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Papers starting from 2004

1. T. Bancewicz, K. Nowicka, J.-L. Godet and Y. Le Duff, *Multipolar polarizabilities of methane from isotropic and anisotropic collision-induced light scattering*, Phys. Rev. A, **69**, 062704-1 - 062704-8 (2004).

2. W. Głaz, T. Bancewicz and J.-L. Godet, *The hyper–Rayleigh light scattering intensities of gaseous* Kr–Xe *mixture*, J. Chem. Phys., **122**, 224323-1 - 224323-9 (2005).

3. W. Głaz, T. Bancewicz, J.-L. Godet, G. Maroulis, and A. Haskopoulos, *Hyper-Rayleigh light-scattering spectra determined by ab-initio collisional hyperpolarizabilities of* He-Ne *atomic pairs*, Phys. Rev. A **73**, 042708-1 - 042708-14 (2006).

4. W. Głaz, T. Bancewicz, J.-L. Godet, G. Maroulis, and A. Haskopoulos, *Collisional ab-initio hyperpolarizabilities in computing hyper-Rayleigh spectra of noble gas heterodiatomics* , Lecture Series on Computer and Computational Sciences, Brill, Leiden, The Netherlands, 2006, Vol.1, p.63, (invited lecture) .

5. T. Bancewicz and Y. Le Duff and J.-L Godet, *High-order polarizabilities from optical interaction-induced spectroscopy* , in: Atoms, molecules and clusters in electric fields:

Theoretical approaches to the calculation of electric polarizability (Imperial College Press, London, 2006), G. Maroulis editor.

6. Maroulis, A. Haskopoulos, W. Głaz, T. Bancewicz, and J.-L. Godet, *Collision-induced hyperpolarizability and hyper-Rayleigh spectra in the* He-Ne *heterodiatom*, Chem. Phys. Lett. **428**, 28 (2006).

7. T. Bancewicz, W. Głaz and J-L. Godet, *Moments of hyper-Rayleigh spectra of selected rare gas mixtures* J. Chem. Phys., **127**, 134308 (2007).

8. T. Bancewicz, *Induced Rayleigh and hyper-Rayleigh spectra. Pair hyperpolarizability* , Computation in Modern Science and Engineering, American Institute of Physics Conference Proceedings 963 Vol. 1, Part A, p. 250-256, edited by T. E. Simos and G. Maroulis, American Institute of Physics, New York, 2007, (keynote talk).

9. W. Głaz, T. Bancewicz, J.-L. Godet and G. Maroulis *Induced Hyper-Rayleigh Spectra. Theoretical and Numerical Analysis of Spectral Moments* , Computation in Modern Science and Engineering, American Institute of Physics Conference Proceedings 963 Vol. 2, pp. 44-47, edited by T. E. Simos and G. Maroulis, American Institute of Physics, New York, 2007.

10. T. Bancewicz, W. Głaz, J.-L. Godet, and G. Maroulis, *Collision-induced hyper-Rayleigh spectrum of* H_2-Ar *gas mixture* J. Chem Phys., **129**, 124306 (2008).

11. W. Głaz, T. Bancewicz, J.-L.Godet and G. Maroulis, *Collision-induced hyperpolarizability and hyper-Rayleigh spectra in the* H_2-Ar *supermolecule* Spectral Line Shapes, 19 International Conference edited by M. A. Gigosos and M. A. Gonzalez, American Institute of Physics Conference Proceedings, vol. 19, pp. 125-127, 2008.

12. T. Bancewicz, *The septor part of an linear molecule - atom collision-induced hyperpolarizability* , Computation in Modern Science and Engineering, American Institute of

Physics Conference Proceedings, edited by T. E. Simos and G. Maroulis, American Institute of Physics, vol. 1108, issue 1, 108-113 (2009), New York, 2008 (keynote talk).

13. W. Głaz, T. Bancewicz, J.-L.Godet and G. Maroulis *Second harmonic elastic light scattering by gases composed of centrosymmetric molecules. The case of* H−2-Ar., Computation in Modern Science and Engineering, American Institute of Physics Conference Proceedings, edited by T. E. Simos and G. Maroulis, American Institute of Physics, New York, 2009.

14. T. Bancewicz, A. Kamiński, *The intensity of collision-induced wings of isotropic Raman scattering*, J. Mol. Liquids, **124**, 21-24 (2009).

15. T. Bancewicz, G. Maroulis, *Modeling the polarizability of the dihydrogen-argon pair.*, Chem. Phys. Lett., **471**, 148-152 (2009).

16. T. Bancewicz, G. Maroulis, *Rotationally adapted studies of ab-initio computed collision-induced hyperpolarizabilities. The H_2-Ar pair.*, Phys. Rev. A, **79**, 042704-1 - 042704-8 (2009).

17. T. Bancewicz, A. Kamiński, *The geometrical model for obtaining the D_{3h} group's characters of irreducible representations and symmetry types*, The Chemical Education Journal, (The Society of Computer Chemistry, Japan), 2009.

18. M. S. A. El-Kader, S. M. El-Sheikh, T. Bancewicz, and R. Hellmann, *Contributions of multipolar polarizabilities to the isotropic and anisotropic light scattering induced by molecular interactions in gaseous methane*, J. Chem Phys., **129**, 124306 (2008).

19. J-L Godet, T. Bancewicz, W. Głaz, G. Maroulis and A. Haskopolulos, *Binary rototranslational hyper-Rayleigh spectra of H_2-He gas mixture*, J. Chem Phys., **131**, 204305-1 –204305-6 (2009).

20. T. Bancewicz, *Can the long-range collision-induced properties be modeled semi-classically?*, Conference on Computational Methods in Science and Engineering, Rodos 2009 (keynote talk), edited by T. E. Simos and G. Maroulis, AIP, New York, 2010 (in press) .

21. T. Bancewicz and G. Maroulis, *Validation of a model for the interaction-induced long-range first hyperpolarizability*, Chem Phys. Lett., **498**, 349-352 (2010).

22. M.S.A. El-Kader, T. Bancewicz and G. Maroulis, *Higher order multipolar polarizabilities of carbon tetrafluoride from isotropc and anisotropic light scattering experiments*, J. Mol. Structure, **984**, 262-267 (2010).

23. T. Bancewicz and A. Kamiński, *The Visual Derivation of Characters for Irreducible Representation of D_{6h} Group*, Chemical Education Journal, **13**, No. 2), URL = http://chem.sci.utsunomiya-u.ac.jp/cejrnlE.html. (The Society of Computer Chemistry, Japan), 2010.

24. M.S.A. El-Kader, T. Bancewicz, *Lineshapes of collision-induced absorption (CIA) and of collision-induced light scattering (CIS) of monatomic gas mixtures of Ne-Ar*, Molecular Physics, **109**, 457-466 (2011).

25. T. Bancewicz, *Asymptotic multipolar expansion of collision-induced properties*, J. Chem Phys., **134**, 104309-1 –204305-7 (2011).