

Abstract Submitted
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Interactions between nanoparticles in supercritical fluids SERGEI EGOROV, University of Virginia — This talk presents a theoretical study of interactions between sterically stabilized spherical nanoparticles in a supercritical solvent. The theory is used to analyze the effect of particle size, solvent density, and solvent-ligand interaction strength on the potential of mean force between the particles. Experimentally observed size-selective precipitation of nanoparticles is rationalized in terms of the behavior of the density profiles of stabilizing ligands as a function of particle size and solvent thermodynamic conditions. The theory yields the same general trends as observed in experiments, namely, an increased stability of nanoparticle dispersions at higher solvent densities and for smaller particle sizes.

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