoto 52, 65  
 K. Fukuda 52  
 T. Fukuyama 106  
 O. T. Fundingsland 112  
 J. B. Furness 52, 88  
 J. E. Furst 52, 54  
 I. Fuss 52  
  
 F. X. Gadea 13  
 H. Gaertner 52

M. Gaillard 39  
 M. Galan 26  
 L. N. Gall 142  
 A. C. Gallagher 141  
 J. W. Gallagher 6, 63  
 R. Galonska 13  
 J. Galy 53  
 P. S. Ganas 53  
 B. Gao 109  
 S. Gao 157  
 A. Gaouar 155  
 A. A. Garamoon 69  
 E. A. Garbaty 53  
 G. Garcia 53, 121  
 A. B. Gardner 91  
 J. L. Gardner 121  
 W. R. Garrett 58  
 A. Garscadden 90  
 R. H. Garvey 57  
 J. Gaty 53  
 A. Gaudin 53  
 L. A. Gavallas 53  
 T. J. Gay 52, 54  
 A. G. Gaydon 33  
 M. F. Gehrke 19, 112  
 J. Geiger 54  
 F. Gelébart 111, 139  
 U. Gelius 46, 133, 134  
 S. Geltman 54, 104  
 D. S. Gemmell 72  
 T. C. Genoni 71  
 R. M. Georgiadis 12  
 J. B. Gerardo 54  
 G. N. Gerasimov 54  
 S. A. Gerasimov 54  
 K. Gerdorn 54  
 W. E. Gericke 54  
 I. Gertner 15  
 L. Gerward 54  
 A. S. Ghosh 37  
 F. A. Gianturco 55, 86  
 C. T. Gibson 15  
 G. Gibson 55  
 J. C. Gibson 55  
 J. R. Gibson 55  
 R. Gijbels 19  
 E. Gilberg 55  
 H. B. Gilbody 88, 95  
 J. M. Gingell 102  
 J. L. Giuljani 37  
 R. E. Gleason 76

H. S. Glick 55  
 I. I. Glotov 55  
 E. V. Gnatchenko 113  
 E. W. Godbole 75  
 C. L. Godinho 3  
 C. F. L. Godinho 4  
 K. Godling 91  
 V. A. Godyak 56  
 V. E. Golant 56  
 A. Gold 13  
 D. E. Golden 52, 56  
 J. E. Golden 56, 128  
 K. S. Golovanivsky 56  
 Yu. B. Golubevskii 17  
 Yu. B. Golubovski 56  
 R. Gomez 37  
 Y. Gong 133  
 J. Goodart 22  
 A. Goodings 37  
 A. Gopalan 20  
 M. S. Gopinathan 126  
 M. Goppert-Mayer 56  
 N. A. Gorbunov 57  
 T. W. Gorczyca 16, 58  
 Yu. S. Gordeev 2  
 E. B. Gordon 57  
 T. W. Gorezyca 57  
 V. N. Gorshkov 17  
 F. Gossler 51  
 C. Goto 52  
 B. Gots 123  
 D. Graf 57  
 W. J. Graham 57  
 B. Granitza 48  
 I. P. Grant 13, 44  
 D. B. Graves 57, 133  
 D. P. Grechukhin 57  
 A. E. S. Green 16, 53, 57, 122, 147  
 M. C. Green 58  
 A. E. Greene 58  
 F. T. Greene 58  
 J. Gresser 30, 125  
 S. A. Gribovskii 91  
 F. Grieser 34  
 D. C. Griffin 58  
 T. C. Griffith 30  
 F. A. Grimm 28, 34  
 M. Grin 58  
 R. Grisenti 157  
 J. T. Grissom 58  
 J. Groh 58

R. E. Grojean 58  
 B. Grosswendt 24, 58  
 Z. -B. Group 82  
 N. Gruen 3  
 A. N. Grum-Grzhimailo 10, 25, 58  
 R. Grunberg 58  
 H. Grundel 130  
 R. F. Gruzdev 59  
 M. Gryzinski 59  
 N. Gulley 9, 158  
 R. J. Gulley 55  
 X. Guo 29  
 G. Gupta 65  
 S. C. Gupta 59  
 S. K. Gupta 61  
 M. V. Gur'ev 133  
 D. V. Gurevich 3  
 M. A. Gusinow 54  
 Yu. K. Gus'kov 59  
  
 T. Haag 26  
 H. Haberland 59  
 R. Haberland 59  
 G. N. Haddad 59, 121  
 D. W. O. Heddle 32, 33, 63  
 D. H. Hadison 52  
 A. Haffad 16  
 Z. A. Hafidh 60  
 R. Hagemann 53  
 O. F. Hagen 47  
 H. D. Hagstrum 60  
 Y. Hahn 60  
 N. Halberstadt 13  
 R. Hall 9, 148  
 R. I. Hall 60, 79  
 R. Hallin 148  
 J. M. Hammer 60  
 P. Hammond 13, 26, 35, 61, 105  
 A. Hamnett 23, 61  
 J. E. Handen 2  
 W. Hanle 61  
 G. C. Hanna 46  
 G. F. Hanne 43, 61, 72, 140  
 J. E. Hansen 61, 64, 81, 82, 99, 129  
 M. J. Hanus 55  
 S. Hara 106  
 R. Harberland 61  
 J. E. Hardis 130  
 P. W. Harland 61, 140  
 S. A. Harris 140  
 A. G. Harrison 61

D. E. Harrison 75  
 K. G. Harrison 136  
 M. F. A. Harrison 41  
 P. Hartmetz 124  
 H. L. Hartnagel 60  
 T. W. Hartquist 61  
 J. B. Hasted 62  
 Y. Hatano 94, 133, 138  
 C. Hattig 132  
 S. Hattori 62  
 E. Haug 16  
 T. Hayaishi 60, 62, 139  
 T. Hayakawa 62  
 M. Hayashi 62  
 S. Hayashi 62  
 H. Hayashii 51  
 T. R. Hayes 150  
 H. Hda 36  
 C. E. Head 78  
 O. Heber 15  
 Ch. Heckenkamp 62  
 D. W. O. Heddle 32, 33, 63  
 H. G. M. Heideman 29, 38, 141  
 P. A. Heimann 14, 63, 89  
 J. Heinesch 102  
 J. Heintze 49  
 U. Heinzmann 62, 63, 122  
 A. P. Heison 63  
 V. Helbig 105, 122, 151  
 K. Helenelund 133  
 T. M. Helliwell 137  
 H. Heim 63, 132  
 O. Hemmers 14, 16  
 M. A. Hender 96  
 A. Henins 39  
 B. L. Henke 63  
 W. Henkes 47  
 W. Henneberg 63  
 R. J. W. Henry 30  
 J. Herbak 63, 134  
 U. Hergenbahn 90  
 R. R. Herm 144  
 Z. Herman 29  
 D. Herrmann 72  
 O. Herrmann 63  
 N. Herschbach 20  
 I. V. Hertel 6  
 M. P. Hertlein 63  
 B. A. Hess 132  
 G. G. Hess 86  
 K. H. Hesselbacher 45

J. E. Hesser 95  
 G. R. Heyland 30  
 A. E. D. Heylen 64  
 A. Hibbert 50, 64  
 W. M. Hickam 64  
 P. J. Hicks 152  
 P. R. Hilton 64  
 A. Hiltunen 64  
 A. Himoudi 155  
 W. Hink 17, 57, 157  
 J. A. Hipple 132  
 R. Hippler 30, 64, 65  
 E. Hirota 154  
 Y. K. Ho 74  
 R. M. Hobson 10  
 M. Hochlaf 79  
 P. S. Hoeper 65  
 R. Hoffmeyer 110  
 D. Hofsaess 65  
 W. Hogervorst 142  
 D. M. P. Holland 65, 130  
 J. K. Holmes 147, 149  
 T. Holstein 65  
 J. Holtsmark 47, 65  
 S. P. Hong 65  
 S. T. Hood 65, 89, 90, 149  
 J. W. Hooper 97  
 A. N. Hopersky 65, 133  
 J. Horacek 84  
 T. Horie 78  
 J. Hormes 10, 84  
 S. Hornemann 140  
 F. A. Horrigan 131  
 J. Hoszowska 42  
 H. Hotop 20, 66, 74, 112, 124, 149  
 Q. Hou 66  
 R. G. Houlgate 65, 66  
 S. Howell 2  
 R. J. Howerton 66  
 K. -N. Huang 31, 66, 71  
 S. S. S. Huang 66  
 J. H. Hubbell 66  
 B. A. Huber 66, 81, 149, 152  
 P. Huber 34  
 M. J. Hubin-Franckin 85  
 W. Hubner 66  
 J. E. Hudson 140  
 A. Huetz 126  
 R. E. Huffman 67, 88  
 A. L. Hughes 67  
 J. G. Hughes 88

S. Huldt 46  
 A. M. Hunter 71  
 W. M. Huo 67  
 G. S. Hurst 21, 146  
 N. S. Hush 64  
 M. Husssain 67  
 R. Huster 67, 149  
 P. Hvelplund 30  
 H. A. Hyman 15, 44, 67, 68  
  
 I. T. Iakubov 8, 68  
 G. E. Ice 7, 22  
 A. Ida 155  
 I. Iga 68, 105  
 Y. Iguchi 104  
 W. Ihra 68  
 Y. Iketaki 68, 69, 133  
 N. Ikuta 139  
 E. Illenberger 32  
 K. Imre 105  
 M. G. Inghram 144  
 M. Inokuti 24, 38, 45, 68, 78, 82, 93  
 A. F. Ioffe 5  
 D. J. G. Irwin 69  
 S. Ishi 74  
 T. Ishihara 101, 148  
 H. Ishii 69  
 F. A. Iskanderov 8  
 I. A. Ismail 69  
 G. Isoyama 62  
 Y. Itikawa 68, 69  
 K. Ito 60, 69, 92  
 H. Itoh 122  
 B. A. Ivanov 145  
 V. A. Ivanov 69  
 V. K. Ivanov 5, 6  
 T. Iwai 78  
 S. Iwata 69  
 I. A. Izmailov 37  
  
 C. H. Jackman 57  
 J. H. Jacob 69  
 F. M. Jacobsen 30  
 T. Jacobson 105  
 A. Jaegle 43  
 G. Jager 70  
 A. Jain 70, 73  
 D. H. Jakubassa-Amundsen 70  
 G. K. James 2  
 R. K. Janev 4  
 W. Jans 70  
  
 R. H. Jansen 70  
 R. H. J. Jansen 9, 13, 38  
 G. Janzen 70  
 A. Jaron 45  
 J. Jauhainen 2  
 R. Jauregui 26  
 J. Javanainen 45  
 J. -P. Jay-Gerin 113  
 Z. M. Jelenak 70  
 B. M. Jelenkovic 70, 92, 112, 115, 145  
 G. M. Jellum 133  
 J. G. Jenkin 75  
 B. -H. Jeon 70  
 G. Jesion 74  
 W. P. Jesse 71  
 Q. Ji 71  
 L. Jiaming 114  
 W. Jitschin 64  
 C. J. Joachain 27, 71  
 H. W. Jochims 44  
 U. Johann 91  
 T. L. John 71  
 R. M. St. John 87  
 C. E. Johnson 141  
 L. P. Johnson 71  
 T. H. Johnson 71  
 W. R. Johnson 31, 49, 66, 71, 109  
 D. D. Johnston 136  
 J. Jolly 71  
 A. E. Jonas 28  
 D. W. Jones 72, 103  
 E. G. Jones 61  
 H. A. Jones 86  
 S. Jones 72, 91  
 T. G. Jones 55  
 G. Josifov 85  
 K. Jost 72  
 B. Joulakian 36  
 J. Jovanovic 112  
 A. Jowko 50  
 D. C. Joy 24  
 O. Judd 72  
 D. L. Judge 28  
 K. Jung 45  
 M. Jung 8, 72  
 B. R. Junker 128  
  
 N. M. Kabachnik 10, 11, 15, 72, 90, 139  
 S. P. Kabanov 111  
 A. P. Kabilan 56  
 M. V. Kabanov 41

|                                    |                                                                  |
|------------------------------------|------------------------------------------------------------------|
| K. Kadota 72                       | H. P. Kelly 28, 75, 109, 113, 152                                |
| H. Kafrouni 140                    | R. L. Kelly 75                                                   |
| Yu. M. Kagan 53, 56, 72, 73        | P. C. Kemeny 75                                                  |
| Y. Kageyama 62                     | F. Kemper 75, 76                                                 |
| R. Kajikawa 51                     | D. J. Kennedy 76, 93                                             |
| V. P. Kalanov 73                   | R. E. Kennerly 76                                                |
| E. Kallne 123                      | C. Kenty 76                                                      |
| E. Y. Kamber 73                    | H. G. Kerkhoff 14, 63                                            |
| J. Z. Kaminski 45, 73              | J. A. Kernahan 69, 76                                            |
| M. Kamm 149                        | L. Kerwin 67, 76, 97                                             |
| H. Kanamori 154                    | J. Kessler 43, 48, 63, 76                                        |
| O. Kandler 99                      | J. W. Keto 76                                                    |
| Y. Kaneko 72, 73, 107              | L. Kevan 15                                                      |
| F. Kannari 73                      | A. D. Khakhaev 72, 73                                            |
| S. S. Kano 88                      | M. A. Khakoo 35, 76, 77                                          |
| I. Kanomata 107                    | V. D. Khalimulina 130                                            |
| E. P. Kanter 72                    | P. Khan 37                                                       |
| D. Kantor 89                       | S. P. Khare 77                                                   |
| P. C. Kapple 37                    | A. S. Kheifets 6, 77                                             |
| V. Kara 109                        | V. V. Khmelenko 57                                               |
| K. R. Karim 70, 73                 | M. A. Khodorkovskii 157                                          |
| Kh. R. Karim 7, 73                 | I. V. Kholin 140                                                 |
| J. Karle 74                        | A. L. Khomkin 77                                                 |
| L. Karlsson 148                    | A. N. Khoperskii 87                                              |
| W. L. Karras 105                   | A. G. Khrapak 68                                                 |
| J. Karvonen 2                      | N. A. Khromov 81                                                 |
| G. Karwasz 134, 157                | S. N. Khvorostovskii 73                                          |
| G. P. Karwasz 25, 27, 74, 134, 157 | M. H. Kibel 77                                                   |
| E. Kaslahn 111                     | L. J. Kieffer 14, 52, 66, 77, 78                                 |
| G. B. Kasting 110                  | K. P. Killeen 78                                                 |
| T. Katayama 69                     | Y. -K. Kim 67, 78                                                |
| T. Kato 136, 137                   | Y. S. Kim 29                                                     |
| Y. Kato 74                         | A. Kimura 78                                                     |
| H. Katori 74                       | D. W. Kimura 73                                                  |
| E. A. Katrunova 143                | Ma. Kimura 78                                                    |
| R. Kau 74, 124                     | M. Kimura 24, 68, 78, 82                                         |
| W. E. Kauppila 42, 74              | P. J. Kindlmann 15                                               |
| S. Kaur 74, 75                     | D. B. King 78                                                    |
| T. Kawai 80                        | G. C. King 9, 13, 25, 26, 32, 37, 60, 61, 79, 101, 116, 158, 159 |
| M. Kawamura 47                     | A. Kingston 79                                                   |
| M. Kawasaki 82                     | A. E. Kingston 79, 88                                            |
| P. A. Kazaks 75                    | R. C. Kirkpatrick 79                                             |
| S. A. Kazantsev 75                 | J. Kirz 155                                                      |
| M. Keane 90                        | O. Kiselev 79                                                    |
| P. Kebarle 75                      | L. Kissel 158                                                    |
| W. Kedzierski 75                   | J. Kistemaker 124, 125                                           |
| R. A. J. Keijser 145               | K. Kitamori 79                                                   |
| P. Kelfve 37                       | B. Kivel 79                                                      |
| D. E. Kelleher 151                 | D. Kivelson 137                                                  |
| N. Keller 88                       | A. Kivimaki 2, 103, 120                                          |
| S. Keller 75                       |                                                                  |

T. Kjeldaas 64  
 H. Kjeldsen 79  
 D. Klar 124, 149  
 H. Klar 64  
 P. Kleban 50  
 E. Klein 67  
 F. S. Klein 113  
 H. Kleinpoppen 18, 30, 64, 115  
 E. D. Klema 79  
 W. Klemperer 51  
 E. M. Kleshkov 142  
 C. Klett 66  
 L. E. Kline 108  
 J. Z. Klose 79, 80  
 M. Klose 140  
 H. Knudsen 30, 109  
 E. L. Knuth 152  
 V. A. Knyazev 41  
 H. Kobayashi 78  
 A. Kober 63  
 P. H. Kobrin 80  
 V. A. Kochelap 37  
 I. Kochetov 3  
 I. V. Kochetov 2, 39  
 A. G. Kochur 80  
 M. Kock 10, 151  
 S. M. Koeckhoven 80  
 H. A. Koehler 80  
 A. M. Kohler 117  
 W. E. Kohler 126  
 F. Koike 68  
 T. Koizumi 106  
 R. Kollath 80, 115, 116  
 N. B. Kolokelov 73  
 A. P. Komar 145  
 L. L. Komarova 56  
 T. Kondow 80, 106  
 A. A. Konkov 80  
 S. H. Koozekanani 80, 81, 131  
 M. Kopric 81  
 R. L. Kornblith 151  
 V. V. Korobkin 81  
 A. V. Korol 81  
 V. A. Korolev 145  
 A. I. Koroikov 81  
 H. Koschmieder 115  
 H. R. Koslowski 81  
 H. Kossmann 81  
 G. F. Koster 22, 131  
 T. C. Kotze 33  
 K. Koura 81

K. Kouzuma 139  
 A. Kover 82  
 T. Z. Kowalski 82  
 K. Kowari 68, 78, 82  
 A. Koyama 82  
 I. V. Kozhevnikov 11  
 G. I. Kozlov 82  
 G. Kracke 82  
 T. Kraft 124  
 I. Krajcar-Bronic 78  
 B. Krassig 72, 81, 82  
 B. Kraus 122, 123  
 M. O. Krause 28, 133, 153  
 M. Krauss 83, 149  
 V. D. Kravtsov 91  
 J. Kreil 83, 149  
 J. R. Krekovsky 99  
 J. Krenz 83  
 E. Krishnakumar 83  
 J. M. Krishner 83  
 H. Kruger 149  
 A. A. Kruithof 83, 142  
 S. Krummacher 1  
 G. Kruppa 70  
 M. Kryszewski 135  
 A. Kshirsagar 110  
 Y. Kuang 41  
 M. Y. Kuchiev 5  
 M. Yu. Kuchiev 5, 83, 84  
 K. Kuchitsu 62, 106  
 H. N. Kucukarpaci 84  
 U. Kuetgens 84, 145  
 E. Kugler 61  
 M. Kuhne 70  
 V. I. Kukulin 84  
 A. Kumar 77, 84  
 V. Kumar 132  
 J. A. Kunc 59  
 A. Kundu 84  
 O. K. Kanimori 80  
 T. Kunst 84  
 H. Kuntzemuller 123  
 T. Kunz 104  
 V. A. Kupchenko 5, 6  
 A. Kuppermann 84  
 S. E. Kupriyanov 84, 133  
 M. Kupsch 14  
 M. Kurachi 84, 104  
 M. Kurepa 85, 109, 144  
 M. V. Kurepa 8, 84, 85, 146  
 H. D. Kurland 83

M. J. Kushner 106  
 E. J. Kuster 75  
 N. N. Kutsina 156  
 M. Kutzner 85  
 C. E. Kuyatt 29, 85  
 V. V. Kuznetsov 41  
 C. K. Kwan 42  
 J. Kyles 27  
 T. Kylli 64  
  
 G. Laaricchia 109  
 R. W. Labahn 53  
 P. Lablanquie 79, 85  
 P. Laborie 85  
 S. V. Lavrentev 87, 133  
 M. E. Lagus 19  
 R. Lagushenko 85  
 B. M. Lagutin 85, 87, 133  
 A. Lahmam-Bennani 9, 17, 43, 46, 85,  
 86, 136  
 M. Lahmani 49  
 P. Lambropoulos 30, 140  
 M. Lamoureux 47  
 P. Lamp 20, 86  
 F. W. Lampe 14, 86  
 D. A. Landman 86  
 N. F. Lane 106  
 R. Lang 91  
 B. Langer 14, 16, 63, 101  
 G. Langhans 122  
 L. Langhans 7, 86  
 H. Langhoff 104  
 I. Langmuir 86  
 G. Laricchia 30, 82, 103  
 F. P. Larkins 44  
 S. F. J. Larochelle 86, 87  
 J. C. Larrabee 67  
 I. D. Latimer 87  
 Z. Z. Latypov 84  
 C. Lauenstein 13  
 S. Lauer 85, 87  
 C. Laure 14  
 R. E. LaVilla 39  
 M. Lavollee 79  
 S. V. Lavrentev 87, 133  
 V. M. Lavrov 2  
 G. M. Lawrence 87  
 S. A. Lawton 130  
 S. Lazarescu 89  
 E. Leber 20  
 T. LeBrun 8, 34, 72

M. Lecas 46  
 R. C. G. Leckey 75  
 D. Lecler 57  
 S. Lederman 37  
 M. Le Dourneuf 71, 87  
 C. M. Lee 71, 114  
 C. -M. Lee 87  
 C. S. Lee 35  
 E. -M. Lee 121  
 J. S. Lee 153  
 L. C. Lee 28  
 M. -T. Lee 68, 105  
 P. Lee 63, 87  
 Y. T. Lee 105  
 D. Lefaivre 87  
 M. Legentil 23  
 E. S. Leherissey 127  
 H. Lehrke 87  
 L. Lei 114  
 T. Leisner 99  
 C. J. Lenander 87  
 P. E. A. Lenard 1, 88  
 F. J. Leng 77  
 M. A. Lennon 15, 88  
 P. Lenz 123  
 D. Leonhardt 88  
 J. Lerme 110  
 W. Lessmann 33  
 G. Levin 113  
 J. C. Levin 7, 88  
 N. E. Levine 88  
 M. E. Levy 88  
 B. R. Lewis 88  
 T. J. Lewis 64  
 G. P. Li 88  
 I. S. Li 5  
 J. Li 66, 75, 88, 91, 157  
 T. Z. Li 24  
 Z. -G. Li 88  
 Y. Liang 89  
 D. A. Liberman 41  
 W. Lichten 89  
 H. Liebel 85, 87  
 J. Liedtke 91  
 P. B. Liescheski 29  
 J. Liesegang 75  
 C. Lifshitz 89  
 F. A. S. Ligthart 145  
 D. Lilienthal 25  
 L. Liljeby 88  
 R. A. Lilly 89

C. C. Lin 11, 19, 31, 32, 76, 89, 112, 122  
 C. D. Lin 71, 89  
 S. L. Lin 89, 133  
 I. Lindau 155  
 F. Linder 89, 94, 150, 151  
 D. W. Lindle 14, 16, 28, 34, 63, 80,  
                   88, 89, 97  
 B. G. Lindsay 132  
 L. Lipsky 34  
 A. Lisini 38, 132  
 V. A. Lisovskiy 89  
 G. G. Lister 89  
 J. Liu 157  
 L. Liu 66  
 S. H. Liu 14, 63, 89, 97  
 A. E. Livingston 69  
 J. A. Llewellyn 128  
 C. R. Lloyd 89, 90, 127  
 N. M. Lobasheva 127  
 M. Loewenstein 131  
 D. Loffhagen 90  
 A. V. Loginov 59  
 B. Lohmann 15, 26, 29, 90, 136  
 A. V. Lomonosov 57  
 L. A. Lompre 9  
 W. H. Long 90  
 A. Longstreet 108  
 S. N. Lopatin 144  
 R. G. Lord 90  
 R. Lorenzo 4  
 J. Los 146  
 J. R. Losee 90  
 W. Lots 90  
 J. Loureiro 48  
 J. J. Lowke 90  
 E. D. Lozanskii 90  
 K. T. Lu 87, 91  
 Y. Lu 60  
 C. B. Lucas 91  
 J. Lucas 2, 3, 84, 86  
 S. P. Lucey 116  
 L. A. Luizova 73  
 T. S. Luk 55, 91  
 D. Lukic 85  
 A. P. Lukirskii 91  
 R. W. Lunt 46  
 B. F. J. Luyken 91  
 H. J. Luyken 70  
 R. I. Lyagushchenko 56, 72  
 A. G. Lyalin 81

A. V. Lyash 142, 143  
 L. Lyn 121  
 M. J. Lynch 91  
  
 C. Ma 18, 37, 48, 91, 92  
 C. -M. Ma 91  
 C. J. MacCallum 117  
 M. A. MacDonald 8, 34, 60, 152  
 L. E. Machado 35  
 K. Maciag 134  
 R. G. A. R. MacLagan 140  
 R. P. Madden 91  
 D. H. Madison 12, 72, 91, 92, 94, 147  
 K. Maeda 92  
 H. Maezawa 139  
 B. Magel 101, 123  
 A. I. Magunov 10, 11  
 B. H. Mahan 105  
 M. Mahgerefteh 52  
 H. Maier-Leibnitz 92  
 G. Mainfray 9, 92  
 T. Makabe 92, 107  
 I. V. Makasyuk 69  
 Yu. I. Malakhov 92  
 G. Malamud 92  
 L. Malaspina 39  
 I. C. Malcolm 37, 92  
 C. Malesset 18  
 B. S. Malone 92  
 C. M. Maloney 92  
 G. N. Malovic 92  
 D. D. Malyuta 2, 144  
 G. Mambriani 22  
 S. K. Mandal 37  
 A. Mandle 92  
 F. Manero 53  
 J. A. Mangaro 69  
 A. Mann 151  
 S. T. Manson 76, 89, 93, 103, 104, 107, 117  
 C. Manus 92  
 A. Menzel 14  
 Z-P. Mao 91  
 P. Maragakis 30, 140  
 N. H. March 51  
 P. Marchand 93, 142  
 V. S. Marchenko 93  
 D. Marger 124  
 J. Margerise 57  
 D. Margreiter 40, 93  
 B. Marinkovic 109  
 H. Mark 30, 31



|                   |                                                                        |                            |                     |
|-------------------|------------------------------------------------------------------------|----------------------------|---------------------|
| T. D. Mark        | 40, 45, 50, 63, 93, 94, 132, 153                                       | J. C. McGowan              | 97                  |
| P. Marmet         | 19, 76, 87, 93, 94                                                     | J. W. McGowan              | 146                 |
| F. F. Marmo       | 28                                                                     | J. Wm. McGowan             | 97                  |
| G. V. Marr        | 65, 66, 91, 94, 150                                                    | I. McGregor                | 64                  |
| N. Martensson     | 46, 134                                                                | J. H. McGuire              | 56, 128             |
| A. R. Martin      | 94                                                                     | B. J. McKenzie             | 13                  |
| B. Martinez       | 122                                                                    | D. R. A. McMahon           | 128                 |
| J. D. Martinez    | 270                                                                    | J. H. McMillen             | 67, 97              |
| I. Martinson      | 46                                                                     | A. McPherson               | 97                  |
| K. E. Martus      | 94                                                                     | D. A. McPherson            | 97                  |
| Yu. V. Martynenko | 94                                                                     | L. J. Medhurst             | 63, 89, 97          |
| V. D. Marusin     | 19                                                                     | C. A. Meek                 | 46                  |
| Y. Masatani       | 51                                                                     | W. Mehlhorn                | 1, 67, 98, 119, 149 |
| C. Masche         | 48                                                                     | J. Mehr                    | 98                  |
| E. A. Mason       | 89, 140                                                                | H. A. J. Meijer            | 124                 |
| N. J. Mason       | 94, 102                                                                | H. M. Meiners              | 98                  |
| H. S. W. Massey   | 26, 94                                                                 | L. V. Meisel               | 98                  |
| S. Matayoshi      | 156                                                                    | H. J. Meister              | 98                  |
| E. Mathieson      | 45, 50, 51, 95                                                         | W. Melhorn                 | 32, 33              |
| R. F. Mathis      | 95                                                                     | A. S. Mel'nikov            | 57                  |
| D. Mathur         | 95                                                                     | C. E. Melton               | 98                  |
| T. A. Matilsky    | 95                                                                     | L. B. Mendelsohn           | 98                  |
| T. Matsui         | 60                                                                     | A. J. Mendez               | 98                  |
| S. Matsuoka       | 139                                                                    | G. D. Meneses              | 35, 108             |
| S. Matt           | 3, 40                                                                  | X. -K. Meng                | 90                  |
| J. A. D. Matthew  | 155                                                                    | J. E. Mentall              | 98                  |
| I. S. Mattos      | 3                                                                      | G. Mentzel                 | 85                  |
| L. Mattsson       | 148                                                                    | G. N. Mercer               | 15, 98              |
| D. V. Maxey       | 32                                                                     | H. J. H. Merks-Eppingbroek | 27                  |
| J. Maya           | 85                                                                     | A. L. Merts                | 33                  |
| H. F. Mayer       | 95                                                                     | P. H. Metzger              | 98                  |
| S. Mayer          | 95                                                                     | J. Meyer                   | 105                 |
| F. Mayol          | 120                                                                    | M. Meyer                   | 99, 145             |
| R. Mayol          | 48                                                                     | M. Meyyappan               | 99                  |
| J. Mazeau         | 126                                                                    | L. Michalak                | 110                 |
| M. A. Mazing      | 95                                                                     | W. Miehe                   | 99                  |
| P. McCallion      | 95                                                                     | S. R. Mielczarek           | 85, 128             |
| D. McCammon       | 11                                                                     | B. Mielewska               | 159                 |
| K. J. McCann      | 95                                                                     | Y. Mikawa                  | 126                 |
| I. E. McCarthy    | 9, 25, 52, 65, 95, 96,<br>100, 140, 148, 149                           | U. Mikkelsen               | 109                 |
| J. W. McConkey    | 14, 35, 37, 50, 51, 75,<br>76, 92, 96, 105, 136,<br>138, 141, 147, 157 | E. Mikkola                 | 99                  |
| D. L. McCorkie    | 32                                                                     | A. Mikuni                  | 62                  |
| K. E. McCulloh    | 96                                                                     | V. N. Mileev               | 99                  |
| M. R. C. McDowell | 22, 96                                                                 | V. M. Milenin              | 73                  |
| C. A. McDowell    | 51                                                                     | B. M. Miles                | 151                 |
| R. P. McEachran   | 12, 74, 75, 91, 97, 99,<br>130, 155, 159                               | B. S. Milic                | 158                 |
| S. P. McGlynn     | 8, 119                                                                 | D. L. Miller               | 134                 |
|                   |                                                                        | D. R. Miller               | 38                  |
|                   |                                                                        | J. M. Miller               | 99                  |
|                   |                                                                        | H. B. Milloy               | 99                  |
|                   |                                                                        | J. G. C. Milne             | 37                  |

T. A. Milne 58  
 D. J. R. Mimmagh 99  
 M. Minic 144  
 R. Minkowski 99  
 L. Minnhagen 100  
 A. M. Mirzabekov 73  
 T. M. Mishonov 18  
 H. P. Mital 29  
 A. C. G. Mitchell 100  
 J. F. B. Mitchell 27  
 P. Mitchell 100  
 T. K. Mitra 100  
 J. Mitroy 26, 100  
 L. K. Mitryukhin 81  
 A. A. Mityureva 100, 101  
 T. Miyazaki 139  
 J. Mizuno 101, 148  
 C. Mnus 9  
 B. Mobus 70, 101, 123  
 W. E. Moddeman 28  
 K. A. Mohamed 101  
 C. B. O. Mohr 94, 101, 105  
 B. L. Moiseiwitsch 102  
 E. Molins 120  
 H. Moller 102, 124  
 N. H. Moller 102  
 S. P. Moller 109  
 R. Molof 29  
 J. J. Monaghan 102  
 P. Monot 9  
 C. E. Moore 102  
 P. G. Moore 49  
 T. J. Moratz 106  
 E. Morenzoni 109  
 D. V. Morgan 102  
 E. J. Morgan 102  
 H. D. Morgan 98  
 W. L. Morgan 102  
 R. Morgenstern 141  
 I. Mori 106  
 T. Mori 92  
 P. Morin 1, 85  
 Y. Morioka 60, 62, 69  
 K. Morita 133  
 Yu. G. Morozov 158  
 I. Morrison 100  
 J. D. Morrison 42, 71, 102  
 R. D. Morrison 102  
 P. M. Morse 3  
 E. J. Morton 84  
 F. A. Moscatelli 103

P. A. Moskowitz 31  
 K. Motohasi 139  
 F. Motte-Toilet 102  
 H. R. Moustafha-Moussa 125  
 J. Moxom 103, 109  
 A. Mozumder 103, 137  
 A. Msezane 103  
 A. Z. Msezane 6, 16, 31  
 D. Mueller 52  
 D. W. Mueller 56  
 T. Mukoyama 154  
 Th. F. A. Mulder 150  
 D. R. Mullins 28, 34  
 H. G. Muller 63  
 K. G. Muller 87, 103  
 M. Muller 123  
 W. O. Muller 103  
 D. R. Mullins 28, 34  
 D. E. Murnick 103  
 P. W. Murphy 103  
 M. J. Murray 88  
 J. Mursu 2, 64, 103  
 J. Musielok 103  
 K. Musiol 103  
 K. S. Mustafin 72

A. N. Nadan 111  
 S. Nagakura 69  
 G. P. Nagy 61  
 L. Nagy 103  
 P. Nagy 61, 103  
 T. Nagy 103  
 S. N. Nahar 104  
 S. Nakai 104  
 Y. Nakai 104  
 Y. Nakajima 82  
 M. Nakamura 62, 104, 106  
 Y. Nakamura 70, 84, 104  
 H. Nakanishi 104  
 N. Nakano 92  
 B. H. Nall 50  
 Y. Nambu 65  
 T. Namioka 69  
 B. C. Nandi 3  
 A. P. Napartovich 2, 39, 44  
 U. Narain 29  
 G. Nasreen 89, 104  
 N. Nath 2  
 F. Y. Naumkin 104  
 R. M. Nayak 77  
 V. N. Nechaev 156

S. Neeser 104  
 D. R. Nelson 104  
 I. Nenner 85  
 D. Neri 21  
 R. K. Nesbet 104  
 K. F. Ness 22  
 Yu. E. Nesterikhin 3  
 H. Neu 104  
 V. G. Neudatchin 156  
 W. R. Newell 94, 96  
 A. S. Newton 107  
 C. Y. Ng 105  
 E. W. Ng 20  
 A. J. C. Nicholson 42, 102  
 K. P. Nick 105  
 J. C. Nickel 105  
 F. H. Nicoll 101, 105  
 A. Niehaus 66, 105, 141  
 R. A. Nielsen 105  
 M. Nishida 78  
 H. Nishimura 105  
 Y. Nishimura 107  
 C. J. Nobel 52  
 H. Noda 69  
 R. A. Nodwell 105  
 J. Noffke 59, 61  
 J. C. Nogueira 68, 105  
 G. Nolte 113  
 E. Nommiste 2, 103, 120  
 J. Nordgren 112  
 S. Nordholm 64  
 C. Nordling 112  
 K. -E. Norell 148  
 C. Noren 105, 157  
 G. E. Norman 17  
 C. E. Normand 105  
 R. Novick 44  
 H. Nubbemeyer 105, 106  
 G. L. Nyberg 77

J. K. O'Connell 106  
 N. Oda 138  
 S. Ogata 106  
 I. Ogawa 106  
 M. Ogawa 28, 149  
 G. L. Ogram 10  
 G. N. Ogurtsov 106  
 M. Ohnishi 136  
 M. Ohno 10, 106  
 S. Ohshima 106  
 S. Ohtani 154

M. Ohwa 106  
 K. Ohya 106  
 P. C. Ojha 106  
 T. Okada 107  
 K. Okazaki 107  
 S. Okuda 65, 107  
 S. Okudaira 107  
 J. Olmsted III 107  
 T. N. Olney 107  
 H. N. Olsen 107  
 L. A. R. Olsen 23  
 J. K. Olthoff 115, 116  
 T. F. O'Malley 59, 107, 112  
 K. Onda 138  
 W. Ong 107  
 T. Onishi 80  
 Y. Oono 107  
 C. B. Opal 108  
 A. L. Osherovich 17, 143  
 T. Oshio 104  
 S. Oss 157  
 M. Otsubo 139  
 W. Otto 70  
 J. W. Otvos 108  
 A. E. Ovechkin 143  
 H. Ozaki 51

V. E. Panchenko 41  
 J. L. Pack 108  
 B. D. Padalia 77  
 N. Padial 108  
 N. T. Padial 36  
 R. Padma 108  
 I. Pages 140  
 J. M. Paikeday 108, 109  
 B. K. Pakhtusov 3  
 A. F. Pal' 39  
 V. Palladino 109  
 K. Paludan 109  
 P. A. Pal'yanov 41  
 C. Pan 109  
 R. Panajotovic 109  
 G. Ju. Panasjuk 73  
 S. R. Pandya 109  
 A. Pansky 92  
 W. -F. Z. Papp 109  
 C. Paquet 93  
 J. Parellada 120  
 F. Parente 22  
 B. Paripas 109  
 J. H. Parker 90, 148

W. F. Parks 47  
 F. A. Parpia 109  
 A. C. Parr 33, 130  
 L. G. Parratt 110  
 R. Pascual 96  
 H. Patana 2  
 R. K. Pathak 110  
 S. H. Patil 110  
 A. V. Pavlitchenkov 156  
 G. Peach 110  
 J. L. Peacher 110  
 R. F. W. Pease 24  
 W. B. Peatman 110  
 Wm. B. Peatman 110  
 V. Pejcev 109  
 V. M. Pejcew 85  
 A. Pelc 110  
 V. Pelikan 144  
 M. Pellarin 110  
 F. Penent 79  
 B. M. Penetrante 111  
 N. P. Penkin 11, 100, 101  
 F. M. Penning 42, 83  
 I. Peres 111, 126  
 M. Peres 89  
 J. Peresse 111, 139  
 A. A. Perov 84, 111  
 W. Persson 2, 61, 82  
 W. K. Peterson 108  
 A. Pery-Thorne 111  
 R. Peterkop 111  
 J. R. Peterson 10, 111  
 L. R. Peterson 57, 111  
 B. Petersson 111  
 D. Petrini 111  
 I. D. Petrov 74, 85, 87, 112, 124, 133  
 S. Ya. Petrov 54  
 E. B. Petrova 142  
 Ts. Petrova 15  
 Z. Lj. Petrovic 21, 70, 92, 112, 145  
 L. Pettersson 112  
 S. -G. Pettersson 2  
 S. Pfau 112, 119  
 R. A. Phaneuf 137  
 A. V. Phelps 46, 51, 108, 112, 125, 130, 154  
 B. A. Phillips 95  
 L. F. Phillips 15  
 M. N. Piancastelli 63, 89  
 F. M. J. Pichanick 112  
 V. V. Pichugin 39  
 G. A. Piech 19, 112  
 R. B. Piejak 56  
 A. N. Pilyankevich 113  
 M. S. Pindzola 58, 113  
 M. Pinheiro 48  
 E. H. Pinnington 76  
 Yu. A. Piotrovskii 156  
 R. Y. Pirogovskii 8  
 L. C. Pitch 13, 15, 48, 112  
 L. C. Pitchford 13, 15, 112  
 C. G. Pitt 113  
 F. Piuze 113  
 A. Plain 14  
 H. Platten 113  
 I. Platzner 113  
 B. Plenkiewicz 113  
 P. Plenkiewicz 113  
 P. Plessis 35, 96  
 W. E. G. Plumtree 2  
 A. Pochat 21, 118  
 I. V. Podmoshenskii 3  
 W. Poffel 123  
 P. S. Pogrebniak 143  
 P. S. Pogrebnyak 113  
 V. Pol 74  
 S. Polenz 123  
 A. Policarpo 50  
 A. Ya. Polischuk 113  
 I. M. Polushkin 113  
 V. N. Pomerantsev 84  
 F. C. Pontes 4  
 R. T. Poole 75  
 C. H. Popenoe 114, 128  
 Tc. K. Popov 18  
 V. A. Popov 65  
 Yu. V. Popov 46  
 S. H. Pordes 37  
 L. E. Porter 24  
 J. O. Porteus 114  
 V. G. Potyomkin 92  
 M. R. Poulsen 30  
 M. M. Povch 48  
 K. Prasad 114  
 S. S. Prasad 114  
 R. H. Pratt 13, 41, 114, 158  
 W. Prepejchal 117  
 F. J. Preston 114  
 J. A. Preston 35, 96  
 R. C. Preston 114  
 B. A. Prew 3  
 S. D. Price 114  
 M. Prins 129

O. Prokofiev 79  
 A. Prytz 118  
 V. Puech 22, 23, 114  
 J. Puerta 54, 149, 152  
 H. Pulkkinen 2  
 H. Pummer 91  
 J. E. Purcell 16, 122  
 P. H. Purdie 36  
  
 H. Qing 114  
 Z. Qing 14, 114  
 C. Quarles 126  
 J. J. Quemener 19, 94  
  
 L. L. Rabik 142, 143  
 K. Radler 114  
 V. Radojevic 6, 81, 109  
 S. B. Radovanov 115, 145  
 L. M. Raff 84, 115  
 M. Pahler 145  
 D. K. Rai 119, 138  
 V. Raible 115  
 W. Raith 48, 124, 128  
 D. Raj 77, 115  
 P. Ramanantsohena 30  
 C. Ramsauer 115, 116  
 P. Ranson 141  
 M. V. V. S. Rao 116  
 J. Rasch 116, 118, 136  
 L. P. Razumovskaya 116  
 F. H. Read 13, 25, 26, 35, 61, 79,  
 101, 116, 158, 159  
 P. A. Readhead 116  
 R. E. Rebbert 116  
 T. J. Reddish 36, 46  
 D. L. Redhead 80  
 R. Redmer 117  
 J. A. Rees 55, 59, 85, 99, 130  
 R. M. Reese 83  
 D. F. Register 105  
 D. D. Reid 117  
 R. F. Reilman 103, 117  
 C. O. Reinhold 147  
 R. Reininger 117  
 G. Reisfeld 8, 117  
 P. Remault 132  
 E. Yu. Remeta 117  
 J. F. Rendina 58  
 K. Reyman 122, 123  
 C. K. Rhodes 55, 91, 97  
 A. Ricard 38, 48

A. D. Richards 117  
 R. W. Richardson 117  
 J. Richter 26, 117  
 M. Richter 99, 130  
 S. Ricz 109  
 D. Riede 61  
 F. F. Rieke 117  
 W. Riemann 117  
 M. E. Riley 117, 118  
 D. E. Rio 57  
 S. Rioual 21, 118  
 J. S. Risley 118, 141  
 J. A. Roberts 51  
 A. G. Robertson 99, 118  
 F. Robicheaux 57  
 B. B. Robinson 118  
 E. J. Robinson 118  
 R. B. Robinson 103  
 R. E. Robson 89, 118  
 J. M. Rocard 85  
 A. Rochat 118  
 J. Roder 118  
 J. A. Rodriguez-Ruiz 55  
 H. Rojas 9  
 V. I. Roldugin 8  
 M. Y. Romanovsky 81  
 S. J. Rose 13  
 D. Rosen 113, 151  
 D. Rosenthal 113  
 F. Rosicky 75, 76  
 B. Rosner 15  
 G. S. Rostovikova 118  
 M. Roteta 53  
 A. F. Rothenberg 37  
 M. Rouault 43  
 B. Rouvellon 118  
 D. Rowe 63  
 A. C. Roy 36, 118, 119  
 B. N. Roy 84, 119  
 D. Roy 42, 119  
 M. E. Rudd 42, 43  
 R. I. Rudko 119  
 P. S. Rudolph 98  
 M. W. Ruf 105  
 M. -W. Ruf 20, 124, 149  
 A. J. Ruhlig 57  
 R. D. Rundel 119, 131  
 K. Rupnik 8, 117, 119  
 M. Rusch 119  
 A. Russek 119  
 M. L. Rustgi 138

O. P. Rustgi 119  
 A. Rutscher 112, 119  
 P. M. Rutter 60  
 T. Ruzicka 119  
 K. Rzazewski 45  
 O. S. Rzhevsky 57  
  
 A. B. Sa 48  
 B. Sadoulet 109  
 K. Saeed 64  
 V. I. Safin 99  
 T. Sagawa 104  
 M. Sagurton 102  
 H. P. Saha 119, 120  
 V. Saile 117  
 O. -P. Sairanen 2, 64, 103, 120  
 N. Saito 120  
 T. Sakai 69  
 Y. Sakai 79, 120, 122, 132, 135  
 S. Sakamoto 120, 135  
 V. Saksena 77  
 T. Sakurai 156  
 E. Salesky 92  
 M. Salete Leite 50  
 F. Salvat 48, 120  
 E. Salzborn 14, 127  
 V. P. Samoilov 118, 121  
 J. A. R. Samson 27, 28, 121, 149  
 L. Sanche 121  
 J. A. Sanchez 18, 121, 122  
 N. Sandner 1, 123  
 W. Sandner 67, 122  
 D. F. Sangster 34  
 M. Santini 20, 21  
 M. E. Sarakinos 30  
 T. Sasaki 139  
 M. Sasanuma 104  
 G. E. Sasser 30  
 A. Sasso 25  
 S. Sato 104  
 Y. Sato 139  
 K. Saich 122  
 M. C. Sauer 34, 148  
 R. V. Savvov 59  
 S. Sawada 120, 122  
 T. Sawada 122  
 H. H. Sawin 117  
 R. P. Saxon 38, 68  
 I. P. Sazhina 72  
 A. Schach von Wittenau 97  
 K. Schackert 122

N. Schade 122  
 F. Schaefers 62, 63, 122  
 M. Schaper 122  
 R. S. Schappe 31, 122  
 K. -H. Scharfner 70, 85, 101, 122, 123, 133  
 L. D. Scheerer 47  
 R. M. Schechtman 47  
 H. Scheibner 14, 112, 122  
 M. Schein 39  
 E. Schenuit 58  
 J. A. Schiavone 123, 136  
 R. N. Schindler 125  
 G. Schiwietz 113  
 A. S. Schlachter 10  
 E. W. Schlag 62  
 D. Schluter 123  
 B. Schmidt 49, 84, 123  
 L. D. Schmidt 50  
 V. Schmidt 1, 81, 82, 103, 123  
 A. Schmillen 61  
 A. Schmitt 124  
 U. Schmitz 124  
 H. Schmoranzner 85, 87, 101, 123, 124, 133  
 B. I. Schneider 124  
 H. W. Schnopper 124  
 G. Schoenhense 122  
 S. Schohl 124  
 S. Schonberger 157  
 E. Schonheit 124  
 G. Schonhense 63, 122, 124  
 D. M. Schrader 104  
 B. L. Schram 124, 125  
 D. C. Schram 152, 156  
 A. Schramm 20  
 C. J. Schrijver 39  
 H. Schroder 30, 140  
 K. Schrodter 25  
 C. Schroter 46  
 E. Schubert 45  
 U. Schucker 70  
 M. B. Schulman 122  
 E. Schultes 125  
 G. Schultz 30, 125  
 M. Schulz 45  
 P. Schulz 51  
 R. Schumacher 125  
 J. Schutten 125  
 W. H. E. Schwarz 125  
 O. Schwarzkopf 82  
 A. Schweig 83

D. W. Schwenke 131  
 J. H. Scofield 125  
 D. A. Scott 125  
 N. S. Scott 15, 137  
 M. J. Seaton 125  
 R. J. Seebock 126  
 P. Segur 126  
 S. Segur 111  
 W. Seibel 83  
 L. Selander 112  
 P. Selles 126  
 I. A. Sellin 7, 88  
 V. Selvaraj 126  
 M. Semaan 126  
 D. K. Sen Sharma 126  
 D. W. Setser 29  
 C. S. G. K. Setty 2  
 E. C. Sewell 126  
 M. C. Sexton 27  
 B. P. Shah 109  
 M. B. Shah 95  
 F. Shaikh 27  
 U. Shainok 89  
 R. Shakeshaft 126  
 V. A. Shamamian 88  
 Q. Shamblin 85  
 S. G. Shapiro 5  
 Shardanand 126  
 S. G. Shchemelinin 2, 126, 127  
 W. Shearer-Izumi 127  
 S. I. Sheftel 4, 5, 127  
 S. A. Sheinerman 5, 83, 84  
 W. N. Shelton 127  
 V. B. Sheorey 127  
 R. H. Sherman 24  
 R. E. Sherrod 18  
 N. G. Shestakova 31  
 V. P. Shevelko 14, 127, 140  
 V. S. Shevera 109  
 J. A. Shiavone 127  
 E. Shigemasa 139  
 R. L. Shimabukuro 63  
 H. Shimamori 127  
 I. Shimamura 127  
 F. Shimizu 74  
 M. Shimoyama 92  
 V. A. Shingarkina 127  
 G. S. Shipp 18  
 E. Shirakawa 106  
 D. A. Shirley 14, 63, 80, 89, 97  
 B. Shizgal 128

L. A. Shmaenok 101, 130  
 P. Shobha 77  
 R. T. Short 88  
 O. B. Shpenik 47, 81, 128, 156, 157  
 H. A. Shugart 141  
 J. B. Shumaker 35, 114, 128  
 O. Yu. Sid'ko 156  
 L. W. Sieck 128  
 H. Siegbahn 37  
 K. Siegbahn 112, 148  
 J. E. Sienkiewicz 128  
 N. C. Sil 118, 119  
 W. T. Silfvast 128  
 R. L. Simons 75  
 P. R. Simony 128  
 J. A. Simpson 29, 85, 112, 128  
 G. Sinapius 128  
 G. Sinou 111  
 P. E. Siska 59  
 Yu. F. Skachkov 128  
 A. M. Skerbele 129  
 A. Skutlarlz 103  
 J. Slevin 129  
 V. A. Slobodyanyuk 59  
 Yu. B. Smakovskii 2  
 N. E. Small-Warren 129  
 J. H. Smart 74  
 A. H. M. Smeets 27, 145  
 H. Smid 129  
 B. M. Smirnov 129  
 Y. M. Smirnov 121  
 Yu. M. Smirnov 118  
 A. C. H. Smith 41  
 B. R. Smith 30  
 D. Smith 37  
 F. J. Smith 88  
 K. Smith 34, 129  
 K. A. Smith 132  
 L. W. Smith 151  
 P. T. Smith 129  
 S. J. Smith 102, 124  
 W. W. Smith 44  
 R. M. M. Smits 129  
 H. D. Smyth 129  
 A. V. Snegurskii 117, 156  
 A. V. Snegursky 47, 128, 157  
 I. I. Sobelman 3  
 V. F. Sokolov 130  
 Yu. A. Sokolova 130  
 C. Sol 39  
 F. K. Soley 76

S. Solimeno 25  
 V. R. Solov'ev 144  
 A. V. Solovy'ov 81  
 K. Sommermeyer 130  
 R. Sonnenburg 130  
 B. Sonntag 99, 145  
 A. A. Sorokin 101, 130  
 H. Soshi 139  
 S. Southworth 80  
 S. H. Southworth 8, 34, 72, 130  
 P. Soven 156  
 L. T. Specht 130  
 D. Spence 41, 130  
 F. E. Spencer 130  
 L. Spielberger 46  
 H. Spitzer 58  
 H. Sponer 99  
 C. R. Sporleder 91  
 V. Srinivasan 130  
 B. N. Srivastava 13  
 R. Srivastava 74, 75, 130  
 S. K. Srivastava 83, 130  
 A. Sy 30, 134  
 D. N. Stacy 131  
 W. Staib 70  
 J. R. Stallcop 131  
 A. F. Starace 109, 121, 131  
 A. N. Starostin 39  
 W. L. Starr 131  
 G. Staszewska 131  
 H. Statz 131  
 A. D. Stauffer 12, 40, 74, 75, 97, 99,  
 130, 131, 155, 159  
 J. W. Stearns 10  
 R. F. Stebbings 43, 119, 131, 132  
 H. L. Steele 131  
 G. Stefani 9, 86, 132  
 N. Stein 132  
 T. S. Stein 42, 74  
 A. T. Stelbovics 95, 100  
 M. Stener 132  
 A. N. Stepanov 111  
 M. S. Stepanova 142  
 K. Stephan 63, 132  
 D. P. Stevenson 108, 132  
 D. S. Stewart 148  
 P. K. Stewart 37  
 R. E. Stewart 132  
 H. C. Stier 132  
 R. L. Stockbauer 33  
 V. D. Stojanovic 112  
 A. D. Stokes 132  
 W. Stoll 61  
 W. G. Stone 21  
 D. Stoneback 103  
 A. R. Stopczynski 82  
 P. Storer 96  
 S. I. Strakhova 10, 99, 132  
 T. G. Strand 155  
 H. C. Straub 132  
 K. Street 107  
 A. P. Strel'tsov 2  
 Z. W. Stryla 122  
 F. A. Stuber 132  
 M. Stuhec 9  
 A. V. Subbotenko 75  
 K. P. Subramanian 132  
 H. Sugawara 132  
 M. Sugawara 107  
 T. Sugiura 62  
 A. Sugiyama 51  
 T. Sugiyama 106  
 H. Suhr 70  
 V. L. Sukhorukov 74, 80, 85, 87, 112, 133  
 E. A. Sukiasyan 19  
 C. V. Sukumar 133  
 J. P. Sullivan 55  
 L. V. Sumin 133  
 C. P. Sun 153  
 J. Sun 15, 133  
 Y. S. Sun 155  
 T. Sunagawa 127  
 J. Sunderland 15  
 G. Sunshine 1  
 M. Surendra 57, 133  
 G. A. Surskii 133  
 E. Suzuki 133  
 H. Suzuki 62, 68, 69, 88, 120, 133,  
 154, 155  
 I. H. Suzuki 62, 120  
 S. Suzuki 51  
 H. J. Svec 114  
 A. Svensson 133, 152  
 S. Svensson 46, 103, 133, 134  
 P. Swan 134  
 J. R. Swanson 103, 134  
 C. A. Swarts 134  
 J. A. Syage 134  
 I. Szamrej 50  
 J. Szigeti 10  
 E. Szmola 63, 134  
 Cz. Szmytkowski 134



D. Szostak 14, 63  
 J. Szudy 17  
  
 K. Tachibana 135  
 H. Tagashira 79, 120, 122, 132, 135  
 S. Takahashi 106  
 T. Takahashi 51  
 S. Takasugi 106  
 K. Takayanagi 135  
 T. Takayanagi 68, 69, 88, 133, 136  
 H. Takuma 88  
 A. Talebpour 86, 87  
 J. D. Talman 136  
 W. -C. Tam 136  
 K. Tamaru 80  
 K. H. Tan 23, 136  
 K. -H. Tan 136  
 H. Tanaka 130  
 T. Tanaka 60  
 T. J. Tanaka 63  
 Y. Tanaka 67, 136  
 A. Tanchich 5  
 C. L. Tang 119, 131  
 K. T. Tang 55  
 C. L. Tange 131  
 R. S. Tankin 19  
 I. Taouil 136  
 V. Tarnovsky 14, 136  
 S. M. Tarr 123, 127, 136  
 L. J. Tassie 101  
 H. Tawara 14, 127, 136, 137  
 J. W. Taylor 28, 34  
 K. T. Taylor 27, 106, 137  
 R. L. Taylor 137  
 T. Tekaat 45  
 J. B. Tellinghuisen 15  
 B. L. Tembe 137  
 M. Tengcai 40  
 M. Terrier 143  
 P. J. O. Teubner 8, 65, 88, 89, 90, 149  
 A. J. Thakkar 110  
 J. K. Theobald 24  
 P. G. A. Theuws 137  
 D. Thirumalai 131  
 G. M. Thomas 137  
 T. D. Thomas 44, 79  
 B. E. Thompson 117  
 S. R. A. Tibbs 26  
 R. Tice 137  
 T. Tietz 137  
 I. S. Tilinin 138

N. A. Timofeev 12, 73  
 P. Tiwari 138  
 O. Toader 16  
 J. P. Toennies 55  
 D. S. Toffolo 83  
 R. R. Tol 141  
 N. Tolk 44  
 Y. A. Tolmachev 156  
 Yu. A. Tolmachev 19, 156  
 O. I. Tolstikhin 144  
 S. Tomar 115  
 D. Ton-That 138  
 M. Toogood 14  
 L. Torchin 114  
 B. J. Toubelis 17  
 J. S. Townsend 138  
 B. A. Tozer 138  
 C. J. Traeger 102  
 S. Trajmar 77, 105, 130, 138  
 T. Tran 77  
 K. W. Trantham 54  
 R. S. Trawinski 17  
 D. Tremblay 42  
 D. J. Trevor 105  
 D. N. Tripathi 119, 138  
 G. Trommer 138  
 C. M. Truesdale 80  
 D. G. Truhlar 118, 131, 138  
 M. B. Trzhaskovskaya 6, 11  
 J. S. Tse 23  
 T. Tsuboi 138  
 M. Tsuchiya 114  
 T. F. Tsukamoto 51  
 T. Y. Tsukamoto 51  
 S. Tsurubuchi 138, 139  
 F. Tuffin 111  
 J. Tulkki 7, 139  
 A. D. Turnbull 95  
 J. E. Turner 68  
 R. J. Tweed 139  
 N. D. Twiddy 45  
 T. R. Twomey 30  
  
 W. Ubachs 142  
 M. Uda 82  
 K. Ueda 20, 92, 124, 139, 149  
 M. Ueda 51  
 T. Ueda 57  
 Y. Uetani 52  
 A. Ugbabe 8, 140  
 E. Uggerhoj 109

M. Uhrig 140  
C. J. G. J. Uiterwaal 30, 140  
M. Ukai 139  
G. Ulm 70, 101, 130  
R. C. Ulsh 124  
M. A. Uman 88  
S. Uno 51  
F. J. Uribe 140  
V. V. Urosevic 21  
S. Ushiroda 62  
D. B. Uskov 14  
N. N. Ustinovskii 140  
F. A. Uvarov 140  
  
S. Vacquie 140  
L. A. Vainshtein 140  
P. Valentin 78, 143  
C. Vallance 61, 140  
O. Vallee 141  
R. J. Van Brunt 115, 116, 141, 147  
S. E. Vance 85  
J. P. van den Brink 141  
P. J. M. van der Burgt 35, 96, 141, 147  
W. van der Kaay 38  
P. van der Meulen 153  
R. Vanderpooten 71  
B. van der Sijde 152, 156  
P. van der Straten 141  
J. van der Weg 38  
P. van der Westhuizen 33  
M. J. van der Wiel 14, 61, 114, 124, 125,  
141, 152, 158  
R. S. Van Dyck 141  
J. van Eck 38, 141, 150  
D. van Houwelingen 142  
L. H. Van Montfort 27  
A. F. J. van Raan 142  
T. van Tubergen 146  
C. C. van Voorhis 33  
B. van Wengerden 70  
R. D. Van Zee 97  
L. Varga 10  
A. V. Vasenkov 142  
R. V. Vasileva 127  
N. K. Vasil'eva 142  
M. G. Vasil'ev 158  
E. Vatai 142  
J. M. Vaughan 131  
U. Vecker 63  
H. Veenhuizen 148  
L. Vegard 142  
  
W. J. Veigele 66  
P. Veillette 142  
I. Velchev 142  
V. Veldre 111  
V. Ya. Veldre 142, 143  
E. T. Verkhovtseva 113, 143  
D. A. Verner 143  
E. M. Verner 143  
Ya. F. Verolainen 17, 143  
N. F. Verster 137  
P. Vervisch 143  
W. Verweij 143, 144  
M. Yu. Veselovskaya 144  
L. Veseth 144  
J. -L. Vialle 110  
D. Vikor 144  
G. Vikor 109  
F. I. Vilesov 144  
D. Villarejo 144  
A. Vinogradov 140  
A. V. Vinogradov 140, 144  
R. Vitry 28  
J. Vlcek 19, 144  
O. Vogel 148  
Yu. M. Volkov 144  
L. M. Volkova 144, 145  
F. Vollweiler 85, 87  
F. von Busch 41, 145  
E. von Raven 99, 145  
J. von Specht 145  
A. Vorobyov 79  
A. A. Vorob'ev 145  
A. V. Vorotsov 80  
R. E. Voshall 108  
S. B. Vrhovac 145  
L. Vriens 124, 141, 145  
D. A. Vroom 51, 95, 97, 146  
N. A. Vrublevskaya 95  
V. Vujnovic 146  
L. Vuskovic 109, 146  
L. D. Vuskovic 146  
  
J. M. Wadehra 77, 104, 117  
R. W. Wagenaar 72, 146  
V. V. Wagle 32  
E. B. Wagner 146  
K. H. Wagner 146, 147  
H. B. Wahlin 147  
N. Wainfan 147  
K. Wakiya 68, 69, 88, 155  
G. Walder 50

|                   |                                                     |                         |                             |
|-------------------|-----------------------------------------------------|-------------------------|-----------------------------|
| H. F. Waldron     | 36                                                  | A. Werner               | 70                          |
| D. J. Wales       | 43, 104                                             | S. Werner               | 150                         |
| D. W. Walker      | 147                                                 | D. West                 | 150                         |
| W. C. Walker      | 147                                                 | J. B. West              | 33, 65, 66, 94, 150         |
| S. J. Wallace     | 147                                                 | W. B. Westerveld        | 118, 141, 150               |
| B. Wallbank       | 147                                                 | S. Westin               | 150                         |
| G. K. Walters     | 76                                                  | R. C. Wetzel            | 150                         |
| H. R. J. Walters  | 40, 75, 116, 118, 136,<br>151, 157                  | B. Wexler               | 15                          |
| L. Walther        | 72                                                  | M. Weyhereter           | 150, 151                    |
| B. Wang           | 92, 154                                             | G. M. Weyl              | 151                         |
| D. Wang           | 133                                                 | H. B. Whalin            | 151                         |
| J. Wang           | 147                                                 | W. Whaling              | 1, 151                      |
| J. B. Wang        | 92                                                  | J. E. G. Wheaton        | 151                         |
| Q. Wang           | 157                                                 | C. T. Whelan            | 75, 116, 118, 136, 151, 157 |
| S. Wang           | 35, 50, 147                                         | T. Whelan               | 75, 116, 118, 136, 151, 157 |
| Y. Wang           | 147, 154                                            | R. Whiddington          | 151                         |
| K. Wani           | 147, 148                                            | S. B. Whitfield         | 44, 153                     |
| B. Wannberg       | 148                                                 | G. Wiebes               | 141                         |
| G. H. Wannier     | 148                                                 | W. L. Wiese             | 72, 103, 146, 151           |
| A. Wannstrom      | 148                                                 | K. Wieseemann           | 16, 54, 81, 152             |
| L. Ward           | 148                                                 | G. R. Wight             | 141, 152                    |
| J. M. Warman      | 148                                                 | W. M. K. P. Wijayaratra | 52, 54                      |
| R. W. Warren      | 148                                                 | W. Wijesundera          | 152                         |
| T. Watabe         | 69                                                  | M. Wildberger           | 101, 123                    |
| K. Watanabe       | 138                                                 | D. G. Wilden            | 152                         |
| M. Watanabe       | 62, 104                                             | J. Wilhelm              | 22, 153                     |
| T. Watanabe       | 101, 148                                            | O. Wilhelmi             | 85                          |
| D. K. Waterhouse  | 148                                                 | H. M. J. Willems        | 152, 156                    |
| J. Waterhouse     | 153                                                 | A. R. Williams          | 71                          |
| W. S. Watson      | 148                                                 | J. F. Williams          | 27, 148, 152                |
| J. H. Waymouth    | 149                                                 | R. R. Williams          | 152                         |
| G. M. Webb        | 149                                                 | A. Williart             | 53                          |
| J. M. Weber       | 20, 149                                             | B. A. Willis            | 152                         |
| M. Weber          | 20, 124, 149                                        | K. Willmann             | 45, 149                     |
| W. Weber          | 20, 149                                             | A. A. Wills             | 152                         |
| H. V. Wedel       | 47                                                  | J. G. Wills             | 110                         |
| W. Mehlhorn       | 1, 67, 98, 119, 149                                 | D. J. Wilson            | 110                         |
| R. Wehlitz        | 14, 63                                              | W. G. Wilson            | 128                         |
| E. Weigold        | 8, 25, 52, 65, 88, 89, 90,<br>95, 96, 100, 140, 149 | D. H. Winicur           | 152                         |
| A. Weinberg       | 89                                                  | R. Winkler              | 22, 90, 153                 |
| A. Weingartshofer | 147, 149                                            | R. B. Winkler           | 153                         |
| K. Weisemann      | 149                                                 | D. Winn                 | 85                          |
| A. W. Weiss       | 149                                                 | K. H. Winters           | 71                          |
| H. F. Weiss       | 98, 149                                             | R. E. Winters           | 153                         |
| G. L. Weissler    | 18, 87, 147, 149                                    | B. Wirsam               | 3                           |
| H. F. Wellenstein | 33, 85, 150                                         | B. Woernle              | 153                         |
| C. P. Wen         | 60                                                  | K. Wojackzek            | 153                         |
| B. Wende          | 106, 150                                            | E. O. Wollan            | 153                         |
| G. Wendin         | 1, 134                                              | J. Wolnikowski          | 17                          |
|                   |                                                     | L. Wong                 | 153                         |
|                   |                                                     | T. C. Wong              | 153                         |

Y. H. Woo 153  
O. R. Wood II 128  
J. M. Woolsey 50  
J. Z. Wu 153  
S. L. Wu 71, 154  
F. Wuilleumier 1, 123, 154

H. Xcherer 41  
D. Xenakis 30, 140, 154  
S. Xing 154  
S. L. Xing 154  
K. Xu 154  
K. Z. Xu 71, 154  
Z. Xu 56, 71, 154

S. Yagi 88  
A. Yagishita 139  
V. E. Yakhontova 19  
C. Yamabe 154  
C. Yamada 154  
K. Yamaguchi 154  
S. Yamaguchi 104  
Y. Yamaguchi 92, 107  
M. Yamamoto 154  
H. Yamashita 104  
K. Yamashita 156  
J. Yan 91  
B. Yang 154  
B. X. Yang 154, 155  
K. Yano 105  
V. I. Yaremenko 143  
A. C. Yates 48, 49, 155  
B. W. Yates 28, 34  
A. W. Yau 10, 155  
V. A. Yavna 65, 133  
J. Ye 24, 155  
J. J. Yeh 155  
J. -J. Yeh 155  
L. Yin 121  
T. Yokota 47  
A. Yoneda 82  
D. G. York 47  
H. Yoshii 60  
K. Yoshino 136  
M. Yoshino 155  
L. Young 72  
S. M. Younger 155  
M. Yousfi 155  
S. Y. Yousif 155  
J. Yuan 155  
J. K. Yuan 155

K. Yuasa 152, 156  
N. P. Yudin 156  
S. V. Yurgenson 19

E. Zachmann 156  
B. B. Zaikin 156  
V. M. Zakharova 56  
R. Zangara 18  
A. Zangwill 156  
H. A. Zarem 151  
A. N. Zaviolopulo 47, 117, 128, 156, 157  
T. M. Zayac 132  
A. Zecca 25, 27, 74, 157  
V. Zeman 12, 157  
A. A. Zemlyanov 41  
H. Zenba 82  
F. Zhang 154  
J. Zhang 30, 71  
S. Zhang 97  
X. Zhang 9, 157  
X. J. Zhang 71  
Z. Zhang 155  
Y. Zhao 157  
V. P. Zhdanov 157  
I. Zhelyazkov 15  
S. H. Zheng 94, 158  
S. T. Zheng 155  
T. V. Zhikhareva 158  
Z. P. Zhong 71, 154  
B. Zhou 158  
J. Zhou 52, 91  
Q. Zhou 158  
Z. Zhou 154  
L. F. Zhu 71  
I. G. Zhukov 156, 158  
V. J. Zigman 158  
T. M. Zimkina 91  
O. A. Zinov'ev 144  
S. Zinz 41  
G. Zissis 155, 158  
M. Zitnik 9  
J. Zivanovic 4  
R. J. Zollweg 158  
M. Zubek 158, 159  
T. Zuo 159  
B. Zurro 28  
C. J. Zwakhals 105  
F. Zwicky 159  
A. Z. Zyman 89

Author Index of Argon Addenda References

- C. R. Albertoni 161  
M. Ya. Amusya 160  
L. W. Anderson 160  
J. L. Artique 162  
  
K. Bartschat 162, 163  
K. Becker 161  
A. Birot 162  
M. Blaha 161  
S. V. Bobashev 165  
O. P. Bochkova 160  
J. B. Boffard 160, 163  
A. F. Borghesani 160  
N. J. Bowring 163  
J. D. Bozek 160  
G. L. Braglia 160  
H. Brunet 162  
R. S. Brusa 165  
U. Buck 160  
S. J. Buckman 161  
P. H. Bucksbaum 164  
  
J. Campos 165  
T. X. Carroll 160  
A. W. Castleman 161  
Z. Y. Chen 161  
M. Chenevier 160  
L. V. Chernysheva 160  
H. Cho 163  
F. Combet-Farnoux 161  
J. W. Cooper 161  
  
V. Dallacasa 160  
A. Dasgupta 161  
P. Dehmer 161  
Y. De-Hong 161  
H. Deutsch 161  
  
F. Ehlitzky 161  
M. T. Elford 161  
  
X. W. Fan 161  
Z. Felfli 160  
Y. Feng 161  
E. E. Ferguson 161  
D. M. Filipovic 162  
  
M. Foltin 162  
J. R. Fuhr 162  
  
J. Galy 162  
G. Garcia 165  
M. F. Gehrke 160  
D. N. Ghoshroy 164  
J. L. Giuliani 161  
A. Gleizes 162  
G. P. Gowda 163  
A. N. Grum-Grzhimailo 162  
P. F. Gruzdev 162  
P. Guang-Yan 161  
S. K. Guharay 164  
J. H. Guo 164  
  
M. A. Haynes 162  
A. Huetz 161  
  
M. Inokuti 162  
  
Y. Ji 162  
Y. -H. Jiang 165  
L. Jia-Rui 161  
  
G. P. Karwasz 165  
R. G. Keesee 161  
J. Kessler 163  
H. Kobayashi 165  
V. Konopinska 163, 164  
R. Kuhn 161  
E. Kukk 160  
  
P. Lablanquie 161  
K. J. LaGattuta 163  
M. E. Lagos 160  
K. Leiter 163  
P. G. Lethbridge 163  
K. T. Leung 161  
C. H. Liao 162  
C. C. Lin 160  
B. Lohmann 162  
R. I. Lyagushchenko 160  
  
D. H. Madison 163  
T. Makabe 163

C. M. Maloney 163  
B. P. Marinkovic 162  
T. D. Mark 161, 162, 163, 164, 165  
S. Mayer 163  
J. Mazeau 161  
H. Meyer 160  
B. M. Miles 165  
B. S. Min 163  
L. Minnhagen 163  
R. R. Mitchell 163  
M. L. Mittal 163  
B. Mobus 165  
D. L. Moores 163  
P. A. Moskowitz 160  
A. Z. Msezane 160  
A. J. Murray 163  
V. Myrseth 160

K. Ness 163  
C. Y. Ng 164  
G. Norlen 164  
K. Norwood 164

J. M. Paikeday 164  
J. L. Peacher 163  
V. Pejcev 162  
E. R. Peterson 164  
Z. Lj. Petrovic 164

X. -Z. Qian 165

V. -F. Z. Rapp 164  
F. H. Read 163  
M. Richter 165  
W. Ritter 163  
A. V. Rokhlenko 164

L. J. Saethre 160  
M. Santini 160  
P. Scheier 163, 164  
D. Sengupta 164  
S. N. Sen Gupta 164  
V. S. Shevera 164  
L. A. Shmaenok 165  
J. E. Sienkiewicz 163, 164  
M. W. Smith 165  
C. Snchez Del Rio 165  
A. A. Sorokin 165  
A. J. Stace 163  
A. Stamatovic 163, 164, 165  
K. Stephan 163, 165

E. A. Sukiasyan 160  
J. -F. Sun 165  
J. A. Syage 165  
P. Syty 164

S. Telega 163, 164  
T. D. Thomas 160  
Yu. A. Tolmachev 160  
S. Tsurubuchi 165

G. Ulm 165

L. Vuskovic 162

W. L. Wiese 162, 165  
A. Williart 165  
T. Wujec 165

I. P. Zapesochny 164  
A. Zecca 165  
S. -H. Zhang 165  
L. Zi-Ming 161  
B. Zurro 165

Electron Collision Cross Section Set for Argon (Ar)

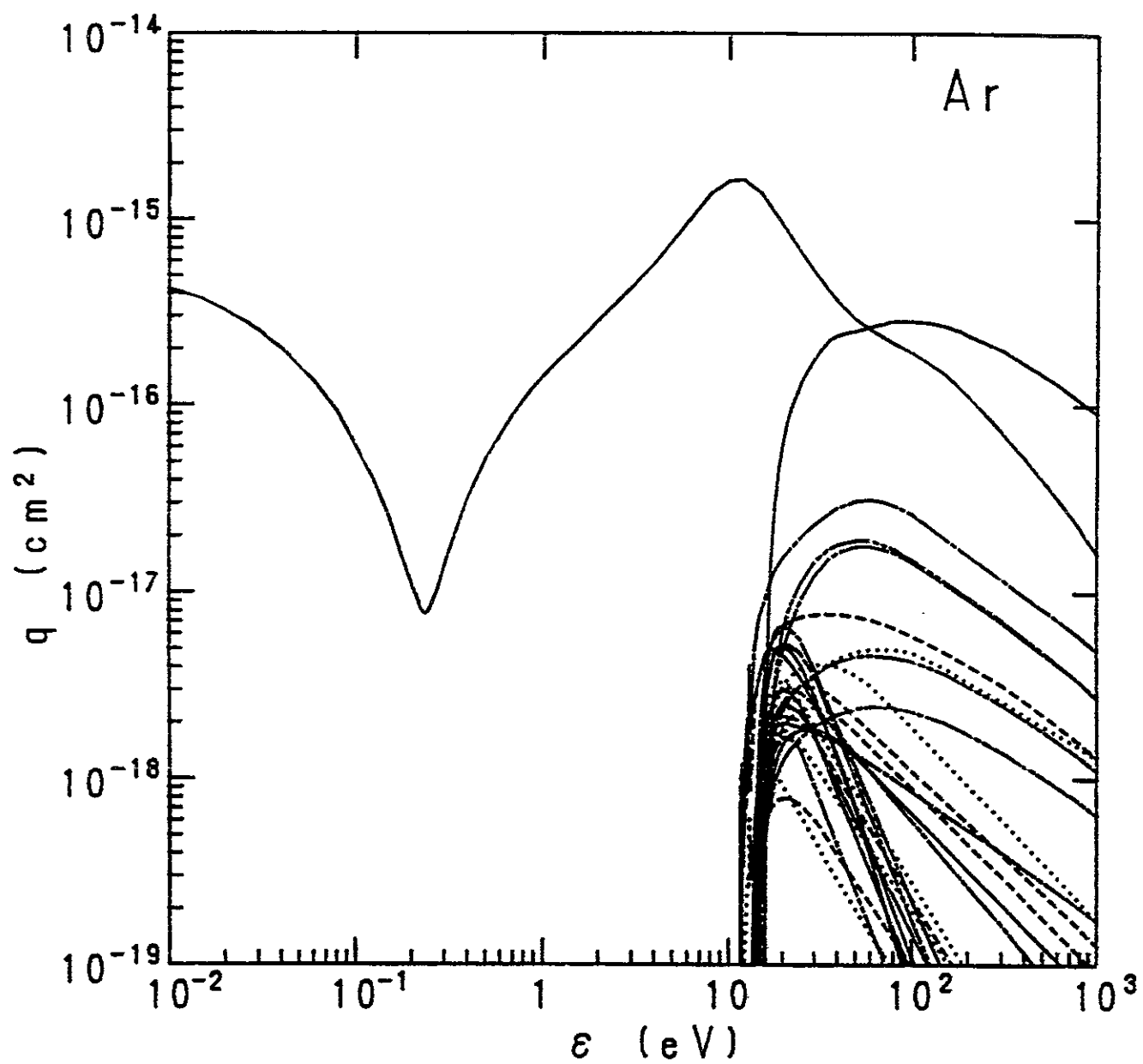


Figure 1. Electron collision cross section set for Ar.



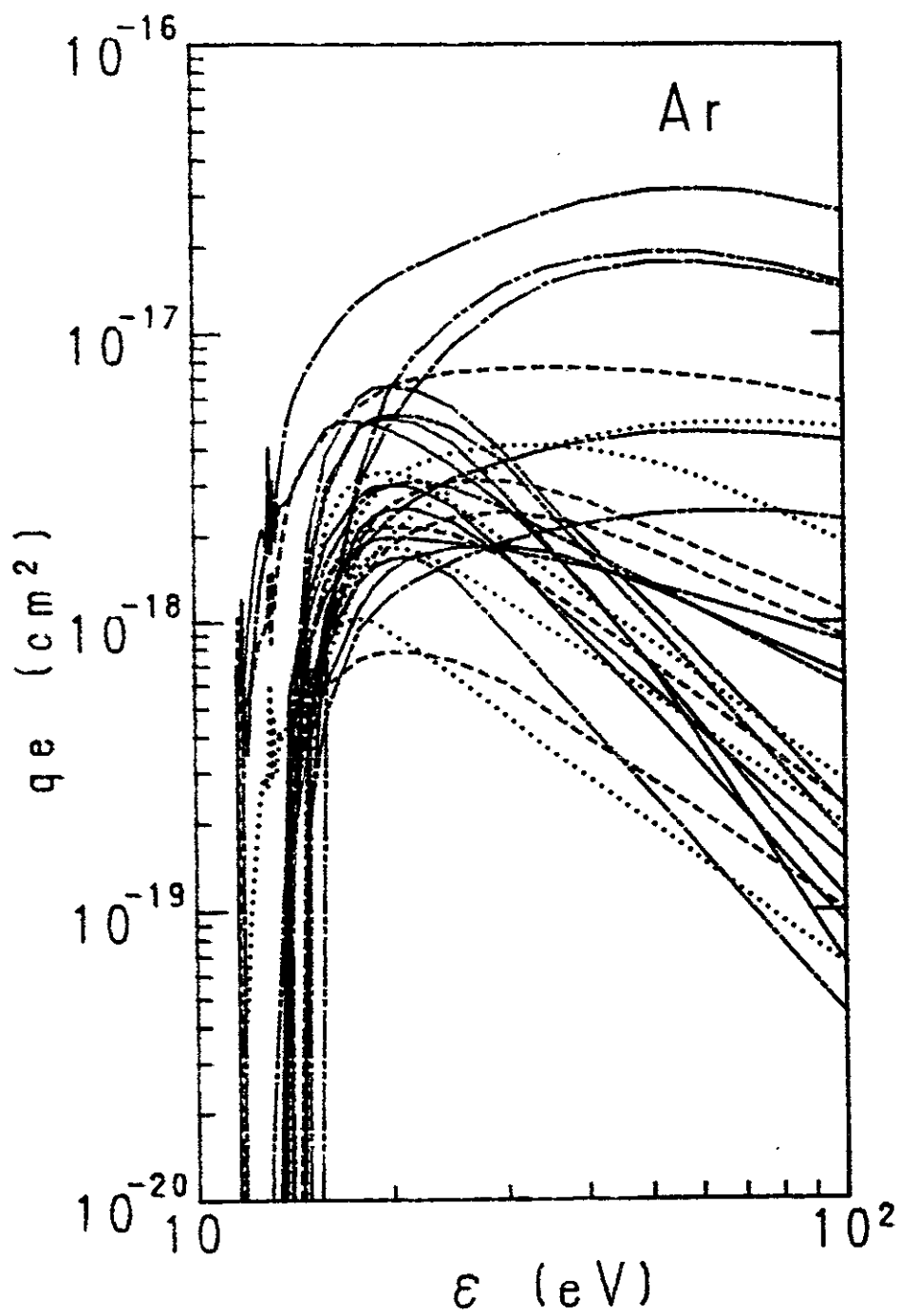


Figure 2. Electronic excitation cross sections for Ar.

Table 1. Energy levels of electronic excitation for Ar.

|    | Level No. |          |          | energy<br>(eV)        | Paschen<br>notation   | Designation           |
|----|-----------|----------|----------|-----------------------|-----------------------|-----------------------|
|    | This work | Chutjian | Eggarter |                       |                       |                       |
|    |           |          |          |                       | 1 P <sub>0</sub>      | 3p <sup>6</sup>       |
| 1  | 1         | 1        | SM*      | 11.55                 | 1 S <sub>5</sub>      | 4s[3/2] <sub>2</sub>  |
| 2  | 2         | 2        | S 1**    | 11.62                 | 1 S <sub>4</sub>      | 4s[3/2] <sub>1</sub>  |
| 3  | 3         | 3        | SM*      | 11.72                 | 1 S <sub>3</sub>      | 4s'[1/2] <sub>0</sub> |
| 4  | 4         | 4        | S 1**    | 11.83                 | 1 S <sub>2</sub>      | 4s'[1/2] <sub>1</sub> |
| 5  | 5         | 5        | S 4 p {  | 12.91                 | 2 P <sub>10</sub>     | 4p[1/2] <sub>1</sub>  |
| 6  | 6         | 6        |          | 13.08                 | 2 P <sub>9</sub>      | 4p[5/2] <sub>3</sub>  |
| 7  | 7         | 7        |          | 13.09                 | 2 P <sub>8</sub>      | 4p[5/2] <sub>2</sub>  |
| 8  | 8         | 8        |          | 13.15                 | 2 P <sub>7</sub>      | 4p[3/2] <sub>1</sub>  |
| 9  | 9         | 9        |          | 13.17                 | 2 P <sub>6</sub>      | 4p[3/2] <sub>2</sub>  |
| 10 | 10 {      | 10 {     |          | 13.27                 | 2 P <sub>5</sub>      | 4p[1/2] <sub>0</sub>  |
| 11 |           |          |          | 13.28                 | 2 P <sub>4</sub>      | 4p'[3/2] <sub>1</sub> |
| 12 | 11        | 11       |          | 13.03                 | 2 P <sub>3</sub>      | 4p'[3/2] <sub>2</sub> |
| 13 | 12        | 12       |          | 13.33                 | 2 P <sub>2</sub>      | 4p'[1/2] <sub>1</sub> |
| 14 | 13        | 13       |          | 13.47                 | 2 P <sub>1</sub>      | 4p'[1/2] <sub>0</sub> |
| 15 | 14 {      | 14 {     |          | 13.84                 | 3 d <sub>6</sub>      | 3d[1/2] <sub>0</sub>  |
| 16 |           |          |          | 13.86                 | 3 d <sub>5</sub>      | 3d[1/2] <sub>1</sub>  |
| 17 | 15        | 15       |          | 13.90                 | 3 d <sub>3</sub>      | 3d[3/2] <sub>2</sub>  |
| 18 | 16        | 16       |          | 13.98                 | 3 d <sub>4</sub> '    | 3d[7/2] <sub>4</sub>  |
| 19 | 17        | 17       |          | 14.01                 | 3 d <sub>4</sub>      | 3d[7/2] <sub>3</sub>  |
| 20 | 18 {      | 18 {     | 14.06    | 3 d <sub>1</sub> ''   | 3d[5/2] <sub>2</sub>  |                       |
| 21 |           |          | 14.07    | 2 S <sub>5</sub>      | 5s[3/2] <sub>2</sub>  |                       |
| 22 | 19 {      | 19 {     | 14.10    | 3 d <sub>1</sub> '    | 3d[5/2] <sub>3</sub>  |                       |
| 23 |           |          | 14.09    | 2 S <sub>4</sub>      | 5s[3/2] <sub>1</sub>  |                       |
| 24 | 20        | 20       | 14.15    | 3 d <sub>2</sub>      | 3d[3/2] <sub>1</sub>  |                       |
| 25 | 21        | 21       | 14.21    | 3 S <sub>1</sub> '''' | 3d'[5/2] <sub>2</sub> |                       |
| 26 | 22 {      | 22 {     |          | 14.24                 | 3 S <sub>1</sub> '''  | 3d'[3/2] <sub>2</sub> |
| 27 |           |          |          | 14.23                 | 2 S <sub>1</sub> ''   | 3d'[5/2] <sub>3</sub> |
| 28 |           |          |          | 14.24                 | 2 S <sub>3</sub>      | 5s'[1/2] <sub>0</sub> |
| 29 |           |          | 14.25    | 2 S <sub>2</sub>      | 5s'[1/2] <sub>1</sub> |                       |
| 30 | 23        | 23       | 14.30    | 3 S <sub>1</sub> '    | 3d'[3/2] <sub>1</sub> |                       |
|    | 24        |          | S 3      | 14.71                 |                       |                       |
|    | 25        |          | S 4      | 15.20                 |                       |                       |

\* SM : Sum of metastable states, 1 and 3.

\*\* S1 : Sum of 2 and 4 states.

Table 2. Electron collision cross section set for argon. recommended by the authour in 1992. qm is the elastic momentum transfer. qe of 1 to 25 are the electronic excitation, and qi is the ionization cross sections. I would like to improve these cross section values slightly.

| $\epsilon$<br>(eV) | qm<br>( $10^{-16}\text{cm}^2$ ) | 200                | 1.12                             | 13.24              | 0.0209                           |
|--------------------|---------------------------------|--------------------|----------------------------------|--------------------|----------------------------------|
|                    |                                 | 250                | 0.873                            | 13.28              | 0.0197                           |
|                    |                                 | 300                | 0.713                            | 13.3               | 0.0194                           |
| 0                  | 6.30                            | 400                | 0.518                            | 13.33              | 0.0191                           |
| 0.01               | 4.20                            | 500                | 0.397                            | 13.36              | 0.0197                           |
| 0.012              | 4.00                            | 600                | 0.315                            | 13.38              | 0.0206                           |
| 0.015              | 3.69                            | 800                | 0.219                            | 13.40              | 0.0213                           |
| 0.02               | 3.20                            | 1000               | 0.161                            | 13.44              | 0.0220                           |
| 0.025              | 2.80                            | 10000              | 0.00                             | 13.48              | 0.0261                           |
| 0.03               | 2.48                            |                    |                                  | 13.5               | 0.0245                           |
| 0.035              | 2.20                            |                    |                                  | 13.52              | 0.0237                           |
| 0.04               | 1.98                            | $\epsilon$<br>(eV) | qe1<br>( $10^{-16}\text{cm}^2$ ) | 13.6               | 0.0251                           |
| 0.05               | 1.59                            |                    |                                  | 14.0               | 0.0265                           |
| 0.06               | 1.32                            | 11.55              | 0.00                             | 15.0               | 0.0369                           |
| 0.08               | 0.913                           | 11.60              | 0.00543                          | 16                 | 0.0466                           |
| 0.10               | 0.599                           | 11.61              | 0.00643                          | 17                 | 0.0500                           |
| 0.125              | 0.391                           | 11.62              | 0.00693                          | 18                 | 0.0495                           |
| 0.15               | 0.255                           | 11.63              | 0.00704                          | 19                 | 0.0482                           |
| 0.175              | 0.162                           | 11.64              | 0.00699                          | 20                 | 0.0464                           |
| 0.20               | 0.108                           | 11.65              | 0.00623                          | 22                 | 0.0418                           |
| 0.225              | 0.0808                          | 11.66              | 0.00633                          | 25                 | 0.0347                           |
| 0.23               | 0.0781                          | 11.67              | 0.00663                          | 30                 | 0.0253                           |
| 0.235              | 0.0763                          | 11.68              | 0.00665                          | 35                 | 0.0180                           |
| 0.24               | 0.0765                          | 11.69              | 0.00633                          | 40                 | 0.0132                           |
| 0.245              | 0.0786                          | 11.70              | 0.00603                          | 50                 | 0.00694                          |
| 0.25               | 0.0816                          | 11.71              | 0.00573                          | 60                 | 0.00375                          |
| 0.275              | 0.103                           | 11.72              | 0.00577                          | 70                 | 0.00222                          |
| 0.3                | 0.139                           | 11.73              | 0.00586                          | 80                 | 0.00141                          |
| 0.35               | 0.216                           | 11.75              | 0.00714                          | 100                | 0.000652                         |
| 0.4                | 0.310                           | 11.77              | 0.00815                          | 150                | 0.000170                         |
| 0.5                | 0.507                           | 11.80              | 0.00832                          | 175                | 0.000100                         |
| 0.6                | 0.690                           | 11.81              | 0.00840                          | 200                | 0.00                             |
| 0.7                | 0.888                           | 11.84              | 0.0120                           |                    |                                  |
| 0.8                | 1.07                            | 11.88              | 0.00681                          | $\epsilon$<br>(eV) | qe2<br>( $10^{-16}\text{cm}^2$ ) |
| 0.9                | 1.25                            | 11.90              | 0.00626                          |                    |                                  |
| 1.0                | 1.42                            | 11.94              | 0.00644                          |                    |                                  |
| 1.2                | 1.70                            | 12.0               | 0.00704                          | 11.62              | 0.00                             |
| 1.5                | 2.09                            | 12.1               | 0.00889                          | 11.68              | 0.0104                           |
| 2.0                | 2.84                            | 12.2               | 0.0105                           | 11.70              | 0.00736                          |
| 2.5                | 3.56                            | 12.4               | 0.0150                           | 11.74              | 0.00568                          |
| 3.0                | 4.31                            | 12.6               | 0.0191                           | 11.76              | 0.00541                          |
| 4.0                | 5.78                            | 12.7               | 0.0204                           | 11.80              | 0.00499                          |
| 5.0                | 7.68                            | 12.74              | 0.0208                           | 11.81              | 0.00494                          |
| 6.0                | 9.71                            | 12.76              | 0.0210                           | 11.85              | 0.00490                          |
| 8.0                | 13.7                            | 12.8               | 0.0208                           | 11.90              | 0.00495                          |
| 10                 | 16.1                            | 12.86              | 0.0196                           | 11.94              | 0.00500                          |
| 12                 | 16.4                            | 12.90              | 0.0184                           | 12.00              | 0.00520                          |
| 15                 | 13.7                            | 12.91              | 0.0183                           | 12.04              | 0.00530                          |
| 20                 | 9.30                            | 12.94              | 0.0186                           | 12.1               | 0.00550                          |
| 25                 | 6.68                            | 13.0               | 0.0222                           | 12.2               | 0.00570                          |
| 30                 | 5.16                            | 13.05              | 0.0405                           | 12.4               | 0.00730                          |
| 40                 | 3.59                            | 13.08              | 0.0267                           | 12.5               | 0.00790                          |
| 50                 | 2.90                            | 13.10              | 0.0213                           | 12.6               | 0.00850                          |
| 60                 | 2.54                            | 13.13              | 0.0184                           | 12.65              | 0.00860                          |
| 80                 | 2.14                            | 13.16              | 0.0214                           | 12.7               | 0.00880                          |
| 100                | 1.91                            | 13.19              | 0.0262                           | 12.74              | 0.00900                          |
| 120                | 1.71                            | 13.21              | 0.0308                           | 12.8               | 0.00920                          |
| 150                | 1.46                            | 13.23              | 0.0221                           | 12.9               | 0.00970                          |

Ar

|               |                           |               |                           |               |         |
|---------------|---------------------------|---------------|---------------------------|---------------|---------|
| 13.00         | 0.0103                    | 12.60         | 0.00248                   | 11.90         | 0.00630 |
| 13.05         | 0.0147                    | 12.70         | 0.00276                   | 11.94         | 0.00493 |
| 13.08         | 0.0101                    | 12.74         | 0.00287                   | 12.00         | 0.00357 |
| 13.10         | 0.00940                   | 12.77         | 0.00291                   | 12.04         | 0.00340 |
| 13.13         | 0.00840                   | 12.80         | 0.00292                   | 12.1          | 0.00400 |
| 13.16         | 0.0103                    | 12.86         | 0.00282                   | 12.2          | 0.00570 |
| 13.20         | 0.0148                    | 12.90         | 0.00268                   | 12.4          | 0.00870 |
| 13.23         | 0.0139                    | 12.91         | 0.00265                   | 12.5          | 0.0106  |
| 13.25         | 0.0122                    | 12.94         | 0.00272                   | 12.6          | 0.0125  |
| 13.29         | 0.0112                    | 13.0          | 0.00332                   | 12.65         | 0.0133  |
| 13.30         | 0.0115                    | 13.05         | 0.00610                   | 12.7          | 0.0140  |
| 13.4          | 0.0138                    | 13.08         | 0.00407                   | 12.74         | 0.0145  |
| 13.5          | 0.0158                    | 13.10         | 0.00327                   | 12.8          | 0.0154  |
| 13.82         | 0.0219                    | 13.13         | 0.00282                   | 12.9          | 0.0167  |
| 14.0          | 0.0255                    | 13.16         | 0.00331                   | 13.0          | 0.0184  |
| 14.25         | 0.0292                    | 13.19         | 0.00406                   | 13.05         | 0.0266  |
| 14.5          | 0.0322                    | 13.21         | 0.00477                   | 13.08         | 0.0186  |
| 15.0          | 0.0373                    | 13.23         | 0.00344                   | 13.1          | 0.0174  |
| 16            | 0.0449                    | 13.24         | 0.00325                   | 13.13         | 0.0175  |
| 17            | 0.0520                    | 13.28         | 0.00310                   | 13.16         | 0.0192  |
| 18            | 0.0565                    | 13.3          | 0.00305                   | 13.2          | 0.0278  |
| 19            | 0.0608                    | 13.33         | 0.00301                   | 13.23         | 0.0261  |
| 20            | 0.0658                    | 13.36         | 0.00312                   | 13.25         | 0.0229  |
| 22            | 0.0700                    | 13.38         | 0.00330                   | 13.29         | 0.0213  |
| 25            | 0.0740                    | 13.40         | 0.00341                   | 13.3          | 0.0218  |
| 30            | 0.0760                    | 13.44         | 0.00354                   | 13.4          | 0.0265  |
| 35            | 0.0770                    | 13.48         | 0.00421                   | 13.5          | 0.0306  |
| 40            | 0.0765                    | 13.50         | 0.00399                   | 13.82         | 0.0432  |
| 50            | 0.0743                    | 13.52         | 0.00385                   | 14.0          | 0.0505  |
| 60            | 0.0715                    | 13.6          | 0.00396                   | 14.25         | 0.0580  |
| 70            | 0.0685                    | 14.0          | 0.00446                   | 14.5          | 0.0648  |
| 80            | 0.0650                    | 15.0          | 0.00641                   | 15.0          | 0.0757  |
| 100           | 0.0585                    | 16            | 0.00837                   | 16            | 0.0947  |
| 150           | 0.0480                    | 17            | 0.0100                    | 17            | 0.114   |
| 200           | 0.0410                    | 18            | 0.0103                    | 18            | 0.130   |
| 300           | 0.0320                    | 19            | 0.0100                    | 19            | 0.142   |
| 400           | 0.0262                    | 20            | 0.00923                   | 20            | 0.154   |
| 500           | 0.0222                    | 22            | 0.00800                   | 22            | 0.172   |
| 800           | 0.0156                    | 25            | 0.00650                   | 25            | 0.197   |
| 1000          | 0.0131                    | 30            | 0.00475                   | 30            | 0.233   |
| 10000         | 0.00                      | 35            | 0.00360                   | 35            | 0.263   |
|               |                           | 40            | 0.00290                   | 40            | 0.288   |
|               |                           | 50            | 0.00200                   | 50            | 0.313   |
|               |                           | 60            | 0.00149                   | 60            | 0.318   |
|               |                           | 70            | 0.00116                   | 70            | 0.311   |
|               |                           | 80            | 0.000930                  | 80            | 0.296   |
|               |                           | 100           | 0.000656                  | 100           | 0.266   |
|               |                           | 150           | 0.000339                  | 150           | 0.197   |
|               |                           | 200           | 0.000212                  | 200           | 0.160   |
|               |                           | 300           | 0.000110                  | 300           | 0.119   |
|               |                           | 317           | 0.000100                  | 350           | 0.106   |
|               |                           | 400           | 0.00                      | 400           | 0.0963  |
|               |                           |               |                           | 500           | 0.0822  |
|               |                           |               |                           | 800           | 0.0580  |
|               |                           |               |                           | 1000          | 0.0490  |
|               |                           |               |                           | 10000         | 0.00    |
| $\varepsilon$ | qe3                       | $\varepsilon$ | qe4                       | $\varepsilon$ | qe5     |
| (eV)          | ( $10^{-16}\text{cm}^2$ ) | (eV)          | ( $10^{-16}\text{cm}^2$ ) |               |         |
| 11.72         | 0.00                      | 11.83         | 0.00                      |               |         |
| 11.75         | 0.000202                  | 11.85         | 0.00770                   |               |         |
| 11.77         | 0.000420                  |               |                           |               |         |
| 11.80         | 0.000378                  |               |                           |               |         |
| 11.81         | 0.000400                  |               |                           |               |         |
| 11.84         | 0.000660                  |               |                           |               |         |
| 11.88         | 0.000431                  |               |                           |               |         |
| 11.90         | 0.000418                  |               |                           |               |         |
| 11.94         | 0.000473                  |               |                           |               |         |
| 12.00         | 0.000579                  |               |                           |               |         |
| 12.10         | 0.000837                  |               |                           |               |         |
| 12.20         | 0.00108                   |               |                           |               |         |
| 12.40         | 0.00174                   |               |                           |               |         |

Argon 2

Ar

|            |                           |            |                           |            |                           |
|------------|---------------------------|------------|---------------------------|------------|---------------------------|
| (eV)       | ( $10^{-16}\text{cm}^2$ ) | 22         | 0.0211                    | 40         | 0.0157                    |
|            |                           | 25         | 0.0232                    | 50         | 0.0137                    |
| 12.91      | 0.00                      | 30         | 0.0243                    | 60         | 0.0122                    |
| 13         | 0.000140                  | 35         | 0.0233                    | 80         | 0.0100                    |
| 14         | 0.00300                   | 40         | 0.0218                    | 100        | 0.00860                   |
| 15         | 0.00590                   | 50         | 0.0179                    | 150        | 0.00650                   |
| 16         | 0.00870                   | 60         | 0.0149                    | 200        | 0.00535                   |
| 18         | 0.0140                    | 80         | 0.0112                    | 300        | 0.00405                   |
| 19         | 0.0156                    | 100        | 0.00892                   | 500        | 0.00280                   |
| 20         | 0.0166                    | 150        | 0.00600                   | 800        | 0.00203                   |
| 21         | 0.0169                    | 200        | 0.00450                   | 1000       | 0.00173                   |
| 22         | 0.0167                    | 300        | 0.00300                   | 10000      | 0.00                      |
| 25         | 0.0145                    | 500        | 0.00179                   |            |                           |
| 30         | 0.00923                   | 800        | 0.00112                   | $\epsilon$ | qe10                      |
| 35         | 0.00625                   | 1000       | 0.000900                  | (eV)       | ( $10^{-16}\text{cm}^2$ ) |
| 40         | 0.00445                   | 10000      | 0.00                      |            |                           |
| 50         | 0.00252                   |            |                           | 13.27      | 0.00                      |
| 60         | 0.00160                   | $\epsilon$ | qe8                       | 14         | 0.00450                   |
| 80         | 0.000780                  | (eV)       | ( $10^{-16}\text{cm}^2$ ) | 15         | 0.0107                    |
| 100        | 0.000444                  |            |                           | 16         | 0.0162                    |
| 150        | 0.000160                  | 13.15      | 0.00                      | 18         | 0.0260                    |
| 180        | 0.000100                  | 14         | 0.00200                   | 19         | 0.0284                    |
| 200        | 0.00                      | 15         | 0.00560                   | 20         | 0.0298                    |
|            |                           | 16         | 0.00920                   | 22         | 0.0310                    |
| $\epsilon$ | qe6                       | 18         | 0.0156                    | 25         | 0.0295                    |
| (eV)       | ( $10^{-16}\text{cm}^2$ ) | 19         | 0.0174                    | 30         | 0.0250                    |
| 13.08      | 0.00                      | 20         | 0.0181                    | 35         | 0.0207                    |
| 14         | 0.00550                   | 21         | 0.0181                    | 40         | 0.0178                    |
| 15         | 0.0123                    | 22         | 0.0176                    | 50         | 0.0138                    |
| 16         | 0.0190                    | 25         | 0.0155                    | 60         | 0.0110                    |
| 18         | 0.0275                    | 30         | 0.0120                    | 80         | 0.00780                   |
| 19         | 0.0294                    | 35         | 0.00950                   | 100        | 0.00600                   |
| 20         | 0.0300                    | 40         | 0.00780                   | 150        | 0.00370                   |
| 21         | 0.0298                    | 50         | 0.00560                   | 200        | 0.00264                   |
| 22         | 0.0292                    | 60         | 0.00425                   | 300        | 0.00164                   |
| 25         | 0.0255                    | 80         | 0.00275                   | 500        | 0.000890                  |
| 30         | 0.0173                    | 100        | 0.00198                   | 800        | 0.000510                  |
| 35         | 0.0119                    | 150        | 0.00109                   | 1000       | 0.000390                  |
| 40         | 0.00850                   | 200        | 0.000710                  | 10000      | 0.00                      |
| 50         | 0.00500                   | 300        | 0.000390                  |            |                           |
| 60         | 0.00318                   | 500        | 0.000181                  | $\epsilon$ | qe11                      |
| 80         | 0.00157                   | 740        | 0.000100                  | (eV)       | ( $10^{-16}\text{cm}^2$ ) |
| 100        | 0.000910                  | 800        | 0.00                      |            |                           |
| 150        | 0.000340                  |            |                           | 13.30      | 0.00                      |
| 200        | 0.000167                  | $\epsilon$ | qe9                       | 14         | 0.00155                   |
| 248        | 0.000100                  | (eV)       | ( $10^{-16}\text{cm}^2$ ) | 15         | 0.00390                   |
| 300        | 0.00                      |            |                           | 16         | 0.00620                   |
|            |                           | 13.17      | 0.00                      | 18         | 0.0111                    |
| $\epsilon$ | qe7                       | 14         | 0.00360                   | 19         | 0.0134                    |
| (eV)       | ( $10^{-16}\text{cm}^2$ ) | 15         | 0.00810                   | 20         | 0.0151                    |
| 13.09      | 0.00                      | 16         | 0.0124                    | 21         | 0.0162                    |
| 14         | 0.00230                   | 18         | 0.0184                    | 22         | 0.0170                    |
| 15         | 0.00520                   | 19         | 0.0194                    | 25         | 0.0182                    |
| 16         | 0.00820                   | 20         | 0.0198                    | 30         | 0.0185                    |
| 18         | 0.0138                    | 22         | 0.0196                    | 35         | 0.0176                    |
| 20         | 0.0184                    | 25         | 0.0190                    | 40         | 0.0162                    |
|            |                           | 30         | 0.0179                    | 50         | 0.0133                    |
|            |                           | 35         | 0.0167                    | 60         | 0.0110                    |

Argon 3

Ar

|            |                           |            |                           |            |                           |
|------------|---------------------------|------------|---------------------------|------------|---------------------------|
| 80         | 0.00820                   | 500        | 0.00355                   | 13.98      | 0.00                      |
| 100        | 0.00657                   | 800        | 0.00219                   | 14         | 0.000800                  |
| 150        | 0.00435                   | 1000       | 0.00172                   | 15         | 0.0140                    |
| 200        | 0.00322                   | 10000      | 0.00                      | 16         | 0.0275                    |
| 300        | 0.00212                   |            |                           | 18         | 0.0470                    |
| 500        | 0.00126                   | $\epsilon$ | qe14                      | 19         | 0.0500                    |
| 800        | 0.000780                  | (eV)       | ( $10^{-16}\text{cm}^2$ ) | 20         | 0.0508                    |
| 1000       | 0.000630                  |            |                           | 22         | 0.0490                    |
| 10000      | 0.00                      | 13.84      | 0.00                      | 25         | 0.0420                    |
|            |                           | 14         | 0.00300                   | 30         | 0.0280                    |
| $\epsilon$ | qe12                      | 15         | 0.0205                    | 35         | 0.0185                    |
| (eV)       | ( $10^{-16}\text{cm}^2$ ) | 16         | 0.0380                    | 40         | 0.0129                    |
|            |                           | 18         | 0.0600                    | 50         | 0.00700                   |
| 13.33      | 0.00                      | 19         | 0.0650                    | 60         | 0.00430                   |
| 14         | 0.00200                   | 20         | 0.0660                    | 80         | 0.00197                   |
| 15         | 0.00460                   | 22         | 0.0640                    | 100        | 0.00110                   |
| 16         | 0.00600                   | 25         | 0.0560                    | 150        | 0.000370                  |
| 18         | 0.00740                   | 30         | 0.0390                    | 200        | 0.000170                  |
| 19         | 0.00770                   | 35         | 0.0265                    | 242        | 0.000100                  |
| 20         | 0.00783                   | 40         | 0.0193                    | 300        | 0.00                      |
| 22         | 0.00780                   | 50         | 0.0115                    |            |                           |
| 25         | 0.00730                   | 60         | 0.00750                   | $\epsilon$ | qe17                      |
| 30         | 0.00611                   | 80         | 0.00385                   | (eV)       | ( $10^{-16}\text{cm}^2$ ) |
| 35         | 0.00485                   | 100        | 0.00225                   |            |                           |
| 40         | 0.00395                   | 150        | 0.000890                  | 14.01      | 0.00                      |
| 50         | 0.00283                   | 200        | 0.000450                  | 15         | 0.00830                   |
| 60         | 0.00216                   | 300        | 0.000175                  | 16         | 0.0143                    |
| 80         | 0.00140                   | 380        | 0.000100                  | 18         | 0.0203                    |
| 100        | 0.00100                   | 500        | 0.00                      | 19         | 0.0213                    |
| 150        | 0.000550                  |            |                           | 20         | 0.0216                    |
| 200        | 0.000360                  | $\epsilon$ | qe15                      | 22         | 0.0214                    |
| 300        | 0.000195                  | (eV)       | ( $10^{-16}\text{cm}^2$ ) | 25         | 0.0203                    |
| 470        | 0.000100                  |            |                           | 30         | 0.0168                    |
| 500        | 0.00                      | 13.90      | 0.00                      | 35         | 0.0130                    |
|            |                           | 14         | 0.00150                   | 40         | 0.0105                    |
| $\epsilon$ | qe13                      | 15         | 0.0160                    | 50         | 0.00720                   |
| (eV)       | ( $10^{-16}\text{cm}^2$ ) | 16         | 0.0300                    | 60         | 0.00540                   |
|            |                           | 18         | 0.0475                    | 80         | 0.00334                   |
| 13.48      | 0.00                      | 19         | 0.0510                    | 100        | 0.00230                   |
| 14         | 0.00250                   | 20         | 0.0524                    | 150        | 0.00118                   |
| 15         | 0.00800                   | 22         | 0.0520                    | 200        | 0.000730                  |
| 16         | 0.0135                    | 25         | 0.0475                    | 300        | 0.000375                  |
| 18         | 0.0235                    | 30         | 0.0360                    | 500        | 0.000160                  |
| 19         | 0.0275                    | 35         | 0.0245                    | 660        | 0.000100                  |
| 20         | 0.0307                    | 40         | 0.0176                    | 800        | 0.00                      |
| 21         | 0.0332                    | 50         | 0.0100                    |            |                           |
| 22         | 0.0352                    | 60         | 0.00640                   | $\epsilon$ | qe18                      |
| 25         | 0.0387                    | 80         | 0.00310                   | (eV)       | ( $10^{-16}\text{cm}^2$ ) |
| 30         | 0.0411                    | 100        | 0.00177                   |            |                           |
| 35         | 0.0410                    | 150        | 0.000650                  | 14.06      | 0.00                      |
| 40         | 0.0400                    | 200        | 0.000315                  | 15         | 0.0105                    |
| 50         | 0.0362                    | 300        | 0.000113                  | 16         | 0.0220                    |
| 60         | 0.0317                    | 315        | 0.000100                  | 17         | 0.0283                    |
| 80         | 0.0240                    | 500        | 0.00                      | 18         | 0.0315                    |
| 100        | 0.0190                    |            |                           | 19         | 0.0328                    |
| 150        | 0.0124                    | $\epsilon$ | qe16                      | 20         | 0.0332                    |
| 200        | 0.00920                   | (eV)       | ( $10^{-16}\text{cm}^2$ ) | 21         | 0.0326                    |
| 300        | 0.00605                   |            |                           | 22         | 0.0315                    |

Argon 4

Ar

|            |                           |            |                           |            |                           |
|------------|---------------------------|------------|---------------------------|------------|---------------------------|
| 25         | 0.0260                    | 200        | 0.0316                    | $\epsilon$ | qe23                      |
| 30         | 0.0193                    | 300        | 0.0250                    | (eV)       | ( $10^{-16}\text{cm}^2$ ) |
| 35         | 0.0152                    | 500        | 0.0180                    |            |                           |
| 40         | 0.0123                    | 800        | 0.0130                    | 14.30      | 0.00                      |
| 50         | 0.00860                   | 1000       | 0.0110                    | 15         | 0.00320                   |
| 60         | 0.00640                   | 10000      | 0.00                      | 16         | 0.00730                   |
| 80         | 0.00405                   |            |                           | 18         | 0.0145                    |
| 100        | 0.00280                   | $\epsilon$ | qe21                      | 20         | 0.0199                    |
| 150        | 0.00146                   | (eV)       | ( $10^{-16}\text{cm}^2$ ) | 22         | 0.0240                    |
| 200        | 0.000910                  |            |                           | 25         | 0.0290                    |
| 300        | 0.000475                  | 14.21      | 0.00                      | 30         | 0.0355                    |
| 500        | 0.000205                  | 15         | 0.00450                   | 35         | 0.0405                    |
| 780        | 0.000100                  | 16         | 0.0110                    | 40         | 0.0440                    |
| 800        | 0.00                      | 18         | 0.0210                    | 50         | 0.0480                    |
|            |                           | 19         | 0.0235                    | 60         | 0.0495                    |
| $\epsilon$ | qe19                      | 20         | 0.0248                    | 80         | 0.0495                    |
| (eV)       | ( $10^{-16}\text{cm}^2$ ) | 21         | 0.0250                    | 100        | 0.0477                    |
| 14.09      | 0.00                      | 22         | 0.0247                    | 150        | 0.0395                    |
| 15         | 0.00220                   | 25         | 0.0225                    | 200        | 0.0330                    |
| 16         | 0.00500                   | 30         | 0.0170                    | 300        | 0.0260                    |
| 18         | 0.00950                   | 35         | 0.0122                    | 500        | 0.0192                    |
| 20         | 0.0123                    | 40         | 0.00940                   | 800        | 0.0147                    |
| 22         | 0.0142                    | 50         | 0.00595                   | 1000       | 0.0129                    |
| 25         | 0.0164                    | 60         | 0.00415                   | 10000      | 0.00                      |
| 30         | 0.0191                    | 80         | 0.00233                   |            |                           |
| 35         | 0.0208                    | 100        | 0.00148                   | $\epsilon$ | qe24                      |
| 40         | 0.0222                    | 150        | 0.000660                  | (eV)       | ( $10^{-16}\text{cm}^2$ ) |
| 50         | 0.0239                    | 200        | 0.000370                  |            |                           |
| 60         | 0.0245                    | 300        | 0.000163                  | 14.71      | 0.00                      |
| 80         | 0.0243                    | 385        | 0.000100                  | 15         | 0.00200                   |
| 100        | 0.0230                    | 500        | 0.00                      | 16         | 0.0100                    |
| 150        | 0.0200                    |            |                           | 18         | 0.0300                    |
| 200        | 0.0175                    | $\epsilon$ | qe22                      | 20         | 0.0480                    |
| 300        | 0.0140                    | (eV)       | ( $10^{-16}\text{cm}^2$ ) | 22         | 0.0650                    |
| 500        | 0.0102                    |            |                           | 25         | 0.0910                    |
| 800        | 0.00750                   | 14.23      | 0.00                      | 30         | 0.124                     |
| 1000       | 0.00640                   | 15         | 0.00400                   | 35         | 0.150                     |
| 10000      | 0.00                      | 16         | 0.00960                   | 40         | 0.165                     |
|            |                           | 18         | 0.0190                    | 50         | 0.178                     |
| $\epsilon$ | qe20                      | 19         | 0.0228                    | 60         | 0.178                     |
| (eV)       | ( $10^{-16}\text{cm}^2$ ) | 20         | 0.0255                    | 80         | 0.165                     |
| 14.15      | 0.00                      | 22         | 0.0285                    | 100        | 0.146                     |
| 15         | 0.00400                   | 25         | 0.0310                    | 150        | 0.112                     |
| 16         | 0.00900                   | 30         | 0.0310                    | 200        | 0.0930                    |
| 18         | 0.0175                    | 35         | 0.0290                    | 300        | 0.0690                    |
| 20         | 0.0230                    | 40         | 0.0265                    | 500        | 0.0470                    |
| 22         | 0.0270                    | 50         | 0.0215                    | 800        | 0.0330                    |
| 25         | 0.0315                    | 60         | 0.0180                    | 1000       | 0.0280                    |
| 30         | 0.0362                    | 80         | 0.0138                    | 10000      | 0.00                      |
| 35         | 0.0400                    | 100        | 0.0110                    |            |                           |
| 40         | 0.0425                    | 150        | 0.00760                   | $\epsilon$ | qe25                      |
| 50         | 0.0455                    | 200        | 0.00580                   | (eV)       | ( $10^{-16}\text{cm}^2$ ) |
| 60         | 0.0460                    | 300        | 0.00395                   |            |                           |
| 80         | 0.0450                    | 500        | 0.00242                   | 15.20      | 0.00                      |
| 100        | 0.0430                    | 800        | 0.00157                   | 16         | 0.00900                   |
| 150        | 0.0367                    | 1000       | 0.00127                   | 18         | 0.0320                    |
|            |                           | 10000      | 0.00                      | 20         | 0.0630                    |
|            |                           |            |                           | 22         | 0.0850                    |

Argon 5

Ar

|       |        |       |       |
|-------|--------|-------|-------|
| 25    | 0.112  | 350   | 1.81  |
| 30    | 0.148  | 400   | 1.68  |
| 35    | 0.170  | 500   | 1.46  |
| 40    | 0.183  | 600   | 1.30  |
| 50    | 0.193  | 700   | 1.16  |
| 60    | 0.193  | 800   | 1.06  |
| 80    | 0.173  | 1000  | 0.916 |
| 100   | 0.152  | 10000 | 0.00  |
| 150   | 0.115  |       |       |
| 200   | 0.0950 |       |       |
| 300   | 0.0710 |       |       |
| 500   | 0.0480 |       |       |
| 800   | 0.0330 |       |       |
| 1000  | 0.0270 |       |       |
| 10000 | 0.00   |       |       |

|                    |                                    |
|--------------------|------------------------------------|
| $\epsilon$<br>(eV) | $qi$<br>( $10^{-16} \text{cm}^2$ ) |
|--------------------|------------------------------------|

|       |        |
|-------|--------|
| 15.76 | 0.00   |
| 16    | 0.0202 |
| 17    | 0.134  |
| 18    | 0.294  |
| 19    | 0.460  |
| 20    | 0.627  |
| 21    | 0.787  |
| 22    | 0.933  |
| 23    | 1.06   |
| 24    | 1.18   |
| 25    | 1.30   |
| 26    | 1.41   |
| 28    | 1.60   |
| 30    | 1.80   |
| 32    | 1.96   |
| 34    | 2.11   |
| 36    | 2.24   |
| 38    | 2.33   |
| 40    | 2.39   |
| 42.5  | 2.45   |
| 45    | 2.49   |
| 50    | 2.53   |
| 55    | 2.60   |
| 60    | 2.66   |
| 65    | 2.73   |
| 70    | 2.77   |
| 75    | 2.82   |
| 80    | 2.84   |
| 85    | 2.85   |
| 90    | 2.86   |
| 100   | 2.85   |
| 120   | 2.81   |
| 130   | 2.76   |
| 150   | 2.68   |
| 160   | 2.62   |
| 180   | 2.52   |
| 200   | 2.39   |
| 250   | 2.17   |
| 300   | 1.98   |

Argon 6



Numbers of References  
on Electron and Photon Collisions  
with Atoms and Molecules  
published in the 20th Century

| Atoms (17)                        |    |        | Molecules (51) |                                 |         |    |                                  |     |
|-----------------------------------|----|--------|----------------|---------------------------------|---------|----|----------------------------------|-----|
| A + e,                            |    | A + hν |                | M + e,                          | M + hν, |    |                                  |     |
| He                                | 2  | 2170 * | 2              | H <sub>2</sub> , D <sub>2</sub> | 1850    | 5  | CH <sub>4</sub>                  | 750 |
| Ne                                | 10 | 1140 * |                | N <sub>2</sub>                  | 2140    |    | CF <sub>4</sub>                  | 390 |
| Ar                                | 18 | 1960   |                | O <sub>2</sub>                  | 1690    |    | CCl <sub>4</sub>                 | 210 |
| Kr                                | 36 | 790    |                | CO                              | 1190    |    | CCl <sub>2</sub> F <sub>2</sub>  | 250 |
| Xe                                | 54 | 940    |                | NO                              | 850     |    | CH <sub>3</sub> Cl               | 90  |
|                                   |    |        |                |                                 |         |    | SiH <sub>4</sub>                 | 230 |
| Li                                | 3  | 450    |                | F <sub>2</sub>                  | 170     |    | SiF <sub>4</sub>                 | 140 |
| Na                                | 11 | 800    |                | Cl <sub>2</sub>                 | 320     |    | GeH <sub>4</sub>                 | 50  |
| K                                 | 19 | 370    |                | Br <sub>2</sub>                 | 130     |    |                                  |     |
| Rb                                | 37 | 220    |                | I <sub>2</sub>                  | 240     |    |                                  |     |
| Cs                                | 55 | 370    |                |                                 |         | 6  | C <sub>2</sub> H <sub>4</sub>    | 370 |
|                                   |    |        |                | HF                              | 260     |    | CH <sub>3</sub> OH               | 240 |
| O                                 | 8  | 390    |                | HCl                             | 320     |    |                                  |     |
|                                   |    |        |                | HBr                             | 190     |    |                                  |     |
| F                                 | 9  | 90     |                | HI                              | 100     | 7  | SF <sub>6</sub>                  | 780 |
| Cl                                | 17 | 130    |                |                                 |         |    |                                  |     |
|                                   |    |        | 3              | CO <sub>2</sub>                 | 1160    | 8  | C <sub>2</sub> H <sub>6</sub>    | 260 |
|                                   |    |        |                | H <sub>2</sub> O                | 850     |    | C <sub>2</sub> F <sub>6</sub>    | 150 |
|                                   |    |        |                | O <sub>3</sub>                  | 480     |    | Si <sub>2</sub> H <sub>6</sub>   | 70  |
|                                   |    |        |                | N <sub>2</sub> O                | 450     |    |                                  |     |
|                                   |    |        |                | NO <sub>2</sub>                 | 300     | 9  | C <sub>3</sub> H <sub>6</sub>    | 120 |
|                                   |    |        |                | H <sub>2</sub> S                | 270     |    | C <sub>2</sub> H <sub>5</sub> OH | 60  |
|                                   |    |        |                | SO <sub>2</sub>                 | 260     |    |                                  |     |
|                                   |    |        |                | CS <sub>2</sub>                 | 240     |    |                                  |     |
|                                   |    |        |                | OCS                             | 240     | 11 | C <sub>3</sub> H <sub>8</sub>    | 190 |
|                                   |    |        |                |                                 |         |    | C <sub>3</sub> F <sub>8</sub>    | 100 |
| not final, but<br>finished mostly |    |        | 4              | C <sub>2</sub> H <sub>2</sub>   | 390     | 12 | C <sub>4</sub> F <sub>8</sub>    | 100 |
|                                   |    |        |                | NH <sub>3</sub>                 | 400     |    | C <sub>6</sub> H <sub>6</sub>    | 240 |
| include electron<br>swarm papers  |    |        |                | NF <sub>3</sub>                 | 110     |    | C <sub>6</sub> F <sub>6</sub>    | 100 |
|                                   |    |        |                | BF <sub>3</sub>                 | 110     |    |                                  |     |
| include<br>review papers          |    |        |                | BCl <sub>3</sub>                | 90      | 60 | C <sub>6</sub> O                 | 300 |
|                                   |    |        |                | PH <sub>3</sub>                 | 80      |    |                                  |     |
|                                   |    |        |                | H <sub>2</sub> CO               | 180     |    | r + v                            | 700 |

\* He(Ne) + e only. Not include He(Ne) + h $\nu$  papers.

## Recent Issues of NIFS-DATA Series

- NIFS-DATA-45 Y. Yamamura, W. Takeuchi and T. Kawamura,  
The Screening Length of Interatomic Potential in Atomic Collisions, Mar 1998
- NIFS-DATA-46 T. Kenmotsu, T. Kawamura, T. Ono and Y. Yamamura,  
Dynamical Simulation for Sputtering of B<sub>4</sub>C, Mar 1998
- NIFS-DATA-47 I. Murakami, K. Moribayashi and T. Kato,  
Effect of Recombination Processes on FeXXIII Line Intensities: May 1998
- NIFS-DATA-48 Zhujie Li, T. Kenmotsu, T. Kawamura, T. Ono and Y. Yamamura,  
Sputtering Yield Calculations Using an Interatomic Potential with the Shell Effect and a New Local Model. Oct. 1998
- NIFS-DATA-49 S. Sasaki, M. Goto, T. Kato and S. Takamura,  
Line Intensity Ratios of Helium Atom in an Ionizing Plasma: Oct 1998
- NIFS-DATA-50 I. Murakami, T. Kato and U. Safronova,  
Spectral Line Intensities of NeVII for Non-equilibrium Ionization Plasma Including Dielectronic Recombination Processes Jan 1999
- NIFS-DATA-51 Hiro Tawara and Masa Kato,  
Electron Impact Ionization Data for Atoms and Ions -up-dated in 1998-: Feb. 1999
- NIFS-DATA-52 J.G. Wang, T. Kato and I. Murakami,  
Validity of  $n^{-3}$  Scaling Law in Dielectronic Recombination Processes Apr 1999
- NIFS-DATA-53 J.G. Wang, T. Kato and I. Murakami,  
Dielectronic Recombination Rate Coefficients to Excited States of He from He<sup>+</sup> Apr 1999
- NIFS-DATA-54 T. Kato and E. Asano,  
Comparison of Recombination Rate Coefficients Given by Empirical Formulas for Ions from Hydrogen through Nickel. June 1999
- NIFS-DATA-55 H.P. Summers, H. Anderson, T. Kato and S. Murakami,  
Hydrogen Beam Stopping and Beam Emission Data for LHD Nov. 1999
- NIFS-DATA-56 S. Born, N. Matsunami and H. Tawara,  
A Simple Theoretical Approach to Determine Relative Ion Yield (RIY) in Glow Discharge Mass Spectrometry (GDMS) Jan 2000
- NIFS-DATA-57 T. Ono, T. Kawamura, T. Kenmotsu, Y. Yamamura,  
Simulation Study on Retention and Reflection from Tungsten Carbide under High Fluence of Helium Ions Aug 2000
- NIFS-DATA-58 J.G. Wang, M. Kato and T. Kato,  
Spectra of Neutral Carbon for Plasma Diagnostics: Oct 2000
- NIFS-DATA-59 Yu. V. Raichenko, R. K. Janev, T. Kato, D.V. Fursa, I. Bray and F.J. de Heer  
Cross Section Database for Collision Processes of Helium Atom with Charged Particles.  
I. Electron Impact Processes: Oct 2000
- NIFS-DATA-60 U.I. Safronova, C. Namba, W.R. Johnson, M.S. Safronova,  
Relativistic Many-Body Calculations of Energies for  $n = 3$  States in Aluminiumlike Ions: Jan 2001
- NIFS-DATA-61 U.I. Safronova, C. Namba, I. Murakami, W.R. Johnson and M.S. Safronova,  
E1, E2, M1, and M2 Transitions in the Neon Isoelectronic Sequence. Jan. 2001
- NIFS-DATA-62 R. K. Janev, Yu. V. Raichenko, T. Kenmotsu,  
Unified Analytic Formula for Physical Sputtering Yield at Normal Ion Incidence: Apr 2001
- NIFS-DATA-63 Y. Itikawa,  
Bibliography on Electron Collisions with Molecules: Rotational and Vibrational Excitations, 1980-2000 Apr. 2001
- NIFS-DATA-64 R.K. Janev, J.G. Wang and T. Kato,  
Cross Sections and Rate Coefficients for Charge Exchange Reactions of Protons with Hydrocarbon Molecules: May 2001
- NIFS-DATA-65 T. Kenmotsu, Y. Yamamura, T. Ono and T. Kawamura,  
A New Formula of the Energy Spectrum of Sputtered Atoms from a Target Material Bombarded with Light Ions at Normal Incidence: May 2001
- NIFS-DATA-66 I. Murakami, U. I. Safronova and T. Kato,  
Dielectronic Recombination Rate Coefficients to Excited States of Be-like Oxygen May 2001
- NIFS-DATA-67 N. Matsunami, E. Hatanaka, J. Kondoh, H. Hosaka, K. Tsumori, H. Sakaue and H. Tawara,  
Secondary Charged Particle Emission from Proton Conductive Oxides by Ion Impact: July 2001
- NIFS-DATA-68 R.K. Janev, J.G. Wang, I. Murakami and T. Kato,  
Cross Sections and Rate Coefficients for Electron-Impact Ionization of Hydrocarbon Molecules: Oct 2001
- NIFS-DATA-69 S. Zou, T. Kato, I. Murakami,  
Charge Exchange Recombination Spectroscopy of Li III Ions for Fusion Plasma Diagnostics. Oct 2001
- NIFS-DATA-70 I. Murakami, T. Kato, A. Igarashi, M. Imai, Y. Itikawa, D. Kato, M. Kimura, T. Kusakabe, K. Moribayashi, T. Morishita, K. Motohashi, L. Pichl  
AMDIS and CHART update (I): Oct 2002
- NIFS-DATA-71 S. Zou, L. Pichl, M. Kimura and T. Kato  
Total, Partial and Differential Ionization Cross Sections in Proton-hydrogen Collisions at Low Energy Jan 2003
- NIFS-DATA-72 M. Hayashi  
Bibliography of Electron and Photon Cross Sections with Atoms and Molecules Published in the 20th Century – Argon –\* Jan 2003