

Abstract Submitted
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Phase Separation in the Dipolar Hard-Sphere System Revisited¹

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We investigate the liquid-vapor transition in the dipolar hard-sphere system. Since the suggestion of de Gennes and Pincus [Phys.Kondens. Mater. **11**, 189 (1970)] this phase transition has proven both elusive and controversial, with conflicting numerical results regarding its existence and its nature. Employing extensive and efficient grand-canonical Monte Carlo simulations, we revisit this issue. High-precision results on the low-temperature heat capacity are presented along isotherms as well as isochores. In addition, we study the density distribution function and its moments for a wide range of chemical potentials, and identify anomalous finite-size effects that can give rise to incorrect conclusions.

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