



## Spectral line shapes of collision-induced light scattering (CILS) and collision-induced absorption (CIA) using isotropic intermolecular potential for H<sub>2</sub>-Ar

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Résumé en anglais	<p>Quantum mechanical line shapes of collision-induced light scattering at room temperature (295 K) and collision-induced absorption at T = 195 K are computed for gaseous mixtures of molecular hydrogen and argon using theoretical values for pair-polarisability trace and anisotropy and induced dipole moments as input. Comparison with other theoretical spectra of isotropic and anisotropic light scattering and measured spectra of absorption shows satisfactory agreement, for which the uncertainty in measurement of its spectral moments is seen to be large. Ab initio models of the trace and anisotropy polarisability which reproduce the recent spectra of scattering are given. Empirical model of the dipole moment which reproduce the experimental spectra and the first three spectral moments more closely than the fundamental theory are also given. Good agreement between computed and/or experimental line shapes of both absorption and scattering is obtained when the potential model which is constructed from the transport and thermo-physical properties is used.</p>
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