



Collision-induced hyper-Rayleigh spectrum of H₂-Ar gas mixture

Submitted by Emmanuel Lemoine on Wed, 10/29/2014 - 11:43

Titre	Collision-induced hyper-Rayleigh spectrum of H ₂ -Ar gas mixture
Type de publication	Article de revue
Auteur	Bancewicz, Tadeusz [1], Głaz, Waldemar [2], Godet, Jean-Luc [3], Maroulis, George [4]
Editeur	American Institute of Physics
Type	Article scientifique dans une revue à comité de lecture
Année	2008
Langue	Anglais
Date	2008/09/28
Numéro	12
Volume	129
Titre de la revue	The Journal of Chemical Physics
ISSN	1089-7690
Mots-clés	Light scattering [5], Molecular spectra [6], Number Theory [7], Tensor methods [8], Visible spectra [9]
Résumé en anglais	The collision-induced hyper-Rayleigh (CIHR) spectra of the gaseous H ₂ - Ar mixture are discussed in the binary regime on the basis of our ab initio computed H ₂ - Ar collision-induced (CI) first dipole hyperpolarizability tensor $\Delta \beta (R)$. A method for the computation of the spherical, rotationally adapted components $\Delta \beta \lambda L (s , K) (R)$ of $\Delta \beta (R)$ needed for spectroscopic line shape analysis is proposed. Both the vector and the septor parts of the H ₂ - Ar CIHR spectrum are evaluated at room (T = 295 K) temperature. The spectra are calculated assuming the full quantum computations based on the Schrödinger equation of the relative translational motion of H ₂ - Ar as well as semiclassical methods (classical trajectory approach and Birnbaum-Cohen model translational profiles). The H ₂ - Ar pair CIHR septor spectrum has been found stronger than the vector one.
URL de la notice	http://okina.univ-angers.fr/publications/ua5115 [10]
DOI	10.1063/1.2981042 [11]
Lien vers le document	http://dx.doi.org/10.1063/1.2981042 [11]

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