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Bibliography on Atomic Transition Probabilities

January 1916 Through June 1969

United States Department of Commerce

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Special Publication 320

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Bibliography on Atomic Transition Probabilities

January 1916 Through June 1969

B. M. Miles and W. L. Wiese

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Bibliography on Atomic Transition Probabilities

January 1916 Through June 1969¹

B. M. Miles and W. L. Wiese

A revised and updated bibliography on atomic transition probabilities including all new references up to July 1, 1969 is presented. The papers, except for a number of comprehensive articles, are arranged according to elements and stages of ionization. In addition to the literature reference the employed experimental or theoretical method is indicated. For the 20 lightest elements and Ba I and II the literature is presented on a critically selected basis. To keep the bibliography to a compact size, a number of comprehensive papers which contain numerical results throughout extended isoelectronic sequences are listed in a separate section. Also included in this bibliography is a supplementary list of selected important papers dealing with the subject of transition probabilities from a general point of view.

Key words: Atomic ; discrete ; forbidden ; permitted ; transition probability.

1. Introduction

About one and a half years have passed since the publication of our last bibliography [1]² and the literature on atomic transition probabilities has increased by about another 200 articles making this an appropriate time to update the bibliography by including those papers received by us before July 1969. Furthermore, there is another reason which suggests this to be a most suitable time for the revision of the older bibliography. This is the completion of Volume II of the critically evaluated transition probabilities covering the elements sodium through calcium [2]. The completion of this critical compilation implies that now all the *f*-value literature for the 20 lightest elements plus Ba I and II [2, 3, 4]—except of course, the most recent literature appearing after the cutoff dates—has been carefully scrutinized for the most useful material, so that for these elements the literature may now be presented on a critically selected basis. Therefore, it appears appropriate to exclude from this new edition of the bibliography all those articles which were rejected for the critical compilations. Thus, this revised bibliography must be considered as a selected one for the first 20 elements and Ba I and II but is still a complete bibliography for the other elements at the present time. The partial “weeding-out” reduces the bibliography considerably in size since much of the transition probability literature, especially theoretical material, is concentrated in the first 20 elements.

Otherwise, this new bibliography maintains the scope of its predecessors, i.e., it is still restricted to articles on atomic and ionic transition probabilities of discrete transitions, including permitted (electric dipole) as well as forbidden (mag-

netic dipole, electric quadrupole, etc.) lines. Normally, the papers are arranged according to elements and stages of ionization in the main part of this bibliography (section 3.3). Under the column “classification”, each article is characterized by at least one code word or abbreviation indicating the method being used. Explanations of the code words are given in table 1, section 1.2. Furthermore, we have indicated in this column whether the transitions investigated are forbidden lines,—then “forb.” is added,—or whether they are permitted (electric dipole) lines,—in this case nothing is added. The word relative (“rel.”) appears in all cases where only relative transition probabilities are determined. Adopting a slight change from our older bibliographies we now have listed all experimental methods that produce primarily atomic lifetimes under “life”, while formerly such methods as the Hanle-effect technique were listed under miscellaneous (“misc.”).

The reason for this change is that up to a few years ago relatively few such experiments were reported in the literature. The last few years, however, have brought a renaissance of these somewhat indirect lifetime techniques, so that it should be more definitive now to list these methods under the “life” classification.

For the abbreviations of the journals the designations in the “List of Periodicals” of Chemical Abstracts (1956 and Supplements) have generally been adopted and should be consulted when in doubt. For convenience, a list of abbreviations for the lesser known journals encountered here is attached at the end of this collection. Particular attention should be given to the apparent differences in the designation of some Russian journals. For instance, articles from the “Zhurnal Eksperimental'noi i Teoreticheskoi Fiziki” available only in the Russian language are listed as “Zhur. Éksptl. i Teoret. Fiz.”. If they have been or are being translated privately for the data

¹Research supported by the Advanced Research Projects Agency of the Department of Defense of the Strategic Technology Office.

²Figures in brackets indicate the literature references on page VI of this paper.

center, the word "translated" is added in parentheses (transl.). Russian articles translated in the books "Optical Transition Probabilities" [5, 6] which were published several years ago upon the initiative of this data center, are marked "O.T.P. 1" or "O.T.P. 2". When Russian literature has been translated by the American Institute of Physics and other institutions, the translated versions are quoted. For example, for the above quoted journal the abbreviation is "Soviet Phys.—JETP."

Recently, several rather comprehensive papers have been published in which numerical results for selected transitions throughout extended isoelectronic sequences are given. These papers are listed separately in section 3.2 since we could not conveniently put them into the main body of the bibliography. In this separate section the articles are ordered—as well as feasible—according to isoelectronic sequences and these in turn are presented in order of increasing atomic number. When feasible, we list the individual transitions treated. It will be seen that many of these papers are for the first few isoelectronic sequences in the periodic system, i.e., those of He, Li, Be, B, C, N, and O.

A third part of the bibliography (section 3.1) contains selected important papers that deal with the subject of atomic transition probabilities from a general point of view. These articles are arranged according to a number of subjects, and short explanatory remarks are given in parentheses whenever this is felt advisable.

It is a pleasure to acknowledge the competent assistance of Miss J. Grabusnik in arranging and typing this bibliography.

1.1. References

- [1] Glennon, B. M. and Wiese, W. L., Bibliography on Atomic Transition Probabilities. Nat. Bur. Stand. (U.S.), Misc. Publ. 278, 101 pages (April 1966). Supplement, 49 pages (April 1968).
- [2] Wiese, W. L., Smith, M. W., and Miles, B. M., Atomic Transition Probabilities Na through Ca, Nat. Stand. Ref. Data Ser., Nat. Bur. Stand. (U.S.), 22, Vol. 2, 306 pages (Oct. 1969).
- [3] Wiese, W. L., Smith, M. W., and Glennon, B. M., Atomic Transition Probabilities H through Ne, Nat. Stand. Ref. Data Ser., Nat. Bur. Stand. (U.S.) 4, Vol. 1, 168 pages (May 1966).
- [4] Miles, B. M., and Wiese, W. L., Critically Evaluated Transition Probabilities for Ba I and II, Nat. Bur. Stand. (U.S.), Tech. Note 474, 23 pages (Jan. 1969). Atomic Data 1, 1 (1969).
- [5] Optical Transition Probabilities, 1924–1960 (National Science Foundation, Washington, D.C., and Department of Commerce by the Israel Program for Scientific Translations, Jerusalem, 1962).
- [6] Optical Transition Probabilities, 1932–1962 (National Science Foundation, Washington, D.C., and Department of Commerce by the Israel Program for Scientific Translations, Jerusalem, 1963).

Table. 1. Abbreviations used for classification of the articles

Except where "rel." (relative) appears, absolute values have been determined.

A. Theoretical methods:

1. SCF—self-consistent field calculations
2. CA—Coulomb approximation
3. Quant.—other quantum mechanical calculations
4. Quant. forb.—quantum mechanical calculations for forbidden lines
5. Estim.—estimations from sum rules, etc.

B. Experimental methods:

1. Emiss.—measurements in emission (arc, furnace, discharge tube, shock tube, etc.)
2. Absorpt.—measurement in absorption (King furnace, absorption tube, etc.)
3. Life—lifetime measurements (including Hanle-effect)
4. Hook—anomalous dispersion measurements
5. Misc.—miscellaneous experimental methods (for example, Stark-effect, astrophysical measurements, etc.)

C. Miscellaneous:

1. Comm.—comments, additions, or corrections to other articles, methods, etc.
 2. Incompl.—article not yet classified (because translation is needed, incomplete information available, etc.)
 3. Compil.—compilations
-

2. Conversion Factors

The numerical factors relating the quantities A_{ki} , f_{ik} , and S are given in table 2, where:

A_{ki} is the transition probability for spontaneous emission (sec^{-1}).

f_{ik} is the absorption oscillator strength (dimensionless).

S is the line strength in atomic units, which are: for electric dipole transitions (allowed—denoted by E_d):

$$a_0^2 e^2 = 7.187_3 \times 10^{-59} \text{m}^2 \text{C}^2;$$

for electric quadrupole transitions (forbidden—denoted by E_q):

$$a_0^4 e^2 = 2.021_6 \times 10^{-79} \text{m}^4 \text{C}^2;$$

for magnetic dipole transitions (forbidden—denoted by M_d):

$$e^2 \hbar^2 / 16 \pi^2 m_e^2 c^2 = 8.599 \times 10^{-63} \text{J}^2 \text{Wb}^{-2} \text{m}^4.$$

The wavelength λ is given in Angstrom units. g is the statistical weight. The upper energy level of a transition is denoted by the subscript k , the lower by i . The initial state is written first, i.e., i first means absorption. For the atomic constants entering into the above relations as well as into table 2 we have used the latest recommendations of the

National Academy of Sciences adopted by the National Bureau of Standards (Nat. Bur. Stand. (U.S.), Handb. 102, March 1967).

Besides the quantities introduced above, the following are occasionally in use and are related to them as follows:

1. Transition probability of absorption, B_{ik} :

$$B_{ik} = 6.01 \lambda^3 \frac{g_k}{g_i} A_{ki};$$

2. Transition probability of induced emission B_{ki} :

$$B_{ki} = 6.01 \lambda^3 A_{ki};$$

3. Emission oscillator strength f_{ki}

$$f_{ki} = -\frac{g_i}{g_k} f_{ik}.$$

Finally, it should be noted that the line strength S is symmetrical:

$$S = S_{ik} = S_{ki}.$$

Since hydrogen-like ions (with one electron and nuclear charge Z) have intensity quantities which are simply related to hydrogen, papers dealing with these ions are not included in the bibliography. For convenience, the relations are given below.

$$f_Z = f_H \quad S_Z = Z^{-2} S_H \quad A_Z = Z^4 A_H.$$

Table 2. Numerical conversion factors

The transition probability is listed in units sec^{-1} , and the f -value is dimensionless. The wavelength λ must be used in Angstrom units, and g_i and g_k are the statistical weights of the lower and upper state, respectively. E_d denotes electric dipole (allowed) transitions, E_q electric quadrupole (forbidden) transitions and M_d denotes magnetic dipole (forbidden) transitions.

Transition Probability $A_{ki} =$	_____	$\frac{6.670_2 \times 10^{15}}{\lambda^2} \frac{g_i}{g_k} f_{ik}$	E_d $\frac{2.026_1 \times 10^{18}}{g_k \lambda^3} S$
			E_q $\frac{1.679_8 \times 10^{18}}{g_k \lambda^5} S$
			M_d $\frac{2.697_2 \times 10^{13}}{g_k \lambda^3} S$
Oscillator Strength $f_{ik} =$	$1.4992 \times 10^{-16} \lambda^2 \frac{g_k}{g_i} A_{ki}$	_____	E_d $\frac{303.7_5}{g_i \lambda} S$
			E_q $\frac{251.8}{g_i \lambda^3} S$
			M_d $\frac{4.043^6 \times 10^{-3}}{g_i \lambda} S$
Line Strength $S =$	E_d $4.935_6 \times 10^{-18} g_k \lambda^3 A_{ki}$	E_d $3.292_1 \times 10^{-3} g_i \lambda f_{ik}$	_____
	E_q $5.953 \times 10^{-18} g_k \lambda^5 A_{ki}$	E_q $3.971 \times 10^{-3} g_i \lambda^3 f_{ik}$	
	M_d $3.707_6 \times 10^{-14} g_k \lambda^3 A_{ki}$	M_d $247.3_0 g_i \lambda f_{ik}$	

3. BIBLIOGRAPHY

3.1 GENERAL REFERENCES

A. TABLES OF NUMERICAL VALUES

- Allen, C. W., "Astrophysical Quantities", 51-78, 2nd ed. (The Athlone Press, London, 1963).
- Bates, D. R. & Damgaard, A., Phil. Trans. Roy. Soc. London, Ser. A. 242, 101-122 (1949) (Coulomb Approximation). (Cetel, G. K. & Shomo, L. P., Astrophys. J. Suppl. Ser. 16, #145, 175 (1968) (generalization)).
- Biermann, L., "Zahlenwerte und Funktionen", 260-275 (ed. Landolt-Börnstein, Springer-Verlag, Berlin, 1950).
- Goldberg, L., Müller, E. A. & Aller, L. H., Astrophys. J. Suppl. Ser. 5, #45, 1-137 (1960).
- Miles, B. M. & Wiese, W. L., Natl. Bur. Stds. Technical Note 474 (U.S. Government Printing Office, Washington, D.C., 1969) (Critically evaluated transition probabilities for Ba I and II); Atomic Data 1, 1 (1969).
- Pearce, W., "Symposium on Optical Spectrometric Measurements of High Temperature", 142-169 (ed. Dickerman, P. J., University Press, Chicago, 1960).
- Penkin, N. P., J. Quant. Spectrosc. Radiat. Transfer 4, 41-94 (translation in Smithsonian Astrophysical Observatory, Cambridge, Massachusetts, June, 1964).
- Wiese, W. L., Smith, M. W. & Glennon, B. M., NSRDS-Natl. Bur. Stds. 4, vol. 1 (H through Ne - a critical data compilation) (U.S. Government Printing Office, Washington, D. C., 1966).
- Wiese, W. L., Smith, M. W. & Miles, B. M., NSRDS-Natl. Bur. Stds. 22, Vol. 2 (Na through Ca - a critical data compilation) (U.S. Government Printing Office, Washington, D. C., 1969).

Relative transition probabilities of lines within a transition array and within a multiplet may be obtained in the case of LS-coupling from:

- Goldberg, L., Astrophys. J. 82, 1-25 (1935).
- Russell, H. N., Astrophys. J. 83, 129-139 (1936).
- White, H. E. & Eliason, A. Y., Phys. Rev. 44, 753-756 (1933).

Generalized tables, including transitions involving equivalent electrons are given by:

- Shore, B. W. & Menzel, D. H., Astrophys. J. Suppl. Ser. 12, #106, 187-214 (1965).

* * * * *

B. PREVIOUS LITERATURE COMPILATIONS

Glennon, B. M., and Wiese, W. L., "Bibliography on Atomic Transition Probabilities," National Bureau of Standards Miscellaneous Publication 278, (April, 1966). Supplement (April, 1968) (U.S. Government Printing office, Washington, D.C.).

* * * * *

C. REVIEW ARTICLES

Aller, L. H., "Gaseous Nebulae", 164 (John Wiley & Sons, Inc., New York, 1956).

Aller, L. H., "The Abundance of the Elements". 87-96 (Interscience Publisher, Inc., New York, 1961).

Aller, L. H., "Astrophysics: The Atmosphere of the Sun and the Stars", 2nd ed., ch. 4 & 7 (Ronald Press Co., New York, 1963).

Bennett, Jr. W. R., Kindlmann, P. J. & Mercer, G. N., Applied Optics Supplement 2 of Chemical Lasers 34-57 (1965) (Life).

Foster, E. W., Rpts. Progr. in Phys. 27, 469-551 (1964).

Frisch, S. E., J. Opt. Soc. Am. 50, 400-404 (1960) (current Russian work). (Translation of Uspekhi Fiz. Nauk 68, 3-12 (1959)).

Garstang, R. H., "Atomic and Molecular Processes" 1-46 (ed. Bates, D. R., Academic Press, New York (1962). (on forbidden lines).

Garstang, R. H., "Beam-Foil Spectroscopy", 407-423 (Gordon and Breach, New York, 1968).

Goldberg, L., Müller, E. A. & Aller, L. H., Astrophys. J. Suppl. Ser. 5, #45, 1-137 (1960).

King, R. B., J. Quant. Spectrosc. Radiat. Transfer 3, 299-303 (1963).

Korff, S. A. & Breit, G., Rev. Mod. Phys. 4, 471-503 (1932).

Ladenburg, R., Naturwissenschaften 17, 296-299 (1929) (on anomalous dispersion experiments).

Mitchell, A. C. G. & Zemansky, M. W.. "Resonance Radiation and Excited Atoms", ch. 3, 92-153 (University Press, Cambridge, 1934).

Mrozowski, S., Rev. Mod. Phys. 16, 153-174 (1944) (experiments on forbidden lines).

Nicholls, R. W. & Stewart, A. L., "Atomic and Molecular Processes", ch. 2 (ed. Bates, D. R., Academic Press, New York 1962).

van Regemorter, H., J. Phys. radium 20, 907-914 (1959) (on experimental methods).

Transactions of the International Astronomical Union, Vols. VII (1950), VIII (1952), IX (1955), X (1958), XI (1961), XII (1964) and XIII (1967).

Unsöld, A., "Physik der Sternatmosphären", 2nd ed., 269 (Springer-Verlag, Berlin, 1955).

Wiese, W. L., "Proceedings of the Xth Colloquium Spectroscopicum Internationale" (1963) (ed. Lippincott, E. R. & Margoshes, M., Spartan Books, Washington, D. C.).

* * * * *

D. FUNDAMENTAL RELATIONSHIPS AND BASIC CONCEPTS

- Condon, E. U. & Shortley, G. H., "Theory of Atomic Spectra" (University Press, Cambridge, 1959) (introduction of line strengths).
- Einstein, A., Verhandl. deut. physik. Ges. 18, 318-323 (1916) (introduction of transition probabilities).
- Einstein, A., Physik. Z. 18, 121-128 (1917) (introduction of transition probabilities).
- Kirkwood, J. G., Physik. Z. 33, 521-525 (1932) (sum rule).
- Kramers, H. A., Nature 113, 673-674 (1924) (relation of f-value and transition probability).
- Kuhn, W., Z. Physik 33, 408-412 (1925) (sum rule).
- Ladenburg, R., Z. Physik 4, 451-468 (1921) (relation between f-value and transition probability).
- Levinger, J. S., Rustgi, M. L. & Okamoto, K., Phys. Rev. 106, 1191-1194 (1957). (Relativistic corrections to the sum rule).
- Reiche, F. & Thomas, W., Z. Physik 34, 510-525 (1925) (sum rule).
- Sachs, R. G. & Austern, N. Phys. Rev. 81, 705-709 (1951) (generalized f-sum rule).
- Wiese, W. L. & Weiss, A. W., Phys. Rev. 175, 50-65 (1968) (Regularities in atomic oscillator strengths).
- Wigner, E., Physik. Z. 32, 450-453 (1931) (sum rule).

* * * * *

E. DETAILED DESCRIPTIONS OF EXPERIMENTAL OR THEORETICAL METHODS

- Bates, D. R. & Damgaard, A., Phil. Trans. Roy. Soc. London, Ser. A. 242, 101-122 (1949) (Coulomb Approximation).
- Bethe, H. A. & Salpeter, E. E., "Quantum Mechanics of One and Two Electron Atoms" (Academic Press, New York, 1957).
- Bickel, W. S., Applied Optics 7, 2367-2372 (1968) (Lifetimes with beam-foil technique).
- Condon, E. U. & Shortley, G. H., "Theory of Atomic Spectra" (University Press, Cambridge, 1959).
- de Zafra, R. L. & Kirk, W., Am. J. Phys. 35, 573-582 (1967) (Hanle-effect method).
- Foster, E. W. Rpts. Progr. in Phys. 27, 469-551 (1964) (experimental methods).
- Garstang, R. H., Proc. Cambridge Phil. Soc. 53, 214-221 (1957) (forbidden lines).
- Garstang, R. H., Proc. Cambridge Phil. Soc. 54, 383-390 (1958) (forbidden lines).
- Hartree, D. R., "The Calculation of Atomic Structures" (John Wiley & Sons, Inc., New York, 1957).
- Layzer, D. & Garstang, R. H., Annual Review of Astronomy and Astrophysics 6, 449-494 (Annual Reviews Inc., Palo Alto, Calif., 1968).
- Levinson, I. B. & Nikitin, A. A., "Handbook for Theoretical Computation of Line Intensities in Atomic Spectra" (translator, Lerman, Z., edited by Roth, C., Israel Program for Scientific Translations Ltd., Daniel Davey & Co., Inc., New York, 1965). (Quantum Mechanical Methods).
- Marlow, W. C., Applied Optics 6, 1715-1724 (1967) (hook method).

Mitchell, A. C. G. & Zemansky, M. W., "Resonance Radiation and Excited Atoms", ch. 3, 92-153 (University Press, Cambridge, 1934) (experimental methods).

Penkin, N. P., J. Quant. Spectrosc. Radiat. Transfer 4, 41-94 (Translation in Smithsonian Astrophysical Observatory Cambridge, Massachusetts, June 1964) (hook methods).

Slater, J. C., "Quantum Theory of Atomic Structure", vol. 2 (McGraw-Hill Book Co., New York, 1960).

Stroke, H. H., Physics Today 19, 55-60 (1966) (lifetime methods).

Wiese, W. L., "Methods of Experimental Physics," Vol. 7, Part A 117-140 (Eds. Bederson, B. & Fite, W. L., Academic Press, New York, 1968) (Experimental methods).

Ziolk, K., "Methods of Experimental Physics," Vol. 4, Part B, 214-225 (Eds. Hughes, V. W., and Schultz, H. L., Academic Press, New York, 1967) (lifetime methods).

* * * * *

F. GENERAL COMMENTS

Allen, C. W. & Asaad, A. S., Monthly Notices Roy. Astron. Soc. 115, 571-574 (1955) (on f-values for elements of the iron group).

Dugan, C. H., J. Quant. Spectrosc. Radiat. Transfer 2, 761-764 (1966) (On the role of magnetic quadrupole radiation).

Fock, V., Z. Physik 89, 744-749 (1934) (deviations in f-sum rules).

Garstang, R. H., J. Phys. B. (Proc. Phys. Soc.) Ser. 2, 1, 847-849 (1968).

Goldberg, L., Astrophys. J. 84, 11-13 (1936) (normalization factors for obtaining absolute line strengths).

Green, L. C., Weber, N. E. & Krawitz, E., Astrophys. J. 113, 690-696 (1951) (use of observed and calculated energy values).

Gruzdev, P. F. & Startsev, G. P., Optics and Spectroscopy (U.S.S.R.) 8, 461-462 (1960) (criteria for LS-coupling).

Hefferlin, R., J. Tenn. Acad. Sci. 36, 76-80 (1961) (semi-empirical investigations in isoelectronic sequences).

Hefferlin, R. & Rascon, L., J. Opt. Soc. Am. 57, 964-966 (1967) (Trend of oscillator strengths in isoelectronic sequences).

Horie, H., J. Phys. Soc. Japan 2, 58-61 (1952) (on line strengths).

Kohl, J. L., Phys. Letters 24A, 125-126 (1967) (On new experimental method using beam-foil excitation).

Kunisz, M. D., Acta. Phys. Polon 22, 99-123 (1962) (comparison of CA with other results from groups I, II and III elements).

Ladenburg, R., Naturwissenschaften 14, 1208-1213 (1926) (on the dispersion formula).

LaPaglia, S. R. & Sinanoglu, O., J. Chem. Phys. 44, 1888-1898 (1966) (Formulation of a many electron theory for situations with configuration interaction).

Menzel, D. H. & Goldberg, L., Astrophys. J. 84, 1-10 (1936) (multiplet strengths for transitions involving equivalent electrons).

Norman, G. E., Optics and Spectroscopy (U.S.S.R.) 19, 369-371 (1965) (On the application of the Coulomb Approximation in situations with configuration interaction).

Penner, S. S., J. Opt. Soc. Am. 43, 218-219 (1953) (use of relative intensity measurements).

Rohrlich, F., Astrophys. J. 129, 449-455 (1959) (on f-sum rules).

Rohrlich, F., *Astrophys. J.* 129, 441-448 (1959) (on relative multiplet strengths).

Seaton, M. J., *Monthly Notices Roy. Astron. Soc.* 118, 504-518 (1958).

Shortley, G. H., *Phys. Rev.* 47, 295-300 (1935) (line strengths in intermediate coupling).

Shortley, G. H., *Phys. Rev.* 47, 419 (1935) (comment on and addition to above).

Shortley, G. H., *Phys. Rev.* 57, 225-234 (1940) (general formulations for line strengths of forbidden transitions).

Shortley, G., Aller, L. H., Baker, J. G. & Menzel, D. H., *Astrophys. J.* 93, 178-184 (1941) (strengths of forbidden lines as a function of coupling).

Warner, B., *Monthly Notices Roy. Astron. Soc.* 132, 273-282 (1968) (relative line strength tables).

Warner, B. & Cowley, C. R., *J. Quant. Spectrosc. Radiat. Transfer* 7, 751-759 (1967) (Corrections to paper by Corliss and Bozman, NBS Monograph #53).

Weiss, A. W., *Phys. Rev.* 162, 71-80 (1967) (Effects of configuration interaction on oscillator strengths).

Weiss, A. W., *Phys. Rev.* 178, 82-89 (1969) (Effects of series perturbation on oscillator strengths).

Wiese, W. L., *Applied Optics* 7, 2361-2366 (1968) (Systematic trends of atomic oscillator strengths in isoelectronic sequence).

Wiese, W. L., "Beam Foil Spectroscopy," 385-406 (Gordon and Breach Publ., New York, 1968) (Dependence of atomic f-values on nuclear charge).

Yamanouchi, T., *Proc. Phys.-Math. Soc. Japan* 23, 1059-1062 and 1063-1068 (1941) (on relative multiplet strengths).

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G. ENVIRONMENTAL INFLUENCES ON TRANSITION PROBABILITIES

Galt, J. A. & Welsh, H. L., *Can. J. Phys.* 35, 98-113 and 114-121 (1957).

Michels, A., de Kluiver, H. & Castle, B., *Physica* 23, 1131-1142 (1957).

Michels, A., de Kluiver, H. & Middelkoop, D., *Physica* 24, 543-544 (1958).

Möglich, F. & Rompe, R., *Z. Physik* 120, 741-772 (1943).

Strijland, J. C. & Nanassy, A. J., *Physica* 24, 935-936 (1958).

Trumpy, B., *Z. Physik* 40, 594-617 (1926).

Trumpy, B., *Kgl. Norske Videnskab. Selskabs, Skrifter* 1, 1-80 (1927).

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3.2 COMPREHENSIVE ARTICLES

3.2.1 Allowed Lines

Cohen, M. Can. J. Phys. 45, 2009-2014 (1967). quant.

Transitions treated:

He Sequence

$$\underline{1S - 1P^0}$$

$$1s - 2p$$

$$1s - 3p$$

$$2s - 2p$$

$$2s - 3p$$

$$\underline{3S - 3P^0}$$

$$2s - 2p$$

$$2s - 3p$$

$$\underline{1P^0 - 1D} \text{ and } \underline{3P^0 - 3D}$$

$$2p - 3d$$

$$3p - 3d$$

Li Sequence

$$\underline{2S - 2P^0}$$

$$2s - 2p$$

$$2s - 3p$$

$$2p - 3s$$

$$3s - 3p$$

$$\underline{2P^0 - 2D}$$

$$2p - 3d$$

$$3p - 3d$$

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Cohen, M. & Dalgarno, A. Proc. Roy. Soc. London A 280, 258-270 (1964). quant.

Transitions treated:

All multiplets of the type

$$1s^2 2s^a 2p^b - 1s^2 2s^{a-1} 2p^{b+1},$$

$$a = 1, 2; \quad b = 0, 1, 2, 3, 4, 5,$$

for isoelectronic sequences of He, Li, Be, B, C, N, O, F and Ne.

* * * * *

Dalgarno, A. & Parkinson, E. M. Proc. Roy. Soc. London A 301, 253-260 (1967). quant.

Transitions treated:

$$1s^2 1S - 1snp 1P^0 \text{ of He Sequence.}$$

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Transitions treated:

Intercombination line $1^1S_0 - 2^3P_1^o$
for He Sequence from Na X through Si XIII, and
 $2^1S_0 - 2^3P_1^o$ for Be Sequence through Ca XVII.

* * * * *

Stewart, A. L.

J. Phys. (Proc. Phys. Soc. London) Ser. 2, 1,
844-846 (1968).

quant.

Transitions treated:

$2s^1S - 2p^1P^o$ and $2s^3S - 2p^3P^o$ of He Sequence.

* * * * *

Naqvi, A. M., & Victor, G. A.

Technical Documentary Report No. RTD TDR-63-3118
(1964). (Obtainable through Defense Documentation
Center, Cameron Station, Alexandria, Va.).

quant.

Transitions treated:

Li Sequence numerous transitions through Ne VIII and Mg X,
Be Sequence $2s^2 - 2s2p$, $2s^2 - 2s3p$, $2s2p - 2s3s$ and $2s3s - 2s3p$ through
P XII (except Al X),
B Sequence $2p - 3s$ and $3s - 3p$ through Na VII,
C Sequence $2p^2 - 2p4s$ through Ne V and Sc XVI,
N Sequence $2p^3 - 2p^23s$ through Ne IV and Sc XV,
Sr I $5p - 5d$.

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Dalgarno, A., & Parkinson, E. M.

Phys. Rev. 176, 73-79 (1968).

quant.

Transitions treated:

$2s - 2p$ and $3s - 3p$ of Li Sequence.

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Transitions treated:

$$mp^n - mp^{n-1}(m+1)s$$

where $m = 2, 3$ and $n = 1, 2, 3, 4, 5, 6$ (resonance multiplets; a modified Coulomb approximation is applied).

for Be Sequence ($m = 2$; $n = 1$) through \emptyset V,

B Sequence ($m = 2$; $n = 1$) through Ne VI (Doublet),

B Sequence ($m = 2$; $n = 2$) C II through Ne VI (Quartet),

C Sequence ($m = 2$; $n = 2$) through Ne V,

N Sequence ($m = 2$; $n = 3$) through Ne IV,

\emptyset Sequence ($m = 2$; $n = 4$) through Ne III,

F Sequence ($m = 2$; $n = 5$) through Ne II,

Ne I and Sc XII ($m = 2$; $n = 6$),

Mg Sequence ($m = 3$; $n = 1$) from S V through Ti XI (except Ca IX),

Al Sequence ($m = 3$; $n = 1$) from S IV through Sc IX,

Si Sequence ($m = 3$; $n = 2$) for Sc VIII,

S Sequence ($m = 3$; $n = 4$) from Sc VI through Fe XI,

Ar Sequence ($m = 3$; $n = 6$) from Sc IV through Ti V.

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Transitions treated:

Numerous transitions of

C Sequence through P X,

Si Sequence through Ar V,

Ge Sequence through Br IV,

Sn Sequence through Sb II.

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Transitions treated:

Resonance transitions for

F II and Ne II,

Na Sequence from Sc XI through Cu XIX,

Transitions treated:

Numerous transitions for various members of:

Mg Sequence through P IV,
Zn Sequence through As IV,
Cd Sequence through Sn III,
Hg Sequence through Pb III,
Ca I, Sr I and Ba I.

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Corliss, C. H. & Bozman, W. R. National Bureau of Standards Monograph 53 (U.S. emiss.
Government Printing Office, Washington, D. C.,
1962).

Transitions treated:

Generally numerous transitions for:

Neutral Atoms

Sc (Z = 21) through Se (Z = 34),
Rb (Z = 37) through Mo (Z = 42),
Ru (Z = 44) through Te (Z = 52),
Cs (Z = 55) through La (Z = 57),
Nd (Z = 60),
Sm (Z = 62) through Tb (Z = 65),
Ho (Z = 67),
Tm (Z = 69) through Bi (Z = 83),
Th (Z = 90),
U (Z = 92);

Singly Ionized Atoms

Sc (Z = 21) through Zn (Z = 30),
Sr (Z = 38) through Mo (Z = 42),
Ru (Z = 44) through In (Z = 49),
Ba (Z = 56) through Nd (Z = 60),
Sm (Z = 62) through Gd (Z = 64),
Dy (Z = 66),
Er (Z = 68) through Os (Z = 76),
Pt (Z = 78),
Pb (Z = 82),
Th (Z = 90),
U (Z = 92).

For significant comments and suggested revisions to above reference see also:

Takens, R. J., Astron. and Astrophys. to be published (1969).

Warner, B., Memoirs Roy. Astron. Soc. 70, 165 (1967).

Warner, B. & Cowley, C. R., J. Quant. Spectrosc. Radiat. Transfer 7, 751 (1967).

Tech, J., Thesis Harvard Univ. (1969).

Huber, M. & Tobey, F. L., Astrophys. J. 152, 609 (1968).

Allen, C. W. & Corliss, C. H., Monthly Notices Roy. Astron. Soc. 126, 37 (1963).

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Mizushima, M.

J. Phys. Soc. Japan 21, 2335-2344 (1966).

quant. forb.

Transitions treated:

Magnetic quadrupole transition $\underline{3P^0 - 1S}$.

For He Sequence to F VIII.

Be Sequence to P XII (except Ne VII).

Mg Sequence to Sc X.

Magnetic quadrupole transition $\underline{4P_{5/2} - 2P^0_{3/2}}$.

For B Sequence to Si X,

F Sequence to Cl IX,

Al Sequence to Si II,

Cl Sequence to Ti VI.

Magnetic quadrupole transition $\underline{5S^0 - 3P}$.

For C Sequence to P X,

O Sequence to Ne III.

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Naqvi, A. M.

Thesis Harvard (1951).

quant. forb.

Transitions treated:

Numerous magnetic dipole and electric quadrupole transitions for various members of:

Be Sequence 2s2p configuration through Ca XVII,

B Sequence 2p configuration through Ca XVI (except Si X),

C Sequence $2p^2$ configuration through Ca XV,N Sequence $2p^3$ configuration for F III, Na V and Al VII through S X,O Sequence $2p^4$ configuration through Ca XIII,F Sequence $2p^5$ configuration through Ca XII.

Mg Sequence 3s3p configuration through Co XVI,

Al Sequence 3p configuration through Ni XVI,

Si Sequence $3p^2$ configuration through Ni XV,S Sequence $3p^4$ configuration through Ni XIII,Cl sequence $3p^5$ configuration through Ni XII.

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Transitions treated:

Be Sequence $2s2p$ configuration for Ar XV,
 B Sequence $2p$ configuration for S XII, Ar XIV,
 C Sequence $2p^2$ configuration for Ar XIII, K XIV, Ca XV,
 O Sequence $2p^4$ configuration for Ca XIII,
 F Sequence $2p^5$ configuration for Ar X, K XI, Ca XII.

Mg Sequence $3s3p$ configuration for Co XVI, Ni XVII,
 Al Sequence $3p$ configuration for Mn XIII, Co XV, Ni XVI,
 Si Sequence $3p^2$ configuration for Ca VII, V X, Cr XI, Mn XII, Fe XIII, Ni XV,
 S Sequence $3p^4$ configuration for Cr IX, Mn X, Fe XI,
 Cl Sequence $3p^5$ configuration for Ni XII.

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Transitions treated:

Magnetic dipole and electric quadrupole lines of the $^2P - ^2P$ transition in the np and np^5 configurations with $n=2, 3, 4, 5$ and 6 .

For B Sequence $2p$ configuration through Ti XVIII,
 F Sequence $2p^5$ configuration through Fe XVIII.

Al Sequence $3p$ configuration through Zn XVIII,
 Cl Sequence $3p^5$ configuration through Se XVIII.

Ga Sequence $4p$ configuration through Br V,
 Br Sequence $4p^5$ configuration through Mo VIII.

In Sequence $5p$ configuration through Te IV,
 I Sequence $5p^5$ configuration through Ba IV.

Tl Sequence $6p$ configuration through Bi III,
 As Sequence $6p^5$ configuration for Rn II.

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Transitions treated:

Magnetic dipole and electric quadrupole transitions for the np^2 and np^4 configurations with $n=2$ and 3 of:

C Sequence $2p^2$ configuration from Na VI through Ti XVII (except Ca XV).

O Sequence $2p^4$ configuration from Na IV through K XII.

Si Sequence $3p^2$ configuration for Si I and from K VI through Ni XV,

S Sequence $3p^4$ configuration from K IV through Zn XV.

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Garstang, R. H.

Nat. Bur. Standards J. Research 68A, 61-73
(1964).

quant. forb.

Transitions treated:

Numerous magnetic dipole and electric quadrupole transitions for various members of:

Ca Sequence $3d^2$ configuration for Ti III, Mn VI, Fe VII.

Sc Sequence $3d^3$ configuration from Cr IV through Fe VI.

V Sequence $3d^5 - 3d^4 4s$ configuration for Cr II

Ni Sequence many configurations through Cu II.

Ga Sequence $4p$ configuration through As III.

Ge I $4p^2$ configuration.

As I $4p^3$ configuration

Se Sequence $4p^4$ configuration through Kr III.

Br Sequence $4p^5$ configuration through Rb III.

In Sequence $5p$ configuration through Sb III.

Sn I $5p^2$ configuration.

Sb I $5p^3$ configuration.

Te Sequence $5p^4$ configuration through Xe III.

I Sequence $5p^5$ configuration through Cs III.

Au Sequence $5d^9 6s^2$ and $5d^9 6s^2 - 5d^{10} 6s$ configurations for Hg II.

Tl Sequence $6p$ configuration through Bi III.

Pb Sequence $6p^2$ configuration through Bi II.

Bi I $6p^3$ configuration.

Po I $6p^4$ configuration.

As Sequence $6p^5$ configuration for Rn II.

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3.3 REFERENCES ON INDIVIDUAL ELEMENTS

AUTHOR	JOURNAL	CLASSIFICATION
	Ag (Silver)*	
	Ag I	
Filippov, A. N. & Islamov I. I.	Z. Physik <u>85</u> , 409-410 (1933).	hook, rel.
Islamov, I. I. & Filippov, A. N.	Zhur. Eksptl. I Teoret. Fiz. <u>3</u> , 524-525 (1933) (O.T.P. 1).	hook, rel.
Terpstra, J.	Thesis Utrecht (1956).	emiss., rel.
Allen, C. W.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 622-628 (1957).	comm.
Allen, C. W. & Asaad, A. S.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 36-49 (1957).	emiss.
Hinnov, E. & Kohn, H.	J. Opt. Soc. Am. <u>47</u> , 156-162 (1957).	emiss.
Terpstra, J. & Smit, J. A.	Physica <u>24</u> , 937-958 (1958).	emiss., rel.
Addink, N. W. H.	Spectrochim. Acta <u>15</u> , 349-359 (1959).	emiss.
Penkin, N. P. & Slavenas, I. Yu. Yu.	Optics and Spectroscopy (U.S.S.R.) <u>15</u> , 3-5 (1963).	hook
Bieniewski, T.	Monthly Notices Roy. Astron. Soc. <u>127</u> , 359-366 (1964).	absorpt.
Bieniewski, T. M.	"Atomic Collision Processes", Proceedings p. 1055- 1064 (ed. McDowell, M.R.C., John Wiley & Sons, Inc., New York, 1964).	absorpt.
Lawrence, G. M., Link, J. K. & King, R. B.	Astrophys. J. <u>141</u> , 293-307 (1965).	absorpt.
Bucka, H., Ney, J. & Heppke, G.	Z. Angew. Physik <u>20</u> , 354-362 (1966).	life
Levin, L. A. & Budick, B.	Bull. Am. Phys. Soc. Series II, <u>11</u> , 455 (1966).	life
Moise, N. L.	Astrophys. J. <u>144</u> , 774-781 (1966).	absorpt.
Slavenas, I-Yu, Yu.	Optics and Spectroscopy (U.S.S.R.) <u>20</u> , 264-265 (1966).	hook
Cunningham, P. T. & Link, J. K.	J. Opt. Soc. Am. <u>57</u> , 1000-10007 (1967).	life

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Al (Aluminum)*

	Al I	
Biermann, L. & Lübeck, K.	Z. Astrophys. <u>25</u> , 325-339 (1948).	SCF
See Section 3.2.		

Demtröder, W.	Z. Physik <u>166</u> , 42-55 (1962).	life
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>18</u> , 504 (1965).	hook, rel. & hook
Budick, B.	Bull. Am. Phys. Soc. Series II, <u>11</u> , 456 (1966).	life
Synek, M. & Lichodziejewski, W.	Phys. Letters <u>22</u> , 578-579 (1966).	SCF
Fischer, C. F.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 755-761 (1968).	quant.
Cunningham, P. T.	J. Opt. Soc. Am. <u>58</u> , 1507-1509 (1968).	life
Weiss, A. W.	Phys. Rev. <u>178</u> , 82-89 (1969).	quant.

Al II

Weiss, A. W.	J. Chem. Phys. <u>47</u> , 3573-3578 (1967).	quant.
Zare, R. N.	J. Chem. Phys. <u>47</u> , 3561-3572 (1967).	quant.
Miller, M. H.	Maryland Univ. Technical Note, BN550 (1968).	emiss.
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>140</u> , 53-59 (1968).	quant.

Al III

Kisiel, A.	Acta Phys. Polon. <u>23</u> , 167-175 (1963).	emiss., rel.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1506A-1519A (1965).	quant.
Chapman, R. D., Clarke, W. H. & Aller, L. H.	Astrophys. J. <u>144</u> , 376-380 (1966).	SCF
McEachran, R. P., Tull, C. E. & Cohen, M.	Can. J. Phys. <u>47</u> , 835-838 (1969).	SCF
McGinn, G.	J. Chem. Phys. <u>50</u> , 1404-1418 (1969).	quant.

Al IV

Kastner, S. O., Omidvar, K. & Underwood, J. H.	Astrophys. J. <u>148</u> , 269-273 (1967).	quant.
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Al VII

Pasternack, S.	Astrophys. J. <u>92</u> , 129 (1940).	quant. forb.
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Al VIII

Froese, C.	Astrophys. J. <u>145</u> , 932-935 (1966).	quant. forb.
Odabasi, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel.

Al IX

Hansen, J. E.	J. Opt. Soc. Am. <u>59</u> , 722-726 (1969).	quant. forb., rel.
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Ar I

Geiger, J.	Z. Physik <u>177</u> , 138-145 (1964).	life
Garstang, R. H. & Van Blerkom, J.	J. Opt. Soc. Am. <u>55</u> , 1054-1057 (1965).	quant.
Popenoe, C. H. & Shumaker, Jr., J. B.	Nat. Bur. Standards J. Research <u>69A</u> , 495-509 (1965).	emiss.
Richter, J.	Z. Astrophys. <u>61</u> , 57-66 (1965).	emiss.
Bott, J. F.	Phys. Fluids <u>9</u> , 1540-1547 (1966).	emiss.
Coates, P. B. & Gaydon, A. G.	Proc. Roy. Soc. London A <u>293</u> , 452-468 (1966).	emiss.
Malone, B. S. & Corcoran, W. H.	J. Quant. Spectrosc. Radiat. Transfer <u>6</u> , 443-449 (1966).	emiss.
Bues, I., Haag, T. & Richter, J.	Internal Report, Inst. fuer Experimentalphysik, Kiel Univ. (1966-67).	emiss.
Corliss, C. H. & Shumaker, Jr., J. B.	J. Research Nat. Bur. Standards <u>71A</u> , 575-581 (1967).	emiss.
Johnston, P. D.	Proc. Phys. Soc. London A <u>92</u> , 896-908 (1967).	quant.
Klose, J. Z.	J. Opt. Soc. Am. <u>57</u> , 1241-1244 (1967).	life
Lewis, E. L.	Proc. Phys. Soc. London <u>92</u> , 817-825 (1967).	comm.
Oshrovich, A. L. & Veroleinen, Ya. F.	Vestnik Leningrad. Univ. Fiz. i Khim. #1, 140-141 (1967).	life
Shumaker, Jr., J. B. & Popenoe, C. H.	J. Opt. Soc. Am. <u>57</u> , 8-10 (1967).	emiss.
Wiese, W. L.	"Proc. Eighth International Conference on Phenomena in Ionized Gases", Vienna, Austria, 447 (Springer Verlag, Vienna, 1967).	emiss. & comm.
Chapelle, J., Sy, A., Cabannes, F., & Blandin, J.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 1201- 1216 (1968).	emiss.
Chashchina, G. I., Gladushchak, V. I. & Shreider, E. Ya.	Optics and Spectroscopy (U.S.S.R.) <u>24</u> , 542- 543 (1968).	misc.
Cowan, R. D.	J. Opt. Soc. Am. <u>58</u> , 924-933 (1968).	quant.
Desai, S. V. & Corcoran, W. H.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 1721- 1730 (1968).	emiss.
Klose, J. Z.	J. Opt. Soc. Am. <u>58</u> , 1509-1512 (1968).	life
Landman, D. A.	Phys. Rev. <u>173</u> , 33-39 (1968).	life
Lawrence, G. M.	Phys. Rev. <u>175</u> , 40-44 (1968).	life
Murphy, P. W.	J. Opt. Soc. Am. <u>58</u> , 1200-1208 (1968).	quant., rel. & CA
Scholz, P. D. & Anderson, T. P.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 1411- 1418 (1968).	emiss.
Verolainen, Ya. F. & Oshrovich, A. L.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 258- 259 (1968).	life & emiss., rel.
Wende, B.	Z. Physik <u>213</u> , 341-351 (1968).	emiss.

* See Section 3.2.

Bober, L. & Tankin, R. S.	J. Quant. Spectrosc. Radiat. Transfer <u>2</u> , 855-874 (1969).	emiss & absorpt.
Bues, I., Haag, T. & Richter, J.	Astron. and Astrophys. <u>2</u> , 249-250 (1969).	emiss.
Melners, H. M.	J. Quant. Spectrosc. Radiat. Transfer (to be published).	SCF
Ar II		
Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>114</u> , 118-133 (1954).	quant., rel. & CA
Bennett, Jr., W. R., Kindlmann, P. J. & Mercer, G. N.	Applied Optics Supplement 2 of Chemical Lasers 34-57 (1965).	life
Statz, H., Horrigan, F. A., Koozekanani, S. H., Tang, C. L. and Koster, G. F.	J. Appl. Physics <u>36</u> , 2278-2286 (1965).	quant.
Bakos, J., Szigeti, J., & Varga, L.	Phys. Letters <u>20</u> , 503-504 (1966).	life
Bakos, J. & Szigeti, J.	Acta Phys. Acad. Sci. Hung. <u>23</u> , 341-347 (1967).	life
Bauder, U.	Z. Physik <u>205</u> , 303-312 (1967).	emiss.
Berg, H. P. & Ervens, W.	Z. Physik <u>206</u> , 184-188 (1967).	emiss.
Rudko, R. I., & Tang, C. L.	J. Appl. Phys. <u>38</u> , 4731-4739 (1967).	quant.
Shipp, J. I. & Tidwell, E. D.	J. Opt. Soc. Am. <u>57</u> , 1061-1062 (1967).	comm.
Camhy-Val, C. & Dumont, A. M.	Comp. rend. <u>267B</u> , 689-691 (1968).	life
Chapelle, J., Sy, A., Cabannes, F., & Blandin, J.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 1201-1216 (1968).	emiss.
Koster, G. F., Statz, H., Harrigan, F. A., & Tang, C. L.	J. App. Physics <u>39</u> , 4045-4046 (1968).	comm.
Rudko, R. I., & Tang, C. L.	J. Appl. Phys. <u>39</u> , 4046 (1968).	comm.
Schnapauff, R.	Z. Astrophys. <u>68</u> , 431-444 (1968).	emiss.
Camhy-Val, C., Dumont, A. M., Druex, M. & Vitry, R.	Comp. rend. <u>268B</u> , 1017-1019 (1969).	life
Campbell, H. D. & Barnard, A. J.	J. Quant. Spectrosc. Radiat. Transfer <u>2</u> , 461-463 (1969).	emiss., rel.
Lawrence, G. M.	Phys. Rev. <u>179</u> , 134-138 (1969).	life
Matlisky, T. A. & Hesser, J. E.	J. Opt. Soc. Am. <u>59</u> , 579-582 (1969).	life
Shumaker, Jr., J. B. & Popenoe, C. H.	J. Opt. Soc. Am. <u>59</u> , 980-985 (1969).	emiss.

Ar III

Czyzak, S. J. & Krueger, T. K.	Monthly Notices Roy. Astron. Soc. <u>126</u> , 177-194 (1963).	quant. forb.
Denis, A. & Dufay, M.	Phys. Letters <u>29A</u> , 170 (1969).	life
Lawrence, G. M.	Phys. Rev. <u>179</u> , 134-138 (1969).	life

Ar IV

- Czyzak, S. J. & Krueger, T. K. Monthly Notices Roy. Astron. Soc. 126, 177-194 (1963). quant. forb.
- Lawrence, G. M. Phys. Rev. 179, 134-138 (1969). life

Ar V

- Czyzak, S. J. & Krueger, T. K. Monthly Notices Roy. Astron. Soc. 126, 177-194 (1963). quant. forb.

Ar VI

- Fischer, C. F. J. Quant. Spectrosc. Radiat. Transfer 8, 755-761 (1968). quant.

Ar IX

- Kastner, S. O., Omidvar, K. & Underwood, J. H. Astrophys. J. 148, 269-273 (1967). quant.

Ar XIII

- Odabasi, H. JILA Report #97, Nov. (1968), AD680470. quant. & quant., rel.

Ar XIV

- Conrads, H. & Oertel, G. K. Astrophys. J. 152, 975-980 (1968). emiss. forb., rel.

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As (Arsenic)*

As I

- Lawrence, G. M. Astrophys. J. 148, 261-268 (1967). quant., rel.

As II

- Gruzdev, P. F. Optics and Spectroscopy (U.S.S.R.) 25, 1-5 (1968). quant.

As IV

- Zilitis, V. A. Optics and Spectroscopy (U.S.S.R.) 25, 361-362 (1968). SCF & quant.

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* See Section 3.2.

Au (Gold)*

Au I

Addink, N. W. H.	Spectrochim. Acta <u>15</u> , 349-359 (1959).	emiss.
Penkin, N. P. & Slavenas, I.	Optics and Spectroscopy (U.S.S.R.) <u>15</u> , 3-5 (1963).	hook
Yu. Yu.		
Lawrence, G. M., Link, J. K.	Astrophys. J. <u>141</u> , 293-307 (1965).	absorpt.
& King, R. B.		
Bucka, H. & Ney, J.	Z. Physik <u>194</u> , 208-210 (1966).	life
Levin, L. A. & Budick, B.	Bull. Am. Phys. Soc. Series II, <u>11</u> , 455 (1966).	life
Moise, N. L.	Astrophys. J. <u>144</u> , 774-781 (1966).	absorpt.
Slavenas, I-Iu. Iu.	Litovskii Fizicheskii Sbornik <u>7</u> , 619-622 (1967).	quant.

Au III

Mendlowitz, H.	J. Research Nat. Bur. Standards <u>71A</u> , 149-156 (1967).	quant., rel.
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B (Boron)*

B I

Bolotin, A. B. & Yutsis, A. P.	Zhur. Eksptl. i Teoret. Fiz. <u>24</u> , 537-543 (1953) (O.T.P. 1).	quant.
Tsilunaitis, G. K. & Yutsis, A. P.	Soviet Phys. - JETP <u>1</u> , 358-363 (1955).	SCF
Nikitin, A. A. & Yakubovskii, O. A.	Soviet Phys.-Doklady <u>2</u> , 409-411 (1964).	quant. forb.
Lawrence, G. M. & Savage, B. D.	Phys. Rev. <u>141</u> , 67-70 (1966).	life
Hese, A. & Weise, H. P.	Z. Physik <u>215</u> , 95-102 (1968).	life
Bergström, I., Bromander, J., Buchta, R., Lundin, L. & Martinson, I.	Phys. Letters <u>28A</u> , 721-722 (1969).	life
Bromander, J., Buchta, R. & Lundin, L.	Phys. Letters <u>29A</u> , 523-524 (1969).	life

B II

Lawrence, G. M. & Savage, B. D.	Phys. Rev. <u>141</u> , 67-70 (1966).	life
Froese, C.	J. Chem. Phys. <u>42</u> , 4010-4015 (1967).	SCF
Anderson, T., Jessen, K. A. & Sorensen, G.	Phys. Letters <u>28A</u> , 459-460 (1968).	life

* See Section 3.2.

Bergström, I., Bromander, J., Buchta, R., Lundin, L. & Martinson, I.	Phys. Letters <u>28A</u> , 721-722 (1969).	life
Bromander, J., Buchta, R. & Lundin, L.	Phys. Letters <u>29A</u> , 523-524 (1969).	life
Linderberg, J.	Phys. Letters <u>29A</u> , 467-468 (1969).	quant.

B III

Weiss, A. W.	Astrophys. J. <u>138</u> , 1262-1276 (1963).	SCF
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases. vol. II, p. 558- 561 (Gradevinska Knyiga Publishing House, Belgrade, 1966).	quant.
Balashov, V. V., Senashenko, V. S. & Tekou, B.	Phys. Letters <u>25A</u> , 487-488 (1967).	quant.
Cohen, M. & Kelly, P. S.	Can. J. Phys. <u>45</u> , 1661-1673 (1967).	SCF
Sokoloff, J., Cohen, M., Purdom, K. L. & Kelly, P. S.	Air Force Weapons Laboratory Technical Report No. AFWL-TR-66-150 (1967).	SCF
Andersen, T., Jessen, K. A. & Sorensen, G.	Phys. Letters <u>29A</u> , 384-385 (1969).	life
Bromander, J., Buchta, R. & Lundin, L.	Phys. Letters <u>29A</u> , 523-524 (1969).	life

B IV

Cohen, M. & Kelly, P. S.	Can. J. Phys. <u>45</u> , 2079-2090 (1967).	quant.
Elton, R. C.	Astrophys. J. <u>148</u> , 573-578 (1967).	quant.
Weiss, A. W.	J. Research Nat. Bur. Standards <u>71A</u> , 163-168 (1967).	quant.
Chong, D. P.	J. Chem. Phys. <u>48</u> , 1413-1414 (1968).	quant.
Sanders, F. C. & Sherr, C. W.	Phys. Rev. <u>181</u> , 84-97 (1969).	quant.

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Ba (Barium)^{*}

Ba I

Prokof'ev, V. K.	Zhur. Eksptl. i Teoret. Fiz. <u>1</u> , 111-122 (1931) (O.T.P. 1).	hook, rel.
Ostrovskii, Yu. I. & Penkin, N. P.	Optics and Spectroscopy (U.S.S.R.) <u>2</u> , 371-373 (1960).	hook, rel.
Bucka, H. & Nagel, H. H.	Ann. Physik <u>8</u> , 329-332 (1961).	life
Eicke, H. F.	Z. Physik <u>168</u> , 227-238 (1962).	emiss.
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>12</u> , 1-5 (1962).	hook

Vainshtein, L. A. & Poluektov,

* See Section 3.2.

Vainshtein, L. A. & Poluektov, I. A.	Optics and Spectroscopy (U.S.S.R.) <u>12</u> , 254-257 (1962).	quant., rel.
Hulpke, E., Paul, E. & Paul, W.	Z. Physik <u>177</u> , 257-268 (1964).	life
Swagel, M. W. & Lurio, A.	Phys. Rev. <u>169</u> , 114-119 (1968).	comm.
Drapatz, S. W.	J. Quant. Spectrosc. Radiat. Transfer <u>2</u> , 733-747 (1969).	absorpt.
Friedrich, H. & Trefftz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>2</u> , 333-359 (1969).	quant.

Ba II

Kolesnikov, V. N. & Slepchenko, N. S.	Fiz. Probl. Spektroskopii, Akad. Nauk S.S.S.R., Materialy 13-Go (Trinadtsatogo) Soveshch., Leningrad 41-43 (1962) (transl.).	CA & emiss., rel.
Bucka, H., Eichler, J. & Oppen, G. V.	Z. Naturforsch. <u>21a</u> , 654-656 (1966).	life
Gallagher, A.	Phys. Rev. <u>157</u> , 24-30 (1967).	life
vonSpecht, J.	Z. Naturforsch. <u>23a</u> , 1499-1507 (1968).	emiss.
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>139</u> , 115-128 (1968).	quant. & quant. forb.

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Be (Beryllium)*

Be I

Bolotin, A. B. & Yutsis, A. P.	Zhur. Eksptl. i Teoret. Fiz. <u>24</u> , 537-543 (1953) (O.T.P. 1).	quant.
Altick, P. L. & Glassgold, A. E.	Phys. Rev. <u>133</u> , A632-A646 (1964).	quant.
Naqvi, A. M.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 597-615 (1964).	quant.
Pfennig, H., Steele, P. & Trefftz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>5</u> , 355-347 (1965).	SCF
Froese, C.	Phys. Rev. <u>150</u> , 1-6 (1966).	SCF
LaPaglia, S. R. & Sinanoglu, O.	J. Chem. Phys. <u>44</u> , 1888-1898 (1966).	quant.
Steele, R. & Trefftz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>6</u> , 833-846 (1966).	quant.
Froese, C.	J. Chem. Phys. <u>47</u> , 4010-4015 (1967).	SCF
Garstang, R. H.	Astrophys. J. <u>148</u> , 579-584 (1967).	quant. forb.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 89-91 (1967).	quant.
Bergström, I., Bromander, J., Buchta, R., Lundin, L. & Martinson, I.	Phys. Letters <u>28A</u> , 721-722 (1969).	life

* See Section 3.2.

Bromander, J., Buchta, R. & Lundin, L.	Phys. Letters <u>29A</u> , 523-524 (1969).	life
Linderberg, J.	Phys. Letters <u>29A</u> , 467-468 (1969).	quant.
Weiss, A. W.	Astrophys. J. <u>138</u> , 1262-1276 (1963).	SCF
Balashov, V. V., Senashenko, V. S. & Tekou, B.	Phys. Letters <u>25A</u> , 487-488 (1967).	quant.
Cohen, M. & Kelly, P. S.	Can. J. Phys. <u>45</u> , 1661-1673 (1967).	SCF
Sokoloff, J., Cohen, M., Purdom, K. L. & Kelly, P. S.	Air Force Weapons Laboratory Technical Report No. AFWL-TR-66-150 (1967).	SCF
Andersen, T., Jessen, K. A. & Sorensen, G.	Phys. Letters <u>29A</u> , 384-385 (1969).	life
Bergström, I., Bromander, J., Buchta, R., Lundin, L. & Martinson, I.	Phys. Letters <u>28A</u> , 721-722 (1969).	life
Bromander, J., Buchta, R. & Lundin, L.	Phys. Letters <u>29A</u> , 523-524 (1969)	life
McGinn, G.	J. Chem. Phys. <u>50</u> , 1404-1418 (1969).	quant.

Be III

Froese, C.	Phys. Rev. <u>150</u> , 1-6 (1966).	SCF
Cohen, M. & Kelly, P. S.	Can. J. Phys. <u>45</u> , 2079-2090 (1967).	quant.
Elton, R. C.	Astrophys. J. <u>148</u> , 573-578 (1967).	quant.
Froese, C.	J. Chem. Phys. <u>47</u> , 4010-4015 (1967).	SCF
Weiss, A. W.	J. Research Nat. Bur. Standards <u>71A</u> , 163-168 (1967).	quant.
Chong, D. P.	J. Chem. Phys. <u>48</u> , 1413-1414 (1968).	quant.
Sanders, F. C. & Sherr, C. W.	Phys. Rev. <u>181</u> , 84-97 (1969).	quant.

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Bi (Bismuth)

Bi I

Sobolev, N. N.	Zhur. Eksptl. i Teoret. Fiz. <u>13</u> , 131-136 (1943) (O.T.P. 1).	emiss., rel.
Allen, C. W.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 622-628 (1957).	comm.
Allen, C. W. & Asaad, A. S.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 36-49 (1957).	emiss.
Rice, P. A. & Ragone, D. V.	J. Chem. Phys. <u>42</u> , 701-708 (1965).	absorpt.

Lvov, B. V.	Optics and Spectroscopy (U.S.S.R.) <u>19</u> , 282-284 (1965).	absorpt.
Cunningham, P. T. & Link, J. K.	J. Opt. Soc. Am. <u>57</u> , 1000-10007 (1967).	life
Heldt, J.	J. Opt. Soc. Am. <u>58</u> , 1516-1519 (1968).	emiss. forb., rel.

Bi II

Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 1-5 (1968).	quant.
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Br (Bromine)*

Br I

Lawrence, G. M.	Astrophys. J. <u>148</u> , 261-268 (1967).	quant., rel.
Bengtson, R. D.	Maryland Univ. Technical Note BN-559 (1968).	emiss.

Br II

Martin, W. C. & Tech, J. L.	J. Opt. Soc. Am. <u>51</u> , 591-594 (1961).	quant. forb.
Bengtson, R. D.	Maryland Univ. Technical Note BN-559 (1968).	emiss.

Br VI

Zilitis, V. A.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 361-362 (1968).	SCF & quant.
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C (Carbon)*

C I

Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>111</u> , 115-124 (1951).	quant. forb.
Yamanouchi, T. & Horie, H.	J. Phys. Soc. Japan <u>2</u> , 52-56 (1952).	quant. forb.
Maecker, H.	Z. Physik <u>135</u> , 13-22 (1953).	emiss.
Bolotin, A. B., Levinson, I. B. & Levin, L. I.	Soviet Phys. - JETP <u>2</u> , 391-395 (1956).	quant.
Richter, J.	Z. Physik <u>151</u> , 114-123 (1958).	emiss.
Foster, E. W.	Proc. Phys. Soc. London A <u>80</u> , 882-893 (1962).	emiss.
Garstang, R. H.	The Observeratory <u>82</u> , 50-51 (1962).	quant.
Boldt, G.	Z. Naturforsch. <u>18a</u> , 1107-1116 (1963).	emiss.
Henning, H.	Z. Astrophys. <u>62</u> , 109-120 (1965).	emiss.

* See Section 3.2.

Proese, C.	Astrophys. J. <u>145</u> , 932-935 (1966).	quant. forb.
Lawrence, G. M. & Savage, B. D.	Phys. Rev. <u>141</u> , 67-70 (1966).	life
Beth, M.-U.	Master Thesis Kiel (1967).	emiss.
Miller, M., Murphy, P., LaSalle, T. & Wilkerson, T.	Bull. Am. Phys. Soc. Ser. II, Vol. <u>11</u> , 818-819 (1967).	emiss.
Weiss, A. W.	Phys. Rev. <u>162</u> , 71-80 (1967).	quant.
Wilkerson, T., Koopman, D., Miller, M., Bengtson, R. & Charatis, G.	NASA Scientific and Technical Information Facility Report #N67-28764 (1967).	emiss.
Bengtson, R. D.	Maryland Univ. Technical Note BN-559 (1968).	emiss.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>24</u> , 462- 465 (1968).	quant.
Miller, M. H.	Maryland Univ. Technical Note, BN550 (1968).	emiss.
Odabasi, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel.
Tatum, J. B.	Monthly Notices Roy. Astron. Soc. <u>140</u> , 87-91 (1968).	quant.
Bromander, J., Buchta, R. & Lundin, L.	Phys. Letters <u>29A</u> , 523-524 (1969).	life
Fairbairn, A. R.	J. Quant. Spectrosc. Radiat. Transfer <u>9</u> , 943-949 (1969).	emiss.

C II

Biermann, L. & Lübeck, K.	Z. Astrophys. <u>25</u> , 325-339 (1948).	SCF
Maecker, H.	Z. Physik <u>135</u> , 13-22 (1953).	emiss.
Nikitin, A. A. & Yakubovskii, O. A.	Soviet Phys.-Doklady <u>9</u> , 409-411 (1964).	quant. forb.
Osterbrock, D. E.	Astrophys. J. <u>142</u> , 1423-1430 (1965).	quant. forb.
Lawrence, G. M. & Savage, B. D.	Phys. Rev. <u>141</u> , 67-70 (1966).	life
Roberts, J. R. & Eckerle, K. L.	Phys. Rev. <u>153</u> , 87-90 (1967).	emiss., rel.
Weiss, A. W.	Phys. Rev. <u>162</u> , 71-80 (1967).	quant.
Bergström, I., Bromander, J., Buchta, R., Lundin, L. & Martinson, I.	Phys. Letters <u>28A</u> , 721-722 (1969).	life
Bromander, J., Buchta, R. & Lundin, L.	Phys. Letters <u>29A</u> , 523-524 (1969).	life
Hansen, J. E.	J. Opt. Soc. Am. <u>59</u> , 722-726 (1969).	quant. forb., rel.
Heroux, L.	Phys. Rev. <u>180</u> , 1-5 (1969).	life
Pinnington, E. H., & Lin, C. C.	J. Opt. Soc. Am. <u>59</u> , 780-781 (1969).	life

C III

Pfennig, H., Steele, P. & Trefftz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>5</u> , 355-347 (1965).	SCF
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Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Steele, R. & Trefftz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>6</u> , 833-846 (1966).	quant.
Froese, C.	J. Chem. Phys. <u>47</u> , 4010-4015 (1967).	SCF
Curnutte, B., Bickel, W. S., Girardeau, R. & Bashkin, S.	Phys. Letters <u>27A</u> , 680-681 (1968).	life
Bergström, I, Bromander, J., Buchta, R., Lundin, L. & Martinson, I.	Phys. Letters <u>28A</u> , 721-722 (1969).	life
Heroux, L.	Phys. Rev. <u>180</u> , 1-5 (1969).	life
Linderberg, J.	Phys. Letters <u>29A</u> , 467-468 (1969).	quant.
Pinnington, E. H., & Lin, C. C.	J. Opt. Soc. Am. <u>59</u> , 780-781 (1969).	life

C IV

Weiss, A. W.	Astrophys. J. <u>138</u> , 1262-1276 (1963).	SCF
Berkner, K. H., Cooper III, W. S., Kaplan, S. N. & Pyle, R. V.	Phys. Letters <u>16</u> , 35-36 (1965).	life
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Cohen, M. & Kelly, P. S.	Can. J. Phys. <u>45</u> , 1661-1673 (1967).	SCF
Sokoloff, J., Cohen, M., Purdom, K. L. & Kelly, P. S.	Air Force Weapons Laboratory Technical Report No. AFWL-TR-66-150 (1967).	SCF
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>141</u> , 273-276 (1968).	quant. & quant. forb.

C V

Cohen, M. & Kelly, P. S.	Can. J. Phys. <u>45</u> , 2079-2090 (1967).	quant.
Elton, R. C.	Astrophys. J. <u>148</u> , 573-578 (1967).	quant.
Weiss, A. W.	J. Research Nat. Bur. Standards <u>71A</u> , 163-168 (1967).	quant.
Griem, H. R.	Astrophys. J. <u>156</u> , L103-L105 (1969).	quant. forb.
Sanders, F. C. & Sherr, C. W.	Phys. Rev. <u>181</u> , 84-97 (1969).	quant.

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Ca I

Prokof'ev, V. K.	Z. Physik <u>50</u> , 701-715 (1928).	hook, rel.
Filippov, A. & Kremenevsky, N.	Physik. Z. Sowjetunion <u>1</u> , 299-301 (1932).	hook, rel.
Olsen, K. H., Routly, P. M. & King, R. B.	Astrophys. J. <u>130</u> , 688-692 (1959).	absorpt.
Ostrovskii, Yu. I. & Penkin, N. P.	Optics and Spectroscopy (U.S.S.R.) <u>10</u> , 219-222 (1961).	hook, rel.
Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>15</u> , 450-451 (1963).	hook
Hulpeke, E., Paul, E. & Paul, W.	Z. Physik <u>177</u> , 257-268 (1964).	life
Köstlin, H.	Z. Physik <u>178</u> , 200-215 (1964).	emiss.
Lurio, A., de Zafra, R. L. & Goshen, R. J.	Phys. Rev. <u>134</u> , A1198-A1203 (1964).	life
Smith, W. W. & Gallagher, A.	Phys. Rev. <u>145</u> , 26-35 (1966).	life
Anderson, E. M., Zilitis, V. A. & Sorokina, E. S.	Optics and Spectroscopy (U.S.S.R.) <u>23</u> , 279-282 (1967).	quant.
Chenevier, M., Dufayard, J. & Pebay-Peyroula, J. C.	Phys. Letters <u>25A</u> , 283-284 (1967).	life
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 89-91 (1967).	quant.
Kancerevicius, A.	Litovskii Fizicheskii Sbornik <u>7</u> , 611-618 (1967).	quant.
Karstensen, F. & Schramm, J.	Z. Astrophysik <u>68</u> , 214-221 (1968).	i . .
Lambert, D. & Warner, B.	Monthly Notices Roy. Astron. Soc. <u>140</u> , 197-221 (1968).	quant.
Newsom, G. H.	Harvard College Observatory Scientific Report #26 (1968).	emiss., rel.
Friedrich, H. & Trefftz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>9</u> , 333- 359 (1969).	quant.

Ca II

Osterbrock, D. E.	Astrophys. J. <u>114</u> , 469-472 (1951).	quant. forb.
Douglas, A. S. & Garstang, R. H.	Proc. Cambridge Phil. Soc. <u>58</u> , 377-381 (1962).	SCF
Gallagher, A.	Phys. Rev. <u>157</u> , 24-30 (1967).	life
Weiss, A. W.	J. Research Nat. Bur. Standards <u>71A</u> , 157-162 (1967).	SCF
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>139</u> , 115- 128 (1968).	quant. & quant. forb.
Lambert, D. L., Mallia, E. A. & Warner, B.	Solar Physics <u>7</u> , 11-16 (1969).	quant. forb.
McGinn, G.	J. Chem. Phys. <u>50</u> , 1404-1418 (1969).	quant.

Ca III

Cowan, R. D.	J. Opt. Soc. Am. <u>58</u> , 924-933 (1968).	quant.
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* See Section 3.2.

Ca VI

Pasternack, S. Astrophys. J. 92, 129 (1940). quant. forb.

Ca VIII

Fischer, C. F. J. Quant. Spectrosc. Radiat. Transfer 8,
755-761 (1968). quant.

Ca IX

Zare, R. N. J. Chem. Phys. 47, 3561-3572 (1967). quant.

Ca X

Stewart, J. C. & Rotenberg, M. Phys. Rev. 140, 1508A-1519A (1965). quant.

Ca XI

Kastner, S. O., Omidvar, K. &
Underwood, J. H. Astrophys. J. 148, 269-273 (1967). quant.

Ca XV

House, L. L. Astrophys. J. 142, 211-216 (1967). quant.
Odabasi, H. JILA Report #97, Nov. (1968), AD680470. quant. &
quant., rel.

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Cd (Cadmium)*

Cd I

Kuhn, W. Naturwissenschaften 14, 48-49 (1926). misc.
Kuhn, W. Kgl. Danske Videnskab. Selskab Mat.-fys. Medd. 7,
1-86 (1926). misc.
Soleillet, P. Compt. rend. 187, 212-214 (1928). life
Ellett, A. Phys. Rev. 33, 124 (1929). life
Larche, K. Z. Physik 67, 440-477 (1931). misc., rel.
Zemansky, M. W. Z. Physik 72, 587-599 (1931). absorpt.
Filippov, A. N. Trudy Gosudarst. Opt. Inst. Leningrad 8, #77,
1-8 (1932) (O.T.P. 1). hook, rel.
Filippov, A. N. Physik. Z. Sowjetunion 1, 289-296 (1932). hook, rel.
Koenig, H. D. & Ellett, A. Phys. Rev. 32, 576-584 (1932). life
Mitchell, A. C. G. Phys. Rev. 43, 887-893 (1933). comm.
Soleillet, P. Compt. rend. 196, 1991-1993 (1933). misc.
Ornstein, L. S., van Hengstum,
J. P. A. & Brinkman, H. Physica 5, 145-152 (1938). emiss., rel.

* See Section 3.2.

King, G. W. & van Vleck, J. H.	Phys. Rev. <u>56</u> , 464-465 (1939).	quant. forb., rel.
King, R. B. & Stockbarger, D. C.	Astrophys. J. <u>91</u> , 488-502 (1940).	absorpt.
Schuttevaer, J. W., de Bont, M. J. & van den Broek, Th. H.	Physica <u>10</u> , 544-552 (1943).	emiss., rel.
Webb, H. W. & Messenger, H. A.	Phys. Rev. <u>66</u> , 77-86 (1944).	life
Vainshtein, L. A. & Yavorskii, B. M.	Doklady Akad. Nauk S.S.S.R. <u>87</u> , 919-922 (1952). (Θ .T.P. 1).	quant.
Matland, C. G.	Phys. Rev. <u>91</u> , 436 (1953).	life
Vainshtein, L. A. & Yavorskii, B. M.	Zhur. Eksptl. i Teoret. Fiz. <u>27</u> , 712-718 (1954) (SLA transl. RT-3363).	quant.
van Hengstum, J. P. A.	Thesis Utrecht (1955).	emiss.
van Hengstum, J. P. A. & Smit, J. A.	Physica <u>22</u> , 86-98 (1956).	emiss.
Vainshtein, L. A.	Optika i Spektroskopiya <u>3</u> , 313-321 (1957) (transl.).	quant.
Leś, Z. & Niewodnicański, H.	Acta Phys. Polon. <u>17</u> , 365-368 (1958).	emiss., rel.
Nagibina, I. M.	Optika i Spektroskopiya <u>4</u> , 430-437 (1958) (Θ .T.P.2).	emiss., rel.
Addink, N. W. H.	Spectrochim. Acta <u>15</u> , 349-359 (1959).	emiss.
Geneux, E. & Wanders-Vincenz, B.	Helv. Phys. Acta <u>33</u> , 185-220 (1960) (transl.).	life
Penkin, N. P. & Red'ko, T. P.	Optics and Spectroscopy (U.S.S.R.) <u>2</u> , 360 (1960).	hook, rel. & emiss., rel.
Barrat, J. P. & Butaux, J.	Compt. rend. <u>253</u> , 2668-2670 (1961).	life
Leś, Z. & Niewodniczański, H.	Acta Phys. Polon. <u>20</u> , 701-714 (1961).	emiss., rel.
Garstang, R. H.	J. Opt. Soc. Am. <u>52</u> , 845-851 (1962).	quant.
Vainshtein, L. A.	Transactions of the P.N. Lebedev Physics Institute <u>15</u> , part 1, 1-50 (1962) (CBE-TR).	quant.
Vainshtein, L. A. & Poluektov, I. A.	Optics and Spectroscopy (U.S.S.R.) <u>12</u> , 254-257 (1962).	quant., rel.
Barrat, M. & Barrat, J. P.	Comp. rend. <u>257</u> , 1463-1465 (1963).	life
Helliwell, T. M.	Thesis California Institute of Technology (1963).	quant.
Barrat, M.	Comp. rend. <u>259</u> , 1063-1066 (1964).	life
Bieniewski, T.	Monthly Notices Roy. Astron. Soc. <u>127</u> , 359-366 (1964).	absorpt.
Bieniewski, T. M.	"Atomic Collision Processes", Proceedings p. 1055- 1064 (ed. McDowell, M.R.C., John Wiley & Sons, Inc., New York, 1964).	absorpt.
Byron, Jr., F. W. McDermott, M. N. & Novick, R.	Phys. Rev. <u>134</u> , A615-A624 (1964).	life
Helliwell, T. M.	Phys. Rev. <u>135</u> , A325-A331 (1964).	quant.
Lurio, A. & Novick, R.	Phys. Rev. <u>134</u> , A608-A614 (1964).	life
Lvov, B. V.	Optics and Spectroscopy (U.S.S.R.) <u>12</u> , 282-284 (1965).	absorpt.
Spitzer, M.	Comp. rend. 3907-3909 (1965).	life
Ionescu-Pallas, N. J.	Revue Roumaine de Physique <u>11</u> , 643-647 (1966).	quant.

Moise, N. L.	Astrophys. J. <u>144</u> , 763-773 (1966).	absorpt.
Verolainen, Ya. F. & Osherovich, A. L.	Optics and Spectroscopy (U.S.S.R.) <u>20</u> , 517-520 (1966).	life
Garstang, R. H.	Astrophys. J. <u>148</u> , 579-584 (1967).	quant. forb.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 89-91 (1967).	quant.
Kancerevicius, A.	Litovskii Fizicheskii Sbornik (U.S.S.R.) <u>7</u> , 321-327 (1967).	quant., rel.
Lanepce, B.	J. Physique <u>29</u> , 427-433 (1968).	life

Cd II

Geneux, E. & Wanders-Vincenz, B.	Phys. Rev. Letters <u>3</u> , 422-423 (1959).	life
Geneux, E. & Wanders-Vincenz, B.	Helv. Phys. Acta <u>33</u> , 185-220 (1960) (transl.).	life
Barrat, M. & Barrat, J. P.	Comp. rend. <u>257</u> , 1463-1465 (1963).	life
Bialas-Zabawa, A., Kuchari, M., Skulska, E., Urbaczka, J. & Walach, Z.	Acta. Phys. Polon. <u>30</u> , 897-900 (1966).	quant.

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Ce (Cerium)*

Ce II

Tech, J. L.	Thesis Harvard (1969).	emiss.
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Cl (Chlorine)*

Cl I

Hey, P.	Z. Physik <u>157</u> , 79-88 (1959).	emiss.
Foster, E. W.	Proc. Phys. Soc. London A <u>80</u> , 882-893 (1962).	emiss.
Hofmann, W.	Z. Naturforsch. <u>22a</u> , 2097-2101 (1967).	emiss.
Lawrence, G. M.	Astrophys. J. <u>148</u> , 261-268 (1967).	quant. rel. & life
Bengtson, R. D.	Maryland Univ. Technical Note BN-559 (1968).	emiss.
Miller, M. H.	Maryland Univ. Technical Note, BN550 (1968).	emiss.

Cl II

Hey, P.	Z. Physik <u>157</u> , 79-88 (1959).	emiss.
Foster, E. W.	Proc. Phys. Soc. London A <u>80</u> , 882-893 (1962).	emiss.
Czyzak, S. J. & Krueger, T. K.	Monthly Notices Roy. Astron. Soc. <u>126</u> , 177-194 (1963).	quant. forb.
Bengtson, R. D.	Maryland Univ. Technical Note BN-559 (1968).	emiss.
Lawrence, G. M.	Phys. Rev. <u>179</u> , 134-138 (1969).	life

* See Section 3.2.

Cl III

Czyzak, S. J. & Krueger, T. K.	Monthly Notices Roy. Astron. Soc. <u>126</u> , 177-194 (1963).	quant. forb.
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Cl IV

Czyzak, S. J. & Krueger, T. K.	Monthly Notices Roy. Astron. Soc. <u>126</u> , 177-194 (1963).	quant. forb.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>24</u> , 462- 465 (1968).	quant.

Cl V

Fischer, C. F.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 755-761 (1968).	quant.
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Cl VII

Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
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Cl VIII

Kastner, S. O., Omidvar, K. & Underwood, J. H.	Astrophys. J. <u>148</u> , 269-273 (1967).	quant.
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Cl XII

Odabasi, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel.
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Co (Cobalt)*

Co I

Bouma, T.	Thesis Utrecht (1930).	emiss., rel.
Ornstein, L. S. & Bouma, T.	Phys. Rev. <u>36</u> , 679-693 (1930).	emiss., rel.
King, R. G., Parnes, B. R., Davis, M. H. & Olsen, K. H.	J. Opt. Soc. Am. <u>45</u> , 350-353 (1955).	absorpt., rel.
Allen, C. W. & Asaad, A. S.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 36-49 (1957).	emiss.
Hinnov, E. & Kohn, H.	J. Opt. Soc. Am. <u>47</u> , 156-162 (1957).	emiss.
Ostrovskii, Yu. I. & Penkin, N. P.	Optika i Spektroskopiya <u>5</u> , 345-353 (1958) (O.T.P.1).	hook, rel.
Varsavsky, C. M.	Thesis Harvard (1958).	quant.
Addink, N. W. H.	Spectrochim. Acta <u>15</u> , 349-359 (1959).	emiss.

* See Section 3.2.

Allen, C. W.	Monthly Notices Roy. Astron. Soc. <u>121</u> , 299-332 (1960).	comm. & CA
Morozova, N. P. & Startsev, G. P.	Optics and Spectroscopy (U.S.S.R.) <u>17</u> , 174-176 (1964).	emiss.
Lawrence, G. M., Link, J. K. & King, R. B.	Astrophys. J. <u>141</u> , 293-307 (1965).	absorpt.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.

Co II

Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>13</u> , 169-172 (1962).	quant., rel.
Warner, B.	Memoirs Roy. Astron. Soc. <u>70</u> , 165-253 (1967).	emiss., rel. & CA

Co X

Wagner, W. J. & House, L. L.	Astrophys. J. <u>155</u> , 677-686 (1969).	quant. forb.
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Co XII

Pottasch, S. R.	Monthly Notices Roy. Astron. Soc. <u>128</u> , 73-92 (1964).	quant. forb.
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Co XV

Pottasch, S. R.	Monthly Notices Roy. Astron. Soc. <u>128</u> , 73-92 (1964).	quant. forb.
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Cr (Chromium)*

Cr I

Frerichs, R.	Z. Physik <u>31</u> , 305-310 (1925).	emiss., rel.
Frerichs, R.	Ann. Physik <u>81</u> , 807-845 (1926).	emiss., rel.
Allen, J. S. V. & Hesthal, C. E.	Phys. Rev. <u>47</u> , 926-931 (1935).	emiss., rel.
Rozhdestvenskii, D. S. & Penkin, N. P.	Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. <u>5</u> , 97-101 (1941) (0.T.P. 1).	hook, rel.
Rozhdestvenskii, D. S. & Penkin, N. P.	J. Phys. (U.S.S.R.) <u>5</u> , 319-337 (1941).	hook, rel. & comm.
Penkin, N. P.	Zhur. Eksptl. i Teoret. Fiz. <u>17</u> , 355-365 (1947) (0.T.P. 1).	hook, rel.

* See Section 3.2.

Penkin, N. P.	Zhur. Eksptl. i Teoret. Fiz. <u>17</u> , 1114-1121 (1947) (O.T.P. 1).	hook, rel.
Wilson, O. C.	Astrophys. J. <u>107</u> , 126-150 (1948).	misc., rel.
Estabrook, F. B.	Thesis California Institute of Technology (1950).	absorpt.
Hill, A. J.	Thesis California Institute of Technology (1950).	absorpt. rel.
Estabrook, F. B.	Astrophys. J. <u>113</u> , 684-689 (1951).	absorpt.
Hill, A. J. & King, R. B.	J. Opt. Soc. Am. <u>41</u> , 315-321 (1951).	absorpt., rel.
Huldt, L. & Lagerqvist, A.	Arkiv Fysik <u>5</u> , 91-95 (1951).	emiss.
Estabrook, F. B.	Astrophys. J. <u>115</u> , 571-572 (1952).	comm.
Huldt, L. & Lagerqvist, A.	J. Opt. Soc. Am. <u>42</u> , 142 (1952).	emiss.
Davis, M. H., Routly, P. M. & King, R. B.	Proceedings of the National Science Foundation Conference on Stellar Atmospheres, Indiana Univ. 47-49 (1954).	absorpt.
Mitrofanova, L. A.	Pulkovo. Astronomicheskaya Observatoriya. Izvestiya <u>19</u> , #152, 100-102 (1954) (O.T.P.1).	emiss., rel.
Bell, G. D.	Thesis California Institute of Technology (1956- 1957).	absorpt.
Nikonova, E. I. & Prokof'ev, V. K.	Optika i Spektroskopiya <u>1</u> , 290-297 (1956) (transl.).	hook, rel.
Allen, C. W. & Asaad, A. S.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 36-49 (1957).	emiss.
Hinnov, E. & Kohn, H.	J. Opt. Soc. Am. <u>47</u> , 156-162 (1957).	emiss.
Ostrovskii, Yu. I. & Penkin, N. P.	Optika i Spektroskopiya <u>3</u> , 193-201 (1957) (O.T.P.1) (AD 266 652).	hook
Dvornikova, I. U. & Nagibina, I. M.	Optika i Spektroskopiya <u>4</u> , 421-429 (1958) (O.T.P.2).	emiss., rel.
Addink, N. W. H.	Spectrochim. Acta <u>15</u> , 349-359 (1959).	emiss.
Allen, C. W.	Monthly Notices Roy. Astron. Soc. <u>121</u> , 299-332 (1960).	comm. & CA
Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiya Nauk S.S.S.R. Krymskaya astrofizicheskaya observatoriya. Izvestiya <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm.
Wilkerson, T. D.	Thesis Univ. Michigan (1961).	emiss.
Charatis, G.	Thesis Univ. Michigan (1962).	emiss.
Charatis, G. & Wilkerson, T. D.	Physics of Fluids <u>5</u> , 1661-1662 (1963).	comm.
Morozova, N. P. & Startsev, G. P.	Optics and Spectroscopy (U.S.S.R.) <u>17</u> , 174-176 (1964).	emiss.
Hutcherson, J. W., Mundy, B. C. & Hefferlin, R.	Bull. Am. Phys. Soc. II, <u>10</u> , 246 (1965).	emiss., rel.
Lawrence, G. M., Link, J. K. & King, R. B.	Astrophys. J. <u>141</u> , 293-307 (1965).	absorpt.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Bucka, H., Budick, B., Goshen, R. J. & Marcus, S.	Phys. Rev. <u>144</u> , 96-102 (1966).	life

Synek, M. & Lichodziejewski, W.	Phys. Letters <u>22</u> , 578-579 (1966).	quant. forb. & SCF
Huber, M. & Tobey, Jr., L.	Harvard College Observatory Scientific Report No. 16 (1967).	absorpt.
Byard, P. L.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 1543- 1549 (1968).	emiss.
Hefferlin, R. & Gearhart, J.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 1731 (1968).	comm.
Huber, M. & Tobey, Jr., F. L.	Astrophys. J. <u>152</u> , 609-620 (1968).	absorpt.
Wolnik, S. J., Berthel, R. O., Larson, G. S., Carnevale, E. H. & Wares, G. W.	Phys. Fluids <u>11</u> , 1002-1011 (1968).	emiss.
Cr II		
Allen, J. S. V. & Hesthal, C. E.	Phys. Rev. <u>42</u> , 926-931 (1935).	emiss., rel.
Wilson, O. C.	Astrophys. J. <u>102</u> , 126-150 (1948).	misc., rel.
Zagorianskaya, E. U.	Zhur. Eksptl. i Teoret. Fiz. <u>19</u> , 447-450 (1949) (O.T.P. 1).	emiss., rel.
Aller, L. H., Hazen, M., Doherty, L., Grant, G., Jugaku, J., Spiegel, E. & Waddell, J.	Publications of the Observatory, Univ. of Michigan (Feb. 19, 1954).	misc., rel.
Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiia Nauk S.S.S.R. Krymskaja astrofizicheskaia observatoriia. izvestiia <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm., rel.
Groth, H. G.	Z. Astrophys. <u>51</u> , 231-285 (1961).	misc.
Wilkerson, T. D.	Thesis Univ. Michigan (1961).	emiss.
Aller, L. H.	Univ. of Michigan, Dept. of Astronomy Technical Note #3 (1962).	misc.
Charatis, G.	Thesis Univ. Michigan (1962).	emiss.
Shackleford, W. L.	J. Quant. Spectrosc. Radiat. Transfer <u>5</u> , 303-312 (1965).	emiss.
Huber, M. & Tobey, Jr., L.	Harvard College Observatory Scientific Report No. 16 (1967).	absorpt.
Warner, B.	Memoirs Roy. Astron. Soc. <u>70</u> , 165-253 (1967).	emiss., rel. & CA
Byard, P. L.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 1543- 1549 (1968).	emiss.
Huber, M. & Tobey, Jr., F. L.	Astrophys. J. <u>152</u> , 609-620 (1968).	absorpt.
Wolnik, S. J., Berthel, R. O., Larson, G. S., Carnevale, E. H. & Wares, G. W.	Phys. Fluids <u>11</u> , 1002-1011 (1968).	emiss.

Cr IV

Pasternack, S.	Astrophys. J. <u>92</u> , 129 (1940).	quant. forb.
Synek, M. & Lichodziejewski, W.	Phys. Letters <u>22</u> , 578-579 (1966).	SCF

Cr VII

Cowan, R. D.	J. Opt. Soc. Am. <u>58</u> , 924-933 (1968).	quant.
Wagner, W. J. & House, L. L.	Astrophys. J. <u>155</u> , 677-686 (1969).	quant. forb.

Cr IX

Pasternack, S.	Astrophys. J. <u>92</u> , 129 (1940).	quant. forb.
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Cr XI

Pottasch, S. R.	Monthly Notices Roy. Astron. Soc. <u>128</u> , 73-92 (1964).	quant. forb.
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Cr XII

Fischer, C. F.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 755-761 (1968).	quant.
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Cr XV

Kastner, S. O., Omidvar, K. & Underwood, J. H.	Astrophys. J. <u>148</u> , 269-273 (1967).	quant.
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Cs (Cesium)*

Cs I

Füchtbauer, C. & Hofmann, W.	Ann. Physik <u>43</u> , 96-134 (1914).	absorpt., rel.
Füchtbauer, C.	Physik. Z. <u>21</u> , 322-324 (1920).	absorpt.
Füchtbauer, C. & Joos, G.	Physik. Z. <u>23</u> , 73-80 (1922).	absorpt.
Tolman, R. C.	Phys. Rev. <u>23</u> , 693-709 (1924).	comm.
Bleeker, C. E.	Thesis Utrecht (1928).	emiss., rel.
Prokof'ev, V. K.	Z. Physik <u>57</u> , 387-393 (1929).	hook, rel.
Walbel, F.	Z. Physik <u>53</u> , 459-482 (1929).	absorpt.
Minkowski, R. & Mühlenbruch, W.	Z. Physik <u>63</u> , 198-209 (1930).	misc.
Muto, T.	Proc. Phys.-Math. Soc. Japan <u>12</u> , 93-100 (1930).	quant.
Schütz, W.	Z. Physik <u>64</u> , 682-696 (1930).	absorpt., rel.
Prokof'ev, V. K.	Zhur. Eksptl. i Teoret. Fiz. <u>1</u> , 123-127 (1931) (O.T.P. 1).	hook, rel.
Filippov, A. N.	Zhur. Eksptl. i Teoret. Fiz. <u>2</u> , 24-41 (1932) (O.T.P. 1).	hook, rel.

* See Section 3.2.

Rubinowicz, A. & Blaton, J.	Ergeb. exakt. Naturw. <u>11</u> , 176-217 (1932).	comm.
Ornstein, L. S. & Key, J.	Physica <u>1</u> , 945-952 (1934).	comm., rel.
Prokof'ev, V. K. & Shtandel, G.	Zhur. Eksptl. i Teoret. Fiz. <u>4</u> , 359-367 (1934) (O.T.P. 1).	hook, rel.
Heierman, J. H.	Thesis Utrecht (1937).	emiss.
Key, J.	Thesis Utrecht (1937).	emiss., rel.
Frish, S. E.	Izvestiia Akad. Nauk S.S.S.R. Ser. Fiz. <u>14</u> , 711-715 (1950) (O.T.P. 2).	emiss., rel.
Kvater, G. S. & Meister, T. G.	Vestnik Leningrad Univ. Ser. Fiz. i Khim. <u>7</u> , 137-158 (1952) (O.T.P. 1).	hook
Startsev, G. P.	Doklady Akad. Nauk S.S.S.R. <u>95</u> , 1181-1184 (1954).	hook, rel.
Althoff, K.	Z. Physik <u>141</u> , 33-42 (1955).	life
Bersuker, I. B.	Soviet Phys. - Doklady <u>2</u> , 167-169 (1957).	SCF & estim.
Vainshtein, L. A.	Optika i Spektroskopiya <u>3</u> , 313-321 (1957) (transl.).	quant.
Archambault, Y., Descoubes, J., Priou, M., Omont, A. & Pebay-Peyroula, J.	J. Phys. Radium <u>21</u> , 677-679 (1959).	life
Hanus, W.	Bull. acad. polon. sci. Classe 3, <u>9</u> , 287-291 (1961).	comm.
Hawkins, W. B.	Phys. Rev. <u>123</u> , 544-547 (1961).	quant.
Heavens, O. S.	J. Opt. Soc. Am. <u>51</u> , 1058-1061 (1961).	CA
Naqvi, A. M.	Geophysics Corporation of America Technical Report 61-21-A; ASTIA Document 263 459 (1961).	CA
Bucka, H. & Oppen, G.	Ann. Physik <u>10</u> , 119-120 (1962).	life
Roberts, T. G. & Hales, W. L.	U. S. Army Missile Command Redstone Arsenal, Alabama, Report No. RR-TR-62-8 (1962).	CA
Stone, P. M.	Thesis Univ. of Michigan (1962).	quant.
Stone, P. M.	Phys. Rev. <u>127</u> , 1151-1156 (1962).	quant.
Vainshtein, L. A.	Transactions of the P.N. Lebedev Physics Institute <u>15</u> , part 1, 1-50 (1962) (CBE-TR).	quant.
Anderson, E. M. & Zilitis, V. A.	Optics and Spectroscopy (U.S.S.R.) <u>16</u> , 211-214 (1963).	quant.
Aarts, J. & Bosch, G.	Physica <u>30</u> , 1673-1681 (1964).	emiss.
Markova, G. V. & Chaika, M. P.	Optics and Spectroscopy (U.S.S.R.) <u>17</u> , 170-173 (1964).	life
Agnew, L. & Summers, C.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 574 (Gradevinska Knyiga Publ. House, Belgrade (1966)).	absorpt.
Hertzberg, M. & Holland, R.	J. Quant. Spectrosc. Radiat. Transfer <u>5</u> , 313-320 (1965).	emiss., rel.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Altman, E. L. & Chaika, M. P.	Optics and Spectroscopy (U.S.S.R.) <u>19</u> , 538-541 (1965).	life
Anderson, E. M., Anderson, E. K. & Trusov, V. F.	Optics and Spectroscopy (U.S.S.R.) <u>21</u> , 63-64 (1966).	quant.

* See Section 3.2.

Ionescu-Pallas, N. J.	Revue Roumaine de Physique <u>11</u> , 643-647 (1966).	quant.
Link, J. K.	J. Opt. Soc. Am. <u>56</u> , 1195-1199 (1966).	life
Link, J. K.	J. Opt. Soc. Am. <u>56</u> , 1262 (1966).	comm.
Gallagher, A.	Phys. Rev. <u>157</u> , 68-72 (1967).	life
Markova, G., Khvostenko, G. & Chaika, M.	Optics and Spectroscopy (U.S.S.R.) <u>23</u> , 456-457 (1967).	life
Zemtsov, Yu. K.	Doklady Akad. Nauk. (U.S.S.R.) <u>12</u> , 470-471 (1967).	quant. forb., rel.
Hameed, S., Herzenberg, A. & James, M. G.	J. Phys. B (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 822-830 (1968).	quant.
Marr, G. V. & Creek, D. M.	Proc. Roy. Soc. London A <u>304</u> , 245-254 (1968).	estim.
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>139</u> , 115-128 (1968).	quant. & quant. forb.
Wolff, R. J. & Davis, S. P.	J. Opt. Soc. Am. <u>58</u> , 490-495 (1968).	life

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Cu (Copper)*

Cu I

van Lingen, D.	Thesis Utrecht (1936).	emiss., rel.
van Lingen, D.	Physica <u>2</u> , 977-994 (1936).	emiss., rel.
King, R. B. & Stockbarger, D. C.	Astrophys. J. <u>91</u> , 488-502 (1940).	absorpt.
Schuttevaer, J. W., de Bont, M. J. & van den Broek, Th. H.	Physica <u>10</u> , 544-552 (1943).	emiss., rel.
van den Bold, H.J.	Thesis Utrecht (1945).	emiss., rel.
Davis, M. H., Routly, P. M. & King, R. B.	Proceedings of the National Science Foundation Conference on Stellar Atmospheres, Indiana Univ. 47-49 (1954).	absorpt.
Parchevskii, G. F. & Penkin, N. P.	Soviet Phys. - JETP <u>1</u> , 382-384 (1955).	hook, rel.
Bell, G. D.	Thesis California Institute of Technology (1956-1957).	absorpt.
Allen, C. W. & Asaad, A. S.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 36-49 (1957).	emiss.
Bell, G. D.	Astron. J. <u>62</u> , 7 (1957).	comm.
Ostrovskii, Yu. I. & Penkin, N. P.	Optika i Spektroskopiya <u>2</u> , 193-201 (1957) (O.T.P.1) (AD 266 652).	hook
Bell, G. D., Davis, M. H., King, R. B. & Routly, P. M.	Astrophys. J. <u>127</u> , 775-796 (1958).	absorpt.
Varsavsky, C. M.	Thesis Harvard (1958).	quant.
Addink, N. W. H.	Spectrochim. Acta <u>15</u> , 349-359 (1959).	emiss.
Vidale, G. L.	Technical Information Series Report R60SD331, General Electric Co., Space Science Laboratory (1960) (AD 237 918).	absorpt.

* See Section 3.2.

Dickerman, P. J. & Deuel, R. W.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 807-817 (1964).	emiss., rel.
Riemann, M.	Z. Physik <u>172</u> , 38-51 (1964).	emiss.
Ostroumenko, P. P. & Rossikhin, V. S.	Optics and Spectroscopy (U.S.S.R.) <u>19</u> , 365-366 (1965).	absorpt., rel.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Bucka, H., Ney, J. & Heppke, G.	Z. Angew. Physik <u>20</u> , 354-362 (1966).	life
Levin, L. A. & Budick, B.	Bull. Am. Phys. Soc. Series II, <u>11</u> , 455 (1966).	life
Moise, N. L.	Astrophys. J. <u>144</u> , 774-781 (1966).	absorpt.
Moise, N. L.	Astrophys. J. <u>144</u> , 782-784 (1966).	misc.
Ney, J.	Z. Physik <u>196</u> , 53-65 (1966).	life
Slavenas, I-Yu, Yu.	Optics and Spectroscopy (U.S.S.R.) <u>20</u> , 264-265 (1966).	hook
Cunningham, P. T. & Link, J. K.	J. Opt. Soc. Am. <u>57</u> , 1000-10007 (1967).	life
Kowalski, J. & zuPutlitz, G.	Z. Physik <u>208</u> , 459-463 (1967).	life
Kock, M. & Richter, J.	Z. Astrophys. <u>69</u> , 180-192 (1968).	emiss.
Kowalski, J. & zu Putlitz, G.	Z. Physik <u>208</u> , 459-463 (1968).	life
Vujnovic, V., Ivezic, T. & Tonejc-Mejaski, A.	Fourth Yugoslavian Symposium on Physics of Ionized Gases, August (1968).	emiss. rel.
Bucka, H., Krästscher, W., Metag, V. & Ney, J.	Z. Physik <u>218</u> , 83-94 (1969).	misc.
McGinn, G.	J. Chem. Phys. <u>50</u> , 1404-1418 (1969).	quant.

Cu II

Kock, M. & Richter, J.	Z. Astrophys. <u>69</u> , 180-192 (1968).	emiss.
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Cu XII

Wagner, W. J. & House, L. L.	Astrophys. J. <u>155</u> , 677-686 (1969).	quant. forb.
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Cu XIX

Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
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Eu (Europium)*

Eu I

Lange, W., Luther, J., Steudel, A., & Walther, H.	Phys. Letters <u>20</u> , 166-167 (1966).	life
Handrich, E., Kretzen, H., Lange, W., Steudel, A. Wallenstein, R. & Walther, H.	Proc. of Conf. on Optical Pumping and Line Shape, Warsaw (1968) to be published.	life
Komarovskii, V. A., Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 81-82 (1968).	hook

* See Section 3.2.

F (Fluorine)*

F I

Bagus, P. S.	U. S. Atomic Energy Commission ANL-6959 (1964).	SCF
Bengtson, R. D.	Maryland Univ. Technical Note BN-559 (1968).	emiss.

F II

Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>111</u> , 115-124 (1951).	quant. forb.
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F IV

Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>111</u> , 115-124 (1951).	quant. forb.
Bolotin, A. B., Levinson, I. B. & Levin, L. I.	Soviet Phys. - JETP <u>2</u> , 391-395 (1956).	quant.
Froese, C.	Astrophys. J. <u>145</u> , 932-935 (1966).	quant. forb.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>24</u> , 462- 465 (1968).	quant.
Odabasi, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel.

F V

Bolotin, A. B. & Yutsis, A. P.	Zhur. Eksptl. i Teoret. Fiz. <u>24</u> , 537-543 (1953) (O.T.P. 1).	quant.
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. III, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Hansen, J. E.	J. Opt. Soc. Am. <u>52</u> , 722-726 (1969).	quant. forb., rel.

F VI

Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Bickel, W. S., Berry, H. G., Martinson, I., Schectman, R. M.	Phys. Letters <u>29A</u> , 4-5 (1969).	life
Linderberg, J.	Phys. Letters <u>29A</u> , 467-468 (1969).	quant.

F VII

Flannery, M. R. & Stewart, A. L.	Monthly Notices Roy. Astron. Soc. <u>126</u> , 387-392 (1963).	quant.
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* See Section 3.2.

Weiss, A. W.	Astrophys. J. <u>138</u> , 1262-1276 (1963).	SCF
Berkner, K. H., Cooper III, W. S., Kaplan, S. N. & Pyle, R. V.	Phys. Letters <u>16</u> , 35-36 (1965).	life
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966)).	quant.

F VIII

Elton, R. C.	Astrophys. J. <u>148</u> , 573-578 (1967).	quant.
Weiss, A. W.	J. Research Nat. Bur. Standards <u>71A</u> , 163-168 (1967).	quant.
Sanders, F. C. & Sherr, C. W.	Phys. Rev. <u>181</u> , 84-97 (1969).	quant.

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Fe (Iron)*

Fe I

van Milaan, J. B.	Z. Physik <u>34</u> , 921-923 (1925).	emiss., rel.
Frerichs, R.	Ann. Physik <u>81</u> , 807-845 (1926).	emiss., rel.
van Milaan, J. B.	Thesis Utrecht (1926).	emiss., rel.
van Milaan, J. B.	Z. Physik <u>38</u> , 427-439 (1926).	emiss., rel.
Russell, H. N.	Astrophys. J. <u>78</u> , 239-297 (1933).	estim.
Allen, C. W.	Monthly Notices Roy. Astron. Soc. <u>96</u> , 145-148 (1935).	emiss.
King, R. B. & King, A. S.	Astrophys. J. <u>82</u> , 377-395 (1935).	absorpt., rel.
van Driel, H.	Thesis Utrecht (1935).	emiss., rel.
Menzel, D. H. & Goldberg, L.	Astrophys. J. <u>85</u> , 40-41 (1936).	comm.
King, R. B. & King, A. S.	Astrophys. J. <u>87</u> , 24-39 (1938).	absorpt., rel.
Rozhdestvenskii, D. S. & Penkin, N. P.	Izvest. Akad. Nauk S.S.S.R. Ser. Fiz. <u>5</u> , 97-101 (1941) (O.T.P. 1).	hook, rel.
Rozhdestvenskii, D. S. & Penkin, N. P.	J. Phys. (U.S.S.R.) <u>5</u> , 319-337 (1941).	hook, rel. & comm.
King, R. B.	Astrophys. J. <u>95</u> , 78-81 (1942).	absorpt.
Sobolev, N. N.	Zhur. Eksptl. i Teoret. Fiz. <u>13</u> , 131-136 (1943) (O.T.P. 1).	emiss., rel.
Petrie, W.	Can. J. Research A <u>25</u> , 42-48 (1947).	comm.
Gottschalk, W. M.	Astrophys. J. <u>108</u> , 326-337 (1948).	quant., rel.
Carter, W. W.	Thesis California Institute of Technology (1949).	emiss., rel.
Carter, W. W.	Phys. Rev. <u>76</u> , 962-966 (1949).	emiss., rel.
Crosswhite, H. M.	Spectrochim. Acta <u>4</u> , 122-151 (1950).	emiss., rel.

* See Section 3.2.

Kopfermann, H. & Wessel G.	Z. Physik <u>130</u> , 100-108 (1951).	absorpt.
Mitrofanova, L. A.	Pulkovo. Astronomicheskaya observatoriya. Izvestiya <u>19</u> , #149, 81-139 (1952) (O.T.P. 1).	emiss., rel.
Aarts, J., Harting, D. & Bakker, C. J.	Physica <u>20</u> , 1250-1258 (1954).	emiss., rel.
Parchevskii, G. F. & Penkin, N. P.	Vestnik Leningrad Univ. Ser. Fiz. i Khim. <u>9</u> , #11, 113-118 (1954) (transl. by J. Tech., Harvard College Observatory, June 1964).	hook, rel.
Parchevski, G. F. & Penkin, N. P.	Bull. Acad. Sci. U.S.S.R. Phys. Ser. <u>19</u> , 4-5 (1955).	comm.
Bell, G. D.	Thesis California Institute of Technology (1956-1957).	absorpt.
Osberghaus, O. & Ziock, K.	Z. Naturforsch. <u>11a</u> , 762-763 (1956).	life
Allen, C. W. & Asaad, A. S.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 36-49 (1957).	emiss.
Bell, G. D.	Astron. J. <u>62</u> , 7 (1957).	comm.
Hinnov, E. & Kohn, H.	J. Opt. Soc. Am. <u>47</u> , 156-162 (1957).	emiss.
Ziock, K.	Z. Physik <u>147</u> , 99-112 (1957).	life
Bell, G. D., Davis, M. H., King, R. B. & Routly, P. M.	Astrophys. J. <u>127</u> , 775-796 (1958).	absorpt.
Crosswhite, H. M.	Johns Hopkins Spectroscopic Report No. 13 (1958).	compl.
Mel'nikov, O. A.	Pulkovo. Astronomicheskaya observatoriya. Izvestiya <u>20</u> , #6, 28-43 (1958) (O.T.P. 1).	comm.
Nagibina, I. M.	Bull. Acad. Sci. U.S.S.R. Phys. Ser. <u>22</u> , 678-679 (1958).	emiss., rel.
Nagibina, I. M.	Optika i Spektroskopiya <u>4</u> , 430-437 (1958) (O.T.P.2).	emiss., rel.
Addink, N. W. H.	Spectrochim. Acta <u>15</u> , 349-359 (1959).	emiss.
Hefferlin, R.	J. Opt. Soc. Am. <u>49</u> , 680-685 (1959).	emiss., rel.
Hefferlin, R.	J. Opt. Soc. Am. <u>49</u> , 948-949 (1959).	emiss., rel.
Zwaan, A.	Bulletin Astronomical Institutes Netherlands <u>14</u> , 288-298 (1959).	misc., rel.
Allen, C. W.	Monthly Notices Roy. Astron. Soc. <u>121</u> , 299-332 (1960).	comm. & CA
Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiya Nauk S.S.S.R. Krymskaya Astrofizicheskaya observatoriya. Izvestiya <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm.
Belousova, I. M. & Gurevich, D. B.	Optics and Spectroscopy (U.S.S.R.) <u>10</u> , 206-207 (1961).	comm.
Korolev, F. A. & Kvaratskheli, Yu. K.	Optics and Spectroscopy (U.S.S.R.) <u>10</u> , 200-202 (1961).	emiss., rel.
Letfus, V.	Central Astronomical Institutes of Czechoslovakia: Bulletin <u>12</u> , 161-167 (1961).	emiss. & comm.
Letfus, V.	J. Opt. Soc. Am. <u>51</u> , 1151 (1961).	comm.
Ottinger, C. & Ziock, K.	Z. Naturforsch. <u>16a</u> , 720 (1961).	life
Jefferies, J. T. & Orrall, F. Q.	Astrophys. J. <u>135</u> , 109-121 (1962).	estim.

Korolev, F. A. & Kvaratskheli, Iu. K.	Fiz. Probl. Spektroskopii, Akad. Nauk S.S.S.R. Materialy 13-Go (Trinadtsatago) Soveshch. Leningrad 109-111 (1962).	emiss., rel.
Letfus, V.	Central Astronomical Institute of Czechoslovakia: Bulletin <u>13</u> , 98-106 (1962).	comm.
Morozova, N. G., Startsev, G. P. & Frish, M. S.	Fiz. Probl. Spektroskopii, akad. Nauk S.S.S.R. Materialy 13-Go (Trinadtsatago) Soveshch. Leningrad 45-51 (1962).	emiss., rel.
Roder, O.	Z. Astrophysik <u>55</u> , 38-45 (1962).	emiss.
Letfus, V.	Central Atronomical Institutes of Czechoslovakia: Bulletin <u>14</u> , 155-166 (1963).	comm.
Margoshes, M. & Scribner, B. F.	J. Research Nat. Bur. Standards <u>67A</u> , 561-568 (1963).	emiss., rel.
Aarts, J. & Bosch, G.	Physica <u>30</u> , 1673-1681 (1964).	emiss.
Corliss, C. H. & Warner, B.	Astrophys. J. Suppl. Ser. <u>8</u> , #83 395-438 (1964).	emiss., compil & comm.
Morozova, N. P. & Startsev, G. P.	Optics and Spectroscopy (U.S.S.R.) <u>17</u> , 174-176 (1964).	emiss.
Prokof'ev, V. K., Nikonova, E. I., Gruzdev, P. F. & Frish, M. S.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>31</u> , 281-324 (1964).	comm.
Valters, A. K., Nikonova, E. I. & Startsev, G. P.	Optics and Spectroscopy (U.S.S.R.) <u>16</u> , 393-395 (1964).	absorpt., rel.
Valters, A. K. & Startsev, G. P.	Optics and Spectroscopy (U.S.S.R.) <u>17</u> , 262-264 (1964).	hook, rel.
King, R. B., Olsen, K. H. & Krysmanski, K. H.	Astrophys. J. <u>141</u> , 354-363 (1965).	absorpt., rel.
Shore, B. W.	Ann. Physik <u>15</u> , 207-224 (1965).	emiss., rel.
Stewart, J. C. & Rotenberg, M.	Astrophys. J. <u>142</u> , 94-105 (1965).	quant., SCF
Corliss, C. H. & Warner, B.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
	J. Research Nat. Bur. Standards <u>70A</u> , 325-371 (1966).	comm. & emiss., rel.
Byard, P. L.	J. Quant. Spectrosc. Radiat. Transfer <u>7</u> , 559-569 (1967).	emiss.
Cowley, C. R. & Warner, B.	The Observatory <u>87</u> , 117-123 (1967).	comm.
Huber, M. & Tobey, Jr., L.	Harvard College Observatory Scientific Report No. 16 (1967).	absorpt.
Corliss, C. H., & Tech, J. L.	National Bureau of Standards Monograph 108, (U.S. Government Printing Office, Washington, D. C. (1968).	emiss.
Huber, M. & Tobey, Jr., F. L.	Astrophys. J. <u>152</u> , 609-620 (1968).	absorpt.
Grasdalen, G. L., Huber, M. & Parkinson, W. H.	Astrophys. J. <u>156</u> , 1153-1173 (1969).	absorpt.
Grevesse, N. & Swings, J. P.	Astron. and Astrophys. <u>2</u> , 28-44 (1969).	misc.
Wagner, R. & Otten, E. W.	Z. Physik <u>220</u> , 349-361 (1969).	life

Fe II

Clarkson, W.	Phil. Mag. <u>7</u> , 98-105 (1929).	emiss., rel.
Rubinowicz, A.	Z. Physik <u>65</u> , 662-676 (1930).	quant., rel.
Russell, H. N.	Astrophys. J. <u>78</u> , 239-297 (1933).	estim.
Sobolev, N. N.	Zhur. Eksptl. i Teoret. Fiz. <u>13</u> , 131-136 (1943) (O.T.P. 1).	emiss., rel.
Crosswhite, H. M.	Spectrochim. Acta <u>4</u> , 122-151 (1950).	emiss., rel.
Mitrofanova, L. A.	Pulkovo. Astronomicheskaya observatoriya. Izvestiya <u>19</u> , #151, 45-48 (1953).	emiss., rel.
Aller, L. H., Hazen, M., Doherty, L., Grant, G., Jugaku, J., Spiegel, E. & Waddell, J.	Publications of the Observatory, Univ. of Michigan (Feb. 19, 1954).	misc., rel.
Mel'nikov, O. A.	Soviet Astronomy - AJ <u>3</u> , 381-388 (1959).	misc. & misc. forb., rel.
Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiya Nauk S.S.S.R. Krymskaya astrofizicheskaya observatoriya. izvestiya <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm., rel.
Groth, H. G.	Z. Astrophys. <u>51</u> , 231-285 (1961).	misc.
Aller, L. H.	Univ. of Michigan, Dept. of Astronomy Technical Note #3 (1962).	misc.
Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>124</u> , 321-341 (1962).	quant. forb.
Garstang, R. H.	Communications from the University of London Observatory #57 (1962).	misc.
Gruzdev, P. F.	Fiz. Probl. Spektroskopii, Akad. Nauk S.S.S.R., Materialy 13-Go (Trinadtsatogo) Soveshch., Leningrad 36-39 (1962) (transl. by J. L. Tech, Harvard College Observatory).	quant., rel.
Roder, O.	Z. Astrophysik <u>55</u> , 38-45 (1962).	emiss.
Baschek, B., Kegel, W. H. & Traving, G.	Z. Astrophysik <u>56</u> , 282-284 (1963).	misc.
Morozova, N. G. & Startsev, G. P.	Optics and Spectroscopy (U.S.S.R.) <u>18</u> , 505-506 (1965).	emiss., rel.
Warner, B.	Memoirs Roy. Astron. Soc. <u>70</u> , 165-253 (1967).	emiss., rel. & CA
Grasdalen, G. L., Huber, M. & Parkinson, W. H.	Astrophys. J. <u>156</u> , 1153-1173 (1969).	absorpt.

Fe III

Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 393-405 (1957).	quant. forb.
Gaustad, J. E. & Spitzer, Jr., L.	Astrophys. J. <u>134</u> , 771-776 (1961).	estim.

Aller, L. H.	Univ. of Michigan. Dept. of Astronomy Technical Note #3 (1962).	misc.
Fe IV		
Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>118</u> , 572-584 (1958).	quant. forb.
Fe V		
Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 393-405 (1957).	quant. forb.
Fe VI		
Pasternack, S.	Astrophys. J. <u>92</u> , 129 (1940).	quant. forb.
Fe VII		
Pasternack, S.	Astrophys. J. <u>92</u> , 129 (1940).	quant. forb.
Fe VIII		
Czyzak, S. J. & Krueger, T. K.	Astrophys. J. <u>144</u> , 381-407 (1966).	SCF & quant. forb.
Weiss, A. W.	J. Research Nat. Bur. Standards <u>71A</u> , 163-168 (1967).	quant.
Fe IX		
Froese, C.	Bull. Astron. Inst. Netherlands <u>19</u> , 86-89 (1967).	SCF
Cowan, R. D.	J. Opt. Soc. Am. <u>58</u> , 924-933 (1968).	quant.
Fawcett, B. C., Peacock, N. J. & Cowan, R. D.	J. Phys. B. (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 295- 306 (1968).	quant.
Wagner, W. J. & House, L. L.	Astrophys. J. <u>155</u> , 677-686 (1969).	quant. forb.
Fe X		
Edlén, B.	Z. Astrophys. <u>22</u> , 30-64 (1942).	quant. forb.
Huang, K.	Astrophys. J. <u>101</u> , 187-195 (1945).	misc. forb.
Pecker, C.	Compt. rend. <u>250</u> , 3779-3781 (1960).	misc.
Garstang, R. H.	Ann. Astrophys. <u>25</u> , 109-117 (1962).	comm.
Krueger, T. K. & Czyzak, S. J.	Memoirs Roy. Astron. Soc. <u>62</u> , 145-182 (1965).	quant. forb.
Froese, C.	Bull. Astron. Inst. Netherlands <u>19</u> , 86-89 (1967).	SCF
Fawcett, B. C., Peacock, N. J. & Cowan, R. D.	J. Phys. B. (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 295- 306 (1968).	quant.
Fe XI		
Pasternack, S.	Astrophys. J. <u>92</u> , 129 (1940).	quant. forb.

Edlén, B.	Z. Astrophys. <u>22</u> , 30-64 (1942).	quant. forb.
Huang, K.	Astrophys. J. <u>101</u> , 187-195 (1945).	misc. forb.
Krueger, T. K. & Czyzak, S. J.	Memoirs Roy. Astron Soc. <u>69</u> , 145-182 (1965).	quant. forb.
Froese, C.	Bull. Astron. Inst. Netherlands <u>19</u> , 86-89 (1967).	SCF
Krueger, T. K. & Czyzak, S. J.	Astrophys. J. <u>149</u> , 237 (1967).	comm.
Fawcett, B. C., Peacock, N. J. & Cowan, R. D.	J. Phys. B. (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 295-306 (1968).	quant.

Fe XII

Krueger, T. K. & Czyzak, S. J.	Memoirs Roy. Astron Soc. <u>69</u> , 145-182 (1965).	estim. forb.
Fawcett, B. C., Peacock, N. J. & Cowan, R. D.	J. Phys. B. (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 295-306 (1968).	quant.
Rozelot, J. P.	Solar Physics <u>6</u> , 49-55 (1969).	quant.

Fe XIII

Edlén, B.	Z. Astrophys. <u>22</u> , 30-64 (1942).	quant. forb.
Huang, K.	Astrophys. J. <u>101</u> , 187-195 (1945).	misc. forb.
Kurt, V. G.	Soviet Astronomy-A.J. <u>6</u> , 620-624 (1963).	quant. forb.
Krueger, T. K. & Czyzak, S. J.	Memoirs Roy. Astron Soc. <u>69</u> , 145-182 (1965).	quant. forb.
House, L. L.	Astrophys. J. <u>149</u> , 211-216 (1967).	quant.
Krueger, T. K. & Czyzak, S. J.	Astrophys. J. <u>149</u> , 237 (1967).	comm.
Fawcett, B. C., Peacock, N. J. & Cowan, R. D.	J. Phys. B. (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 295-306 (1968).	quant.

Fe XIV

Edlén, B.	Z. Astrophys. <u>22</u> , 30-64 (1942).	quant. forb.
Huang, K.	Astrophys. J. <u>101</u> , 187-195 (1945).	misc. forb.
Gold, M. T.	Monthly Notices Roy. Astron. Soc. <u>109</u> , 471-477 (1949).	SCF
Froese, C.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 615-621 (1957).	SCF
Garstang, R. H.	Ann. Astrophys. <u>25</u> , 109-117 (1962).	quant. forb. & CA
Krueger, T. K. & Czyzak, S. J.	Memoirs Roy. Astron Soc. <u>69</u> , 145-182 (1965).	quant. forb.
Steele, R. & Treffitz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>6</u> , 833-846 (1966).	quant. forb.
Fischer, C. F.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 755-761 (1968).	quant.
Fawcett, B. C., Peacock, N. J. & Cowan, R. D.	J. Phys. B. (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 295-306 (1968).	quant.

Fe XV

Edlén, B.	Z. Astrophys. <u>22</u> , 30-64 (1942).	quant. forb.
Osterbrock, D. E.	Astrophys. J. <u>114</u> , 469-472 (1951).	quant. forb.
Blaha, M.	Central Astronomical Institutes of Czechoslovakia: Bulletin <u>8</u> , 34-37 (1957).	quant. forb.
Firor, J. & Zirin, H.	Astrophys. J. <u>135</u> , 122-137 (1962).	quant.
Froese, C.	Astrophys. J. <u>140</u> , 361-365 (1964).	SCF
Krueger, T. K. & Czyzak, S. J.	Memoirs Roy. Astron Soc. <u>69</u> , 145-182 (1965).	quant. & quant. forb.
Steele, R. & Trefftz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>6</u> , 833-846 (1966).	quant. forb.

Fe XVI

Froese, C.	Astrophys. J. <u>140</u> , 361-365 (1964).	SCF
Krueger, T. K. & Czyzak, S. J.	Memoirs Roy. Astron Soc. <u>69</u> , 145-182 (1965).	quant. & quant. forb.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Steele, R. & Trefftz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>6</u> , 833-846 (1966).	quant. forb.
Dupree, A. K. & Goldberg, L.	Solar Physics <u>1</u> , 229-241 (1967).	comm.

Fe XVII

Garstang, R. H.	Publ. Astron. Soc. Pacific <u>78</u> , 399-406 (1966).	quant.
Froese, C.	Bull. Astron. Inst. Netherlands <u>19</u> , 86-89 (1967).	SCF
Kastner, S. O., Omidvar, K. & Underwood, J. H.	Astrophys. J. <u>148</u> , 269-273 (1967).	quant.

Fe XXII

Chapman, R. D.	Astrophys. J. <u>150</u> , 87-91 (1969).	SCF
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Fe XXIII

Chapman, R. D.	Astrophys. J. <u>150</u> , 87-91 (1969).	SCF
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Fe XXIV

Chapman, R. D.	Astrophys. J. <u>150</u> , 87-91 (1969).	SCF
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Fe XXV

Chapman, R. D.	Astrophys. J. <u>150</u> , 87-91 (1969).	SCF
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Ga I

Allen, C. W.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 622-628 (1957).	comm.
Allen, C. W. & Asaad, A. S.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 36-49 (1957).	emiss.
Ostrovskii, Yu. I. & Penkin, N. P.	Optika i Spektroskopiya <u>4</u> , 719-724 (1958) (O.T.P.1).	hook
Ostrovskii, Yu. I., Penkin, N. P. & Shabanova, L. N.	Bull. Acad. Sci. U.S.S.R. Phys. Ser. <u>22</u> , 720-724 (1958).	hook
Erehm, B., Demtröder, W. & Osberghaus, O.	Z. Naturforsch. <u>16a</u> , 843 (1961).	life
Demtröder, W.	Thesis Bonn (1961).	life
Hanus, W.	Bull. acad. polon. sci. Classe 3, <u>8</u> , 629-636 (1961).	comm.
Ottinger, C. & Ziock, K.	Z. Naturforsch. <u>16a</u> , 720 (1961).	life
Demtröder, W.	Z. Physik <u>166</u> , 42-55 (1962).	life
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>14</u> , 5-8 (1963).	hook
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>14</u> , 87-88 (1963).	hook
Lubowiecka, T.	Acta Phys. Polon. <u>25</u> , 849-851 (1964).	emiss., rel.
Lawrence, G. M., Link, J. K. & King, R. B.	Astrophys. J. <u>141</u> , 293-307 (1965).	absorpt.
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>18</u> , 504 (1965).	hook, rel. & hook
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>18</u> , 535-537 (1965).	comm.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>20</u> , 209-213 (1966).	quant.
Cunningham, P. T. & Link, J. K.	J. Opt. Soc. Am. <u>57</u> , 1000-1007 (1967).	life
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>23</u> , 11-13 (1967).	absorpt. & hook

Ga II

Helliwell, T. M.	Thesis California Institute of Technology (1963).	quant.
Helliwell, T. M.	Phys. Rev. <u>135</u> , A325-A331 (1964).	quant.
Zilitis, V. A.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 361-362 (1968).	SCF & quant.

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* See Section 3.2.

Ge (Germanium)*

Ge I

Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>26</u> , 52-62 (1961).	quant.
Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>28</u> , 277-287 (1962).	absorpt., rel.
Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>29</u> , 131-140 (1963).	emiss., rel., absorpt., rel. & comm.
Slavenas, I. Yu. Yu.	Optics and Spectroscopy (U.S.S.R.) <u>16</u> , 214-216 (1964).	hook, rel.
Lawrence, G. M.	Astrophys. J. <u>148</u> , 261-268 (1967).	quant. rel. & life
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 1-5 (1968).	quant.

Ge III

Zilitis, V. A.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 361-362 (1968).	SCF & quant.
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H (Hydrogen)

H I

Menzel, D. H. & Pekeris, C. L.	Monthly Notices Roy. Astron. Soc. <u>96</u> , 77-111 (1935).	quant.
Wild, J. P.	Astrophys. J. <u>115</u> , 206-221 (1952).	quant.
Harriman, J. M.	Phys. Rev. <u>101</u> , 594-598 (1956).	quant.
Green, L. C., Rush, P. P. & Chandler, C. D.	Astrophys. J. Suppl. Ser. <u>2</u> , 37-50 (1957).	quant.
Shapiro, J. & Breit, G.	Phys. Rev. <u>113</u> , 179-181 (1959).	quant.
Herdan, R. & Hughes, T. P.	Astrophys. J. <u>133</u> , 294-298 (1961).	quant.
Karzas, W. J. & Latter, R.	Astrophys. J. Suppl. Ser. <u>6</u> , 167-212 (1961).	quant.
Inokuti, M.	Argonne National Laboratory Radiological Physics Division Summary Report July 1962 through June 1963 ANL - 6769.	quant.
May, R. M.	Nuclear Fusion <u>4</u> , 244-245 (1964).	quant.
Ankudinov, V. A., Bobashev, S. V. & Andreev, E. P.	Soviet Phys. JETP <u>21</u> , 26-32 (1965).	life
Morse, T. A. & Kaufman, F.	J. Chem. Phys. <u>42</u> , 1785-1790 (1965).	absorpt.

* See Section 3.2.

Bickel, W. S. & Goodman, A. S.	Phys. Rev. <u>148</u> , 1-4 (1966).	life
Goodman, A. S. & Donahue, D. J.	Phys. Rev. <u>141</u> , 1-3 (1966).	life
Hughes, R. H., Dawson, H. R. & Doughty, B. M.	J. Opt. Soc. Am. <u>56</u> , 830-831 (1966).	life
Michael, J. V. & Weston, Jr.,	J. Chem. Phys. <u>45</u> , 3632-3641 (1966).	emiss.
Gebauer, R. & Jäger, H.	Acta. Phys. Austriaca <u>26</u> , 123-151 (1967).	life
Barker, J. R. & Michael, J. V.	J. Opt. Soc. Am. <u>58</u> , 1615-1620 (1968).	absorpt.
Chupp, E. L., Dotchin, L. W. & Pegg, D. J.	Phys. Rev. <u>175</u> , 44-50 (1968).	life
Goldwire, Jr., H. C.	Astrophys. J. Suppl. Ser. #152 <u>17</u> , 445-466 (1968).	quant.
Menzel, D. H.	Nature <u>218</u> , 756-757 (1968).	quant.
Griffith, R., Bober, L. & Tankin, R. S.	Plasma Phys. <u>11</u> , 529-539 (1969).	emiss. & absorpt.
Menzel, D. H.	Astrophys. J. Suppl. Ser. <u>18</u> , #161, 221-246 (1969).	quant.

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He (Helium)^{*}

He I

Körwien, H.	Z. Physik <u>91</u> , 1-36 (1934).	quant.
Hylleraas, E. A.	Z. Physik <u>106</u> , 395-404 (1937).	quant.
Goldberg, L.	Astrophys. J. <u>90</u> , 414-428 (1939).	quant.
Heron, S., McWhirter, R. W. P. & Rhoderick, E. H.	Proc. Roy. Soc. London A <u>234</u> , 565-582 (1956).	life
Dalgarno, A. & Lynn, N.	Proc. Phys. Soc. London A <u>70</u> , 802-808 (1957).	estim.
Treffitz, E., Schlüter, A., Dettmar, K. H. & Jörgens, K.	Z. Astrophys. <u>44</u> , 1-17 (1957).	SCF
Dalgarno, A. & Kingston, A. E.	Proc. Phys. Soc. London A <u>72</u> , 1053-1060 (1958).	estim.
Osherovich, A. L. & Savich, I. G.	Optika i Spektroskopiya <u>4</u> , 715-718 (1958) (O.T.P.1).	life
Bennett, R. G. & Dalby, F. W.	J. Chem. Phys. <u>31</u> , 434-441 (1959).	life
Dalgarno, A. & Stewart, A. L.	Proc. Phys. Soc. London A <u>76</u> , 49-55 (1960).	estim.
Bakos, J. & Szigetti, J.	Kosp. Fiz. Kut. Int. Kozlemenye <u>12</u> , 125-134 (1964).	life
Powler, R. G., Holzberlein, T. M., Jacobson, C. H. & Corrigan, S. J. B.	Proc. Phys. Soc. (London) A <u>84</u> , 539-543 (1964).	life

Green, L. C., Kolchin, E. K. & Johnson, N. C.	Submitted for publication in the Transactions of the International Astronomical Union Symposium #26 (1964).	quant.
Helliwell, T. M.	Phys. Rev. <u>135</u> , A325-A331 (1964).	quant.
Holzberlein, T. M.	Rev. Sci. Instr. <u>35</u> , 1041-1046 (1964).	life
Kuhn, H. G.	Acta Phys. Polon. <u>26</u> , 315-321 (1964).	life
Kuhn, H. G. & Vaughan, J. M.	Proc. Roy. Soc. London A <u>277</u> , 297-311 (1964).	life
Lincke, R.	Thesis Maryland Univ. (1964) (AFCRL-64-960).	emiss.
McDowell, M. R. C. & Stauffer, A. D.	Physics Letters <u>12</u> , 207-208 (1964).	quant. forb.
Schiff, B. & Pekeris, C. L.	Phys. Rev. <u>134</u> , A638-A640 (1964).	quant.
Vidal, C. R.	Z. Naturforsch. <u>19a</u> , 1018 (1964).	emiss., rel.
Altick, P. L. & Moore, E. N.	Phys. Rev. Letters <u>15</u> , 100-102 (1965).	quant.
Ankudinov, V. A., Bobashev, S. V. & Andreev, E. P.	Soviet Phys. JETP <u>21</u> , 26-32 (1965).	life
Bennett, Jr. W. R., Kindlmann, P. J. & Mercer, G. N.	Applied Optics Supplement 2 of Chemical Lasers 34-57 (1965).	life
Boersch, H. & Reich, H. J.	Optik <u>22</u> , 289-306 (1965).	misc., rel.
Fowler, R. G., Holzberlein, T. M. & Jacobson, C. H.	Phys. Rev. <u>140</u> , A1050-A1051 (1965).	comm.
Galleron-Julienne, C. & Descoubes, Korolyov, F. A. & Odintsov, V. I.	Comp. rend. <u>261</u> , 916-918 (1965).	life
	Optics and Spectroscopy (U.S.S.R.) <u>18</u> , 547-550 (1965).	absorpt.
Kuhn, H. G., Lewis, E. L. & Vaughan, J. M.	Phys. Rev. Letters <u>15</u> , 687-688 (1965).	comm.
Pendleton, Jr., W. R.	Thesis Univ. of Maryland (1965).	life
Pendleton, W. R. & Hughes, R. H.	Phys. Rev. <u>138</u> , A683-A687 (1965).	life
Bakos, J. & Szigeti, J.	Acta Physica Acad. Scientiarum Hungaricae, <u>21</u> , 149-167 (1966).	life
Froese, C.	Phys. Rev. <u>150</u> , 1-6 (1966).	SCF
Green, L. C., Johnson, N. C. & Kolchin, E. K.	Astrophys. J. <u>144</u> , 369-375 (1966).	quant.
Klose, J. Z.	Phys. Rev. <u>141</u> , 181-186 (1966).	life
Lincke, R. & Griem, H. R.	Phys. Rev. <u>143</u> , 66-73 (1966).	emiss.
Bakos, J. & Szigeti, J.	Acta Phys. Acad. Sci. Hung. <u>23</u> , 341-347 (1967).	life
Bridgett, K. A. & King, T. A.	Proc. Phys. Soc. London A <u>92</u> , 75-78 (1967).	life
Cohen, M. & Kelly, P. S.	Can. J. Phys. <u>45</u> , 2079-2090 (1967).	quant.
Elton, R. C.	Astrophys. J. <u>148</u> , 573-578 (1967).	quant.
Froese, C.	J. Chem. Phys. <u>47</u> , 4010-4015 (1967).	SCF
Garstang, R. H.	Astrophys. J. <u>148</u> , 579-584 (1967).	quant. forb.
Kay, R. B. & Hughes, R. H.	Phys. Rev. <u>154</u> , 61-69 (1967).	life
Landman, D. A.	Bull. Am. Phys. Soc. Series II, <u>12</u> , 94 (1967).	life

Lewis, E. L.	Proc. Phys. Soc. London <u>92</u> , 817-825 (1967).	comm.
Niles, F. E.	BRL Report No. 1354 (1967).	compil. & estim.
Osherovich, A. L. & Veroleinen, Ya. F.	Vestnik Leningrad. Univ. Fiz. i Khim. #1, 140-141 (1967).	life
Victor, G. A.	Proc. Phys. Soc. <u>91</u> , 825-829 (1967).	quant.
Weiss, A. W.	J. Research Nat. Bur. Standards <u>71A</u> , 163-168 (1967).	quant.
Chong, D. P.	J. Chem. Phys. <u>48</u> , 1413-1414 (1968).	quant.
Drake, G. W. F. & Dalgarno, A.	Astrophys. J. <u>152</u> , L121-L123 (1968).	quant. forb.
Landman, D. A.	Phys. Rev. <u>173</u> , 33-39 (1968).	life
Nichols, L. L. & Wilson, W. E.	Applied Optics <u>7</u> , 167-170 (1968).	life
Osherovich, A. L. & Verolainen, Ya. F.	Optics and Spectroscopy (U.S.S.R.) <u>24</u> , 81- 84 (1968).	life
Williams, W. L. & Fry, E. S.	Phys. Rev. Letters <u>20</u> , 1335-1336 (1968).	life
Yurev, M. S.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 157-158 (1968).	quant.
Allen, L., Jones, D. G. C. & Schofield, D. G.	J. Opt. Soc. Am. <u>59</u> , 842-847 (1969).	life
Anderson, R. J., Hughes, R. H. & Norton, T. G.	Phys. Rev. <u>181</u> , 198-205 (1969).	life
Sanders, F. C. & Sherr, C. W.	Phys. Rev. <u>181</u> , 84-97 (1969).	quant.
He II		
Goldwire, Jr., H. C. & Goss, W. M.	Astrophys. J. <u>149</u> , 15-22 (1967).	quant.
Heroux, L.	Phys. Rev. <u>161</u> , 47-50 (1967).	life
Jordan, Jr., J. A., Bakken, G. S. & Yager, R. E.	J. Opt. Soc. Am. <u>57</u> , 530-534 (1967).	life
Osherovich, A. L. & Veroleinen, Ya. F.	Vestnik Leningrad. Univ. Fiz. i Khim. #1, 140-141 (1967).	life
Osherovich, A. L. & Verolainen, Ya. F.	Optics and Spectroscopy (U.S.S.R.) <u>24</u> , 81- 84 (1968).	life

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Hg (Mercury)^{*}

Hg I

Füchtbauer, C. & Joos, G.	Physik. Z. <u>23</u> , 73-80 (1922).	absorpt.
Füchtbauer, C., Joos, G. & Dinkelacker, O.	Ann. Physik <u>71</u> , 204-227 (1923).	absorpt.

* See Section 3.2.

Tolman, R. C.	Phys. Rev. <u>23</u> , 693-709 (1924).	comm.
Wien, W.	Ann. Physik <u>73</u> , 483-504 (1924).	canal
Skinner, H. W. B.	Proc. Roy. Soc. London A <u>112</u> , 642-660 (1926).	life
Trumpy, B.	Z. Physik <u>40</u> , 594-617 (1926).	comm.
Hughes, A. L. & Thomas, A. R.	Phys. Rev. <u>30</u> , 466-472 (1927).	absorpt.
Trumpy, B.	Kgl. Norske Videnskab. Selskabs, Skrifter <u>1</u> , 1-80 (1927).	absorpt.
Kunze, P.	Ann. Physik <u>85</u> , 1013-1057 (1928).	absorpt.
Gaviola, E.	Contribucion al Estudio de las Ciencias. Fisicas y Matematicas, La Plata, Argentina <u>5</u> , 65-75 (1929). Universidad Nacional de la Plata Publicaciones de la Facultad de Ciencias Fisicomatematicas (transl.).	comm. forb.
Kopfermann, H. & Tietze, W.	Z. Physik <u>56</u> , 604-616 (1929).	absorpt.
Ladenburg, R.	Nachr. Akad. Wiss. Göttingen, Math.-physik. Kl. 1-5 (1929).	hook
Webb, H. W. & Messenger, H. A.	Phys. Rev. <u>33</u> , 319-328 (1929).	life
Ladenburg, R. & Wolfsohn, G.	Z. Physik <u>63</u> , 616-633 (1930).	hook
Ladenburg, R. & Wolfsohn, G.	Z. Physik <u>65</u> , 207-208 (1930).	comm.
Randall, R. H.	Phys. Rev. <u>35</u> , 1161-1169 (1930).	life
Richter, E. F.	Ann. Physik <u>7</u> , 293-328 (1930).	mlife
Thomas, A. R.	Phys. Rev. <u>35</u> , 1253-1261 (1930).	absorpt.
Garrett, P. H. & Webb, H. W.	Phys. Rev. <u>37</u> , 1686 (1931).	life
Garrett, P. H.	Phys. Rev. <u>40</u> , 779-790 (1932).	life
Mitchell, A. C. G.	Phys. Rev. <u>43</u> , 887-893 (1933).	comm.
Wolfsohn, G.	Z. Physik <u>83</u> , 234-247 (1933).	hook
Wolfsohn, G.	Z. Physik <u>85</u> , 366-372 (1933).	hook
Mitchell, A. C. G. & Murphy, E. J.	Phys. Rev. <u>45</u> , 759 (1934).	life
Mitchell, A. C. G. & Murphy, E. J.	Phys. Rev. <u>46</u> , 53-58 (1934).	life
Opechowski, W.	Z. Physik <u>109</u> , 485-490 (1938).	comm. forb.
King, G. W. & van Vleck, J. H.	Phys. Rev. <u>56</u> , 464-465 (1939).	quant. forb., rel.
Schouten, J. W.	Thesis Utrecht (1941).	emiss.
Schouten, J. W.	Physica <u>10</u> , 672-678 (1943).	emiss., rel.
Schouten, J. W. & Smit, J. A.	Physica <u>10</u> , 661-671 (1943).	emiss.
Lennuier, R. & Cojan, J. L.	Compt. rend. <u>231</u> , 1450-1452 (1950).	life
Mishra, B.	Phys. Rev. <u>77</u> , 153 (1950).	SCF
Brossel, J.	Phys. Rev. <u>83</u> , 210 (1951).	life
Brossel, J.	Thesis Paris (1952).	life
Brossel, J.	Ann. phys. <u>7</u> , 622-627 (1952).	life
Brossel, J. & Bitter, F.	Phys. Rev. <u>86</u> , 308-316 (1952).	life

Mishra, B.	Proc. Cambridge Phil. Soc. <u>48</u> , 511-515 (1952).	SCF
Vainshtein, L. A. & Yavorskii, B. M.	Doklady Akad. Nauk S.S.S.R. <u>87</u> , 919-922 (1952). (O.T.P. 1).	quant.
Vainshtein, L. A. Yavorskii, B. M.	Zhur. Eksptl. i Teoret. Fiz. <u>27</u> , 712-718 (1954) (SLA transl. RT-3363).	SCF
Brannen, E., Hunt, F. R., Adlington, R. H. & Nicholls, R. W.	Nature <u>175</u> , 810-811 (1955).	life
Lebedeva, V. V. & Fabrikant, V. A.	Bull. Acad. Sci. U.S.S.R. Phys. Ser. <u>19</u> , 2-4 (1955).	emiss., rel. & quant., rel.
Guiochon, M. A., Blamont, J. E. & Brossel, J.	Compt. rend. <u>243</u> , 1859-1862 (1956).	life
Barrat, J. P.	Compt. rend. <u>244</u> , 2785-2788 (1957) (transl.).	life
Boutron, F., Barrat, J. P. & Brossel, J.	Compt. rend. <u>245</u> , 2250-2253 (1957).	life
Guiochon, M. A., Blamont, J. E. & Brossel, J.	J. phys. radium <u>18</u> , 99-108 (1957).	misc.
Vainshtein, L. A.	Optika i Spektroskopiya <u>3</u> , 313-321 (1957) (transl.).	quant.
Descoubes, J. P. & Pebay-Peyroula, J. C.	Compt. rend. <u>247</u> , 2330-2332 (1958) (transl.).	life
Strijland, J. C. & Nanassy, A. J.	Physica <u>24</u> , 935-936 (1958).	comm.
Addink, N. W. H.	Spectrochim. Acta <u>15</u> , 349-359 (1959).	emiss.
Barrat, J. P.	Thesis Paris (1959).	life
Barrat, J. P.	J. phys. radium <u>20</u> , 657-668 (1959).	life
Cojan, J. L. & Thibeuau, M.	Compt. rend. <u>249</u> , 1489-1491 (1959). (transl.).	life
Pebay-Peyroula, J. C.	J. phys. radium <u>20</u> , 721-729 (1959).	life
Pebay-Peyroula, J. C.	Thesis Paris (1959).	life
Leś, Z. & Niewodniczański, H.	Acta Phys. Polon. <u>20</u> , 701-714 (1961).	emiss., rel.
Garstang, R. H.	J. Opt. Soc. Am. <u>52</u> , 845-851 (1962).	quant.
Koedam, M. & Kruithof, A. A.	Physica <u>28</u> , 80-100 (1962).	absorpt.
Vainshtein, L. A.	Transactions of the P.N. Lebedev Physics Institute <u>15</u> , part 1, 1-50 (1962) (CBE-TR).	quant.
Vainshtein, L. A. & Poluektov, I. A.	Optics and Spectroscopy (U.S.S.R.) <u>12</u> , 254-257 (1962).	quant., rel.
Agarbiceanu, I., Kukurezianu, I., Popesku, I. & Vasiliu, V.	Optics and Spectroscopy (U.S.S.R.) <u>14</u> , 8-10 (1963).	life
Agarbiceanu, I. I., Popesku, I. M., Kukurezianu, I. & Vasiliu, V.	Comp. rend. <u>257</u> , 2264-2267 (1963).	life
Helliwell, T. M.	Thesis California Institute of Technology (1963).	quant.

Agarbiceanu, I. I., Popescu, I. M., Kukurezianu, I. & Vasiliu, V.	Optics and Spectroscopy (U.S.S.R.) <u>17</u> , 258-261 (1964).	life
Barrat, J. P., Chiron, B. & Cojan, J. L.	Comp. rend. <u>259</u> , 3475-3478 (1964).	misc.
Goullet, G. & Pebay-Peyroula, J. C.	Comp. rend. <u>259</u> , 93-96 (1964).	life
Helliwell, T. M.	Phys. Rev. <u>135</u> , A325-A331 (1964).	quant.
Barrat, J. P., Cojan, J. L. & Lecluse, Y.	Comp. rend. <u>260</u> , 1893-1896 (1965).	life
Bigeon, M. C. & Cojan, J. L.	Comp. rend. <u>261</u> , 913-915 (1965).	life
Lurio, A.	Phys. Rev. <u>140</u> , 1505A-1508A (1965).	life
Öakberg, T. C.	Thesis Univ. of Cincinnati Microfilm #64-11, 975 (1965).	emiss.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Barrat, J. P., Cojan, J. L. Lecluse, Y.	Comp. rend. <u>262</u> , 609-612 (1966).	life
Brule, M., Lagrue, J., Barrat, J. P. & Cojan, J. L.	Comp. rend. <u>263</u> , 1312-1314 (1966).	emiss., rel.
Ionescu-Pallas, N. J.	Revue Roumaine de Physique <u>11</u> , 643-647 (1966).	quant.
Verolainen, Ya. F. & Ösherovich, A. L.	Optics and Spectroscopy (U.S.S.R.) <u>20</u> , 517-520 (1966).	life
Anderson, R. J., Lee, E. T. P., & Lin, C. C.	Phys. Rev. <u>157</u> , 31-40 (1967).	quant.
Bigeon, M. C.	J. Physique <u>28</u> , 51-60 (1967).	quant. forb. & absorpt. forb.
Fowler, R. G., Lin, C. C. & St. John, R. M.	Technical Report No. AFWL-TR-66-132 (1967).	life
Frisch, S. E. & Klucharyov, A. N.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 92-94 (1967).	emiss., rel.
Garstang, R. H.	Astrophys. J. <u>148</u> , 579-584 (1967).	quant. forb.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 89-91 (1967).	quant.
Jean, P., Martin, M. Barrat, J-P. & Cojan, J-L.	Comp. rend. <u>264B</u> , 1709-1712 (1967).	absorpt.
Jean, P., Martin, M. & Lecler, D.	Comp. rend. <u>264B</u> , 1791-1794 (1967).	life
Kancerevicius, A.	Litovskii Fizicheskii Sbornik (U.S.S.R.) <u>7</u> , 321-327 (1967).	quant., rel.
Lecluse, L.	J. Physique <u>28</u> , 671-680 (1967).	life
Nussbaum, G. H. & Pipkin, F. M.	Phys. Rev. Letters <u>19</u> , 1089-1092 (1967).	life
Kim, Y. W. & Laporta, Ö.	Michigan Univ. Report #01095-1-F (1968).	emiss.

Lectler, D.	J. Physique, <u>29</u> , 611-618 (1968).	life
Pardies, J.	Comp. rend. <u>267B</u> , 1144-1145 (1968).	life

Hg III

Maxwell, L. R.	Phys. Rev. <u>34</u> , 199-206 (1929).	life
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Hg IV

Maxwell, L. R.	Phys. Rev. <u>34</u> , 199-206 (1929).	life
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I (Iodine)*

I I

Tolman, R. C.	Phys. Rev. <u>23</u> , 693-709 (1924).	comm.
Husain, D. & Wiesenfeld, J. R.	Nature <u>213</u> , 1227-1228 (1967).	misc. forb.
Lawrence, G. M.	Astrophys. J. <u>148</u> , 261-268 (1967).	quant. rel.

I II

Martin, W. C. & Corliss, C. H.	J. Research Nat. Bur. Standards <u>64a</u> , 443-479 (1960).	quant. forb.
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In (Indium)*

In I

Kunisz, M. D.	Acta Phys. Polon. <u>17</u> , 455-461 (1958).	emiss., rel.
Ostrovskii, Yu. I. & Penkin, N. P.	Optika i Spektroskopiya <u>4</u> , 719-724 (1958) (O.T.P.1).	hook
Ostrovskii, Yu. I., Penkin, N. P. & Shabanova, L. N.	Bull. Acad. Sci. U.S.S.R. Phys. Ser. <u>22</u> , 720-724 (1958).	hook
Ostrovskii, Yu. I., Penkin, N. P. & Shabanova, L. N.	Soviet Phys.-Doklady <u>3</u> , 538-540 (1958).	hook
Vainshtein, L. A.	Bull. Acad. Sci. U.S.S.R. Phys. Ser. <u>22</u> , 668-669 (1958).	SCF
Ch'en, S. Y. & Smith, A.	Physica <u>25</u> , 1289-1293 (1959).	absorpt.
Hanus, W.	Bull. acad. polon. sci. Classe 3, <u>8</u> , 629-636 (1961).	quant.
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>14</u> , 5-8 (1963).	hook
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>14</u> , 87-88 (1963).	hook

* See Section 3.2.

Hulpke, E., Paul, E. & Paul, W.	Z. Physik <u>177</u> , 257-268 (1964).	life
Lawrence, G. M., Link, J. K.	Astrophys. J. <u>141</u> , 293-307 (1965).	absorpt.
& King, R. B.		
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>18</u> , 535-537 (1965).	comm.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>20</u> , 209-213 (1966).	quant.
Cunningham, P. T. & Link, J. K.	J. Opt. Soc. Am. <u>57</u> , 1000-10007 (1967).	life
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>23</u> , 11-13 (1967).	absorpt. & hook

In II

Helliwell, T. M.	Thesis California Institute of Technology (1963).	quant.
Helliwell, T. M.	Phys. Rev. <u>135</u> , A325-A331 (1964).	quant.

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K (Potassium)*

K I

Filippov, A. N.	Zhur. Eksptl. i Teoret. Fiz. <u>3</u> , 520-523 (1933) (O.T.P. 1).	hook, rel.
van der Held, E. F. M. & Heierman, J. H.	Physica <u>3</u> , 31-41 (1936).	emiss.
Villars, D. S.	J. Opt. Soc. Am. <u>42</u> , 552-558 (1952).	SCF
Ostrovskii, Yu. I. & Penkin, N. P.	Optics and Spectroscopy (U.S.S.R.) <u>12</u> , 379 (1962).	hook
Anderson, E. M. & Zilitis, V. A.	Optics and Spectroscopy (U.S.S.R.) <u>16</u> , 99-101 (1964).	quant.
Link, J. K.	J. Opt. Soc. Am. <u>56</u> , 1195-1199 (1966).	life
Baylis, W. E.	Max Planck Institut für Physik und Astrophysik MPI-PAE/Extraterr. July (1967).	life
Weiss, A. W.	J. Research Nat. Bur. Standards <u>71A</u> , 157-162 (1967).	SCF
Zemtsov, Yu. K.	Doklady Akad. Nauk. (U.S.S.R.) <u>12</u> , 470-471 (1967).	quant. forb., rel.
Garstang, R. H.	J. Phys. B. (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 847-849 (1968).	quant. forb.
Hameed, S., Herzenberg, A. & James, M. G.	J. Phys. B (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 822-830 (1968).	quant.
Marr, G. V. & Creek, D. M.	Proc. Roy. Soc. London A <u>304</u> , 245-254 (1968).	estim.
Schmieder, R. W., Lurio, A., & Happer, W.	Phys. Rev. <u>173</u> , 76-79 (1968).	life

* See Section 3.2.

Warner, B.	Monthly Notices Roy. Astron. Soc. <u>139</u> , 115-128 (1968).	quant. & quant. forb.
Mazing, M. A. & Serapinas, P. D.	P. N. Lebedeva Physics Institute, Akademy of Science U.S.S.R. (1969).	absorpt.
McGinn, G.	J. Chem. Phys. <u>50</u> , 1404-1418 (1969).	quant.
K II		
Cowan, R. D.	J. Opt. Soc. Am. <u>58</u> , 924-933 (1968).	quant.
K III		
Bagus, P. S.	U. S. Atomic Energy Commission ANL-6959 (1964).	SCF
K V		
Garstang, R. H.	I. A. U. Symposium #34 on Planetary Nebulae, Tatranska Lomnica, Czechoslovakia, Sept. (1967).	quant. forb.
K VII		
Fischer, C. F.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 755-761 (1968).	quant.
K X		
Kastner, S. O., Omidvar, K. & Underwood, J. H.	Astrophys. J. <u>148</u> , 269-273 (1967).	quant.
K XI		
Pottasch, S. R.	Monthly Notices Roy. Astron. Soc. <u>128</u> , 73-92 (1964).	quant. forb.
K XIV		
Odabasi, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel.

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Kr (Krypton)^{*}

Kr I

Petersen, R.	Phys. & Chem. Solids <u>1</u> , 284 (1957).	quant., rel.
Garton, W. R. S., Pery, A. & Codling, K.	"Proceedings Fourth International Conference on Ionization Phenomena in Gases" 206-209 (ed. Nilsson, N. R., North-Holland Publishing Co., Amsterdam, 1960).	absorpt.

* See Section 3.2.

Pery-Thorne, A. & Garton, W. R. S.	Proc. Phys. Soc. London A <u>76</u> , 833-843 (1960).	absorpt.
Cooper, J. W.	Phys. Rev. <u>128</u> , 681-693 (1962).	quant.
Huffman, R. E., Tanaka, Y. & Larrabee, J. C.	Applied Optics <u>2</u> , 947-953 (1963).	absorpt.
Pery-Thorne, A. & Chamberlain, J. E.	Proc. Phys. Soc. London A <u>82</u> , 133-141 (1963).	hook.
Statz, H., Tang, C. L. & Koster, G. F.	J. Appl. Phys. <u>34</u> , 2625-2632 (1963).	quant., rel.
Faust, W. L. & McFarlane, R. A.	J. Appl. Phys. <u>35</u> , 2010-2015 (1964).	quant., rel.
Friedrichs, H.	Z. Astrophys. <u>60</u> , 176-183 (1964).	emiss.
Geiger, J.	Z. Physik <u>177</u> , 138-145 (1964).	life
Malakhov, V. P.	Izvestiia Uysshikh Uchebnykh Zavedeni Fizika <u>8</u> , 180 (1965).	incompl.
Turner, R.	Phys. Rev. <u>140</u> , A426-A431 (1965).	life
Wilkinson, P. G.	J. Quant. Spectrosc. Radiat. Transfer <u>5</u> , 503-510 (1965).	absorpt.
Dow, J. D. & Knox, R. S.	Phys. Rev. <u>152</u> , 50-56 (1966).	SCF
Chashchina, G. I. & Shreider, E. Ya.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 284-285 (1967).	absorpt.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 170-171 (1967).	quant.
Hutcherson, J. W. & Griffin, P. M.	Bull. Am. Phys. Soc. II, <u>12</u> , 524 (1967).	absorpt.
Lewis, E. L.	Proc. Phys. Soc. London <u>92</u> , 817-825 (1967).	comm.
Osherovich, A. L. & Veroleinen, Ya. F.	Vestnik Leningrad. Univ. Fiz. i Khim. #1, 140-141 (1967).	life
Wilkinson, P. G.	Can. J. Phys. <u>45</u> , 1709-1713 (1967).	comm.
Murphy, P. W.	J. Opt. Soc. Am. <u>58</u> , 1200-1208 (1968).	quant., rel. & CA
Vaughan, J. M.	Phys. Rev. <u>166</u> , 13-17 (1968).	life
Kr III		
Osterbrock, D. E.	Astrophys. J. <u>114</u> , 469-472 (1951).	quant. forb.

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La (Lanthanum)*

La II

Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia, Izvestiia <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm.
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* See Section 3.2.

Kunisz, M. D., Lubowiecka, T., Muryn, A., Nizioł, E. & Szynarowska, M.	Acta. Phys. Polon. <u>23</u> , 665-671 (1968).	emiss., rel.
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	Li (Lithium)*	
	Li I	
Filippov, A. N.	Z. Physik <u>62</u> , 526-547 (1931).	hook, rel.
Filippov, A. N.	Zhur. Eksptl. i Teoret. Fiz. <u>2</u> , 24-41 (1932) (O.T.P. 1).	hook, rel.
Weiss, A. W.	Astrophys. J. <u>138</u> , 1262-1276 (1963).	SCF
Feldman, P. & Novick, R.	"Atomic Collision Processes", Proceedings p. 201-210 (ed. McDowell, M.R.C., John Wiley & Sons, Inc., New York, 1964).	misc. forb.
Ivanova, A. V. & Ivanova, A. N.	Optics and Spectroscopy (U.S.S.R.) <u>16</u> , 499-502 (1964).	SCF
Naqvi, A. M.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 597-615 (1964).	quant.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Balashov, V. V., Senashenko, V. S. & Tekou, B.	Phys. Letters <u>25A</u> , 487-488 (1967).	quant.
Buchet, J. P., Denis, A., Desesquelles, J. & Dufay, M.	Comp. rend. <u>265B</u> , 471-474 (1967).	life
Cohen, M. & Kelly, P. S.	Can. J. Phys. <u>45</u> , 1661-1673 (1967).	SCF
Karstensen, F. & Schramm, J.	J. Opt. Soc. Am. <u>57</u> , 654-656 (1967).	life
Sokoloff, J., Cohen, M., Purdom, K. L. & Kelly, P. S.	Air Force Weapons Laboratory Technical Report No. AFWL-TR-66-150 (1967).	SCF
Feldman, P., Levitt, M. & Novick, R.	Phys. Rev. Letters <u>21</u> , 331-335 (1968).	absorpt.
Hameed, S., Herzenberg, A. & James, M. G.	J. Phys. B (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 822-830 (1968).	quant.
Marr, G. V. & Creek, D. M.	Proc. Roy. Soc. London A <u>304</u> , 245-254 (1968).	estim.
Andersen, T., Jessen, K. A. & Sorensen, G.	Phys. Letters <u>29A</u> , 384-385 (1969).	life
Bickel, W. S., Bergström, I., Buchta, R., Lundin, L. & Martinson, I.	Phys. Rev. <u>178</u> , 118-122 (1969).	life
Bickel, W.S., Martinson, I., Lundin, L., Buchta, R., Bromander, J. & Bergström, I.	J. Opt. Soc. Am. <u>59</u> , 830-835 (1969).	life

Buchet, J. P., Denis, A., Desesquelles, J. & Dufay, M. McGinn, G.	Phys. Letters <u>28A</u> , 529-530 (1969). J. Chem. Phys. <u>50</u> , 1404-1418 (1969).	life quant.
Li II		
Helliwell, T. M. Froese, C. Buchet, J. P., Denis, A., Desesquelles, J. & Dufay, M. Cohen, M. & Kelly, P. S. Elton, R. C. Froese, C. Weiss, A. W.	Phys. Rev. <u>135</u> , A325-A331 (1964). Phys. Rev. <u>150</u> , 1-6 (1966). Comp. rend. <u>265B</u> , 471-474 (1967). Can. J. Phys. <u>45</u> , 2079-2090 (1967). Astrophys. J. <u>148</u> , 573-578 (1967). J. Chem. Phys. <u>47</u> , 4010-4015 (1967). J. Research Nat. Bur. Standards <u>71A</u> , 163-168 (1967).	quant. SCF life quant. quant. SCF quant.
Chong, D. P. Bickel, W.S., Martinson, I., Lundin, L., Buchta, R., Bromander, J. & Bergström, I. Sanders, F. C. & Sherr, C. W.	J. Chem. Phys. <u>48</u> , 1413-1414 (1968). J. Opt. Soc. Am. <u>59</u> , 830-835 (1969). Phys. Rev. <u>181</u> , 84-97 (1969).	quant. life quant.
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Mg (Magnesium)*		
Mg I		
Kersten, J. A. H. & Ornstein, L. S. Treffitz, E. Boldt, G. Garstang, R. H. Penkin, N. P. & Shabanova, L. N. Lurio, A. Möller, N. H.	Physica <u>8</u> , 1124-1136 (1941). Z. Astrophys. <u>28</u> , 67-78 (1950). Z. Physik <u>150</u> , 205-214 (1958). J. Opt. Soc. Am. <u>52</u> , 845-851 (1962). Optics and Spectroscopy (U.S.S.R.) <u>12</u> , 1-5 (1962). Phys. Rev. <u>136</u> , A376-A379 (1964). Arkiv. för Fysik <u>29</u> , 353-358 (1966).	emiss., rel. SCF absorpt. quant. hook, rel. life quant. forb.
Smith, W. W. & Gallagher, A. Anderson, E. M., Zilitis, V. A. & Sorokina, E. S. Garstang, R. H. Gruzdev, P. F.	Phys. Rev. <u>145</u> , 26-35 (1966). Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 102-105 (1967). Astrophys. J. <u>148</u> , 579-584 (1967). Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 89-91 (1967).	life quant. & SCF quant. forb. quant.
Weiss, A. W. Zare, R. N.	J. Chem. Phys. <u>47</u> , 3573-3578 (1967). J. Chem. Phys. <u>47</u> , 3561-3572 (1967).	quant. quant.

* See Section 3.2.

Karstensen, F. & Schramm, J.	Z. Astrophysik <u>68</u> , 214-221 (1968).	life
Lambert, D. & Warner, B.	Monthly Notices Roy. Astron. Soc. <u>140</u> , 197-221 (1968).	misc.
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>139</u> , 103-113 (1968).	quant.
Mg II		
Biermann, L. & Lübeck, K.	Z. Astrophys. <u>25</u> , 325-339 (1948).	SCF
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Chapman, R. D., Clarke, W. H. & Aller, L. H.	Astrophys. J. <u>144</u> , 376-380 (1966).	SCF
Smith, W. W. & Gallagher, A.	Phys. Rev. <u>145</u> , 26-35 (1966).	life
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>139</u> , 115-128 (1968).	quant. & quant. forb.
McEachran, R. P., Tull, C. E. & Cohen, M.	Can. J. Phys. <u>47</u> , 835-838 (1969).	SCF
McGinn, G.	J. Chem. Phys. <u>50</u> , 1404-1418 (1969).	quant.
Mg III		
Kastner, S. O., Omidvar, K. & Underwood, J. H.	Astrophys. J. <u>148</u> , 269-273 (1967).	quant.
Mg V		
Bolotin, A. B., Shironas, I. I. & Braiman, M. Yu.	Vilniaus Valstybinio v. Kapsuko vardo universiteto Mokslo Darbai <u>33</u> , matematika fizika <u>2</u> , 107-112 (1960).	quant.
Mg VI		
Garstang, R. H.	I. A. U. Symposium #34 on Planetary Nebulae, Tatranska Lomnica, Czechoslovakia, Sept. (1967).	quant. forb.
Mg VII		
Froese, C.	Astrophys. J. <u>145</u> , 932-935 (1966).	quant. forb.
Odabasi, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel.
Mg VIII		
Hansen, J. E.	J. Opt. Soc. Am. <u>59</u> , 722-726 (1969).	quant. forb., rel.
Mg XI		
Feiss, A. W.	J. Research Nat. Bur. Standards <u>71A</u> , 163-168 (1967).	quant.

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Mn I

Frerichs, R.	Ann. Physik <u>81</u> , 807-845 (1926).	emiss., rel.
Seward, R. S.	Phys. Rev. <u>37</u> , 344-361 (1931).	emiss., rel.
Huldt, I. & Lagerqvist, A.	Arkiv Fysik <u>5</u> , 91-95 (1951).	emiss.
Huldt, L. & Lagerqvist, A.	J. Opt. Soc. Am. <u>42</u> , 142 (1952).	emiss.
Bell, G. D.	Thesis California Institute of Technology (1956-1957).	absorpt.
Nikonova, E. I. & Prokof'ev, V. K.	Optika i Spektroskopiya <u>1</u> , 290-297 (1956) (transl.).	hook, rel.
Ostrovskii, Yu. I., Parchevskii, G. F. & Penkin, N. P.	Optika i Spektroskopiya <u>1</u> , 821-832 (1956) (OTS transl. 62 15508) (AD 266 653).	hook, rel.
Allen, C. W. & Asaad, A. S.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 36-49 (1957).	emiss.
Bell, G. D.	Astron. J. <u>62</u> , 7 (1957).	comm.
Hinnov, E. & Kohn, H.	J. Opt. Soc. Am. <u>47</u> , 156-162 (1957).	emiss.
Ostrovskii, Yu. I. & Penkin, N. P.	Optika i Spektroskopiya <u>3</u> , 193-201 (1957) (O.T.P.1) (AD 266 652).	hook
Dvornikova, I. U. & Nagibina, I. M.	Optika i Spektroskopiya <u>4</u> , 421-429 (1958) (O.T.P.2).	emiss., rel.
Nagibina, I. M.	Optika i Spektroskopiya <u>4</u> , 430-437 (1958) (O.T.P.2).	emiss., rel.
Addink, N. W. H.	Spectrochim. Acta <u>15</u> , 349-359 (1959).	emiss.
Bell, G. D., Davis, M. H., King, R. B. & Routly, P. M.	Astrophys. J. <u>129</u> , 437-440 (1959).	absorpt.
Allen, C. W.	Monthly Notices Roy. Astron. Soc. <u>121</u> , 299-332 (1960).	comm. & CA
Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm.
Korolev, F. A. & Kvaratskheli, Yu. K.	Optics and Spectroscopy (U.S.S.R.) <u>10</u> , 200-202 (1961).	emiss., rel.
Korolev, F. A. & Kvaratskheli, Iu. K.	Fiz. Probl. Spektroskopii, Akad. Nauk S.S.S.R. Materialy 13-Go (Trinadtsatogo) Soveshch. Leningrad 109-111 (1962).	emiss., rel.
Hefferlin, R. & Gearhart, J.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 9-28 (1964).	emiss.
Morozova, N. P. & Startsev, G. P.	Optics and Spectroscopy (U.S.S.R.) <u>17</u> , 174-176 (1964).	emiss.
Piltch, M., Walter, W. T., Solimene, N. & Gould, G. Bennett, Jr.	Appl. Phys. Letters <u>7</u> , 309-310 (1965).	quant., rel.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.

* See Section 3.2.

Luther, J. & Walther, H.	Phys. Letters <u>23</u> , 551-554 (1966).	misc.
Woodgate, B.	Monthly Notices Roy. Astron. Soc. <u>134</u> , 287-313 (1966).	emiss., rel. emiss.
Cowley, C. R. & Warner, B.	The Observatory <u>87</u> , 117-123 (1967).	comm.
Hefferlin, R. & Gearhart, J.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 1731 (1968).	comm.
Mn II		
Seward, R. S.	Phys. Rev. <u>37</u> , 344-361 (1931).	emiss., rel.
Wilson, O. C.	Astrophys. J. <u>107</u> , 126-150 (1948).	misc., rel.
Nagibina, I. M.	Bull. Acad. Sci. U.S.S.R. Phys. Ser. <u>22</u> , 678-679 (1958).	emiss., rel.
Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm.
Aller, L. H.	Univ. of Michigan, Dept. of Astronomy Technical Note #3 (1962).	misc., rel.
Woodgate, B.	Monthly Notices Roy. Astron. Soc. <u>134</u> , 287-313 (1966).	emiss.
Warner, B.	Memoirs Roy. Astron. Soc. <u>70</u> , 165-253 (1967).	emiss., rel. & CA
Mn III		
Zhvironaite, S. A., Konstantinavichius, K. V., & Rakauskas, R. I.	Litovskii Fizicheskii Sbornik <u>2</u> , 17-31 (1962).	SCF
Mn IV		
Synek, M. & Lichodziejewski, W.	Phys. Letters <u>22</u> , 578-579 (1966).	SCF
Mn V		
Pasternack, S.	Astrophys. J. <u>92</u> , 129 (1940).	quant. forb.
Mn VIII		
Wagner, W. J. & House, L. L.	Astrophys. J. <u>155</u> , 677-686 (1969).	quant. forb.
Mn X		
Pasternack, S.	Astrophys. J. <u>92</u> , 129 (1940).	quant. forb.
Mn XII		
Pottasch, S. R.	Monthly Notices Roy. Astron. Soc. <u>128</u> , 73-92 (1964).	quant. forb.

Mn XIII

Pottasch, S. R.	Monthly Notices Roy. Astron. Soc. <u>128</u> , 73-92 (1964).	quant. forb.
Fischer, C. F.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 755-761 (1968).	quant.

Mn XVI

Kastner, S. O., Omidvar, K. & Underwood, J. H.	Astrophys. J. <u>148</u> , 269-273 (1967).	quant.
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Mo (Molybdenum)*

Mo I

Nikonova, E. I. & Prokof'ev, V. K.	Optika i Spektroskopiya <u>1</u> , 290-297 (1956) (transl.).	hook, rel.
Dickerman, P. J. & Deuel, R. W.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 807-817 (1964).	emiss., rel.

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N (Nitrogen)*

N I

Ufford, C. W. & Gilmour, R. M.	Astrophys. J. <u>111</u> , 580-581 (1950).	quant. forb, rel.
Garstang, R. H.	Astrophys. J. <u>115</u> , 506-508 (1952).	quant. forb.
Motschmann, H.	Z. Physik <u>143</u> , 77-92 (1955).	emiss.
Garstang, R. H.	"The Airglow & the Aurorae", 324-327 (ed. Armstrong & Dalgarno, Pergamon Press, New York, 1956).	quant. forb.
Doherty, L. R.	Thesis Michigan (1961).	emiss.
Richter, J.	Z. Astrophys. <u>51</u> , 177-186 (1961).	emiss.
Clark, K. C. & Fairchild, C. E.	"Atomic Collision Processes", Proceedings p. 581- 585 (ed. McDowell, M.R.C., John Wiley & Sons, Inc., New York, 1964).	misc.
Kelly, P. S. & Armstrong, B. H.	Phys. Rev. Letters <u>12</u> , 35-36 (1964).	comm.
Kelly, P. S.	Astrophys. J. <u>140</u> , 1247-1268 (1964).	SCF
Kelly, P. S.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 117-148 (1964).	quant.

* See Section 3.2.

Rudzikas, Z. B., Vizbaraitė, Ia. I. & Yutsis, A. P.	Litovskii Fizicheskii Sbornik <u>4</u> , 51-58 (1964).	quant.
Shumaker, Jr., J. B.	Proc. VI Intern. Conf. on Ionization Phenomena in Gases <u>7</u> , 311-313 (1964).	emiss.
Shumaker, Jr., J. B. & Yokley, C. R.	Applied Optics <u>3</u> , 83-87 (1964).	emiss.
Kelly, P. S., Sokoloff, J. & Armstrong, B. H.	Technical Report No. WL TR-64-172 (1965).	quant.
Labuhn, F.	Thesis Technischen Hochschule München (1965).	emiss.
Labuhn, F.	Z. Naturforsch. <u>20a</u> , 998 (1965).	emiss.
Morse, T. A. & Kaufman, F.	J. Chem. Phys. <u>42</u> , 1785-1790 (1965).	absorpt.
Prag, A. B., Fairchild, C. E. & Clark, K. C.	Phys. Rev. <u>137</u> , A1358-A1363 (1965).	misc.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Lawrence, G. M. & Savage, B. D.	Phys. Rev. <u>141</u> , 67-70 (1966).	life
Armstrong, B. H. & Purdum, K. L.	Phys. Rev. <u>150</u> , 51-59 (1966).	quant.
Lawrence, G. M.	Astrophys. J. <u>147</u> , 293-300 (1967).	quant.
McConkey, J. W., Burns, D. J. & Kernahan, J. A.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 823- 828 (1968).	emiss., rel. emiss. forb., rel.
Bashkin, S., Berry, H. G., Bickel, S. & Desesquelles, J.	Comp. rend. <u>268B</u> , 234-236 (1969).	life

N II

Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>111</u> , 115-124 (1951).	quant. forb.
Yamanouchi, T. & Horie, H.	J. Phys. Soc. Japan <u>7</u> , 52-56 (1952).	quant. forb.
Bolotin, A. B., Levinson, I. B. & Levin, L. I.	Soviet Phys. - JETP <u>2</u> , 391-395 (1956).	quant.
Mastrup, F. & Wiese, W.	Z. Astrophys. <u>44</u> , 259-279 (1958).	emiss., rel.
Kelly, P. S.	Astrophys. J. <u>140</u> , 1247-1268 (1964).	SCF
Kelly, P. S.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 117-148 (1964).	quant.
Kelly, P. S., Sokoloff, J. & Armstrong, B. H.	Technical Report No. WL TR-64-172 (1965).	quant.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Lawrence, G. M. & Savage, B. D.	Phys. Rev. <u>141</u> , 67-70 (1966).	life
Osterbrock, D. E.	Astrophys. J. <u>142</u> , 1423-1430 (1965).	quant. forb.
Froese, C.	Astrophys. J. <u>145</u> , 932-935 (1966).	quant. forb.
Heroux, L.	Phys. Rev. <u>153</u> , 156-163 (1967).	life
Lewis, M. R., Marshall, T., Carnevale, E. H., Zimnoch, F. S., & Wares, G. W.	Phys. Rev. <u>164</u> , 94-103 (1967).	life

Zemtsov, Yu. K.	Doklady Akad. Nauk. (U.S.S.R.) <u>12</u> , 470-471 (1967).	quant. forb.
Denis, A., Desesquelles, J., Dufay, M. & Poulizac, M. C.	"Beam-Foil Spectroscopy", 341-369 (Gordon and Breach, New York, 1968).	life
Denis, A., Desesquelles, J., Dufay, M. & Poulizac, M. C.	Comp. rend. <u>266B</u> , 64-67 (1968).	life
Fink, U., McIntire, G. N. & Bashkin, S.	J. Opt. Soc. Am. <u>58</u> , 475-479 (1968).	life
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>24</u> , 462-465 (1968).	quant.
Heroux, L.	"Beam-Foil Spectroscopy", p. 205-231 (Bashkin, S. Ed. Gordon and Breach Science Publishers, 1968).	life
Hesser, J. E. & Lutz, B. L.	J. Opt. Soc. Am. <u>58</u> , 1513-1515 (1968).	life
Odabasi, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel.
Tatum, J. B.	Monthly Notices Roy. Astron. Soc. <u>140</u> , 87-91 (1968).	quant.
Pinnington, E. H., & Lin, C. C.	J. Opt. Soc. Am. <u>59</u> , 717-722 (1969).	life
N III		
Bolotin, A. B. & Yutsis, A. P.	Zhur. Eksptl. i Teoret. Fiz. <u>24</u> , 537-543 (1953) (O.T.P. 1).	quant.
Kelly, P. S.	Astrophys. J. <u>140</u> , 1247-1266 (1964).	SCF
Kelly, P. S.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 117-148 (1964).	quant.
Nikitin, A. A. & Yakubovskii, O. A.	Soviet Phys.-Doklady <u>9</u> , 409-411 (1964).	quant. forb.
Kelly, P. S., Sokoloff, J. & Armstrong, B. H.	Technical Report No. WL TR-64-172 (1965).	quant.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Osterbrock, D. E.	Astrophys. J. <u>142</u> , 1423-1430 (1965).	quant. forb.
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Heroux, L.	Phys. Rev. <u>153</u> , 156-163 (1967).	life
Lewis, M. R., Marshall, T., Carnevale, E. H., Zimnoch, F. S., & Wares, G. W.	Phys. Rev. <u>164</u> , 94-103 (1967).	life
Denis, A., Desesquelles, J., Dufay, M. & Poulizac, M. C.	"Beam-Foil Spectroscopy", 341-369 (Gordon and Breach, New York, 1968).	life
Denis, A., Desesquelles, J., Dufay, M. & Poulizac, M. C.	Comp. rend. <u>266B</u> , 64-67 (1968).	life
Fink, U., McIntire, G. N. & Bashkin, S.	J. Opt. Soc. Am. <u>58</u> , 475-479 (1968).	life

Ervens, W., & Berg, H. F.	Z. Physik <u>222</u> , 180-190 (1969).	emiss.
Hansen, J. E.	J. Opt. Soc. Am. <u>59</u> , 722-726 (1969).	quant. forb., rel.
Pinnington, E. H., & Lin, C. C.	J. Opt. Soc. Am. <u>59</u> , 717-722 (1969).	life

N IV

Kelly, P. S.	Astrophys. J. <u>140</u> , 1247-1268 (1964).	SCF
Kelly, P. S.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 117-148 (1964).	quant.
Kelly, P. S., Sokoloff, J. & Armstrong, B. H.	Technical Report No. WL TR-64-172 (1965).	quant.
Fennig, H., Steele, P. & Trefftz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>5</u> , 355-347 (1965).	SCF
LaPaglia, S. R. & Sinanoglu, O.	J. Chem. Phys. <u>44</u> , 1888-1896 (1966).	quant.
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Steele, R. & Trefftz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>6</u> , 833-846 (1966).	quant.
Balashov, V. V., Senashenko, V. S. & Tekou, B.	Phys. Letters <u>25A</u> , 487-488 (1967).	quant.
Heroux, L.	Phys. Rev. <u>153</u> , 156-163 (1967).	life
Lewis, M. R., Marshall, T., Carnevale, E. H., Zimnoch, F. S., & Wares, G. W.	Phys. Rev. <u>164</u> , 94-103 (1967).	life
Bickel, W. S., Girardeau, R. & Bashkin, S.	Phys. Letters <u>28A</u> , 154-155 (1968).	life
Denis, A., Desesquelles, J., Dufay, M. & Poulizac, M. C.	"Beam-Foil Spectroscopy", 341-369 (Gordon and Breach, New York, 1968).	life
Denis, A., Desesquelles, J., Dufay, M. & Poulizac, M. C.	Comp. rend. <u>266B</u> , 64-67 (1968).	life
Fink, U., McIntire, G. N. & Bashkin, S.	J. Opt. Soc. Am. <u>58</u> , 475-479 (1968).	life
Linderberg, J.	Phys. Letters <u>29A</u> , 467-468 (1969).	quant.
innington, E. H. & Lin, C. C.	J. Opt. Soc. Am. <u>59</u> , 717-722 (1969).	life

N V

Weiss, A. W.	Astrophys. J. <u>138</u> , 1262-1276 (1963).	SCF
Kelly, P. S.	Astrophys. J. <u>140</u> , 1247-1268 (1964).	SCF
Kelly, P. S.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 117-148 (1964).	quant.
Berkner, K. H., Cooper III, W. S., Kaplan, S. N. & Pyle, R. V.	Phys. Letters <u>16</u> , 35-36 (1965).	life

Kelly, P. S., Sokoloff, J. & Armstrong, B. H.	Technical Report No. WL TR-64-172 (1965).	quant.
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Heroux, L.	Phys. Rev. <u>153</u> , 156-163 (1967).	life
Lewis, M. R., Marshall, T., Carnevale, E. H., Zimnoch, F. S., & Wares, G. W.	Phys. Rev. <u>164</u> , 94-103 (1967).	life
Fink, U., McIntire, G. N. & Bashkin, S.	J. Opt. Soc. Am. <u>58</u> , 475-479 (1968).	life
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>141</u> , 273-276 (1968).	quant. & quant forb.

N VI

Elton, R. C.	Astrophys. J. <u>148</u> , 573-578 (1967).	quant.
Weiss, A. W.	J. Research Nat. Bur. Standards <u>71A</u> , 163-168 (1967).	quant.
Sellin, I. A., Donnally, B. L. & Fan, C. Y.	Phys. Rev. Letters <u>21</u> , 717-719 (1968).	life
Sanders, F. C. & Sherr, C. W.	Phys. Rev. <u>181</u> , 84-97 (1969).	quant.

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Na (Sodium)*

Na I

Filippov, A. & Prokof'ev., V. K.	Z. Physik <u>56</u> , 458-476 (1929).	hook, rel.
Prokof'ev, V. K.	Z. Physik <u>58</u> , 255-267 (1929).	quant.
Kvater, G. S.	Vestnik Leningrad Univ. Ser. Fiz. i Khim. No. 2, 135-141 (1947) (O.T.P. 1).	hook
Biermann, L. & Lübeck, K.	Z. Astrophys. <u>25</u> , 325-339 (1948).	SCF
Stephenson, G.	Proc. Phys. Soc. London A <u>64</u> , 458-464 (1951).	misc.
Anderson, E. M. & Zilitis, V. A.	Optics and Spectroscopy (U.S.S.R.) <u>16</u> , 99-101 (1964).	quant.
Chapman, R. D., Clarke, W. H. & Aller, L. H.	Astrophys. J. <u>144</u> , 376-380 (1966).	SCF
Karstensen, F. & Schramm, J.	Z. Physik <u>195</u> , 370-379 (1966).	life
Baylis, W. E.	Max Planck Institut für Physik und Astrophysik MPI-PAE/Extraterr. July (1967).	life
Cunningham, P. T. & Link, J. K.	J. Opt. Soc. Am. <u>52</u> , 1000-10007 (1967).	life
Kibble, B. P., Copley, G., & Krause, L.	Phys. Rev. <u>153</u> , 9-12 (1967).	life

* See Section 3.2.

Zemtsov, Yu. K.	Doklady Akad. Nauk. (U.S.S.R.) <u>12</u> , 470-471 (1967).	quant. forb., rel.
Forbrich, Jr., C. A., Marlow, W. C. & Bershader, D.	Phys. Rev. <u>173</u> , 150-153 (1968).	hook
Gezalov, Kh. V. & Ivanov, A. V.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 355-357 (1968).	SCF
Habib, E. E., Kibble, B. P. & Copley, G.	Applied Optics <u>7</u> , 673-675 (1968).	life
Hameed, S., Herzenberg, A. & James, M. G.	J. Phys. B (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 822-830 (1968).	quant.
Marr, G. V. & Creek, D. M.	Proc. Roy. Soc. London A <u>304</u> , 245-254 (1968).	estim.
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>132</u> , 115- 128 (1968).	quant. & quant. forb.
Wolff, R. J. & Davis, S. P.	J. Opt. Soc. Am. <u>58</u> , 490-495 (1968).	life
Bästlein, C., Baumgartner, G. & Brosa, B.	Z. Physik <u>218</u> , 319-326 (1969).	life
McEachran, R. P., Tull, C. E. & Cohen, M.	Can. J. Phys. <u>47</u> , 835-838 (1969).	SCF
McGinn, G.	J. Chem. Phys. <u>50</u> , 1404-1418 (1969).	quant.
Na II		
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 170-171 (1967).	quant.
Kastner, S. O., Smidvar, K. & Underwood, J. H.	Astrophys. J. <u>148</u> , 269-273 (1967).	quant.
Na III		
Bagus, P. S.	U. S. Atomic Energy Commission ANL-6959 (1964).	SCF
Na IV		
Bolotin, A. B., Shironas, I. I. & Braiman, M. Yu.	Vilniaus Valstybinio v. Kapsuko vardo universiteto Mokslo Darbai <u>33</u> , matematika fizika <u>2</u> , 107-112 (1960).	quant.
Balashov, V. V., Senashenko, V. S. & Tekou, B.	Phys. Letters <u>25A</u> , 487-488 (1967).	quant.
Na V		
Pasternack, S.	Astrophys. J. <u>92</u> , 129 (1940).	quant. forb.
Na VI		
Froese, C.	Astrophys. J. <u>145</u> , 932-935 (1966).	quant. forb.
Odabasi, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel.

Hansen, J. E.	J. Opt. Soc. Am. <u>59</u> , 722-726 (1969).	quant. forb., rel.
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Nd (Neodymium)*

Nd II

Tech, J. L.	Thesis Harvard (1969).	emiss.
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Ne (Neon)*

Ne I

Schütz, W.	Ann. Physik <u>18</u> , 705-720 (1933).	misc.
Ladenburg, R. & Levy, S.	Z. Physik <u>88</u> , 461-468 (1934).	emiss.
Shortley, G. H.	Phys. Rev. <u>47</u> , 295-300 (1935).	quant., rel. & comm.
Krebs, K.	Z. Physik <u>101</u> , 604-642 (1936).	absorpt., rel.
Garbuny, M.	Z. Physik <u>107</u> , 362-368 (1937).	emiss., rel.
Ufford, C. W.	Astrophys. J. <u>85</u> , 249-250 (1937).	quant., rel.
Phelps, A. V.	Phys. Rev. <u>100</u> , 1230 (1955).	life
Gold, A. & Knox, R. S.	Phys. Rev. <u>113</u> , 834-839 (1959).	SCF
Doherty, L. R.	Thesis Michigan (1961).	emiss.
Pery-Thorne, A. & Chamberlain, J. E.	Proc. Phys. Soc. London A <u>82</u> , 133-141 (1963).	hook.
Cordover, R. H., Szöke, A. & Javan, A.	Bull. Am. Phy Soc. Series II Vol. <u>9</u> , 490 (1964).	life
Faust, W. L. & McFarlane, R. A.	J. Appl. Phys. <u>35</u> , 2010-2015 (1964).	quant., rel.
Friedrichs, H.	Z. Astrophys. <u>60</u> , 176-183 (1964).	emiss.
Geiger, J.	Z. Physik <u>172</u> , 138-145 (1964).	life
Kelly, P. S.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 117-148 (1964).	quant.
Koopman, D. W.	J. Opt. Soc. Am. <u>54</u> , 1354-1358 (1964).	comm.
Korolev, F. A., Odintsov, U. I. & Fursova, E. V.	Optics and Spectroscopy (U.S.S.R.) <u>16</u> , 304-305 (1964).	misc.
Bennett, Jr., W. R., Kindlmann, P. J. & Mercer, G. N.	Applied Optics Supplement 2 of Chemical Lasers 34-57 (1965).	life

* See Section 3.2.

Klose, J. Z.	Astrophys. J. <u>141</u> , 814-818 (1965).	life
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Bennett, Jr., W. R. & Kindlmann, P. J.	Phys. Rev. <u>149</u> , 38-51 (1966).	life
Decomps, B. & Dumont, M.	Comp. rend. <u>262B</u> , 1695-1698 (1966).	life
Donin, V. I. & Chebotaev, V. P.	Optics and Spectroscopy (U.S.S.R.) <u>20</u> , 414-415 (1966).	emiss.
Hänsch, Th. & Toschek, P.	Phys. Letters <u>20</u> , 273-275 (1966).	emiss., rel.
Irwin, J. C. & Nodwell, R. A.	Can. J. Phys. <u>44</u> , 1781-1786 (1966).	emiss., rel.
Klose, J. Z.	Phys. Rev. <u>141</u> , 181-186 (1966).	life
Krupenikova, T. & Chaika, M.	Optics and Spectroscopy (U.S.S.R.) <u>20</u> , 604-605 (1966).	life
Rosenberger, D. & Thumb, I.	Z. Naturforsch. <u>21a</u> , 175-177 (1966).	life
Bakos, J. & Szigeti, J.	Optics and Spectroscopy (U.S.S.R.) <u>23</u> , 255-256 (1967).	life
Bakos, J. & Szigeti, J.	Acta Phys. Acad. Sci. Hung. <u>23</u> , 341-347 (1967).	life
Bychkova, T. V., Kirpolenko, V. G., Routian, S. G. & Khaikin, A. S.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 371-372 (1967).	life
Codling, K., Madden, R. P. & Ederer, D. L.	Phys. Rev. <u>155</u> , 26-37 (1967).	absorpt.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 170-171 (1967).	quant.
Kuhn, H. G. & Lewis, E. L.	Proc. Roy. Soc. London <u>A299</u> , 423-433 (1967).	life
Osherovich, A. L. & Verolainen, Ya. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 181-184 (1967).	life
Wilkinson, P. G.	Can. J. Phys. <u>45</u> , 1709-1713 (1967).	comm.
Bengtson, R. D.	Maryland Univ. Technical Note BN-559 (1968).	emiss.
Denis, A., Desesquelles, J. & Dufay, M.	Comp. rend. <u>266B</u> , 1016-1019 (1968).	life
Hesser, J. E.	Phys. Rev. <u>174</u> , 68-74 (1968).	life
Klose, J. Z.	"Beam-Foil Spectroscopy," 285-304 (Gordon and Breach, New York, 1968).	life
Krivchenkova, V. S.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 536 (1968).	CA
Lilly, R. A. & Holmes, J. R.	J. Opt. Soc. Am. <u>58</u> , 1406-1409 (1968).	emiss., rel.
Miller, M. H.	Maryland Univ. Technical Note, BN550 (1968).	emiss.
Murphy, P. W.	J. Opt. Soc. Am. <u>58</u> , 1200-1208 (1968).	quant., rel. & CA
Nodwell, R. A., van Andel, H. W. H. & Robinson, A. M.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 859-875 (1968).	life, emiss. rel. & absorpt. rel.

Seka, W., & Curzon, F. L.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 1147-1162 (1968).	misc.
Semenov, R. I. & Strugach, B. A.	Optics and Spectroscopy (U.S.S.R.) <u>24</u> , 258-262 (1968).	quant.
She, C. Y.	J. Appl. Phys. <u>39</u> , 1964-1966 (1968).	quant., rel.
Klose, J. Z.	J. Quant. Spectrosc. Radiat. Transfer <u>9</u> , 881-883 (1969).	life
Lawrence, G. M. & Liszt, H. S.	Phys. Rev. <u>178</u> , 122-125 (1969).	life

Ne II

Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>114</u> , 118-133 (1954).	quant., rel. & CA
Bagus, P. S.	U. S. Atomic Energy Commission ANL-6959 (1964).	SCF
Koopman, D. W.	J. Opt. Soc. Am. <u>54</u> , 1354-1358 (1964).	emiss.
Koopman, D. W.	Thesis University of Michigan (1964).	emiss.
Naqvi, A. M.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 597-615 (1964).	quant.
Froese, C.	Phys. Rev. <u>137</u> , A1644-A1648 (1965).	SCF
Osterbrock, D. E.	Astrophys. J. <u>142</u> , 1423-1430 (1965).	quant. forb.
Hinnov, E.	J. Opt. Soc. Am. <u>56</u> , 1179-1188 (1966).	emiss.
Savage, B. D. & Lawrence, G. M.	Astrophys. J. <u>146</u> , 940-943 (1966).	life
Osherovich, A. L. & Verolainen, Ya. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 181-184 (1967).	life
Hesser, J. E.	Phys. Rev. <u>174</u> , 68-74 (1968).	life
Denis, A.	Comp. rend. <u>268B</u> , 383-385 (1969).	life

Ne III

Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>111</u> , 115-124 (1951).	quant. forb.
Bolotin, A. B., Shironas, I. I. & Braiman, M. Yu.	Vilniaus Valstybinio v. Kapsuko vardo universiteto Mokslo Darbai <u>33</u> , matematika fizika <u>9</u> , 107-112 (1960).	quant.
Osterbrock, D. E.	Astrophys. J. <u>142</u> , 1423-1430 (1965).	quant. forb.
Hinnov, E.	J. Opt. Soc. Am. <u>56</u> , 1179-1188 (1966).	emiss.
Hesser, J. E.	Phys. Rev. <u>174</u> , 68-74 (1968).	life
Denis, A.	Comp. rend. <u>268B</u> , 1176-1178 (1969).	life

Ne IV

Levinson, I. B., Bolotin, A. B. & Levin, L. I.	Trudy Vil'nyusskogo un. <u>5</u> , 49-55 (1956) (transl.).	quant.
Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>120</u> , 201-203 (1960).	quant. forb.
Bashkin, S., Heroux, L. & Shaw, J.	Phys. Letters <u>13</u> , 229-231 (1964).	life
Bashkin, S., Wangsness, R. K. & Heroux, L.	Phys. Rev. <u>151</u> , 87-96 (1966).	life

Hinnov, E.	J. Opt. Soc. Am. <u>56</u> , 1179-1188 (1966).	emiss.
Bickel, W. S.	Phys. Rev. <u>162</u> , 7-11 (1967).	life
Denis, A.	Comp. rend. <u>268B</u> , 1176-1178 (1969).	life

Ne V

Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>111</u> , 115-124 (1951).	quant. forb.
Bolotin, A. B., Levinson, I. B. & Levin, L. I.	Soviet Phys. - JETP <u>2</u> , 391-395 (1956).	quant.
Osterbrock, D. E.	Astrophys. J. <u>142</u> , 1423-1430 (1965).	quant. forb.
Froese, C.	Astrophys. J. <u>145</u> , 932-935 (1966).	quant. forb.
Hinnov, E.	J. Opt. Soc. Am. <u>56</u> , 1179-1188 (1966).	emiss.
Bickel, W. S.	Phys. Rev. <u>162</u> , 7-11 (1967).	life
Odabasi, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel
Denis, A.	Comp. rend. <u>268B</u> , 1176-1178 (1969).	life

Ne VI

Bashkin, S., Heroux, L. & Shaw, J.	Phys. Letters <u>13</u> , 229-231 (1964).	life
Nikitin, A. A. & Yakubovskii, O. A.	Soviet Phys.-Doklady <u>9</u> , 409-411 (1964).	quant. forb.
Bashkin, S., Wangsness, R. K. & Heroux, L.	Phys. Rev. <u>151</u> , 87-96 (1966).	life
Hinnov, E.	J. Opt. Soc. Am. <u>56</u> , 1179-1188 (1966).	emiss.
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Denis, A.	Comp. rend. <u>268B</u> , 1176-1178 (1969).	life

Ne VII

Veselov, M. G.	Zhur. Eksptl. i Teoret. Fiz. <u>19</u> , 959-964 (1949) (ATS transl.).	quant.
Hinnov, E.	J. Opt. Soc. Am. <u>56</u> , 1179-1188 (1966).	emiss.
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Linderberg, J.	Phys. Letters <u>29A</u> , 467-468 (1969).	quant.

Ne VIII

Weiss, A. W.	Astrophys. J. <u>138</u> , 1262-1276 (1963).	SCF
Berkner, K. H., Cooper III, W. S., Kaplan, S. N. & Pyle, R. V.	Phys. Letters <u>16</u> , 35-36 (1965).	life

Hinnov, E.	J. Opt. Soc. Am. <u>56</u> , 1179-1188 (1966).	emiss.
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Ne IX		
Elton, R. C.	Astrophys. J. <u>148</u> , 573-578 (1967).	quant.
Weiss, A. W.	J. Research Nat. Bur. Standards <u>71A</u> , 163-168 (1967).	quant.
Drake, G.W.F. & Dalgarno, A.	Astrophys. J. <u>157</u> , 459-462 (1969).	quant.
Sanders, F. C. & Sherr, C. W.	Phys. Rev. <u>181</u> , 84-97 (1969).	quant.
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Ni (Nickel)*		
Ni I		
Bouma, T.	Thesis Utrecht (1930).	emiss., rel.
Ornstein, L. S. & Bouma, T.	Phys. Rev. <u>36</u> , 679-693 (1930).	emiss., rel.
van Driel, H.	Thesis Utrecht (1935).	emiss., rel.
King, R. B.	Astrophys. J. <u>108</u> , 87-91 (1948).	absorpt., re
Wilson, O. C.	Astrophys. J. <u>107</u> , 126-150 (1948).	misc., rel.
Estabrook, F. B.	Thesis California Institute of Technology (1950).	absorpt.
Estabrook, F. B.	Astrophys. J. <u>113</u> , 684-689 (1951).	absorpt.
Parchevskii, G. F. & Penkin, N. P.	Vestnik Leningrad Univ. Ser. Fiz. i Khim. <u>2</u> , #11, 113-118 (1954) (transl. by J. Tech., Harvard College Observatory, June 1964).	hook, rel.
Parchevski, G. F. & Penkin, N. P.	Bull. Acad. Sci. U.S.S.R. Phys. Ser. <u>19</u> , 4-5 (1955).	comm.
Allen, C. W. & Asaad, A. S.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 36-49 (1957).	emiss.
Hinnov, E. & Kohn, H.	J. Opt. Soc. Am. <u>47</u> , 156-162 (1957).	emiss.
Varsavsky, C. M.	Thesis Harvard (1958).	quant.
Addink, N. W. H.	Spectrochim. Acta <u>15</u> , 349-359 (1959).	emiss.
Allen, C. W.	Monthly Notices Roy. Astron. Soc. <u>121</u> , 299-332 (1960).	comm. & CA
Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm.
Mitrofanova, L. A.	Pulkovo. Astronomicheskaiia observatoriia. Izvestiia <u>21</u> , 185-189 (1960) (O.T.P. 2).	emiss., rel.

* See Section 3.2.

Morozova, N. P. & Startsev, G. P.	Optics and Spectroscopy (U.S.S.R.) <u>17</u> , 174-176 (1964).	emiss.
Corliss, C. H.	J. Research Nat. Bur. Standards <u>69A</u> , 87-107 (1965).	comm. & emis
Lawrence, G. M., Link, J. K. & King, R. B.	Astrophys. J. <u>141</u> , 293-307 (1965).	absorpt.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Bell, G. D., Paquette, D. R. & Wiese, W. L.	Astrophys. J. <u>143</u> , 559-572 (1966).	emiss., rel.

Ni II

Ornstein, L. S. & Bouma, T.	Phys. Rev. <u>36</u> , 679-693 (1930).	emiss., rel.
Aller, L. H., Hazen, M., Doherty, L., Grant, G., Jugaku, J., Spiegel, E. & Waddell, J.	Publications of the Observatory, Univ. of Michigan (Feb. 19, 1954).	misc., rel.
Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>118</u> , 234-240 (1958).	quant. forb.
Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm.
Groth, H. G.	Z. Astrophys. <u>51</u> , 231-285 (1961).	misc.
Gruzdev, P. F.	Optics & Spectroscopy (U.S.S.R.) <u>13</u> , 249-250 (1962).	quant., rel.
Bell, G. D., Paquette, D. R. & Wiese, W. L.	Astrophys. J. <u>143</u> , 559-572 (1966).	emiss., rel.
Mendlowitz, H.	Astrophys. J. <u>143</u> , 573-590 (1966).	quant., rel.

Ni III

Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>118</u> , 234-240 (1958).	quant. forb.
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Ni IV

Garstang, R. H.	Astrophys. and Space Science <u>2</u> , 336-343 (1968).	quant. forb.
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Ni XI

Cowan, R. D.	J. Opt. Soc. Am. <u>58</u> , 924-933 (1968).	quant.
Fawcett, B. C., Peacock, N. J. & Cowan, R. D.	J. Phys. B. (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 295- 306 (1968).	quant.
Wagner, W. J. & House, L. L.	Astrophys. J. <u>155</u> , 677-686 (1969).	quant. forb.

Ni XII

Edlén, B.	Z. Astrophys. <u>22</u> , 30-64 (1942).	quant. forb.
Huang, K.	Astrophys. J. <u>101</u> , 187-195 (1945).	misc. forb.
Fawcett, B. C., Peacock, N. J. & Cowan, R. D.	J. Phys. B. (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 295- 306 (1968).	quant.

N1 XIII

Edlén, B.	Z. Astrophys. <u>22</u> , 30-64 (1942).	quant. forb.
Huang, K.	Astrophys. J. <u>101</u> , 187-195 (1945).	misc. forb.
Fawcett, B. C., Peacock, N. J. & Cowan, R. D.	J. Phys. B. (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 295-306 (1968).	quant.

N1 XIV

Fawcett, B. C., Peacock, N. J. & Cowan, R. D.	J. Phys. B. (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 295-306 (1968).	quant.
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N1 XV

Edlén, B.	Z. Astrophys. <u>22</u> , 30-64 (1942).	quant. forb.
Huang, K.	Astrophys. J. <u>101</u> , 187-195 (1945).	misc. forb.

N1 XVI

Edlén, B.	Z. Astrophys. <u>22</u> , 30-64 (1942).	quant. forb.
Huang, K.	Astrophys. J. <u>101</u> , 187-195 (1945).	misc. forb.

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O (Oxygen)*

O I

Kvifte, G. & Vegard, L.	Geofys. Publikaskoner. Norske Videnskaps-Akad. Oslo <u>12</u> , #1 (1947).	emiss. forb.
Petrie, W.	J. Geophys. Research <u>55</u> , 143-151 (1950).	quant.
Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>111</u> , 115-124 (1951).	quant. forb.
Yamanouchi, T. & Horie, H.	J. Phys. Soc. Japan <u>7</u> , 52-56 (1952).	quant. forb.
Jürgens, G.	Z. Physik <u>138</u> , 613-622 (1954).	emiss.
Garstang, R. H.	"The Airglow & the Aurorae", 324-327 (ed. Armstrong & Dalgarno, Pergamon Press, New York, 1956).	quant. forb.
Vainshtein, L. A.	Optika i Spektroskopiya <u>3</u> , 313-321 (1957) (transl.).	quant.
Omholt, A.	Geofys. Publikasjoner Norske Videnskaps-Akad. 1 Oslo <u>21</u> , 1-38 (1959).	misc. & life forb.
Omholt, A.	Planetary and Space Science <u>2</u> , 246-248 (1960).	life forb.
Stoffregen, W. & Derblom, H.	Nature <u>185</u> , 28-29 (1960).	life forb.
Doherty, L. R.	Thesis Michigan (1961).	emiss.
Garstang, R. H.	Proc. Cambridge Phil. Soc. <u>57</u> , 115-120 (1961).	CA
Wiese, W. L. & Shumaker, Jr., J. B.	J. Opt. Soc. Am. <u>51</u> , 937-942 (1961).	emiss.
Foster, E. W.	Proc. Phys. Soc. London A <u>72</u> , 94-104 (1962).	emiss.

*See Section 3.2.

Buttrey, D. E. & Gibson, J. B.	Technical Documentary Report No. RTD-TDR-63-3047 (1964).	emms.
Kelly, P. S.	Astrophys. J. <u>140</u> , 1247-1268 (1964).	SCF
Kelly, P. S.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 117-148 (1964).	quant.
Kelly, P. S. & Armstrong, B. H.	Phys. Rev. Letters <u>12</u> , 35-36 (1964).	SCF
Prag, A. B.	Thesis Univ. of Washington (1964).	misc.
Prag, A. B. & Clark, K. C.	Phys. Rev. Letters <u>12</u> , 34-35 (1964).	misc.
Solarski, Jr., J. E. & Wiese, W. L.	Phys. Rev. <u>135</u> , A1236-A1241 (1964).	emiss.
Kelly, P. S., Sokoloff, J. & Armstrong, B. H.	Technical Report No. WL TR-64-172 (1965).	quant.
Morse, T. A. & Kaufman, F.	J. Chem. Phys. <u>42</u> , 1785-1790 (1965).	absorpt.
Prag, A. B., Fairchild, C. E. & Clark, K. C.	Phys. Rev. <u>137</u> , A1358-A1363 (1965).	misc.
Paulson, K. V. & Shepherd, G. G.	J. Atmospheric and Terrest. Phys. <u>27</u> , 831-841 (1965).	misc., forb.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Armstrong, B. H. & Purdum, K. L.	Phys. Rev. <u>150</u> , 51-59 (1966).	quant.
LeBlanc, F. J., Oldenberg, O. & Carleton, N. P.	J. Chem. Phys. <u>45</u> , 2200-2203 (1966).	emiss., forb
McConkey, J. W., Burns, D. J., Moran, K. A. & Emeleus, K. G.	Phys. Letters <u>22</u> , 416-417 (1966).	emiss. forb. rel.
Savage, B. D. & Lawrence, G. M.	Astrophys. J. <u>146</u> , 940-943 (1966).	life
Boldt, G. & Labuhn, F.	Z. Naturforsch. <u>22a</u> , 1613-1615 (1967).	emiss.
Foster, E. W.	Proc. Phys. Soc. London <u>A90</u> , 275-282 (1967).	emiss.
Parkes, D. A., Keyser, L. F. & Kaufman, F.	Astrophys. J. <u>149</u> , 217-223 (1967).	absorpt.
Zentsov, Yu. K.	Doklady Akad. Nauk. (U.S.S.R.) <u>12</u> , 470-471 (1967).	quant. forb.
Gaillard, M. & Hesser, J. E.	Astrophys. J. <u>152</u> , 695-700 (1968).	life
Lawrence, G. M.	Bull. Am. Phys. Soc. II, <u>13</u> , 424 (1968).	life
McConkey, J. W. & Kernahan, J. A.	Nature <u>220</u> , 1017-1018 (1968).	emiss. forb.
Miller, M. H.	Maryland Univ. Technical Note, BN550 (1968).	emiss.
McConkey, J. W. & Kernahan, J. A.	Planetary and Space Science <u>17</u> , 1297-1306 (1969).	emiss. forb.
O II		
Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>114</u> , 118-133 (1954).	quant., rel. & CA
Levinson, I. B., Bolotin, A. B. & Levin, L. I.	Trudy Vil'nyusskogo un. 5, 49-55 (1956) (transl.).	quant.
Seaton, M. J. & Osterbrock, D. E.	Astrophys. J. <u>125</u> , 66-83 (1957).	quant. forb.

Mastrup, F. & Wiese, W.	Z. Astrophys. <u>44</u> , 259-279 (1958).	emiss., rel.
Czyzak, S. J.	Publ. Astron. Soc. Pacific <u>76</u> , 413-429 (1964).	quant. forb.
Kelly, P. S.	Astrophys. J. <u>140</u> , 1247-1268 (1964).	SCF
Kelly, P. S.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 117-148 (1964).	quant.
Froese, C.	Phys. Rev. <u>137</u> , A1644-A1648 (1965).	SCF
Kelly, P. S., Sokoloff, J. & Armstrong, B. H.	Technical Report No. WL TR-64-172 (1965).	quant.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Armstrong, B. H. & Purdum, K. L.	Phys. Rev. <u>150</u> , 51-59 (1966).	quant.
Berg, H. F.	Z. Physik <u>207</u> , 404-410 (1967).	emiss.
Trukhan, E. P. & Kiselevskii, L. I.	Optics and Spectroscopy (U.S.S.R.) <u>23</u> , 377-379 (1967).	emiss.
Zemtsov, Yu. K.	Doklady Akad. Nauk. (U.S.S.R.) <u>12</u> , 470-471 (1967).	quant. forb., rel.
Lewis, M. R., Zimnoch, F. S. & Wares, G. W.	Phys. Rev. <u>178</u> , 49-54 (1969).	life
Pinnington, E. H., & Lin, C. C.	J. Opt. Soc. Am. <u>59</u> , 780-781 (1969).	life
O III		
Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>111</u> , 115-124 (1951).	quant. forb.
Yamanouchi, T. & Horie, H.	J. Phys. Soc. Japan <u>7</u> , 52-56 (1952).	quant. forb.
Boлотin, A. B., Levinson, I. B. & Levin, L. I.	Soviet Phys. - JETP <u>2</u> , 391-395 (1956).	quant.
Berg, H., Burris, R., Eckerle, K. & Wiese, W. L.	Astrophys. J. <u>139</u> , 751-757 (1964).	emiss., rel.
Kelly, P. S.	Astrophys. J. <u>140</u> , 1247-1268 (1964).	SCF
Kelly, P. S.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 117-148 (1964).	quant.
Froese, C.	Phys. Rev. <u>137</u> , A1644-A1648 (1965).	SCF
Kelly, P. S., Sokoloff, J. & Armstrong, B. H.	Technical Report No. WL TR-64-172 (1965).	quant.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Osterbrock, D. E.	Astrophys. J. <u>142</u> , 1423-1430 (1965).	quant. forb.
Armstrong, B. H. & Purdum, K. L.	Phys. Rev. <u>150</u> , 51-59 (1966).	quant.
Froese, C.	Astrophys. J. <u>145</u> , 932-935 (1966).	quant. forb.
Berg, H. F.	Z. Physik <u>199</u> , 445-455 (1967).	emiss.
Bickel, W. S.	Phys. Rev. <u>162</u> , 7-11 (1967).	life
Trukhan, E. P. & Kiselevskii, L. I.	Optics and Spectroscopy (U.S.S.R.) <u>23</u> , 377-379 (1967).	emiss.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>24</u> , 462-465 (1968).	quant.
Heroux, L.		life

Heroux, L.	"Beam-Foil Spectroscopy", p. 205-231 (Bashkin, S. Ed. Gordon and Breach Science Publishers, 1968).	life
Odabası, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel
Tatum, J. B.	Monthly Notices Roy. Astron. Soc. <u>140</u> , 87-91 (1968).	quant.
Lewis, M. R., Zimnoch, F. S. & Wares, G. W.	Phys. Rev. <u>178</u> , 49-54 (1969).	life
Pinnington, E. H., & Lin, C. C.	J. Opt. Soc. Am. <u>59</u> , 780-781 (1969).	life
o IV		
Bolotin, A. B. & Yutsis, A. P.	Zhur. Eksptl. i Teoret. Fiz. <u>24</u> , 537-543 (1953) (O.T.P. 1).	quant.
Kelly, P. S.	Astrophys. J. <u>140</u> , 1247-1268 (1964).	SCF
Kelly, P. S.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 117-148 (1964).	quant.
Nikitin, A. A. & Yakubovskii, O. A.	Soviet Phys.-Doklady <u>9</u> , 409-411 (1964).	quant. forb.
Kelly, P. S., Sokoloff, J. & Armstrong, B. H.	Technical Report No. WL TR-64-172 (1965).	quant.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Osterbrock, D. E.	Astrophys. J. <u>142</u> , 1423-1430 (1965).	quant. forb.
Armstrong, B. H. & Purdum, K. L.	Phys. Rev. <u>150</u> , 51-59 (1966).	quant.
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Bashkin, S. & Burton, K. S.	J. Opt. Soc. Am. <u>57</u> , 282-283 (1967).	emiss., rel.
Bickel, W. S.	Phys. Rev. <u>162</u> , 7-11 (1967).	life
Trukhan, E. P. & Kiselevskii, L. I.	Optics and Spectroscopy (U.S.S.R.) <u>23</u> , 377-379 (1967).	emiss.
Hansen, J. E.	J. Opt. Soc. Am. <u>59</u> , 722-726 (1969).	quant. forb., rel.
Lewis, M. R., Zimnoch, F. S. & Wares, G. W.	Phys. Rev. <u>178</u> , 49-54 (1969).	life

o V

Kelly, P. S.	Astrophys. J. <u>140</u> , 1247-1268 (1964).	SCF
Kelly, P. S.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 117-148 (1964).	quant.
Kelly, P. S., Sokoloff, J. & Armstrong, B. H.	Technical Report No. WL TR-64-172 (1965).	quant.
Pfennig, H., Steele, P. & Trefftz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>5</u> , 355-347 (1965).	SCF

Bickel, W. S. & Bashkin, S.	Phys. Letters <u>20</u> , 488-489 (1966).	life
LaPaglia, S. R. & Sinanoglu, O.	J. Chem. Phys. <u>44</u> , 1888-1898 (1966).	quant.
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Steele, R. & Trefftz, E.	J. Quant. Spectrosc. Radiat. Transfer <u>6</u> , 833-846 (1966).	quant.
Balashov, V. V., Senashenko, V. S. & Tekou, B.	Phys. Letters <u>25A</u> , 487-488 (1967).	quant.
Froese, C.	J. Chem. Phys. <u>47</u> , 4010-4015 (1967).	SCF
Trukhan, E. P. & Kiselevskii, L. I.	Optics and Spectroscopy (U.S.S.R.) <u>23</u> , 377- 379 (1967).	emiss.
Bickel, W. S., Berry, H. G., Martinson, I., Schectman, R. M.	Phys. Letters <u>29A</u> , 4-5 (1969).	life
Lewis, M. R., Zimnoch, F. S. & Wares, G. W.	Phys. Rev. <u>178</u> , 49-54 (1969).	life
Linderberg, J.	Phys. Letters <u>29A</u> , 467-468 (1969).	quant.
O VI		
Weiss, A. W.	Astrophys. J. <u>138</u> , 1262-1276 (1963).	SCF
Kelly, P. S.	Astrophys. J. <u>140</u> , 1247-1268 (1964).	SCF
Kelly, P. S.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 117-148 (1964).	quant.
Berkner, K. H., Cooper III, W. S., Kaplan, S. N. & Pyle, R. V.	Phys. Letters <u>16</u> , 35-36 (1965).	life
Kelly, P. S., Sokoloff, J. & Armstrong, B. H.	Technical Report No. WL TR-64-172 (1965).	quant.
Naqvi, A. M.	Proceedings of the Seventh International Conference on Ionization Phenomena in Gases, Vol. II, p. 558-561 (Gradevinska Knyiga Publishing House, Belgrade (1966).	quant.
Trukhan, E. P. & Kiselevskii, L. I.	Optics and Spectroscopy (U.S.S.R.) <u>23</u> , 377- 379 (1967).	emiss.
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>141</u> , 273-276 (1968).	quant. & quant. forb.
Lewis, M. R., Zimnoch, F. S. & Wares, G. W.	Phys. Rev. <u>178</u> , 49-54 (1969).	life

O VII

Elton, R. C.	Astrophys. J. <u>148</u> , 573-578 (1967).	quant.
Garstang, R. H.	Astrophys. J. <u>148</u> , 579-584 (1967).	quant. forb.

Weiss, A. W.	J. Research Nat. Bur. Standards <u>71A</u> , 163-168 (1967).	quant.
Sellin, I. A., Donnally, B. L. & Fan, C. Y.	Phys. Rev. Letters <u>21</u> , 717-719 (1968).	life
Griem, H. R.	Astrophys. J. <u>156</u> , L103-L105 (1969).	quant. forb.
Sanders, F. C. & Sherr, C. W.	Phys. Rev. <u>181</u> , 84-97 (1969).	quant.

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P (Phosphorus)*

P I

Czyzak, S. J. & Krueger, T. K.	Monthly Notices Roy. Astron. Soc. <u>126</u> , 177-194 (1963).	quant. forb.
Lawrence, G. M.	Astrophys. J. <u>148</u> , 261-268 (1967).	quant., rel. & life
Miller, M. H.	Maryland Univ. Technical Note, BN550 (1968).	emiss.

P II

Czyzak, S. J. & Krueger, T. K.	Monthly Notices Roy. Astron. Soc. <u>126</u> , 177-194 (1963).	quant. forb.
Savage, B. D. & Lawrence, G. M.	Astrophys. J. <u>146</u> , 940-943 (1966).	life
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>24</u> , 462- 465 (1968).	quant.
Miller, M. H.	Maryland Univ. Technical Note, BN550 (1968).	emiss.

P III

Fischer, C. F.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 755-761 (1968).	quant.
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P IV

Zare, R. N.	J. Chem. Phys. <u>47</u> , 3561-3572 (1967).	quant.
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P VI

Kastner, S. O., Omidvar, K. & Underwood, J. H.	Astrophys. J. <u>148</u> , 269-273 (1967).	quant.
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P X

Froese, C.	Astrophys. J. <u>145</u> , 932-935 (1966).	quant. forb.
Odabasi, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel.

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*See Section 3.2

Pb I

Mrozowski, S.	Phys. Rev. <u>58</u> , 1086-1093 (1940).	emiss. forb., rel.
Gerjuoy, E.	Phys. Rev. <u>60</u> , 233-240 (1941).	quant. forb.
Jenkins, F. A. & Mrozowski, S.	Phys. Rev. <u>60</u> , 225-233 (1941).	emiss. forb., rel.
Engler, H. D.	Z. Physik <u>144</u> , 343-353 (1956).	absorpt.
Allen, C. W.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 622-628 (1957).	comm.
Allen, C. W. & Asaad, A. S.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 36-49 (1957).	emiss.
Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>21</u> , 84-102 (1959) (O.T.P. 1).	emiss., rel.
Bell, G. D. & King, R. B.	Astron. J. <u>65</u> , 483 (1960).	absorpt.
Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>22</u> , 118-127 (1960) (O.T.P. 2).	absorpt. & emiss.
Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>22</u> , 128-133 (1960) (O.T.P. 2).	emiss.
Bell, G. D. & King, R. B.	Astrophys. J. <u>133</u> , 718-722 (1961).	absorpt.
Helliwell, T. M.	Astrophys. J. <u>133</u> , 566-571 (1961).	quant.
Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>25</u> , 249-267 (1961).	absorpt., rel. emiss., rel.
Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>26</u> , 52-62 (1961).	quant.
Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>29</u> , 131-140 (1963).	emiss., rel., absorpt., re & comm.
Penkin, N. P. & Slavenas, I. Yu. Yu.	Optics and Spectroscopy (U.S.S.R.) <u>15</u> , 83-88 (1963).	hook
Brown, W. A.	Thesis Univ. of Michigan (1964).	emiss.
Novick, R., Perry, B. W. & Saloman, E. B.	Bull. Am. Phys. Soc. II <u>9</u> , 625 (1964).	life
Lvov, B. V.	Optics and Spectroscopy (U.S.S.R.) <u>19</u> , 282-284 (1965).	absorpt.
Brown, W. A.	Phys. Fluids <u>9</u> , 1273-1277 (1966).	emiss.
Hults, M. E.	J. Opt. Soc. Am. <u>56</u> , 1298-1304 (1966).	quant. forb. emiss. forb.

* See Section 3.2.

Saloman, E. B.	Phys. Rev. <u>144</u> , 23-24 (1966).	life
Saloman, E. B.	Phys. Rev. <u>152</u> , 79-81 (1966).	life
Saloman, E. B. & Happer, W.	Phys. Rev. <u>144</u> , 7-22 (1966).	life
Cunningham, P. T. & Link, J. K.	J. Opt. Soc. Am. <u>57</u> , 1000-1007 (1967).	life
Lawrence, G. M.	Astrophys. J. <u>148</u> , 261-268 (1967).	quant., rel. & life
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 1-5 (1968).	quant.
deZafra, R. L., & Marshall, A.	Phys. Rev. <u>170</u> , 28-36 (1968).	life
Peach, J. V.	Monthly Notices Roy. Astron. Soc. <u>140</u> , 43-51 (1968).	comm.

Pb II

Brown, W. A.	Thesis Univ. of Michigan (1964).	emiss.
Hults, M. E.	J. Opt. Soc. Am. <u>56</u> , 1298-1304 (1966).	quant. forb. & emiss. forb.

Pb III

Kancerevicius, A.	Litovskii Fizicheskii Sbornik (U.S.S.R.) <u>7</u> , 321-327 (1967).	quant., rel.
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Pd (Palladium)*

Pd I

Lawrence, G. M., Link, J. K. & King, R. B.	Astrophys. J. <u>141</u> , 293-307 (1965).	absorpt.
Budick, B.	Bull. Am. Phys. Soc. Series II Vol. <u>12</u> , #6, 905 (1967).	life
Budick, B.	Phys. Rev. <u>168</u> , 89-92 (1968).	life

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Rb (Rubidium)*

Rb I

Bleeker, C. E.	Thesis Utrecht (1928).	emiss., rel.
Prokof'ev, V. K.	Z. Physik <u>57</u> , 387-393 (1929).	hook, rel.

* See Section 3.2.

Stevenson, A. F.	Proc. Roy. Soc. London A <u>128</u> , 591-599 (1930).	quant.
Prokof'ev, V. K.	Zhur. Eksptl. i Teoret. Fiz. <u>1</u> , 123-127 (1931) (O.T.P. 1).	hook, rel.
Rubinowicz, A. & Blaton, J.	Ergeb. exakt. Naturw. <u>11</u> , 176-217 (1932).	comm.
Ornstein, L. S. & Key, J.	Physica <u>1</u> , 945-952 (1934).	comm., rel.
Prokof'ev, V. K. & Shtandel, G.	Zhur. Eksptl. i Teoret. Fiz. <u>4</u> , 359-367 (1934) (O.T.P. 1).	hook, rel.
Heierman, J. H.	Thesis Utrecht (1937).	emiss.
Key, J.	Thesis Utrecht (1937).	emiss., rel.
Stephenson, G.	Nature <u>167</u> , 112 (1951).	misc.
Stephenson, G.	Proc. Phys. Soc. London A <u>64</u> , 458-464 (1951).	misc.
Meyer-Berkhout, U.	Z. Physik <u>141</u> , 185-197 (1955).	life
Yanoukh, F.	Vestnik Leningrad Univ. Ser. Fiz. i Khim. <u>10</u> , 135-142 (1955) (O.T.P. 2).	quant., rel.
Gol'dberg, G. I.	Pulkovo. Astronomicheskaya observatoriya. Izvestiya <u>20</u> , 126-137 (1956) (O.T.P. 1).	hook, rel.
Heavens, O. S.	J. Opt. Soc. Am. <u>51</u> , 1058-1061 (1961).	CA
Naqvi, A. M.	Geophysics Corporation of America Technical Report 61-21-A; ASTIA Document 263 459 (1961).	CA
Anderson, E. M. & Zilitis, V. A.	Optics and Spectroscopy (U.S.S.R.) <u>16</u> , 211-214 (1963).	quant.
Feldman, P. & Novick, R.	Phys. Rev. Letters <u>11</u> , 278-281 (1963).	life
Feichtner, J. D.	Thesis University of Colorado (1964).	life
Hertzberg, M. & Holland, R.	J. Quant. Spectrosc. Radiat. Transfer <u>5</u> , 313-320 (1965).	emiss., rel.
Bucka, H., Grosswendt, B. & Schüssler, H. A.	Z. Physik <u>194</u> , 193-200 (1966).	life
Link, J. K.	J. Opt. Soc. Am. <u>56</u> , 1195-1199 (1966).	life
Feichtner, J. D., Gallagher, J. H. & Mizushima, M.	Phys. Rev. <u>164</u> , 44-48 (1967).	life
Gallagher, A.	Phys. Rev. <u>157</u> , 68-72 (1967).	life
Zemtsov, Yu. K.	Doklady Akad. Nauk. (U.S.S.R.) <u>12</u> , 470-471 (1967).	quant. forb., rel.
Bucka, H., zu Putlitz, G. & Rabold, R.	Z. Physik <u>213</u> , 101-118 (1968).	misc.
Marr, G. V. & Creek, D. M.	Proc. Roy. Soc. London A <u>304</u> , 245-254 (1968).	estim.
Hameed, S., Herzenberg, A. & James, M. G.	J. Phys. B (Proc. Phys. Soc.) Ser. 2, <u>1</u> , 822-830 (1968).	quant.
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>139</u> , 115- 128 (1968).	quant. & quant. forb.
zu Putlitz, G. & Venkataramu, K. V.	Z. Physik <u>209</u> , 470-473 (1968).	life
McGinn, G.	J. Chem. Phys. <u>50</u> , 1404-1418 (1969).	quant.

Rb II

Petersen, H.	Phys. & Chem. Solids <u>1</u> , 284 (1957).	quant., rel.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 170-171 (1967).	quant.

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Rn (Radon)*

Rn II

Edlén, B.	Phys. Rev. <u>65</u> , 248 (1944).	quant. forb.
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Ru (Ruthenium)*

Ru I

Goldberg, L., Müller, E. A. & Aller, L. H.	Astrophys. J. Suppl. Ser. <u>5</u> , #45, 1-137 (1960).	CA
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S (Sulfur)*

S I

Czyzak, S. J. & Krueger, T. K.	Monthly Notices Roy. Astron. Soc. <u>126</u> , 177-194 (1963).	quant. forb.
Savage, B. D. & Lawrence, G. M.	Astrophys. J. <u>146</u> , 940-943 (1966).	life
Bridges, J. M. & Wiese, W. L.	Phys. Rev. <u>159</u> , 31-38 (1967).	emiss.
Foster, E. W.	Proc. Phys. Soc. London A <u>90</u> , 275-282 (1967).	emiss.
Lawrence, G. M.	Astrophys. J. <u>148</u> , 261-268 (1967).	quant., rel. & life
Miller, M., Murphy, P., LaSalle, T. & Wilkerson, T.	Bull. Am. Phys. Soc. Ser. II, Vol. <u>11</u> , 818-819 (1967).	emiss.
McConkey, J. W., Burns, D. J., Moran, K. A. & Kernahan, J. A.	Nature <u>217</u> , 538-539 (1968).	emiss. forb., rel.
Miller, M. H.	Maryland Univ. Technical Note, BN550 (1968).	emiss.
Müller, D.	Z. Naturforsch. <u>23a</u> , 1707-1716 (1968).	emiss.

* See Section 3.2.

S II

Garstang, R. H.	Monthly Notices Roy. Astron. Soc. <u>114</u> , 118-133 (1954).	quant., rel. & CA
Czyzak, S. J. & Krueger, T. K.	Monthly Notices Roy. Astron. Soc. <u>126</u> , 177-194 (1963).	quant. forb.
Savage, B. D. & Lawrence, G. M.	Astrophys. J. <u>146</u> , 940-943 (1966).	life
Bridges, J. M. & Wiese, W. L.	Phys. Rev. <u>159</u> , 31-38 (1967).	emiss.
Miller, M. H.	Maryland Univ. Technical Note, BN550 (1968).	emiss.
Müller, D.	Z. Naturforsch. <u>23a</u> , 1707-1716 (1968).	emiss.
Lawrence, G. M.	Phys. Rev. <u>179</u> , 134-138 (1969).	life

S III

Czyzak, S. J. & Krueger, T. K.	Monthly Notices Roy. Astron. Soc. <u>126</u> , 177-194 (1963).	quant. forb.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>24</u> , 462- 465 (1968).	quant.

S IV

Fischer, C. F.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 755-761 (1968).	quant.
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S VII

Kastner, S. C., Omidvar, K. & Underwood, J. H.	Astrophys. J. <u>148</u> , 269-273 (1967).	quant.
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S VIII

Kastner, S. O.	Solar Physics <u>2</u> , 196-201 (1967).	SCF
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S IX

Kastner, S. O.	Solar Physics <u>2</u> , 196-201 (1967).	SCF
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S X

Kastner, S. O.	Solar Physics <u>2</u> , 196-201 (1967).	SCF
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S XI

Kastner, S. O.	Solar Physics <u>2</u> , 196-201 (1967).	SCF
Odabasi, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel.

S XII

Pottasch, S. R.	Monthly Notices Roy. Astron. Soc. <u>128</u> , 73-92 (1964).	quant. forb.
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Sb (Antimony)*

Sb I

- Lvov, B. V. Optics and Spectroscopy (U.S.S.R.) 19, 282-284 absorpt.
(1965).
- Gruzdev, P. F. Optics and Spectroscopy (U.S.S.R.) 25, 1-5 (1968). quant.

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Sc (Scandium)*

Sc I

- Ostrovskii, Yu. I. & Penkin, N. P. Optika i Spektroskopiya 2, 391-393 (1957) (transl.). hook, rel.
- Mitrofanova, L. A. Pulkovo. Astronomicheskaya observatoriya. Izvestiya 21, #162, 159-161 (1958) (transl.). emiss., rel.
- Allen, C. W. Monthly Notices Roy. Astron. Soc. 121, 299-332 comm. & CA
(1960).
- Goldberg, L., Müller, E. A. & Aller, L. H. Astrophys. J. Suppl. Ser. 5, #45, 1-137 (1960). CA
- Stewart, J. C. & Rotenberg, M. Phys. Rev. 140, 1508A-1519A (1965). quant.

Sc II

- Wilson, O. C. Astrophys. J. 107, 126-150 (1948). misc., rel.
- Aller, L. H., Hazen, M., Doherty, L., Grant, G., Jugaku, J., Spiegel, E. & Waddell, J. Publications of the Observatory, Univ. of Michigan (Feb. 19, 1954). misc., rel.
- Mitrofanova, L. A. Pulkovo. Astronomicheskaya observatoriya. Izvestiya 21, #162, 159-161 (1958) (transl.). emiss., rel.
- Boyarchuk, M. E. & Boyarchuk, A. A. Akademiya Nauk S.S.S.R. Krymskaya astrofizicheskaya observatoriya. Izvestiya 22, 234-256 (1960) (O.T.P. 1). comm.
- Groth, H. G. Z. Astrophys. 51, 231-285 (1961). misc.
- Warner, B. Memoirs Roy. Astron. Soc. 70, 165-253 (1967). emiss., rel.
& CA

* See Section 3.2.

Sc III

Weiss, A. W. J. Research Nat. Bur. Standards 71A, 157-162 (1967). SCF

Sc IX

Nikitin, A. A. & Yakubovskii, Soviet Phys.-Doklady 2, 409-411 (1964). quant. forb.

O. A.

Fischer, C. F. J. Quant. Spectrosc. Radiat. Transfer 8,
755-761 (1968). quant.

Sc XII

Kastner, S. O., Omidvar, K. & Underwood, J. H. Astrophys. J. 148, 269-273 (1967). quant.

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Se (Selenium)*

Se I

Lawrence, G. M. Astrophys. J. 148, 261-268 (1967). quant., rel.
& life

Se II

Boyarchuk, M. E. & Boyarchuk, A. A. Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia
observatoriia. Izvestiia 22, 234-256 (1960) comm.
(O.T.P. 1).

Se V

Zilitis, V. A. Optics and Spectroscopy (U.S.S.R.) 25, 361-362 SCF & quant.
(1968).

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Si (Silicon)*

Si I

Hey, P. Z. Physik 157, 79-88 (1959). emiss.
Garstang, R. H. & Dawe, J. A. The Observatory 82, 210-211 (1962). quant.
Slavenas, I. Yu. Yu. Optics and Spectroscopy (U.S.S.R.) 16, 214-216
(1964). hook, rel.
Savage, B. D. & Lawrence, G. M. Astrophys. J. 146, 940-943 (1966). life

* See Section 3.2.

Lawrence, G. M.	Astrophys. J. <u>148</u> , 261-268 (1967).	quant., rel. & life
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>24</u> , 462-465 (1968).	quant.
Miller, M. H.	Maryland Univ. Technical Note, BN550 (1968).	emiss.
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>139</u> , 273-282 (1968).	quant., rel.
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>139</u> , 1-34 (1968).	quant., & quant. forb.
Armstrong, Jr., L. & Liebermann, R.	J. Quant. Spectrosc. Radiat. Transfer <u>2</u> , 123-128 (1969).	quant.
Hofmann, W.	Max-Planck-Institut für Physik und Astrophysik München, MPI-PAE Extraterr. 20 (1969).	emiss.
Miller, M. H. & Bengston, R. D.	Astrophys. J. <u>156</u> , 393-395 (1969).	emiss., rel.
Schulz-Gulde, E.	J. Quant. Spectrosc. Radiat. Transfer <u>2</u> , 13-29 (1969).	emiss.

Si II

Hey, P.	Z. Physik <u>157</u> , 79-88 (1959).	emiss.
Garstang, R. H. & Shamey, L. J.	Private Communication (1965).	quant., CA & SCF
Froese, C. & Underhill, A. B.	Astrophys. J. <u>146</u> , 301-303 (1966).	SCF
Savage, B. D. & Lawrence, G. M.	Astrophys. J. <u>146</u> , 940-943 (1966).	life
Dupree, A. K. & Goldberg, L.	Solar Physics <u>1</u> , 229-241 (1967).	quant.
Fischer, C. F.	Astrophys. J. <u>151</u> , 759-764 (1968).	quant.
Fischer, C. F.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 755-761 (1968).	quant.
Krolas, I. & Malarz, M.	Acta. Phys. Polon. <u>33</u> , 343-346 (1968).	quant. rel.
Miller, M. H.	Maryland Univ. Technical Note, BN550 (1968).	emiss.
Underhill, A. B.	Astrophys. J. <u>151</u> , 765-768 (1968).	comm.
Hofmann, W.	Max-Planck-Institut für Physik und Astrophysik München, MPI-PAE Extraterr. 20 (1969).	emiss.
Schulz-Gulde, E.	J. Quant. Spectrosc. Radiat. Transfer <u>2</u> , 13-29 (1969).	emiss.

Si III

Weiss, A. W.	J. Chem. Phys. <u>47</u> , 3573-3578 (1967).	quant.
Zare, R. N.	J. Chem. Phys. <u>47</u> , 3561-3572 (1967).	quant.
Hofmann, W.	Max-Planck-Institut für Physik und Astrophysik München, MPI-PAE Extraterr. 20 (1969).	emiss.
Treffitz, E. & Zare, R. N.	J. Quant. Spectrosc. Radiat. Transfer <u>2</u> , 643-656 (1969).	quant. & CA

Si IV

Douglas, A. S. & Garstang, R. H.	Proc. Cambridge Phil. Soc. <u>58</u> , 377-381 (1962).	SCF
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Chapman, R. D., Clarke, W. H. & Aller, L. H.	Astrophys. J. <u>144</u> , 376-380 (1966).	SCF
Krolas, I. & Malarz, M.	Acta. Phys. Polon. <u>33</u> , 343-346 (1968).	quant., rel.
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>141</u> , 273-276 (1968).	quant. & qual. forb.
Si V		
Kastner, S. O., Omidvar, K. & Underwood, J. H.	Astrophys. J. <u>148</u> , 269-273 (1967).	quant.
Si VI		
Kastner, S. O.	Solar Physics <u>2</u> , 196-201 (1967).	SCF
Si VII		
Kastner, S. O.	Solar Physics <u>2</u> , 196-201 (1967).	SCF
Si VIII		
Pasternack, S.	Astrophys. J. <u>92</u> , 129 (1940).	quant. forb.
Froese, C.	Bull. Astron. Inst. Netherlands <u>19</u> , 86-89 (1967).	SCF
Kastner, S. O.	Solar Physics <u>2</u> , 196-201 (1967).	SCF
Si IX		
Froese, C.	Astrophys. J. <u>145</u> , 932-935 (1966).	quant. forb.
Froese, C.	Bull. Astron. Inst. Netherlands <u>19</u> , 86-89 (1967).	SCF
Kastner, S. O.	Solar Physics <u>2</u> , 196-201 (1967).	SCF
Odabasi, H.	JILA Report #97, Nov. (1968), AD680470.	quant. & quant., rel.
Si X		
Garstang, R. H.	Ann. astrophys. <u>25</u> , 109-117 (1962).	quant. forb. & CA
Kastner, S. O.	Solar Physics <u>2</u> , 196-201 (1967).	SCF
Hansen, J. E.	J. Opt. Soc. Am. <u>59</u> , 722-726 (1969).	quant. forb., & rel.
Si XI		
Garstang, R. H.	Astrophys. J. <u>148</u> , 579-584 (1967).	quant. forb.

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Sm (Samarium)*

Sm I

Handrich, E., Kretzen, H., Lange, W., Steudel, A. Wallenstein, R. & Walther, H.	Proc. of Conf. on Optical Pumping and Line Shape, Warsaw (1968) to be published.	life
Handrich, E., Steudel, A., Wallenstein, R. & Walther, H.	J. Physique Suppl. <u>30</u> , C1, 18-23 (1969).	life

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Sn (Tin)*

Sn I

Allen, C. W.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 622-628 (1957).	comm.
Allen, C. W. & Asaad, A. S.	Monthly Notices Roy. Astron. Soc. <u>117</u> , 36-49 (1957).	emiss.
Prokof'ev, V. K., Nagibina, I. M. & Petrova, G. P.	Optics & Spectroscopy (U.S.S.R.) <u>8</u> , 195-197 (1960).	emiss.
Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>25</u> , 249-267 (1961).	absorpt., rel. & emiss., rel.
Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>26</u> , 52-62 (1961).	quant.
Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>28</u> , 277-287 (1962).	absorpt., rel.
Khokhlov, M. Z.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>29</u> , 131-140 (1963).	emiss., rel., absorpt., rel. & comm.
Penkin, N. P. & Slavenas, I. Yu. Yu.	Optics and Spectroscopy (U.S.S.R.) <u>15</u> , 83-88 (1963).	hook
Lawrence, G. M., Link, J. K. & King, R. B.	Astrophys. J. <u>141</u> , 293-307 (1965).	absorpt.
Brieger, M. & Zimmermann, P.	Z. Naturforsch. <u>22a</u> , 2001-2004 (1967).	life
Lawrence, G. M.	Astrophys. J. <u>148</u> , 261-268 (1967).	quant., rel. & life
1 uzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 1-5 (1968).	quant.
DeZafra, R. L., & Marshall, A.	Phys. Rev. <u>170</u> , 28-36 (1968).	life

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* See Section 3.2.

Sr I

Kerschbaum, H.	Ann. Physik <u>83</u> , 287-295 (1927).	canal
Prokof'ev, V. K.	Z. Physik <u>50</u> , 701-715 (1928).	hook, rel.
Prokof'ev, V. K.	Zhur. Eksptl. i Teoret. Fiz. <u>1</u> , 111-122 (1931) (O.T.P. 1).	hook, rel.
Kast, W.	Z. Physik <u>79</u> , 731-735 (1932).	emiss., rel.
Chamalaun, F. J.	Thesis Utrecht (1934).	emiss., rel. & quant., rel.
King, G. W. & van Vleck, J. H.	Phys. Rev. <u>56</u> , 464-465 (1939).	quant. forb., rel.
Schuttevaer, J. W.	Thesis Utrecht (1942).	emiss., rel.
Schuttevaer, J. W., de Bont, M. J. & van den Broek, Th. H.	Physica <u>10</u> , 544-552 (1943).	emiss., rel.
Kruthof, A. M. & Smit, J. A.	Physica <u>11</u> , 129-143 (1944) (transl.).	estim.
Eberhagen, A.	Z. Physik <u>143</u> , 392-411 (1955).	emiss.
Mannkopff, R.	Experim. Techn. d. Physik. Sonderheft Spektroskopie <u>44-50</u> (1955).	comm.
Mitrofanova, L. A.	Pulkovo. Astronomicheskaya observatoriya. Izvestiya <u>20</u> , #159, 52-54 (1958) (O.T.P. 1).	emiss., rel.
Ostrovskii, Yu. I., Penkin, N. P. & Shabanova, L. N.	Bull. Acad. Sci. U.S.S.R. Phys. Ser. <u>22</u> , 720-724 (1958).	hook
Ostrovskii, Yu. I., Penkin, N. P. & Shabanova, L. N.	Soviet Phys.-Doklady <u>3</u> , 538-540 (1958).	hook
Addink, N. W. H.	Spectrochim. Acta <u>15</u> , 349-359 (1959).	emiss.
Ostrovskii, Yu. I. & Penkin, N. P.	Optics and Spectroscopy (U.S.S.R.) <u>11</u> , 307-309 (1961).	hook & comm.
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>12</u> , 1-5 (1962).	hook
Vainshtein, L. A. & Poluektov, I. A.	Optics and Spectroscopy (U.S.S.R.) <u>12</u> , 254-257 (1962).	quant., rel.
Helliwell, T. M.	Thesis California Institute of Technology (1963).	quant.
Naqvi, A. M.	Conference on Opacity, Albuquerque, N.M., April 8 & 9, Geophysics Corporation of America, Bedford, Massachusetts.	quant.
Altick, P. L. & Glassgold, A. E.	Phys. Rev. <u>133</u> , A632-A646 (1964).	quant.
Helliwell, T. M.	Phys. Rev. <u>135</u> , A325-A331 (1964).	quant.
Huipke, E., Paul, E. & Paul, W.	Z. Physik <u>177</u> , 257-266 (1964).	life
Lurio, A., de Zafra, R. L. & Goshen, R. J.	Phys. Rev. <u>134</u> , A1198-A1203 (1964).	life
Naqvi, A. M.	J. Quant. Spectrosc. Radiat. Transfer <u>4</u> , 597-615 (1964).	quant.
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>18</u> , 535-537 (1965).	comm.

* See Section 3.2.

Ackermann, F., Baumann, M. & Gayler, J.	Z. Naturforsch. <u>21a</u> , 664-665 (1966).	life
Hudson, R. D. & Carter, V. L.	Opt. Soc. Am. Meeting, ThG12, p. 22, March (1966).	absorpt.
Letfus, V.	Optics and Spectroscopy (U.S.S.R.) <u>21</u> , 371-374 (1966).	comm.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 89-91 (1967).	quant.
Ma, I.-J., zuPutlitz, G. & Schütte, G.	Z. Physik <u>208</u> , 276-298 (1967).	life
Brinkman, U.	Thesis Technischen Univ. Hannover (1968).	life
Ma, I.-J., zu Putlitz, G. & Schütte, G.	Z. Physik <u>208</u> , 276-285 (1968).	misc.
Sr II		
Kruithof, A. M. & Smit, J. A.	Physica <u>11</u> , 129-143 (1944) (transl.).	estim.
Nikonova, E. I. & Prokof'ev, V. K.	Optika i Spektroskopiya <u>1</u> , 290-297 (1956) (transl.).	hook, rel.
Dvornikova, I. U. & Nagibina, I. M.	Optika i Spektroskopiya <u>4</u> , 421-429 (1958) (O.T.P.2).	emiss., rel.
Mitrofanova, L. A.	Pulkovo, Astronomi Cheskaia Observatoriia, Izvestiia <u>20</u> , #159, 52-54 (1958) (O.T.P. 1).	emiss., rel.
Ostrovskii, Yu. I. & Penkin, N. P.	Optics and Spectroscopy (U.S.S.R.) <u>10</u> , 3-6 (1961).	hook
Ostrovskii, Yu. I. & Penkin, N. P.	Optics and Spectroscopy (U.S.S.R.) <u>11</u> , 307-309 (1961).	comm.
Roberts, T. G. & Hales, W. L.	U. S. Army Missile Command Redstone Arsenal, Alabama, Report No. RR-TR-62-8 (1962).	CA
Bialas-Zabawa, A., Skulska, E. & Walach, Z.	Acta Phys. Polon. <u>26</u> , 175-183 (1964).	quant., rel.
Gallagher, A.	Phys. Rev. <u>157</u> , 24-30 (1967).	life
Warner, B.	Monthly Notices Roy. Astron. Soc. <u>139</u> , 115-128 (1968).	quant. & quant. forb.
v. Specht, J.	Z. Naturforsch. <u>24a</u> , 457-458 (1969).	emiss.

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Tb (Terbium)*

Tb I

Corliss, C. H.	J. Quant. Spectrosc. Radiat. Transfer. <u>8</u> , 1185-1191 (1968).	emiss., rel.
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* See Section 3.2.

Te (Tellurium)*

Te I

Lvov, B. V. Optics and Spectroscopy (U.S.S.R.) 19, 282-284 absorpt.
(1965).

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Th (Thorium)*

Th II

Chiplis, I. V. & Ushpalis, Trudy Akademii Nauk Litovskoi S.S.R. Seriya B, 2 quant.
K. K. (25) 31-39 (1961) (O.T.P. 2).
Chiplis, I. V., & Ushpalis, K. K. Fiz. Probl. Spektroskopii, Akad. Nauk S.S.S.R., quant.
Materialy 13-Go (Trinadtsatogo) Soveshch.,
Leningrad p. 21-23 (1962).

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Ti (Titanium)*

Ti I

Frerichs, R. Ann. Physik 81, 807-845 (1926). emiss., rel.
Harrison, G. R. J. Opt. Soc. Am. 17, 389-416 (1928). emiss., rel.
Harrison, G. R. & Engwicht, H. J. Opt. Soc. Am. 18, 287-301 (1929). emiss., rel.
King, R. B. & King, A. S. Astrophys. J. 87, 24-39 (1938). absorpt., rel.
van Stekelenburg, L. H. M. Thesis Utrecht (1943). emiss., rel.
Petrie, W. Can. J. Research A 25, 42-48 (1947). comm.
Rohrlich, F. Phys. Rev. 74, 1381-1396 (1948). quant.
van Stekelenburg, L. H. M. Physica 14, 189-196 (1948). emiss., rel.
& Smit, J. A.
Mitrofanova, L. A. Pulkovo. Astronomicheskaya observatoriya. Izvestiya emiss., rel.
19, #153 107-111 (1955) (O.T.P. 1).
Ostrovskii, Yu. I., Parchevskii, Optika i Spektroskopiya 1, 821-832 (1956) (OTS hook, rel.
G. F. & Penkin, N. P. transl. 62 15508) (AD 266 653).
Addink, N. W. H. Spectrochim. Acta 15, 349-359 (1959). emiss.
Allen, C. W. Monthly Notices Roy. Astron. Soc. 121, 299-332 comm. & CA
(1960).

*See Section 3.2.

Boyarchuk, M. E. & Boyarchuk, A. A.	Akademii Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm.
Hefferlin, R., Cobb, B., Hall, D. & Lehman, C.	Astrophys. J. <u>132</u> , 259-263 (1960).	emiss., rel.
Tatum, J. B.	Monthly Notices Roy. Astron. Soc. <u>122</u> , 311-324 (1961).	emiss., rel.
Morozova, N. P. & Startsev, G. P.	Optics and Spectroscopy (U.S.S.R.) <u>17</u> , 174-176 (1964).	emiss.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.
Reinke, P.	Z. Astrophys. <u>66</u> , 234-245 (1967).	absorpt.
Boni, Jr., A. A.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 1385-1397 (1968).	emiss.
Linevsky, M. J.	Space Sciences Laboratory General Electric Co., Semi-Annual Report, Feb. (1968).	absorpt.
Ti II		
Harrison, G. R.	J. Opt. Soc. Am. <u>17</u> , 389-416 (1928).	emiss., rel.
King, R. B.	Astrophys. J. <u>94</u> , 27-29 (1941).	absorpt., rel.
van Stekelenburg, L. H. M.	Thesis Utrecht (1943).	emiss., rel.
Petrie, W.	Can. J. Research A <u>25</u> , 42-48 (1947).	comm.
Wilson, O. C.	Astrophys. J. <u>107</u> , 126-150 (1948).	misc., rel.
van Stekelenburg, L. H. M. & Smit, J. A.	Physica <u>14</u> , 189-196 (1948).	emiss., rel.
Aller, L. H., Hazen, M., Doherty, L., Grant, G., Jugaku, J., Spiegel, E. & Waddell, J.	Publications of the Observatory, Univ. of Michigan (Feb. 19, 1954).	misc., rel.
Mitrofanova, L. A.	Pulkovo. Astronomicheskaiia observatoriia. Izvestiia <u>19</u> , #153 107-111 (1955) (O.T.P. 1).	emiss., rel.
Varsavsky, C. M.	Thesis Harvard (1958).	quant.
Boyarchuk, M. E. & Boyarchuk, A. A.	Akademii Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm.
Rountree, J. C.	Ann. astrophys. <u>23</u> , 633-654 (1960) (transl.).	comm.
Houziaux, L. & Sadoine, M. P.	Bull. soc. roy. sci. Liège <u>30</u> , 287-299 (1961).	CA
Tatum, J. B.	Monthly Notices Roy. Astron. Soc. <u>122</u> , 311-324 (1961).	emiss., rel.
Aller, L. H.	Univ. of Michigan, Dept. of Astronomy Technical Note #3 (1962).	misc.
Wobig, K. H.	Z. Astrophysik <u>55</u> , 100-109 (1962).	emiss.
Warner, B.	Memoirs Roy. Astron. Soc. <u>70</u> , 165-253 (1967).	emiss., rel. & CA
Boni, Jr., A. A.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 1385-1397 (1968).	emiss.

Mendlowitz, H.	Astrophys. J. <u>154</u> , 1099-1110 (1968).	quant., & quant., rel.
Ti V		
Cowan, R. D.	J. Opt. Soc. Am. <u>58</u> , 924-933 (1968).	quant.
Ti VII		
Pasternack, S.	Astrophys. J. <u>92</u> , 129 (1940).	quant. forb.
Ti X		
Fischer, C. F.	J. Quant. Spectrosc. Radiat. Transfer <u>8</u> , 755-761 (1968).	quant.
Ti XIII		
Kastner, S. O., Omidvar, K. & Underwood, J. H.	Astrophys. J. <u>148</u> , 269-273 (1967).	quant.
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Tl (Thallium)*		
Tl I		
Kuhn, W.	Naturwissenschaften <u>13</u> , 724-726 (1925).	life
Kuhn, W.	Kgl. Danske Videnskab. Selskab Mat.-fys. Medd. <u>2</u> , 1-86 (1926).	misc.
Prokof'ev, V. K. & Solov'ev, V. N.	Z. Physik <u>48</u> , 276-285 (1928).	hook, rel.
Filippov, A. N. & Prokof'ev, N. K.	Z. Physik <u>85</u> , 647-660 (1933).	hook
Prokof'ev, V. K. & Filippov, A. N.	Zhur. Eksptl. i Teoret. Fiz. <u>4</u> , 31-42 (1933) (O.T.P. 1).	hook, rel.
Müller, F.	Helv. Phys. Acta <u>2</u> , 488-491 (1934).	absorpt.
Müller, F.	Helv. Phys. Acta <u>2</u> , 813-840 (1934).	absorpt.
Müller, F.	Helv. Phys. Acta <u>8</u> , 152-164 (1935).	absorpt.
Kvater, G. S.	Zhur. Eksptl. i Teoret. Fiz. <u>5</u> , 426-439 (1935) (O.T.P. 1).	hook, rel.
Kvater, G. S.	Physik. Z. Sowjetunion <u>2</u> , 226 (1935).	hook, rel.
Kvater, G. S.	Zhur. Eksptl. i Teoret. Fiz. <u>11</u> , 421-439 (1941).	hook
Kvater, G. S.	Zhur. Eksptl. i Teoret. Fiz. <u>11</u> , 440-447 (1941).	comm.
Kvater, G. S.	J. Phys. U.S.S.R. <u>6</u> , 145-162 (1942).	hook
Kvater, G. S.	J. Phys. U.S.S.R. <u>6</u> , 210-217 (1942).	comm.
Kvater, G. S.	Vestnik Leningrad Univ. Ser. Fiz. i Khim. No. 2, 135-141 (1947) (O.T.P. 1).	hook

* See Section 3.2.

Stephenson, G.	Nature <u>167</u> , 112 (1951).	misc.
Stephenson, G.	Proc. Phys. Soc. London A <u>64</u> , 458-464 (1951).	misc.
Marr, G. U.	Proc. Roy. Soc. London A <u>224</u> , 83-90 (1954).	absorpt.
Nikonova, E. I. & Prokof'ev, V. K.	Optika i Spektroskopiya <u>1</u> , 290-297 (1956) (transl.).	hook, rel.
Hinnov, E. & Kohn, H.	J. Opt. Soc. Am. <u>47</u> , 156-162 (1957).	emiss.
Gurvich, L. V.	Optika i Spektroskopiya <u>5</u> , 205-207 (1958) (O.T.P. 1).	comm.
Vainshtein, L. A.	Bull. Acad. Sci. U.S.S.R. Phys. Ser. <u>22</u> , 668-669 (1958).	SCF & comm.
Brehm, B., Demtröder, W. & Osberghaus, O.	Z. Naturforsch. <u>16a</u> , 843 (1961).	life
Demtröder, W.	Thesis Bonn (1961).	life
Hanus, W.	Bull. acad. polon. sci. Classe 3, <u>8</u> , 629-636 (1961).	quant.
Tolans, E. L. & Lurio, A.	Bull. Am. Phys. Soc. (2) <u>6</u> , 75 (1961).	life
Demtröder, W.	Z. Physik <u>166</u> , 42-55 (1962).	life
Korolev, F. A. & Odintsov, A. I.	Fiz. Probl. Spektroskopi, Akad. Nauk S.S.S.R., Materialy 13-Go (Trinadtsatago) Soveshch., Leningrad p. 67-69 (1962).	incompl.
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>14</u> , 87-88 (1963).	hook
Gallagher, A. & Lurio, A.	Phys. Rev. <u>136</u> , A87-A105 (1964).	life
Series, G. W. & Gough, W.	Acta Phys. Polon. <u>26</u> , 345-351 (1964).	life
Gough, W. & Series, G. W.	Proc. Phys. Soc. London A <u>85</u> , 469-479 (1965).	life
Lawrence, G. M., Link, J. K. & King, R. B.	Astrophys. J. <u>141</u> , 293-307 (1965).	absorpt.
Penkin, N. P. & Shabanova, L. N.	Optics and Spectroscopy (U.S.S.R.) <u>18</u> , 535-537 (1965).	comm.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>20</u> , 209-213 (1966).	quant.
Marr, G. V. & Heppinstall, R.	Proc. Phys. Soc. London A <u>87</u> , 293-298 (1966).	quant.
Anderson, E. M., Anderson, E. K. & Trusov, V. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 471-473 (1967).	quant.
Cunningham, P. T. & Link, J. K.	J. Opt. Soc. Am. <u>52</u> , 1000-10007 (1967).	life
Pickett, R. C. & Anderson, R.	J. Quant. Spectrosc. Radiat. Transfer <u>2</u> , 697- 704 (1969).	life
Seelbach, H. E. & v.Sichart, F.	Z. Physik <u>222</u> , 128-137 (1969).	life
Tl II		
Knox, R. S. & Dexter, D. L.	Phys. Rev. <u>104</u> , 1245-1252 (1956).	estim., rel.
Helliwell, T. M.	Thesis California Institute of Technology (1963).	quant.
Helliwell, T. M.	Phys. Rev. <u>135</u> , A325-A331 (1964).	quant.
Lemos, A. M. & Burke, E. A.	Bull. Am. Phys. Soc. Series II, <u>12</u> , 336 (1967).	quant.

Tm (Thulium)*

Tm I

Handrich, E., Kretzen, H., Lange, W., Steudel, A. Wallenstein, R. & Walther, H.	Proc. of Conf. on Optical Pumping and Line Shape, Warsaw (1968) to be published.	life
Handrich, E., Steudel, A., Wallenstein, R. & Walther, H.	J. de Physique, Proceedings of the "Colloque de Spectroscopie Atomique," Caen, (1968).	life

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V (Vanadium)*

V I

Frerichs, R.	Ann. Physik <u>81</u> , 807-845 (1926).	emiss., rel.
King, R. B.	Astrophys. J. <u>105</u> , 376-389 (1947).	absorpt., rel.
Righini, G.	Mem. soc. astron. ital. <u>19-20</u> , 303-311 (ed Allen, C. W., University Press, Princeton, 1948-1949) (transl.).	misc., rel.
Ostrovskii, Yu. I. & Penkin, N. P.	Optika i Spektroskopiya <u>5</u> , 345-353 (1958) (O.T.P.1).	hook, rel.
Addink, N. W. H.	Spectrochim. Acta <u>15</u> , 349-359 (1959).	emiss.
Allen, C. W.	Monthly Notices Roy. Astron. Soc. <u>121</u> , 299-332 (1960).	comm. & CA
Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm.
Morozova, N. P. & Startsev, G. P.	Optics and Spectroscopy (U.S.S.R.) <u>17</u> , 174-176 (1964).	emiss.
Stewart, J. C. & Rotenberg, M.	Phys. Rev. <u>140</u> , 1508A-1519A (1965).	quant.

V II

Wilson, O. C.	Astrophys. J. <u>107</u> , 126-150 (1948).	misc., rel.
Aller, L. H., Hazen, M., Doherty, L., Grant, G., Jugaku, J., Spiegel, E. & Waddell, J.	Publications of the Observatory, Univ. of Michigan (Feb. 19, 1954).	misc., rel.
Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. Izvestiia <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm.
Groth, H. G.	Z. Astrophys. <u>51</u> , 231-285 (1961).	misc.
Warner, B.	Memoirs Roy. Astron. Soc. <u>70</u> , 165-253 (1967).	emiss., rel.

* See Section 3.2.

V III

- Zhvironaite, S. A.,
Konstantinavichius, K. V.,
& Rakauskas, R. I.
Mendlowitz, N. Litovskii Fizicheskii Sbornik 2, 17-31 (1962). SCF
Astrophys. J. 138, 1277-1296 (1963). quant., rel.

V VI

- Cowan, R. D. J. Opt. Soc. Am. 58, 924-933 (1968). quant.

V VIII

- Pasternack, S. Astrophys. J. 92, 129 (1940). quant. forb.

V X

- Pottasch, S. R. Monthly Notices Roy. Astron. Soc. 128, 73-92 (1964). quant. forb.

V XI

- Fischer, C. F. J. Quant. Spectrosc. Radiat. Transfer 8, 755-761 (1968). quant.

V XIII

- Stewart, J. C. & Rotenberg, M. Phys. Rev. 140, 1508A-1519A (1965). quant.

V XIV

- Kastner, S. O., Omidvar, K. &
Underwood, J. H. Astrophys. J. 148, 269-273 (1967). quant.

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Xe (Xenon) *

Xe I

- Petersen, R. Phys. & Chem. Solids 1, 284 (1957). quant., rel.
Statz, H., Tang, C. L. & Koster,
G. F. J. Appl. Phys. 34, 2625-2632 (1963). quant., rel.
Tang, C. L. Proceedings of the IEEE 51, 219 (1963). quant., rel.
Faust, W. L. & McFarlane, R. A. J. Appl. Phys. 35, 2010-2015 (1964). quant., rel.
Anderson, D. K. Phys. Rev. 137, A21-A26 (1965). life
Malakhov, V. P. Izvestiia Uysshikh Uchebnykh Zavedenii Fizika 8, 180 (1965). incompl.
Chashchina, G. I. & Shreider,
E. Ya. Optics and Spectroscopy (U.S.S.R.) 20, 283-284 (1966). absorpt.
Dow, J. D. & Knox, R. S. Phys. Rev. 152, 50-56 (1966). SCF

Wilkinson, P. G.	J. Quant. Spectrosc. Radiat. Transfer <u>6</u> , 823-831 (1966).	absorpt.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 170-171 (1967).	quant.
Hutcherson, J. W. & Griffin, P. M.	Bull. Am. Phys. Soc. II, <u>12</u> , 524 (1967).	absorpt.
Lewis, E. L.	Proc. Phys. Soc. London <u>92</u> , 817-825 (1967).	comm.
Wilkinson, P. G.	Can. J. Phys. <u>45</u> , 1709-1713 (1967).	comm.
Allen, L., Jones, D. G. C. & Schofield, D. G.	J. Opt. Soc. Am. <u>59</u> , 842-847 (1969).	life
Chenevier, M.	Comp. rend. <u>268B</u> , 1179-1182 (1969).	life

Xe II

Edlén, B.	Phys. Rev. <u>65</u> , 248 (1944).	quant. forb.
Allen, L., Jones, D. G. C. & Schofield, D. G.	J. Opt. Soc. Am. <u>59</u> , 842-847 (1969).	life

Xe III

Edlén, B.	Phys. Rev. <u>65</u> , 248 (1944).	quant. forb.
Österbrock, D. E.	Astrophys. J. <u>114</u> , 469-472 (1951).	quant. forb.

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Y (Yttrium)*

Y I

Goldberg, L., Müller, E. A. & Aller, L. H.	Astrophys. J. Suppl. Ser. <u>5</u> , #45, 1-137 (1960).	CA
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Y II

Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. izvestiia <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm., rel.
Krueger, T. K., Aller, L. H., Ross, J. & Czyzak, S. J.	Astrophys. J. <u>152</u> , 765-775 (1968).	SCF

Y III

Kunisz, M. D., Lubowiecka, T., Muryn, A., Niziol, E. & Szynarowska, M.	Acta. Phys. Polon. <u>33</u> , 665-671 (1968).	emiss., rel.
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* See Section 3.2.

Yb (Ytterbium)*

Yb I

Baumann, M. & Wandel, G.	Phys. Letters <u>22</u> , 283-285 (1966).	life
Budick, B. & Snir, J.	Bull. Am. Phys. Soc. Series II, <u>12</u> , 186 (1967).	life

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Zn (Zinc)*

Zn I

Prokof'ev, V. K.	Z. Physik <u>50</u> , 701-715 (1928).	estim.
Larche, K.	Z. Physik <u>67</u> , 440-477 (1931).	misc., rel.
Prokof'ev, V. K.	Zhur. Eksptl. i Teoret. Fiz. <u>1</u> , 111-122 (1931) (O.T.P. 1).	estim.
Filippov, A. N.	Physik. Z. Sowjetunion <u>1</u> , 289-296 (1932).	hook, rel.
Filippov, A. N.	Trudy Gosudarst. Opt. Inst. Leningrad <u>8</u> , #77, 1-8 (1932) (O.T.P. 1).	hook, rel.
Soleillet, P.	Compt. rend. <u>195</u> , 372-373 (1932) (transl.).	life
Russell, H. N.	Astrophys. J. <u>78</u> , 239-297 (1933).	estim.
Billeter, W.	Helv. Phys. Acta <u>7</u> , 505-513 (1934).	absorpt.
Billeter, W.	Helv. Phys. Acta <u>7</u> , 841-842 (1934).	comm.
Soleillet, P.	Compt. rend. <u>204</u> , 253-255 (1937).	absorpt.
Ausländer, J.	Helv. Phys. Acta <u>11</u> , 562-586 (1938).	absorpt.
Mason, R. C.	Physica <u>5</u> , 777-783 (1938).	emiss., rel.
Bruck, H.	Compt. rend. <u>208</u> , 1805-1807 (1939) (transl.).	life
King, G. W. & van Vleck, J. H.	Phys. Rev. <u>56</u> , 464-465 (1939).	quant. forb., rel.
Bruck, H.	Thesis Paris (1942) (transl.).	life
Bruck, H.	Compt. rend. <u>214</u> , 307-309 (1942) (transl.).	life
Schuttevaer, J. W.	Thesis Utrecht (1942).	emiss., rel.
Schuttevaer, J. W. & Smit, J. A.	Physica <u>10</u> , 502-512 (1943).	emiss., rel.
Schuttevaer, J. W., de Bont, M. J. & van den Broek, Th. H.	Physica <u>10</u> , 544-552 (1943).	emiss., rel.
Spitzer, M.	Compt. rend. <u>239</u> , 696-698 (1954) (transl.).	life
Geneux, E. & Wanders-Vincenz, B.	Helv. Phys. Acta <u>33</u> , 185-220 (1960) (transl.).	life
May, A. D.	Compt. rend. <u>250</u> , 3616-3617 (1960) (transl.).	life
May, A. D.	Compt. rend. <u>251</u> , 1371-1372 (1960) (transl.).	life

* See Section 3.2.

Penkin, N. P. & Red'ko, T. P.	Optics and Spectroscopy (U.S.S.R.) <u>2</u> , 360 (1960).	hook, rel.
Leś, Z. & Niewodniczański, H.	Acta Phys. Polon. <u>20</u> , 701-714 (1961).	& emiss., rel.
Garstang, R. H.	J. Opt. Soc. Am. <u>52</u> , 845-851 (1962).	emiss., rel.
Vainshtein, L. A. & Poluektov, I. A.	Optics and Spectroscopy (U.S.S.R.) <u>12</u> , 254-257 (1962).	quant.
Helliwell, T. M.	Thesis California Institute of Technology (1963).	quant., rel.
Kornalewski, T. & Niewodniczański, H.	Acta Phys. Polon. <u>24</u> , 601-609 (1963).	emiss., rel.
Helliwell, T. M.	Phys. Rev. <u>135</u> , A325-A331 (1964).	quant.
Landman, A. & Novick, R.	Phys. Rev. <u>134</u> , A56-A65 (1964).	life
Lurio, A., de Zafra, R. L. & Goshen, R. J.	Phys. Rev. <u>134</u> , A1198-A1203 (1964).	life
Lvov, B. V.	Optics and Spectroscopy (U.S.S.R.) <u>12</u> , 282-284 (1965).	absorpt.
Barrat, M. & Duclos, J.	Comp. rend. <u>263</u> , 1170-1173 (1966).	life
Moise, N. L.	Astrophys. J. <u>144</u> , 763-773 (1966).	absorpt.
Moise, N. L.	Astrophys. J. <u>144</u> , 782-784 (1966).	misc.
Ionescu-Pallas, N. J.	Revue Roumaine de Physique <u>11</u> , 643-647 (1966).	quant.
Garstang, R. H.	Astrophys. J. <u>148</u> , 579-584 (1967).	quant. forb.
Gruzdev, P. F.	Optics and Spectroscopy (U.S.S.R.) <u>22</u> , 89-91 (1967).	quant.
Kancerevicius, A.	Litovskii Fizicheskii Sbornik (U.S.S.R.) <u>7</u> , 321-327 (1967).	quant., rel.
Zilitis, V. A.	Optics and Spectroscopy (U.S.S.R.) <u>25</u> , 361-362 (1968).	SCF & quant.
Zn II		
Russell, H. N.	Astrophys. J. <u>78</u> , 239-297 (1933).	estim.
Bruck, H.	Compt. rend. <u>208</u> , 1805-1807 (1939) (transl.).	life
Geneux, E. & Wanders-Vincenz, B.	Phys. Rev. Letters <u>3</u> , 422-423 (1959).	life
Geneux, E. & Wanders-Vincenz, B.	Helv. Phys. Acta <u>33</u> , 185-220 (1960) (transl.).	life
Bialas-Zabawa, A., Kuchari, M., Skulska, E., Urbaczka, J. & Walach, Z.	Acta. Phys. Polon. <u>30</u> , 897-900 (1966).	quant.
McGinn, G.	J. Chem. Phys. <u>50</u> , 1404-1418 (1969).	quant.

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Zr I

Goldberg, L., Müller, E. A. & Aller, L. H.	Astrophys. J. Suppl. Ser. <u>5</u> , #45, 1-137 (1960).	CA
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Zr II

Boyarchuk, M. E. & Boyarchuk, A. A.	Akademiia Nauk S.S.S.R. Krymskaia astrofizicheskaia observatoriia. izvestiia <u>22</u> , 234-256 (1960) (O.T.P. 1).	comm., rel.
Houziaux, L. & Sadoine, M. P.	Bull. soc. roy. sci. Liège <u>30</u> , 287-299 (1961).	CA

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* See Section 3.2.

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