

Bibliography

- [1] J. J. Balmer, *Ann. Phys. Chem.* **25**, 80 (1885).
- [2] J. R. Rydberg, *Kgl. Svenska Akad. Handl.* **23**, 1 (1889).
- [3] G. Onida, L. Reining, and A. Rubio, *Rev. Mod. Phys.* **74**, 601 (2002).
- [4] J. C. Boyce, *Rev. Mod. Phys.* **13**, 1 (1941).
- [5] G. Herzberg, *J. Mol. Spectrosc.* **33**, 147 (1970).
- [6] P. M. Dehmer and W. A. Chupka, *J. Chem. Phys.* **65**, 2243 (1976).
- [7] E. Reinhold, W. Hogervorst, and W. Ubachs, *Phys. Rev. Lett.* **78**, 2543 (1997).
- [8] E. Reinhold, W. Hogervorst, and W. Ubachs, *Chem. Phys. Lett.* **296**, 411 (1998).
- [9] E. McCormack and E. Eyler, *Phys. Rev. Lett.* **66**, 1042 (1991).
- [10] E. McCormack, S. T. Pratt, P. M. Dehmer, and J. L. Dehmer, *J. Chem. Phys.* **98**, 8370 (1993).
- [11] M. D. Lukin *et al.*, *Phys. Rev. Lett.* **87**, 037901 (2001).
- [12] M. D. Lukin, *Rev. Mod. Phys.* **75**, 457 (2003).
- [13] S. Haroche, *Fortschr. Phys.* **51**, 388 (2003).
- [14] C. Rangan, J. Ahn, D. N. Hutchinson, and P. H. Bucksbaum, *Phys. Rev. A* **66**, 022312 (2002).
- [15] J. Ahn, T. C. Weinacht, and P. H. Bucksbaum, *Science* **287**, 463 (2000).
- [16] T. Gallagher, P. Pillet, M. P. Robinson, B. Laburthe-Tolra, and M. W. Noel, *J. Opt. Soc. Am. B* **20**, 1091 (2003).
- [17] T. C. Killian, M. J. Lin, S. Kulin, R. Dumke, S. D. Bergeson, and S. L. Ralston, *Phys. Rev. Lett.* **86**, 3759 (2001).
- [18] S. Kulin, T. C. Killian, and S. D. Bergeson, *Phys. Rev. Lett.* **85**, 318 (2000).
- [19] T. C. Killian, S. Kulin, S. D. Bergeson, L. A. Orozco, C. Orzel, and S. L. Ralston, *Phys. Rev. Lett.* **83**, 4776 (1999).

- [20] J. R. R. Verlet, V. G. Stavros, R. S. Minns, and H. H. Fielding, *Phys. Rev. Lett.* **89**, 263004 (2003).
- [21] W. C. Magno, R. B. Prandini, P. Nussenzveig, and S. S. Vianna, *Phys. Rev. A* **63**, 063406 (2001).
- [22] C. Boisseau, I. Simbotin, and R. Côté, *Phys. Rev. Lett.* **88**, 133004 (2002).
- [23] A. L. de Oliveira, M. W. Mancini, V. S. Bagnato, and L. G. Marcassa, *Phys. Rev. Lett.* **90**, 143002 (2003).
- [24] F. Merkt, *Chimia* **54**, 89 (2000).
- [25] B. H. Bransden and C. J. Joachain, *Physics of Atoms and Molecules* (Longman Group Limited, Essex, 1983).
- [26] H. Friedrich, *Theoretical Atomic Physics* (Springer-Verlag, Berlin, 1990).
- [27] C. H. Greene and C. Jungen, *Adv. At. Mol. Phys.* **21**, 51 (1985).
- [28] V. Kokoouline and C. H. Greene, *Phys. Rev. A* **68**, 012703 (2003).
- [29] W. Kolos and L. Wolniewicz, *J. Chem. Phys.* **41**, 3674 (1964).
- [30] W. Kolos and L. Wolniewicz, *J. Chem. Phys.* **49**, 404 (1968).
- [31] D. M. Bishop and L. M. Cheung, *Phys. Rev. A* **16**, 640 (1977).
- [32] L. Wolniewicz and J. D. Poll, *J. Chem. Phys.* **73**, 6225 (1980).
- [33] W. Kolos and K. Szalewicz, *J. Chem. Phys.* **84**, 3278 (1986).
- [34] B. D. Esry and H. R. Sadeghpour, *Phys. Rev. A* **60**, 3604 (1999).
- [35] L. Wolniewicz, *J. Chem. Phys.* **78**, 6173 (1983).
- [36] W. Kolos and L. Wolniewicz, *J. Chem. Phys.* **48**, 3672 (1968).
- [37] C. H. Greene and C. Jungen, *Phys. Rev. Lett.* **55**, 1066 (1985).
- [38] H. Gao and C. H. Greene, *J. Chem. Phys.* **91**, 3988 (1989).
- [39] H. Gao and C. H. Greene, *Phys. Rev. A* **42**, 6946 (1990).
- [40] C. Jungen and O. Atabek, *J. Chem. Phys.* **66**, 5584 (1977).
- [41] R. M. More, *Phys. Rev. A* **3**, 1217 (1971).
- [42] R. M. More, *Phys. Rev. A* **4**, 1782 (1971).
- [43] C. Greene, U. Fano, and G. Strinati, *Phys. Rev. A* **19**, 1485 (1979).
- [44] M. Aymar, C. H. Greene, and E. Luc-Koenig, *Rev. Mod. Phys.* **68**, 1015 (1996).
- [45] U. Fano, *Phys. Rev. A* **2**, 353 (1970).

- [46] M. Raoult and C. Jungen, *J. Chem. Phys.* **74**, 3388 (1980).
- [47] C. Jungen and D. Dill, *J. Chem. Phys.* **73**, 3338 (1980).
- [48] F. Robicheaux, *Phys. Rev. A* **48**, 4162 (1993).
- [49] P. M. Dehmer and W. A. Chupka, *J. Chem. Phys.* **79**, 1569 (1983).
- [50] N. Y. Du and C. H. Greene, *J. Chem. Phys.* **85**, 5430 (1986).
- [51] E. L. Hamilton and C. H. Greene, *Phys. Essays* **13**, 265 (2000).
- [52] H. Gao, C. Jungen, and C. H. Greene, *Phys. Rev. A* **47**, 4877 (1993).
- [53] C. Jungen, *Phys. Rev. Lett.* **53**, 2394 (1984).
- [54] J. A. Stephens and C. H. Greene, *J. Chem. Phys.* **103**, 5470 (1995).
- [55] M. Glass-Maujean, J. Breton, and P. M. Guyon, *Z. Phys. D* **5**, 189 (1987).
- [56] G. M. Greetham, U. Hollenstein, R. Seiler, W. Ubachs, and F. Merkt, *Phys. Chem. Chem. Phys.* **5**, 2528 (2003).
- [57] E. Fermi, *Nuovo Cimento* **11**, 159 (1934).
- [58] E. Fermi, *Ric. Scientifica* **7**, 13 (1936).
- [59] M. H. Mittleman, *Phys. Rev.* **162**, 81 (1967).
- [60] N. Allard and J. Kielkopf, *Rev. Mod. Phys.* **54**, 1103 (1982).
- [61] I. L. Beigman and V. S. Lebedev, *Phys. Rep.* **20**, 95 (1995).
- [62] L. P. Presnyakov, *Phys. Rev. A* **2**, 1720 (1970).
- [63] Y. N. Demkov and V. N. Ostrovskii, *Zero-Range Potentials and Their Applications in Atomic Physics* (Plenum Press, New York, 1988 (USSR, 1975)).
- [64] G. K. Ivanov, *Opt. Spectrosc. (USSR)* **37**, 361 (1974).
- [65] V. S. Dubov, *J. Chem. Phys.* **97**, 7342 (1992).
- [66] V. Dubov and H. Rabitz, *J. Chem. Phys.* **104**, 551 (1996).
- [67] E. de Prunelé, *Phys. Rev. A* **35**, 496 (1987).
- [68] G. K. Ivanov, *Opt. Spectrosc. (USSR)* **43**, 617 (1977).
- [69] N. Y. Du and C. H. Greene, *Phys. Rev. A* **36**, 971 (1987).
- [70] N. Y. Du and C. H. Greene, *J. Chem. Phys.* **390**, 6347 (1989).
- [71] C. H. Greene, A. S. Dickinson, and H. R. Sadeghpour, *Phys. Rev. Lett.* **85**, 2458 (2000).

- [72] J. Léonard, M. Walhout, A. P. Mosk, T. Muller, M. Leduc, and C. Cohen-Tannoudji, *Phys. Rev. Lett.* **91**, 073203 (2003).
- [73] B. E. Granger, E. L. Hamilton, and C. H. Greene, *Phys. Rev. A* **64**, 042508 (2001).
- [74] A. A. Khuskivadze, M. I. Chibisov, and I. I. Fabrikant, *Phys. Rev. A* **66**, 042709 (2002).
- [75] A. Omont, *J. Phys. (Paris)* **38**, 1343 (1977).
- [76] C. Bahrim, U. Thumm, and I. I. Fabrikant, *Phys. Rev. A* **63**, 042710 (2001).
- [77] C. Bahrim and U. Thumm, *Phys. Rev. A* **64**, 022716 (2001).
- [78] C. Bahrim, U. Thumm, and I. I. Fabrikant, *Phys. Rev. A* **61**, 022722 (2000).
- [79] E. L. Hamilton, C. H. Greene, and H. R. Sadeghpour, *J. Phys. B: At. Mol. Opt. Phys.* **35**, 199 (2002).
- [80] W. E. Cooke and T. F. Gallagher, *Phys. Rev. A* **21**, 588 (1980).
- [81] J. Pascale, *Phys. Rev. A* **28**, 1632 (1983).
- [82] J. Brust and C. H. Greene, *Phys. Rev. A* **56**, 2005 (1997).
- [83] D. B. Khrebtukov and I. I. Fabrikant, *Phys. Rev. A* **51**, 4675 (1995).
- [84] L. Hostler and R. H. Pratt, *Phys. Rev. Lett.* **10**, 469 (1963).
- [85] L. Hostler, *J. Math. Phys.* **5**, 591 (1964).
- [86] L. Hostler, *J. Math. Phys.* **8**, 642 (1967).
- [87] Y. N. Demkov and G. F. Drukarev, *Sov. Phys. JETP* **20**, 614 (1964).
- [88] Y. N. Demkov and G. F. Drukarev, *Sov. Phys. JETP* **22**, 271 (1965).
- [89] Y. N. Demkov and G. F. Drukarev, *Sov. Phys. JETP* **54**, 650 (1981).
- [90] S. P. Andreev, B. M. Karnakov, V. D. Mur, and V. A. Polunin, *Sov. Phys. JETP* **59**, 506 (1984).
- [91] B. M. Karnakov and V. D. Mur, *Sov. Phys. JETP* **60**, 657 (1984).
- [92] L. D. Landau and E. M. Lifshitz, Course of Theoretical Physics (Pergamon Press, London, 1959).
- [93] S. V. Tkachenko, *Sov. Phys. JETP* **61**, 1149 (1985).
- [94] M. I. Chibisov, A. M. Ermolaev, F. Brouillard, and M. H. Cherkani, *Phys. Rev. Lett.* **84**, 451 (2000).
- [95] M. I. Chibisov, A. A. Khuskivadze, and I. I. Fabrikant, *J. Phys. B: At. Mol. Opt. Phys.* **35**, L193 (2002).

- [96] F. I. Dalidchik and G. K. Ivanov, *Teor. Eksp. Khim.* **8**, 9 (1972).
- [97] V. A. Davydkin, B. A. Zon, N. L. Manakov, and L. P. Rapoport, *Sov. Phys. JETP* **133**, 70 (1971).
- [98] U. Fano, *Phys. Rev. A* **24**, 619 (1981).
- [99] D. Harmin, in Atoms in Strong Fields, NATO ASI, edited by C. Nicolaides (Plenum Press, New York, NY, 1988).
- [100] D. J. Armstrong and C. H. Greene, *Phys. Rev. A* **50**, 4956 (1994).
- [101] E. Luc-Koenig, S. Liberman, and J. Pinard, *Phys. Rev. A* **20**, 519 (1979).
- [102] M. P. Strand and W. P. Reinhardt, *J. Chem. Phys.* **70**, 3812 (1979).
- [103] P. D. Robinson, *Proc. Phys. Soc. London* **71**, 828 (1958).
- [104] C. A. Coulson and P. D. Robinson, *Proc. Phys. Soc. London* **71**, 815 (1958).
- [105] B. R. Judd, Angular Momentum Theory for Diatomic Molecules (Academic Press, New York, 1975).
- [106] S. M. Sung and D. R. Herschbach, *J. Chem. Phys.* **95**, 7437 (1991).
- [107] A. Sommerfeld, Atomic Structure and Spectral Lines (Methuen and Co. Ltd., London, 1934).
- [108] H. A. Erikson and E. L. Hill, *Phys. Rev.* **75**, 29 (1949).
- [109] Y. Duan and J. M. Yuan, *Eur. Phys. J. D* **6**, 319 (1999).
- [110] M. C. Gutzwiller, Chaos in Classical and Quantum Mechanics (Springer-Verlag, New York, 1990).
- [111] A. M. O. de Almeida, Hamiltonian Systems: Chaos and Quantization (Cambridge University Press, Cambridge, 1988).
- [112] B. I. Schneider, *Phys. Rev. A* **11**, 1957 (1975).
- [113] B. I. Schneider and P. J. Hay, *Phys. Rev. A* **13**, 1923 (1976).
- [114] P. G. Burke, I. Mackey, and I. Shimamura, *J. Phys. B: At. Mol. Opt. Phys.* **10**, 2497 (1977).
- [115] B. I. Schneider, M. LeDourneuf, and P. G. Burke, *J. Phys. B: At. Mol. Opt. Phys.* **12**, L365 (1979).
- [116] A. Giusti, *J. Phys. B: At. Mol. Opt. Phys.* **13**, 3867 (1980).
- [117] F. H. Mies, *J. Chem. Phys.* **80**, 2514 (1984).
- [118] C. H. Greene, A. R. P. Rau, and U. Fano, *Phys. Rev. A* **22**, 149 (1982).
- [119] J. Burke, C. H. Greene, and J. L. Bohn, *Phys. Rev. A* **81**, 3355 (1998).

- [120] U. Fano and C. M. Lee, *Phys. Rev. Lett.* **31**, 1573 (1973).
- [121] C. Jungen and S. C. Ross, *Phys. Rev. A* **55**, R2503 (1997).
- [122] S. C. Ross, C. Jungen, and A. Matzkin, *Can. J. Phys.* **79**, 561 (2001).
- [123] E. P. Wigner and L. Eisenbud, *Phys. Rev.* **72**, 29 (1947).
- [124] A. M. Lane and R. G. Thomas, *Rev. Mod. Phys.* **30**, 257 (1958).
- [125] G. Raşeev and H. L. Rouzo, *Phys. Rev. A* **27**, 268 (1983).
- [126] W. Kohn, *Phys. Rev.* **74**, 1763 (1948).
- [127] C. H. Greene, *Phys. Rev. A* **28**, 2209 (1983).
- [128] H. L. Rouzo and G. Raşeev, *Phys. Rev. A* **29**, 1214 (1984).
- [129] C. H. Greene, in Fundamental Processes of Atomic Dynamics, edited by J. S. Briggs, H. Kleinpoppen, and H. O. Lutz (Plenum Publishing Corporation, Essex, 1988).
- [130] F. Robicheaux, U. Fano, M. Cavegnero, and D. A. Harmin, *Phys. Rev. A* **35**, 3619 (1987).
- [131] G. Gamow, *Z. Phys.* **51**, 204 (1928).
- [132] V. Weisskopf and E. P. Wigner, *Z. Phys.* **63**, 54 (1930).
- [133] P. Kapur and R. Peierls, *Proc. R. Soc. London A* **166**, 277 (1938).
- [134] A. J. F. Siegert, *Phys. Rev.* **56**, 750 (1939).
- [135] R. M. More and E. Gerjuoy, *Phys. Rev. A* **7**, 1288 (1973).
- [136] R. G. Newton, Scattering Theory of Waves and Particles (Academic, New York, 1966).
- [137] H.-D. Meyer and O. Walter, *J. Phys. B: At. Mol. Opt. Phys.* **15**, 3647 (1982).
- [138] J. N. Bardsley and R. R. Junker, *J. Phys. B: At. Mol. Opt. Phys.* **5**, L178 (1972).
- [139] R. Yaris and H. S. Taylor, *Chem. Phys. Lett.* **66**, 505 (1979).
- [140] C. W. McCurdy and T. N. Rescigno, *Phys. Rev. A* **20**, 2346 (1979).
- [141] W. P. Reinhardt, *Ann. Rev. Phys. Chem.* **33**, 223 (1982).
- [142] O. I. Tolstikhin, V. N. Ostrovsky, and H. Nakamura, *Phys. Rev. A* **58**, 2077 (1998).
- [143] H. W. Jang and J. C. Light, *Phys. Rev. A* **51**, 1277 (1995).
- [144] O. I. Tolstikhin, V. N. Ostrovsky, and H. Nakamura, *Phys. Rev. Lett.* **79**, 2026 (1997).

- [145] H. Bachau, E. Cormier, P. Decleva, J. E. Hansen, and F. Martín, *Rep. Prog. Phys.* **64**, 1815 (2001).
- [146] C. de Boor, *A Practical Guide to Splines* (Springer, New York, 1978).
- [147] B. Friedman, *Principles and Techniques of Applied Mathematics* (John Wiley & Sons, Inc., New York, 1956).
- [148] D. L. Huestis, *J. Math. Phys. (N.Y.)* **16**, 2148 (1975).
- [149] D. Baye, J. Goldbeter, and J.-M. Sparenberg, *Phys. Rev. A* **65**, 052710 (2002).
- [150] G. V. Sitnikov and O. I. Tolstikhin, *Phys. Rev. A* **67**, 032714 (2003).
- [151] C. D. Lin, *Phys. Rep.* **257**, 1 (1995).
- [152] S. Yoshida, S. Watanabe, C. O. Reinhold, and J. Burgdorfer, *Phys. Rev. A* **60**, 1113 (1999).
- [153] S. Tanabe *et al.*, *Phys. Rev. A* **63**, 052721 (2001).
- [154] T. Seideman and W. H. Miller, *J. Chem. Phys.* **95**, 1768 (1991).
- [155] V. Ryaboy and N. Moiseyev, *J. Chem. Phys.* **98**, 9618 (1993).
- [156] M. Seaton, *Rep. Prog. Phys.* **46**, 167 (1983).
- [157] B. E. Granger and C. H. Greene, *Phys. Rev. A* **62**, 012511 (2000).
- [158] B. E. Granger, Ph.D. thesis, University of Colorado at Boulder, 2001.
- [159] A. Bohm, S. Maxson, M. Loewe, and M. Gadella, *Physica A* **236**, 485 (1997).
- [160] R. de la Madrid, A. Bohm, and M. Gadella, *Fortschr. Phys.* **50**, 185 (2002).
- [161] A. Bohm, N. L. Harshman, and H. Walther, *Phys. Rev. A* **66**, 012107 (2002).
- [162] R. Browning and J. Fryar, *J. Phys. B: At. Mol. Opt. Phys.* **6**, 364 (1973).
- [163] C. Backx, G. R. Wright, and M. J. van der Wiel, *J. Phys. B: At. Mol. Opt. Phys.* **9**, 315 (1976).
- [164] Y. M. Chung, E.-M. Lee, and J. A. R. Samson, *J. Chem. Phys.* **99**, 885 (1993).
- [165] A. L. Ford, K. K. Docken, and A. Dalgarno, *Asrophys. J.* **195**, 819 (1975).
- [166] T. F. O'Malley, *Phys. Rev.* **150**, 14 (1966).
- [167] K. B. MacAdam and C. S. Hwang, *Rev. Sci. Instr.* **74**, 2267 (2003).
- [168] K. Aflatooni, G. A. Gallup, and P. D. Burrow, *J. Phys. Chem. A* **102**, 6205 (1998).
- [169] P. D. Burrow *et al.*, *J. Phys. B: At. Mol. Opt. Phys.* **31**, L1009 (1998).
- [170] F. A. Gianturco and R. R. Lucchese, *Int. Rev. Phys. Chem.* **15**, 429 (1996).
- [171] F. A. Gianturco and R. R. Lucchese, *Phys. Rev. A* **64**, 32706 (2001).