

Abstract Submitted
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Phase Behavior of Patchy Spheroidal Fluids.¹ THIENBAO CARPENCY, Lehigh Univ — We employ Gibbs-ensemble Monte Carlo computer simulation to assess the impact of shape anisotropy and particle interaction anisotropy on the phase behavior of a colloidal (or, by extension, protein) fluid comprising patchy ellipsoidal particles, with an emphasis on critical behavior. More specifically, we obtain the fluid-fluid equilibrium phase diagram of hard prolate ellipsoids having Kern-Frenkel surface patches under a variety of conditions and study the critical behavior of these fluids as a function of particle shape parameters. It is found that the dependence of the critical temperature on aspect ratio for particles having the same volume can be described approximately in terms of patch solid angles. In addition, ordering in the fluid that is associated with particle elongation is also found to be an important factor in dictating phase behavior.

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Thienbao Nguyen
Lehigh Univ

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