

REFERENCES

- [1] N. Stolterfoht, R. D. DuBois, and R. D. Rivarola, “Electron Emission in Heavy Ion-Atom Collisions,” *Springer-Verlag, Berlin*, 1997.
- [2] M. E. Rudd, Y. .-K. Kim, D. H. Madison, and T. J. Gay, *Rev. Mod. Phys.*, vol. 64, pp. 441–490, 1992.
- [3] L. C. Tribedi, P. Richard, L. Gulyas, M. E. Rudd, and R. Moshammer, *Phys. Rev. A*, vol. 63, p. 062 723, 2001.
- [4] L. C. Tribedi, P. Richard, L. Gulyas, and M. E. Rudd, *Phys. Rev. A*, vol. 63, p. 062 724, 2001.
- [5] L. C. Tribedi, P. Richard, W. DeHaven, L. Gulyas, M. W. Gealy, and M. E. Rudd, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 31, no. 8, pp. L369–L378, 1998.
- [6] R. V. Yelle, J. Cui, and I. C. F. Muller-Wodarg, *Journal of Geophysical Research: Planets*, vol. 113, no. E10, 2008.
- [7] A. G. G. M. Tielens, *Rev. Mod. Phys.*, vol. 85, pp. 1021–1081, 2013.
- [8] H. D. Cohen and U. Fano, *Phys. Rev.*, vol. 150, pp. 30–33, 1966.
- [9] N. Stolterfoht, B. Sulik, V. Hoffmann, B. Skogvall, J. Y. Chesnel, J. Rangama, F. Fremont, D. Hennechart, A. Cassimi, X. Husson, A. L. Landers, J. A. Tanis, M. E. Galassi, and R. D. Rivarola, *Phys. Rev. Lett.*, vol. 87, p. 023 201, 2001.
- [10] D. Misra, U. Kadhane, Y. P. Singh, L. C. Tribedi, P. D. Fainstein, and P. Richard, *Phys. Rev. Lett.*, vol. 92, p. 153 201, 2004.
- [11] D. Misra, U. Kadhane, Y. P. Singh, L. C. Tribedi, P. D. Fainstein, and P. Richard, *Phys. Rev. Lett.*, vol. 95, p. 079 302, 2005.
- [12] N. Stolterfoht, B. Sulik, L. Gulyas, B. Skogvall, J. Y. Chesnel, F. Fremont, D. Hennechart, A. Cassimi, L. Adoui, S. Hossain, and J. A. Tanis, *Phys. Rev. A*, vol. 67, p. 030 702, 2003.
- [13] J. A. Tanis, S. Hossain, B. Sulik, and N. Stolterfoht, *Phys. Rev. Lett.*, vol. 95, p. 079 301, 2005.
- [14] D. Akoury, K. Kreidi, T. Jahnke, T. Weber, A. Staudte, M. Schoffler, N. Neumann, J. Titze, L. P. H. Schmidt, A. Czasch, O. Jagutzki, R. A. C. Fraga, R. E. Grisenti, R. D. Muino, N. A. Cherepkov, S. K. Semenov, P. Ranitovic, C. L. Cocke, T. Osipov, H. Adaniya, J. C. Thompson, M. H. Prior, A. Belkacem, A. L. Landers, H. Schmidt-Bocking, and R. Dorner, *Science*, vol. 318, no. 5852, pp. 949–952, 2007.

- [15] S. Hossain, A. L. Landers, N. Stolterfoht, and J. A. Tanis, *Phys. Rev. A*, vol. 72, p. 010 701, 2005.
- [16] D. Misra, A. Kelkar, U. Kadhane, A. Kumar, L. C. Tribedi, and P. D. Fainstein, *Phys. Rev. A*, vol. 74, p. 060 701, 2006.
- [17] D. S. Milne-Brownlie, M. Foster, J. Gao, B. Lohmann, and D. H. Madison, *Phys. Rev. Lett.*, vol. 96, p. 233 201, 2006.
- [18] F. Fremont, A. Hajaji, A. Naja, C. Leclercq, J. Soret, J. A. Tanis, B. Sulik, and J.-Y. Chesnel, *Phys. Rev. A*, vol. 72, p. 050 704, 2005.
- [19] J. A. Tanis, J.-Y. Chesnel, B. Sulik, B. Skogvall, P. Sobocinski, A. Cassimi, J.-P. Grandin, L. Adoui, D. Hennecart, and N. Stolterfoht, *Phys. Rev. A*, vol. 74, p. 022 707, 2006.
- [20] L. P. H. Schmidt, S. Schossler, F. Afaneh, M. Schoffler, K. E. Stiebing, H. Schmidt-Bocking, and R. Dorner, *Phys. Rev. Lett.*, vol. 101, p. 173 202, 2008.
- [21] M. E. Galassi, R. D. Rivarola, P. D. Fainstein, and N. Stolterfoht, *Phys. Rev. A*, vol. 66, p. 052 705, 2002.
- [22] S. Chatterjee, S. Kasthurirangan, A. H. Kelkar, C. R. Stia, O. A. Fojon, R. D. Rivarola, and L. C. Tribedi, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 42, no. 6, p. 065 201, 2009.
- [23] N. Stolterfoht, B. Sulik, B. Skogvall, J. Y. Chesnel, F. Fremont, D. Hennecart, A. Cassimi, L. Adoui, S. Hossain, and J. A. Tanis, *Phys. Rev. A*, vol. 69, p. 012 701, 2004.
- [24] D. Misra, A. H. Kelkar, S. Chatterjee, and L. C. Tribedi, *Phys. Rev. A*, vol. 80, p. 062 701, 2009.
- [25] J. L. Baran, S. Das, F. Jarai-Szabo, K. Pora, L. Nagy, and J. A. Tanis, *Phys. Rev. A*, vol. 78, p. 012 710, Jul. 2008.
- [26] S. Nandi, A. N. Agnihotri, S. Kasthurirangan, A. Kumar, C. A. Tachino, R. D. Rivarola, F. Martin, and L. C. Tribedi, *Phys. Rev. A*, vol. 85, p. 062 705, 2012.
- [27] C. A. Tachino, F. Martin, and R. D. Rivarola, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 45, no. 2, p. 025 201, 2011.
- [28] M. Ilchen, L. Glaser, F. Scholz, P. Walter, S. Deinert, A. Rothkirch, J. Seltmann, J. Viehaus, P. Decleva, B. Langer, A. Knie, A. Ehresmann, O. M. Al-Dossary, M. Braune, G. Hartmann, A. Meissner, L. C. Tribedi, M. AlKhaldi, and U. Becker, *Phys. Rev. Lett.*, vol. 112, p. 023 001, 2014.
- [29] M. R. Chowdhury and L. C. Tribedi, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 50, no. 15, p. 155 201, 2017.

- [30] M. Roy Chowdhury, C. R. Stia, C. A. Tachino, O. A. Fojon, R. D. Rivarola, and L. C. Tribedi, *Phys. Rev. A*, vol. 94, p. 052 703, 2016.
- [31] D. Schardt, T. Elsasser, and D. Schulz-Ertner, *Rev. Mod. Phys.*, vol. 82, pp. 383–425, 2010.
- [32] E. Fokas, G. Kraft, H. An, and R. Engenhart-Cabillic, *Biochimica et Biophysica Acta (BBA) - Reviews on Cancer*, vol. 1796, no. 2, pp. 216–229, 2009.
- [33] B. Boudaïffa, P. Cloutier, D. Hunting, M. A. Huels, and L. Sanche, *Science*, vol. 287, p. 1658, 2000.
- [34] P. Moretto-Capelle and A. Le Padellec, *Phys. Rev. A*, vol. 74, p. 062 705, 2006.
- [35] J. Tabet, S. Eden, S. Feil, H. Abdoul-Carime, B. Farizon, M. Farizon, S. Ouaskit, and T. D. Mark, *Phys. Rev. A*, vol. 82, p. 022 703, 2010.
- [36] P. Markush, P. Bolognesi, A. Cartoni, P. Rousseau, S. Maclot, R. Delaunay, A. Domaracka, J. Kocisek, M. C. Castrovilli, B. A. Huber, and L. Avaldi, *Phys. Chem. Chem. Phys.*, vol. 18, pp. 16 721–16 729, 2016.
- [37] L. Sanche, *Mass Spectrometry Reviews*, vol. 21, no. 5, pp. 349–369, 2002.
- [38] Y. Zheng and L. Sanche, *Applied Physics Reviews*, vol. 5, no. 2, p. 021 302, 2018.
- [39] I. I. Shafranyosh and M. I. Sukhoviya, *The Journal of Chemical Physics*, vol. 137, no. 18, p. 184 303, 2012.
- [40] C. Winstead and V. McKoy, *The Journal of Chemical Physics*, vol. 125, no. 17, p. 174 304, 2006.
- [41] A. N. Agnihotri, S. Nandi, S. Kasthurirangan, A. Kumar, M. E. Galassi, R. D. Rivarola, C. Champion, and L. C. Tribedi, *Phys. Rev. A*, vol. 87, p. 032 716, 2013.
- [42] A. N. Agnihotri, S. Kasthurirangan, S. Nandi, A. Kumar, C. Champion, H. Lekadir, J. Hanssen, P. F. Weck, M. E. Galassi, R. D. Rivarola, O. Fojón, and L. C. Tribedi, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 46, no. 18, p. 185 201, 2013.
- [43] A. N. Agnihotri, S. Kasthurirangan, S. Nandi, A. Kumar, M. E. Galassi, R. D. Rivarola, O. Fojon, C. Champion, J. Hanssen, H. Lekadir, P. F. Weck, and L. C. Tribedi, *Phys. Rev. A*, vol. 85, p. 032 711, 2012.
- [44] Y. Iriki, Y. Kikuchi, M. Imai, and A. Itoh, *Phys. Rev. A*, vol. 84, p. 032 704, 2011.
- [45] A. Itoh, Y. Iriki, M. Imai, C. Champion, and R. D. Rivarola, *Phys. Rev. A*, vol. 88, p. 052 711, 2013.

- [46] S. Bhattacharjee, C. Bagdia, M. R. Chowdhury, A. Mandal, J. M. Monti, R. D. Rivarola, and L. C. Tribedi, *Phys. Rev. A*, vol. 100, p. 012 703, 2019.
- [47] M. C. Bacchus-Montabonel, *The European Physical Journal D*, vol. 66, p. 175, 2012.
- [48] M. E. Galassi, C. Champion, P. F. Weck, R. D. Rivarola, O. Fojon, and J. Hanssen, *Physics in Medicine and Biology*, vol. 57, no. 7, pp. 2081–2099, 2012.
- [49] P. de Vera, R. Garcia-Molina, I. Abril, and A. V. Solovyov, *Phys. Rev. Lett.*, vol. 110, p. 148 104, 2013.
- [50] E. Porcel, S. Liehn, H. Remita, N. Usami, K. Kobayashi, Y. Furusawa, C. L. Sech, and S. Lacombe, *Nanotechnology*, vol. 21, no. 8, p. 085 103, 2010.
- [51] S. Zamenhof, R. Giovanni, and S. Greer, *Nature*, vol. 181, p. 827, 1958.
- [52] P. W. McLaughlin, W. R. Mancini, P. L. Stetson, H. S. Greenberg, N. Nguyen, H. Seabury, D. B. Heidorn, and T. S. Lawrence, *International Journal of Radiation Oncology*Biology*Physics*, vol. 26, no. 4, pp. 637–642, 1993.
- [53] A. Mandal, M. Roy Chowdhury, C. Bagdia, J. M. Monti, R. D. Rivarola, P. F. Weck, and L. C. Tribedi, *Phys. Rev. A*, vol. 102, p. 062 811, 2020.
- [54] A. N. Agnihotri, A. H. Kelkar, S. Kasthurirangan, K. V. Thulasiram, C. A. Desai, W. A. Fernandez, and L. C. Tribedi, *Phys. Scr.*, vol. 2011, no. T144, p. 014 038, 2011.
- [55] S. Kasthurirangan, A. N. Agnihotri, C. A. Desai, and L. C. Tribedi, *Rev. Sci. Instrum.*, vol. 83, no. 7, p. 073 111, 2012.
- [56] “Channel electron multiplier,” *Dr. Sjuts Optotechnik GmbH, Germany*,
- [57] G. Scoles, “Atomic and molecular beam methods Vol.1,” *New York: Oxford*, 1988.
- [58] G. W. Kerby, “Ph. D. Dissertation,” *Unpublished: University of Nebraska- Lincoln*, 1994.
- [59] C. Champion, J. Hanssen, and P.-A. Hervieux, *The Journal of Chemical Physics*, vol. 121, no. 19, pp. 9423–9429, 2004.
- [60] D. S. Milne-Brownlie, S. J. Cavanagh, B. Lohmann, C. Champion, P. A. Hervieux, and J. Hanssen, *Phys. Rev. A*, vol. 69, p. 032 701, 2004.
- [61] C. Champion, C. D. Cappello, S. Houamer, and A. Mansouri, *Phys. Rev. A*, vol. 73, p. 012 717, 2006.
- [62] C. Champion, *The Journal of Chemical Physics*, vol. 138, no. 18, p. 184 306, 2013.

- [63] D. S. F. Crothers and J. F. McCann, *Journal of Physics B: Atomic and Molecular Physics*, vol. 16, no. 17, pp. 3229–3242, 1983.
- [64] P. D. Fainstein, V. H. Ponce, and R. D. Rivarola, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 21, no. 2, pp. 287–299, 1988.
- [65] R. Abrines and I. C. Percival, *Proceedings of the Physical Society*, vol. 88, no. 4, pp. 861–872, 1966.
- [66] ——, *Proceedings of the Physical Society*, vol. 88, no. 4, pp. 873–883, 1966.
- [67] R. E. Olson and A. Salop, *Phys. Rev. A*, vol. 16, pp. 531–541, 1977.
- [68] A. Green, Advances in Quantum Chemistry, vol. 7, P.-O. Löwdin, Ed., pp. 221–262, 1973.
- [69] K. N. Joshipura, M. Vinodkumar, C. G. Limbachiya, and B. K. Antony, *Phys. Rev. A*, vol. 69, p. 022 705, 2004.
- [70] H. L. Cox and R. A. Bonham, *The Journal of Chemical Physics*, vol. 47, no. 8, pp. 2599–2608, 1967.
- [71] F. Salvat, J. D. Martnez, R. Mayol, and J. Parellada, *Phys. Rev. A*, vol. 36, pp. 467–474, 1987.
- [72] S. Hara, *Journal of the Physical Society of Japan*, vol. 22, no. 3, pp. 710–718, 1967.
- [73] S. Salvini and D. G. Thompson, *Journal of Physics B: Atomic and Molecular Physics*, vol. 14, no. 19, pp. 3797–3803, 1981.
- [74] F. A. Gianturco and S. Scialla, *Journal of Physics B: Atomic and Molecular Physics*, vol. 20, no. 13, pp. 3171–3189, 1987.
- [75] M. E. Riley and D. G. Truhlar, *The Journal of Chemical Physics*, vol. 63, no. 5, pp. 2182–2191, 1975.
- [76] B. R. A., *Proc. R. Soc. Lond. A*, vol. 160, pp. 94–113, 1937.
- [77] S. Khare and D. Raj, *Ind. J. Pure and App. Phys.*, vol. 20, pp. 538–543, 1982.
- [78] B. H. Bransden and C. J. Joachain, “Physics of Atoms and Molecules, 2nd Edition,” *Pearson Education*, 2004.
- [79] C. C. Lin and L. Anderson, Advances In Atomic, Molecular, and Optical Physics, vol. 29, S. D. Bates and B. Bederson, Eds., pp. 1–32, 1991.
- [80] J. P. Perdew and A. Zunger, *Phys. Rev. B*, vol. 23, pp. 5048–5079, 1981.

- [81] G. Staszewska, D. W. Schwenke, D. Thirumalai, and D. G. Truhlar, *Phys. Rev. A*, vol. 28, pp. 2740–2751, 1983.
- [82] G. Staszewska, D. W. Schwenke, and D. G. Truhlar, *Phys. Rev. A*, vol. 29, pp. 3078–3091, 1984.
- [83] ——, *The Journal of Chemical Physics*, vol. 81, no. 1, pp. 335–343, 1984.
- [84] C. Limbachiya, M. Vinodkumar, M. Swadia, K. Joshipura, and N. Mason, *Molecular Physics*, vol. 113, no. 1, pp. 55–62, 2015.
- [85] D. Rolles, M. Braune, S. Cvejanović, O. Geßner, R. Hentges, S. Korica, B. Langer, T. Lischke, G. Pramper, A. Reinkaster, J. Viefhaus, B. Zimmermann, V. McKoy, and U. Becker, *Nature*, vol. 437, p. 711, 2005.
- [86] S. K. Semenov, N. A. Cherepkov, M. Matsumoto, T. Hatamoto, X.-J. Liu, G. Prümper, T. Tanaka, M. Hoashino, H. Tanaka, F. Gel'mukhanov, and K. Ueda, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 39, no. 12, pp. L261–L267, 2006.
- [87] B. Zimmermann, D. Rolles, B. Langer, R. Hentges, M. Braune, S. Cvejanovic, O. Geßner, F. Heiser, S. Korica, T. Lischke, A. Reinkaster, J. Viefhaus, R. Dorner, V. McKoy, and U. Becker, *Nature Physics*, vol. 4, pp. 649–655, 2008.
- [88] K. Ueda, X.-J. Liu, G. Prümper, T. Lischke, T. Tanaka, M. Hoshino, H. Tanaka, I. Minkov, V. Kimberg, and F. Gel'mukhanov, *Chemical Physics*, vol. 329, no. 1, pp. 329–337, 2006.
- [89] X.-J. Liu, N. A. Cherepkov, S. K. Semenov, V. Kimberg, F. Gel'mukhanov, G. Prümper, T. Lischke, T. Tanaka, M. Hoshino, H. Tanaka, and K. Ueda, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 39, no. 23, pp. 4801–4817, 2006.
- [90] S. E. Canton, E. Plesiat, J. D. Bozek, B. S. Rude, P. Decleva, and F. Martin, *Proceedings of the National Academy of Sciences*, vol. 108, no. 18, pp. 7302–7306, 2011.
- [91] H. Chaluvadi, Z. N. Ozer, M. Dogan, C. Ning, J. Colgan, and D. Madison, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 48, no. 15, p. 155203, 2015.
- [92] J. L. Baran, S. Das, F. Jarai-Szabo, L. Nagy, and J. A. Tanis, *Journal of Physics: Conference Series*, vol. 58, pp. 215–218, 2007.
- [93] M. Winkworth, P. D. Fainstein, M. E. Galassi, J. Baran, S. Das, B. S. Dassanayake, A. Kayani, and J. A. Tanis, *Journal of Physics: Conference Series*, vol. 163, p. 012044, 2009.
- [94] M. Winkworth, P. Fainstein, M. Galassi, J. Baran, B. Dassanayake, S. Das, A. Kayani, and J. Tanis, *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, vol. 267, no. 2, pp. 373–376, 2009, Proceedings of the Fourth International Conference on Elementary Processes in Atomic Systems.

- [95] S. Nandi, A. N. Agnihotri, C. A. Tachino, R. D. Rivarola, F. Martin, and L. C. Tribedi, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 45, no. 21, p. 215 207, 2012.
- [96] S. Nandi, S. Biswas, C. A. Tachino, R. D. Rivarola, and L. C. Tribedi, *The European Physical Journal D*, vol. 69, p. 192, 2015.
- [97] A. Kumar, D. Misra, K. Thulasiram, L. Tribedi, and A. Pradhan, *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, vol. 248, no. 2, pp. 247–252, 2006.
- [98] J. A. Pople, D. P. Santry, and G. A. Segal, *The Journal of Chemical Physics*, vol. 43, no. 10, S129–S135, 1965.
- [99] B. Senger, E. Wittendorp-Rechenmann, and R. V. Rechenmann, *Nuclear Instruments and Methods in Physics Research*, vol. 194, no. 1, pp. 437–441, 1982.
- [100] C. W. Scherr, *The Journal of Chemical Physics*, vol. 23, no. 3, pp. 569–578, 1955.
- [101] K. Siegbahn, C. Nordling, G. Johansson, J. Hedman, P. F. Heden, K. Hamrin, U. Gelius, T. Bergmark, L. O. Werme, R. Manne, and Y. Baer, *ESCA Applied to Free Molecules* (North Holland, Amsterdam), 1969.
- [102] E. Clementi and C. Roetti, *Atomic Data and Nuclear Data Tables*, vol. 14, no. 3, pp. 177–478, 1974.
- [103] D. Belkić, R. Gayet, and A. Salin, *Physics Reports*, vol. 56, no. 6, pp. 279–369, 1979.
- [104] A. Messiah, *Quantum Mechanics*, (North-Holland, Amsterdam), vol. II, pp. 848–852, 1970.
- [105] H. A. Bethe, *Ann. Phys. (Leipzig)*, vol. 5, p. 325, 1930.
- [106] N. Stolterfoht, J.-Y. Chesnel, M. Grether, J. A. Tanis, B. Skogvall, F. Frémont, D. Lecler, D. Hennecart, X. Husson, J. P. Grandin, C. Koncz, L. Gulyas, and B. Sulik, *Phys. Rev. A*, vol. 59, pp. 1262–1272, 1999.
- [107] L. Nagy, L. Kocbach, K. Pra, and J. P. Hansen, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 35, no. 20, pp. L453–L459, 2002.
- [108] S. Chatterjee, D. Misra, P. D. Fainstein, and L. C. Tribedi, *Physica Scripta*, vol. T144, p. 014 040, 2011.
- [109] P. D. Fainstein, L. Gulyas, F. Martin, and A. Salin, *Phys. Rev. A*, vol. 53, pp. 3243–3246, 1996.
- [110] D. Misra, A. Kelkar, U. Kadhane, A. Kumar, Y. P. Singh, L. C. Tribedi, and P. D. Fainstein, *Phys. Rev. A*, vol. 75, p. 052 712, 2007.

- [111] B. Schram, H. Moustafa, J. Schutten, and F. de Heer, *Physica*, vol. 32, no. 4, pp. 734–740, 1966.
- [112] D. Rapp and P. Englander-Golden, *The Journal of Chemical Physics*, vol. 43, no. 5, pp. 1464–1479, 1965.
- [113] H. C. Straub, P. Renault, B. G. Lindsay, K. A. Smith, and R. F. Stebbings, *Phys. Rev. A*, vol. 54, pp. 2146–2153, 1996.
- [114] W. Hwang, Y.-K. Kim, and M. E. Rudd, *The Journal of Chemical Physics*, vol. 104, no. 8, pp. 2956–2966, 1996.
- [115] D. Margreiter, H. Deutsch, M. Schmidt, and T. Märk, *International Journal of Mass Spectrometry and Ion Processes*, vol. 100, pp. 157–176, 1990.
- [116] T. D. Märk, *The Journal of Chemical Physics*, vol. 63, no. 9, pp. 3731–3736, 1975.
- [117] K. Joshipura, S. S. Gangopadhyay, H. N. Kothari, and F. A. Shelat, *Physics Letters A*, vol. 373, no. 32, pp. 2876–2881, 2009.
- [118] H. Deutsch, K. Becker, S. Matt, and T. Märk, *International Journal of Mass Spectrometry*, vol. 197, no. 1, pp. 37–69, 2000.
- [119] J. E. Hudson, M. L. Hamilton, C. Vallance, and P. W. Harland, *Phys. Chem. Chem. Phys.*, vol. 5, pp. 3162–3168, 2003.
- [120] I. TĂ³th, R. I. Campeanu, V. ChiĂ, and L. Nagy, *The European Physical Journal D*, vol. 48, pp. 351–354, 2008.
- [121] R. S. Freund, R. C. Wetzel, and R. J. Shul, *Phys. Rev. A*, vol. 41, pp. 5861–5868, 1990.
- [122] L. J. KIEFFER and G. H. DUNN, *Rev. Mod. Phys.*, vol. 38, pp. 1–35, 1966.
- [123] Y.-K. Kim and J.-P. Desclaux, *Phys. Rev. A*, vol. 66, p. 012 708, 2002.
- [124] Y. Itikawa, *Journal of Physical and Chemical Reference Data*, vol. 35, no. 1, pp. 31–53, 2006.
- [125] C. B. Opal, W. K. Peterson, and E. C. Beaty, *The Journal of Chemical Physics*, vol. 55, no. 8, pp. 4100–4106, 1971.
- [126] C. Opal, E. Beaty, and W. Peterson, *Atomic Data and Nuclear Data Tables*, vol. 4, pp. 209–253, 1972.
- [127] R. R. Goruganthu, W. G. Wilson, and R. A. Bonham, *Phys. Rev. A*, vol. 35, pp. 540–558, 1987.

- [128] M. R. Chowdhury, D. Chauhan, C. G. Limbachiya, K. Tőkési, C. Champion, P. F. Weck, and L. C. Tribedi, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 53, no. 23, p. 235 201, 2020.
- [129] T. Trickl, E. F. Cromwell, Y. T. Lee, and A. H. Kung, *The Journal of Chemical Physics*, vol. 91, no. 10, pp. 6006–6012, 1989.
- [130] R. Abrines and I. C. Percival, *Proceedings of the Physical Society*, vol. 88, no. 4, pp. 861–872, 1966.
- [131] K. Tőkési and G. Hock, *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, vol. 86, no. 1, pp. 201–204, 1994.
- [132] K. Tokési and G. Hock, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 29, no. 4, pp. L119–L125, 1996.
- [133] K. Tőkési and Á. Kövér, *Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms*, vol. 154, no. 1, pp. 259–262, 1999.
- [134] R. H. Garvey, C. H. Jackman, and A. E. S. Green, *Phys. Rev. A*, vol. 12, pp. 1144–1152, 1975.
- [135] K. Tőkési and Á. Kövér, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 33, no. 16, pp. 3067–3077, 2000.
- [136] C. O. Reinhold and C. A. Falcón, *Phys. Rev. A*, vol. 33, pp. 3859–3866, 1986.
- [137] M. Roy Chowdhury, C. R. Stia, C. A. Tachino, O. A. Foján, R. D. Rivarola, and L. C. Tribedi, *The European Physical Journal D*, vol. 71, p. 218, 2017.
- [138] C. Limbachiya, M. Vinodkumar, M. Swadia, and A. Barot, *Molecular Physics*, vol. 112, no. 1, pp. 101–106, 2014.
- [139] M. E. Rudd and T. Jorgensen, *Phys. Rev.*, vol. 131, pp. 666–675, 1963.
- [140] M. E. Rudd, C. A. Sautter, and C. L. Bailey, *Phys. Rev.*, vol. 151, pp. 20–27, 1966.
- [141] M. E. Rudd and D. H. Madison, *Phys. Rev. A*, vol. 14, pp. 128–136, 1976.
- [142] D. H. Madison, *Phys. Rev. A*, vol. 8, pp. 2449–2455, 1973.
- [143] M. E. Rudd, R. D. DuBois, L. H. Toburen, C. A. Ratcliffe, and T. V. Goffe, *Phys. Rev. A*, vol. 28, pp. 3244–3257, 1983.
- [144] J. Berakdar, J. Briggs, and H. Klar, *Z Phys D - Atoms, Molecules and Clusters*, vol. 24, pp. 351–364, 1992.

- [145] A. Salin, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 22, no. 23, pp. 3901–3914, 1989.
- [146] D. K. Gibson and I. D. Reid, *Journal of Physics B: Atomic and Molecular Physics*, vol. 19, no. 20, pp. 3265–3276, 1986.
- [147] P. D. Fainstein, V. H. Ponce, and R. D. Rivarola, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 24, no. 14, pp. 3091–3119, 1991.
- [148] D. K. Gibson and I. D. Reid, *Journal of Physics E: Scientific Instruments*, vol. 17, no. 12, pp. 1227–1230, 1984.
- [149] S. T. Manson, L. H. Toburen, D. H. Madison, and N. Stolterfoht, *Phys. Rev. A*, vol. 12, pp. 60–79, 1975.
- [150] N. Stolterfoht, H. Platten, G. Schiwietz, D. Schneider, L. Gulyas, P. D. Fainstein, and A. Salin, *Phys. Rev. A*, vol. 52, pp. 3796–3802, 1995.
- [151] J. H. Miller, L. H. Toburen, and S. T. Manson, *Phys. Rev. A*, vol. 27, pp. 1337–1344, 1983.
- [152] J. O. P. Pedersen, P. Hvelplund, A. G. Petersen, and P. D. Fainstein, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 24, no. 18, pp. 4001–4016, 1991.
- [153] R. D. DuBois, L. H. Toburen, and M. E. Rudd, *Phys. Rev. A*, vol. 29, pp. 70–76, 1984.
- [154] J. M. Monti, O. A. Fojon, J. Hanssen, and R. D. Rivarola, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 42, no. 19, p. 195 201, 2009.
- [155] L. C. Tribedi, P. Richard, L. Gulyas, and M. E. Rudd, *Phys. Rev. A*, vol. 63, p. 062 724, 2001.
- [156] W. E. Wilson and L. H. Toburen, *Phys. Rev. A*, vol. 11, pp. 1303–1308, 1975.
- [157] D. J. Lynch, L. H. Toburen, and W. E. Wilson, *The Journal of Chemical Physics*, vol. 64, no. 6, pp. 2616–2622, 1976.
- [158] C. A. Tachino, J. M. Monti, O. A. Fojon, C. Champion, and R. D. Rivarola, *Journal of Physics: Conference Series*, vol. 583, p. 012 020, 2015.
- [159] L. Gulyas, I. Toth, and L. Nagy, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 46, no. 7, p. 075 201, 2013.
- [160] W.-Q. Cheng, M. E. Rudd, and Y.-Y. Hsu, *Phys. Rev. A*, vol. 40, pp. 3599–3604, 1989.
- [161] J. B. Crooks and M. E. Rudd, *Phys. Rev. A*, vol. 3, pp. 1628–1634, 1971.

- [162] B. Hamre, J. P. Hansen, and L. Kocbach, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 32, no. 6, pp. L127–L131, 1999.
- [163] I. Ben-Itzhak, K. D. Carnes, D. T. Johnson, P. J. Norris, and O. L. Weaver, *Phys. Rev. A*, vol. 49, pp. 881–888, 1994.
- [164] A. Salehzadeh and T. Kirchner, *Eur. Phys. J. D*, vol. 71, p. 66, 2017.
- [165] M. U. Bug, E. Gargioni, H. Nettelbeck, W. Y. Baek, G. Hilgers, A. B. Rosenfeld, and H. Rabus, *Phys. Rev. E*, vol. 88, p. 043308, 2013.
- [166] E. J. Angelin and R. Hippler, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 47, no. 22, p. 225208, 2014.
- [167] M. Roy Chowdhury, A. Mandal, A. Bhogale, H. Bansal, C. Bagdia, S. Bhattacharjee, J. M. Monti, R. D. Rivarola, and L. C. Tribedi, *Phys. Rev. A*, vol. 102, p. 012819, 2020.
- [168] S. E. Corchs, R. D. Rivarola, and J. H. McGuire, *Phys. Rev. A*, vol. 47, pp. 3937–3944, 1993.
- [169] J. M. Monti, O. A. Fojon, J. Hanssen, and R. D. Rivarola, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 43, no. 20, p. 205203, 2010.
- [170] M. A. Quinto, P. R. Montenegro, J. M. Monti, O. A. Fojon, and R. D. Rivarola, *Journal of Physics B: Atomic, Molecular and Optical Physics*, vol. 51, no. 16, p. 165201, 2018.
- [171] E. Alizadeh, T. M. Orlando, and L. Sanche, *Annual Review of Physical Chemistry*, vol. 66, no. 1, pp. 379–398, 2015.
- [172] P. Wardman, *Clinical Oncology*, vol. 19, no. 6, pp. 397–417, 2007, Importance of Radiobiology to Cancer Therapy: Current Practice and Future Perspectives.
- [173] A. C. Begg, F. A. Stewart, and V. Conchita, *Nature Reviews Cancer*, vol. 11, pp. 239–253, 2011.
- [174] R. Casta, J. -P. Champeaux, P. Moretto-Capelle, M. Sence, and P. Cafarelli, *Journal of Nanoparticle Research*, vol. 17, p. 3, 2015.
- [175] M. A. Smialek, S. Ptasińska, J. Gow, S. V. Hoffmann, and N. J. Mason, *The European Physical Journal D*, vol. 69, p. 121, 2015.
- [176] X. Fangxing, Z. Yi, H. Yunhui, P. Cloutier, D. Hunting, and L. Sanche, *Nanotechnology*, vol. 22, p. 465101, 2011.
- [177] E. PORCEL, S. LI, N. USAMI, H. REMITA, Y. FURUSAWA, K. KOBAYASHI, C. L. SECH, and S. LACOMBE, “Nano-sensitization under gamma rays and fast ion radiation,” *Journal of Physics: Conference Series*, vol. 373, p. 012006, 2012.

- [178] A. V. Verkhovtsev, A. V. Korol, and A. V. Solov'yov, *Phys. Rev. Lett.*, vol. 114, p. 063401, 2015.
- [179] J.-P. Champeaux, P. Çarçabal, J. Rabier, P. Cafarelli, M. Sence, and P. Moretto-Capelle, *Phys. Chem. Chem. Phys.*, vol. 12, pp. 5454–5461, 2010.
- [180] R. Delaunay, J.-P. Champeaux, S. Maclot, M. Capron, A. Domaracka, A. Mary, B. Manil, L. Adoui, P. Rousseau, P. Moretto-Capelle, and B. A. Huber, *The European Physical Journal D*, vol. 68, p. 162, 2014.
- [181] M. C. Castrovilli, P. Markush, P. Bolognesi, P. Rousseau, S. Maclot, A. Cartoni, R. Delaunay, A. Domaracka, J. Kočíšek, B. A. Huber, and L. Avaldi, *Phys. Chem. Chem. Phys.*, vol. 19, pp. 19 807–19 814, 2017.
- [182] H. Abdoul-Carime, M. A. Huels, F. Brüning, E. Illenberger, and L. Sanche, *The Journal of Chemical Physics*, vol. 113, pp. 2517–2521, 2000.
- [183] Z. Deng, I. Bald, E. Illenberger, and M. A. Huels, *Phys. Rev. Lett.*, vol. 95, p. 153201, 2005.