

Abstract Submitted
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External electric field alignment and long range forces between molecules¹ JASON BYRD, JOHN MONTGOMERY, ROBIN CÔTÉ, University of Connecticut Department of Physics — Long range electrostatic, induction and dispersion coefficients including terms of order R^{-8} have been calculated by the sum over states method using time dependent density functional theory. The laboratory-frame transformation of electrostatic moments and van der Waals coefficients corresponding to the alignment of arbitrary molecules has been derived. From this transformation the effect of subsequent perturbations due to external electric fields have been computed for a sequence of molecules of experimental importance. Possible enhancements to the molecular alignment process due to choices in field geometries and strengths are investigated. Also derived are analytic solutions to the dressed-state laboratory-frame electrostatic moments and long range intermolecular potentials in the DC low-field limit.

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