

Abstract Submitted
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Non-spherical Depletants in Colloidal Suspensions¹ STEPHEN BARR, ERIK LUIJTEN, University of Illinois at Urbana-Champaign — We investigate the effective interactions between spherical colloids induced by rigid rod-like depletants. The size disparity between the colloids and the rods makes conventional simulation methods inefficient. We overcome this by extending the generalized geometric cluster algorithm for colloidal suspensions [J. Liu and E. Luitjen, Phys. Rev. Lett. **92**, 035504 (2004)] to systems of non-spherical particles. We investigate both uncharged and charged colloids and rods, where the electrostatic potential is modeled through a screened interaction. The dependence of the induced depletion potential on both the strength and the range of the electrostatic interactions is quantified. In case of a rod-sphere repulsion, the depletion attraction between the colloids is enhanced as the screening length becomes larger, owing to the increased effective size of the rods. Systems with a rod-sphere attractions are also explored.

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