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A BIBLIOGRAPHY OF ATOMIC LINE IDENTIFICATION LISTS II. AUGUST 1978 SUPPLEMENT

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Additional references are provided for the bibliography of atomic line identification lists by Adelman and Snijders.

Key words: atomic spectra - line identifications - bibliography

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1. INTRODUCTION

Adelman and Snijders (1974) published a bibliography of atomic line identification lists which supplements the material in the *Ultraviolet and Revised Multiplet Tables* (Moore 1945, 1950, 1952, 1962) and in Kelly and Palumbo (1973). The bibliography contains references with wavelengths in the 911 Å to 8250 Å region. Most of the references in this supplement have been published since June 1974 and are concerned with the first four spectra of all elements. References to higher spectra of astrophysical importance are included in this paper which were not in the original paper among the light and iron-peak elements.

New entries are made for the revised edition of Meggers, Corliss, and Scribner (1975) when additional data are given. For Rb I, Sr I, and Mo I, no new entries have been made as the material appears to be identical with that in the 1962 edition. No comments are made on which other sources are to be deleted from Adelman and Snijders (1974) as in most cases it can be determined by examining the newer material. Each reference lists the wavelength range covered and the type of paper: NMT = multiplet table, A = analysis, RA = revised analysis, EA = extension of the analysis, W = line list, TC = temperature classification, and CL = classified lines. In all cases, the user should examine the references to ascertain their quality.

Since 1974, several publications of related interest have appeared. Hagan's (1977) "Bibliography on Atomic Energy Levels and Spectra, June 1971 through June 1975" contains references to a wider variety of papers than this study. In addition, atomic energy level compilations of iron peak (Reader and Sugar 1975; Corliss and Sugar 1977; Sugar and Corliss 1977) and rare-earth elements (Martin, Zalubas, and Hagan 1978) have been published as well as updated multiplet tables and atomic energy level compilations of N I - N III and of O I (Moore 1975, 1976). Furthermore, Adelman, Shore, and Nasson (1977) have published "An Astronomically Oriented Bibliography of Atomic Autoionization", Fuhr, Martin, and Specht (1975) "Bibliography on Atomic Line Shapes and Shifts (July 1973 through May 1975)", Fuhr, Miller, and Martin (1978) "Bibliography on Atomic Transition Probabilities (1914 through October 1977)", and Heilig (1977) "Bibliography on Experimental Optical Isotope Shifts 1918 through October 1976". Finally there is "A Finding List for the Multiplet Tables of NSRDS-NBS 3, Sections 1-7" by Adelman, Adelman, and Fischel (1977).

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16. Moore, C. E. 1962, *An Ultraviolet Multiplet Table, NBS Circular No.* **488**, Sections III-V.
17. Moore, C. E. 1975, *NSRDS-NBS3*, Section 5.
18. Moore, C. E. 1976, *NSRDS-NBS3*, Section 7.
19. Reader, J., and Sugar, J. 1975, *J. Phys. Chem. Ref. Data*, **4**, 353.
20. Sugar, J., and Corliss, C. 1977, *J. Phys. Chem. Ref. Data*, **6**, 317.

TABLE 1

Species	Reference	Type
Li I - Li II	Andersen, N., Bickel, W. S., Carriveau, G. W., Jensen, K., and Veje, E. 1971, *Physica Scripta* **4**, 113.	[8CL, Li I 2173-3637, Li II 4843, tentative identifications]
Be I	Johansson, L. 1974, *Physica Scripta* **10**, 236.	[EA, 2147-5262]
B I	Roig, R. A., and Tondello, G. 1976, *J. Phys. B* **14**, 2373.	[EA, 993-1608]
B II - B IV	Berry, H. G., and Subtil, J. L. 1974, *Physica Scripta* **9**, 217.	[CL, B II 2042-5265, B III 2273-5292, B IV 2257-4646]
B IV	Eidelsberg, M. 1974, *J. Phys. B* **7**, 1476.	[RA, 49-4491]
C I	Feldman, U., Brown, C. M., Doschek, G. A., Moore, C. E., and Rosenberg, F. D. 1976, *J. Opt. Soc. Am.* **66**, 853.	[CL and EA, 1102-1931]
N I - N III	Moore, C. E. 1975, *NSRDS-NBS3*, Section 5 (Washington, D.C.: Government Printing Office).	[NMT, N I 611-18670, N II 453-10909, N III 208-7405]
O I	Moore, C. E. 1976, *NSRDS-NBS3*, Section 7 (Washington, D.C.: Government Printing Office).	[NMT, 666-18047]
O VI	Brokasten, K., Hallin, R., and Hughes, T. P. 1963, *Proc. Phys. Soc. (London)* **81**, 522.	[CL, 2070-5291]
Ne III - Ne IV	Marling, J. B. 1975, *IEEE Journal of Quantum Electronics QE*-II, 822.	[CL, Ne III 2177-2613; CL and W, Ne IV 2018-2373]
Na III	Minnhagen, L. 1975, *Physica Scripta* **11**, 38.	[EA, 1755-2010]
Na IV	Goto, T., Gautam, M. S., and Joshi, Y. N. 1973, *Canadian J. Phys.* **51**, 1244.	[EA, 422-2460]
	Minnhagen, L. 1966, *J. Opt. Soc. Am.* **66**, 659.	[EA, 136-413 and 1456-2157]
Mg I	Bradley, D. J., Ewart, P., Nicholas, J. V., and Shaw, J. R. D. 1975, *J. Phys. B.* **8**, 2934.	[CL, 3784-3844]
Al I	Roig, R. A. 1975, *J. Phys. B* **8**, 2939.	[EA, 1181-1434]
Al IV	Artru, M. -C., and Kaufman, V. 1975, *J. Opt. Soc. Am.* **62**, 594.	[EA, 476-4626]
Si I	Brown, C. M., Tilford, S. G., Tousey, R., and Ginter, M. L. 1974, *J. Opt. Soc. Am.* **64**, 1665.	[EA, 1517-1882]

	Brown, C. M. Tilford, S. G., and Ginter, M. L. 1975, *J. Opt. Soc. Am.* **65**, 385.	[EA of previous paper]
	Moore, C. E., Brown, C. M., Sandlin, G. D., Tilford, S. G., and Tousey, R. 1977, *Ap. J. Suppl.* **33**, 393.	[extension of multiplet table, 1200-3000]
Si V	Brillet, W. -U. L. 1976, *Physica Scripta* **13**, 289.	[EA, 501-1732]
	Brillet, W. -U. L.. and Artru, M. -C. 1976, *Physica Scripta* **14**, 285.	[EA, 460-3604]
P III	Magnusson, C. E., and Zetterberg, P. O. 1977, *Physica Scripta* **15**, 237.	[EA, 395-8315]
P IV	Zetterberg, P. O., and Magnusson, C. E. 1977, *Physica Scripta* **15**, 189.	[EA, 256-9603]
P V	Magnusson, C. E., and Zetterberg, P. O. 1974, *Physica Scripta* **10**, 177.	[RA, 209-6908]
P VI	Eidelsberg, M., and Artrum, M. -C. 1977, *Physica Scripta* **16**, 109.	[EA, 436-1345]
S VI	Bowen, I. S., and Millikan, R. A. 1925, *Phys. Rev.* **25**, 295.	[A, 388-2620]
Ar III - Ar IV	Marling, J. B. 1975, *IEEE Journal of Quantum Electronics QE*-II, 822.	[CL, Ar III 2855; CL and W, Ar IV 2113-2622]
Ca I	Palenius, H. P., and Risberg, G. 1977, *J. Phys. B* **10**, L435.	[CL, 2048-2091 and 4092-10559]
Ca III	Hansen, J. E., and Persson, W., and Borgstrom, A. 1975, *Physica Scripta* **11**, 31.	[EA, 593-815 and 2266-2361]
Ti III	Edlen, B., and Swensson, J. W. 1975, *Physica Scripta* **12**, 21.	[RA, 629-9303]
Ti V	Svensson, L. A. 1976, *Physica Scripta* **13**, 235.	[EA, 144-2386]
V V	Ekberg, J. O. 1974, *Physica Scripta* **9**, 96.	[EA, 201-485, 1045-1189, and 3316-3966]
	Van Deurzen, C. H. H., Conway, J. G., and Davis, S. P. 1974, *J. Opt. Soc. Am.* **64**, 493.	[EA, 285-8457]
	Van Deurzen, C. H. H. 1977, *J. Opt. Soc. Am.* **67**, 476.	[EA, 199-8458]
V VI	Ekberg, J. O. 1976, *Physica Scripta* **13**, 111.	[EA, 117-1630]
Cr III	Ekberg, J. O. 1976, *Physica Scripta* **14**, 109.	[RA, 756-2675]
Cr V	Ekbert, J. O. 1973, *Physica Scripta* **7**, 59.	[RA, 433-1838]
Fe I	Crosswhite, H. M. 1975, *J. Res. N. B. S.* **79A**, 17.	[EA, 1934-9000]
Fe II	Johansson, S., and Litzen, U. 1974, *Physica Scripta* **10**, 21.	[EA, 4820-6758]
	Johansson, S. 1977, *Ap. J.* **212**, 923.	[EA, 1888-1944]
Fe V	Ekberg, J. O. 1975, *Physica Scripta* **12**, 42.	[EA, 302-1714]
Fe VI	Ekberg, J. O. 1975, *Physica Scripta* **11**, 23.	[RA, 255-1583]
Ni IV	Poppe, R. 1976, *Physica* **81C**, 351.	[EA, 392-1830]
Ni V	Raassen, A. J. J., and van Kleef, Th. A. M. 1977, *Physica* **85C**, 180.	[EA, 990-1398]
Cu III	Shenstone, A. G. 1975, *J. Res. N. B. S.* **79A**, 497.	[EA, 505-6852]
Cu IV	Meinders, E. 1976, *Physica* **84C**, 117.	[RA, 360-1989]
Cu V	Van Kleef, Th. A. M., Raassen, A. J. J., and Joshi, Y. N. 1976, *Physica* **84C**, 401.	[EA, 268-1330]
Zn I	Brown, C. M., Tilford, S. G., and Ginter, M. L. 1975, *J. Opt. Soc. Am.* **65**, 1404.	[EA, 1319-3077]
Ga I	Garton, W. R. S. 1952, *Proc. Phys. Soc. (London)* **65**, 273.	[CL, 1505-1632]
Ga III	Joshi, Y. N., Bhatia, K. S., and Jones, W. E. 1972, *Spectrochimica Acta* **28B**, 149.	[RA, 620-5994]
Ga IV	Joshi, Y. N., and van Kleef, Th. A. M. 1974, *Canadian J. Phys.* **52**, 1891.	[EA, 1137-1466]
	Ryabtsev, A. N. 1975, *Opt. Spectrosc.* **39**, 239.	[EA, 422-1466]

Ge I	Brown, C. M., Tilford, S. G., and Ginter, M. L. 1977, *J. Opt. Soc. Am.* **67**, 584.	[EA, 1528-1896]
As I	Bhatia, K. S., and Jones, W. E. 1971, *Canadian J. Phys.* **49**, 1773.	[EA, 1227-1972]
Se I	George, S., Fredrickson, J. E., and Tucker, A. W. 1977, *Science of Light* **26**, 53.	[W, 1897-9272]
Se IV	Gautam, M. S., and Joshi, Y. N. 1972, *Canadian J. Phys.* **50**, 2059.	[EA, 799-2076]
Kr IV	Marling, J. B. 1975, *IEEE Journal of Quantum Electronics QE*-II, 822.	[W, 1949-2418]
Rb II	Reader, J. 1975, *J. Opt. Soc. Am.* **65**, 286.	[EA, 466-9973]
Rb III	Reader, J. 1975, *J. Opt. Soc. Am.* **65**, 988.	[EA, 1917-4677]
Rb IV	Hansen, J. E., and Persson, W. 1974, *J. Opt. Soc. Am.* **64**, 696.	[A, 595-988]
Sr I	Newson, G. H., O'Connor, S., and Learner, R. C. M. 1973, *J. Phys. B.* **6**, 2162.	[EA, 2693-26024]
Sr IV	Hansen, J. E., and Persson, W. 1976, *Physica Scripta* **13**, 166.	[EA, 264-6057]
	Persson, W. 1978, *Physica Scripta* **17**, 387.	[EA, 250-272 and 494-6470]
Y III	Epstein, G. L., and Reader, J. 1975, *J. Opt. Soc. Am.* **65**, 310.	[RA, 643-9117]
Ag I	Brown, C. M., and Ginter, M. L. 1977, *J. Opt. Soc. Am.* **67**, 1323.	[EA, 1548-1851]
	Connerade, J. P., Baig, M. A., Mansfield, M. W. D., and Radtke, E. 1978, *Proc. Roy. Soc. London* **A361**, 379.	[EA, 939-1516]
Ag II	Benschop, H., Joshi, Y. N., and van Kleef, Th. A. M. 1975, *Canadian J. Phys.* **53**, 700.	[EA, 1027-2034]
Ag III	Benschop, H., Joshi, Y. N., and van Kleef, Th. A. M. 1975, *Canadian J. Phys.* **53**, 498.	[EA, 593-2085]
Cd I	Brown, C. M., Tilford, S. G., and Ginter, M. L. 1975, *J. Opt. Soc. Am.* **65**, 1404.	[EA, 1378-3262]
Sn I	Brown, C. M., Tilford, S. G., and Ginter, M. L. 1977, *J. Opt. Soc. Am.* **67**, 607.	[EA, 1576-2042]
Te I	Mellichamp. J. W., and Vezzoli, G. C. 1972, *Applied Spectroscopy* **26**, 105.	[W, 2383-3175]
	Eriksson, K. B. S. 1973, *Phys. Lett.* **44A**, 73.	[CL, 4309-9469]
Te II	Eriksson, K. B. S. 1974, *J. Opt. Soc. Am.* **64**, 1272.	[EA, 4159-8611]
Xe I - Xe III	Tagliaferri, A. A., Lluesma, E. G., Garavaglia, M., Gallardo, M., and Mussone, C. A. 1974, *Optica Pura y Aplicada* **7**, 89.	[TC, Xe I 4925-6553, Xe II 2967-6734, Xe III 2754-6800]
Cs II	Reader, J., and Epstein, G. L. 1975, *J. Opt. Soc. Am.* **65**, 638.	[RA, 564-927]
Cs III	Epstein, G. L., and Reader, J. 1976, *J. Opt. Soc. Am.* **66**, 590.	[A, 556-1055]
Ba I	Bradley, D. J., Ewart, P., Nicholas, J. V., and Shaw, J. R. D. 1973, *J. Phys. B* **6**, 1594.	[CL, 3671-4557]
	Garton, W. R. S., and Parkinson, W. H. 1974, *Proc. Roy. Soc. London* **A341**, 45.	[EA, 1569-1711]
	Brown, C. M., and Ginter, M. L. 1978, *J. Opt. Soc. Am.* **68**, 817.	[EA, 1563-1711]
Ba II	Roig, R., and Tondello, G. 1975, *J. Opt. Soc. Am.* **65**, 829.	[RA, 1332-1697]
Ba III	Hellentin, P. 1976, *Physica Scripta* **13**, 155.	[EA, 898-10794]
Ba IV	Epstein, G. L., and Reader, J. 1976, *J. Opt. Soc. Am.* **66**,	[A, 794-924]

	590.	
La III	Johnasson, S., and Litzen, U. 1971, *J. Opt. Soc. Am.* **61**, 1427.	[EA, 5591-7196]
Ce I	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 14.	[CL, 3437-8811]
Pr I	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 203.	[CL and W, 2578-8428]
Pr II	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 203.	[CL and W, 2558-8715]
Pr III	Sugar, J. 1974, *J. Res. N. B. S.* **78A**, 555.	[CL, 2107-10717]
Nd I	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **144**, *Part 1*, 159.	[CL and W, 2764-8715]
Nd II	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 159.	[CL and W, 2962-8839]
Nd III	Cowley, C. R., Cowley, A. P., Aikman, G. C. L., and Crosswhite, H. M. 1977, *Ap. J.* **216**, 37.	[CL and W, 3590-4765]
Sm I	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 240.	[CL and W, 3245-8384]
Sm II	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 240.	[CL and W, 2690-8914]
Eu I	Smith, G., and Tomkins, F. S. 1975, *Proc. Roy. Soc. London* **A342**, 149.	[EA, 2110-2190]
	Kozlov, M. G., and Kutochigova, S. A. 1976, *Opt. Spectrosc.* **41**, 208.	[CL, 1804-7106]
	Smith, G., and Tomkins, F. S. 1976, *Phil. Trans. Roy. Soc.* **283**, 345.	[EA, 2189-3589]
Eu III	Sugar, J., and Spectro, N. 1974, *J. Opt. Soc. Am.* **64**, 1484.	[RA, 2026-8582]
Tb II	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 277.	[CL and W, 2577-8766]
Tb IV	Spector, N., and Sugar, J. 1976, *J. Opt. Soc. Am.* **66**, 436.	[A, 1176-2436]
Ho I	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 105.	[CL and W, 2533-8835]
Ho I - Ho II	Spector, N. 1977, *Ap. J.* **211**, 600.	[TC, Ho I 7591-11981, Ho II 7594-11602]
Ho II	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 105.	[CL and W, 2502-8916]
	Spector, N. 1975, *Physica Scripta* **13**, 181.	[EA, 3427 and 7341-11602]
Ho III	Wyart, J. F., Crosswhite, H. M., and Hussain, R. 1977, *Physica* **85C**, 386.	[EA, 4080-4570]
Er I	Spector, N. 1971, *J. Opt. Soc. Am.* **61**, 1350.	[CL, 7847-12469]
	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 65.	[CL, 2499-8769]
Er II	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 65.	[CL, 2341-8867]
Tm II	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 311.	[CL and W, 2284-8566]
Yb I	Meggers, W. F., and Tech, J. L. 1978, *J. Res. N. B. S.* **83**, 13.	[EA, 2155-31308]
Yb IV	Kaufman, V., and Sugar, J. 1976, *J. Opt. Soc. Am.* **66**, 439.	[A, 831-1231]
Hf I	Meggers, W. F., and Moore, C. E. 1976, *Nat. Bur. Std. Mono.* **153**.	[EA, 2017-12044]
Hf IV	Meijer, F. G. 1974, *Physica* **72**, 431.	[CL, 647-668 and 7267-8036]
Ta IV	Meijer, F. G., and Metsch, B. C. 1978, *Physica* **94C**, 259.	[A, 763-3076]

Ir II	Meggers, W. F., Corliss, C. H., and Scribner, B. F. 1975, *Nat. Bur. Std. Mono.* **145**, *Part 1*, 115.	[CL and W, 2126-3732]
Au I	Brown, C. M., and Ginter, M. L. 1978, *J. Opt. Soc. Am.* **68**, 243.	[EA, 1305-1880]
Pb I	Brown, C. M., Tilford, S. G., and Ginter, M. L. 1977, *J. Opt. Soc. Am.* **67**, 1240.	[EA, 1353-2042]
	Assous, R. 1972, *J. Opt. Soc. Am.* **62**, 544.	[CL, 2536-3252]
Pb II	Wood, D. R., Ross, C. B., Scholl, P. S., and Hoke, M. L. 1974, *J. Opt. Soc. Am.* **64**, 1159.	[RA, 1796-9064]
Pb IV	Gutmann, F., and Crooker, A. M. 1973, *Canadian J. Phys.* **51**, 1823.	[EA, 340-9000]
Bi I	Assous, R. 1972, *J. Opt. Soc. Am.* **62**, 544.	[CL, 2134-3146]
Tl I	Connerade, J. P., Garton, W. R. S., Mansfield, M. W. D., and Martin, M. A. P. 1976, *Proc. Roy. Soc. London* **A350**, 47.	[EA, 544-1196]
	Kozlov, M. G., and Krylov, B. E. 1975, *Opt. Spectrosc.* **38**, 471.	[CL, 926-1189]
Tl III	Gutmann, F., and Crooker, A. M. 1973, *Canadian J. Phys.* **51**, 1823.	[EA, 340-9000]
Th I	Zalubas, R. 1976, *J. Res. N. B. S.* **80A**, 221.	[RA, 2345-29663]
Np I	Fred, M., Tomkins, F. S., Blaise, J. E., Camus, P., and Verges, J. 1976, *Argonne National Laboratory ANL-76-68.*	[A, 2574-26353]
Cm I - Cm II	Worden, E. F., Hulet, E. K., and Gutmacher, R. G. 1976, *Atomic Data and Nuclear Data Tables* **18**, 459.	[TC, Cm I 2604-10827, Cm II 2430-8892]