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Dielectric effects in self-assembly of binary colloid mixtures ERIK LUIJTEN, KIPTON BARROS¹, Northwestern University — Colloidal self-assembly is often controlled by electrostatic interactions. The solvent and colloids typically have different dielectric constants, thereby inducing polarization charge at the colloid surfaces. A shortcoming of previous simulations of charged colloids with implicit solvent is the neglect of the effective many-body interactions resulting from such dielectric effects. We study colloidal self-assembly using a method that properly accounts for polarization charge. In simulations of weakly charged colloids with large size asymmetry, we find that dielectric effects modify the pair correlation function in a nontrivial way and at low temperatures alter the observed crystal phase.

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