



Evidence for an isotropic signature in double vibrational collision-induced Raman scattering: A point-polarizable molecule model

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Titre	Evidence for an isotropic signature in double vibrational collision-induced Raman scattering: A point-polarizable molecule model
Type de publication	Article de revue
Auteur	Chrysos, Michel [1], Verzhbitskiy, I.-A. [2]
Type	Article scientifique dans une revue à comité de lecture
Année	2010
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Résumé en anglais	<p>The particularly weak isotropic spectrum of the recently reported [Verzhbitskiy et al. Phys. Rev. A 81 012702 (2010)] nearly depolarized collision-induced Raman scattering band SF₆(ν_1)+N₂(ν_1) at room temperature was obtained and is presented here. The spectrum was extracted from high-quality measurements of two independent incident-field polarization scattering components. Its zero-order moment was found to be about 200 times smaller than that of its anisotropic counterpart. Agreement, both in spectral shape and in intensity, was found with predictions based on the dipole-induced dipole polarization model once corrected for the very substantial back-induction, dispersion, and dipole-induced quadrupole-induced dipole interaction mechanisms, all of which were considered within the model framework of two point-polarizable molecules. Quantum-mechanical calculations revealed a large contribution from bound and predissociating dimers that amounts to more than one-third of the total isotropic scattering intensity.</p>
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- [1] <http://okina.univ-angers.fr/michel.chrysos/publications>
- [2] [http://okina.univ-angers.fr/publications?f\[author\]=4472](http://okina.univ-angers.fr/publications?f[author]=4472)
- [3] <http://okina.univ-angers.fr/publications/ua1971>
- [4] <http://dx.doi.org/10.1103/PhysRevA.81.042705>

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