



Dielectric-sphere-couple model for noble-gas pair polarizability

Submitted by Jean-Luc Godet on Thu, 09/24/2015 - 22:25

Titre Dielectric-sphere-couple model for noble-gas pair polarizability

Type de publication Article de revue

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Pays Etats-Unis

Editeur American Physical Society

Type Article scientifique dans une revue à comité de lecture

Année 1992

Langue Anglais

Date Jan-11-1992

Numéro 9

Pagination 5680

Volume 46

Titre de la revue Physical Review A

ISSN 1050-2947

Résumé en anglais A classical model of two interacting dielectric spheres (DS) in an electric field is proposed to calculate the trace and anisotropy of the polarizability tensor of a pair of isotropic molecules. The case of noble gases is treated. It is shown that the dielectric-sphere-couple anisotropy is quite close to the dipole-induced-dipole (DID) anisotropy, while the DS trace is significantly greater than the DID trace, even at long distances between the interacting spheres. These results are interpreted as being due to the non-negligible multipolar contributions to the trace. To examine the validity of the model, its predictions are compared with results of experiments (trace and anisotropy are responsible for many collision-induced optical phenomena or properties) and of self-consistent-field calculations.

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DOI [10.1103/PhysRevA.46.5680](http://dx.doi.org/10.1103/PhysRevA.46.5680) [4]

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Titre abrégé Phys. Rev. A

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