

Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Self-assembly of dielectric Janus particles HUANXIN WU, ERIK LUIJTEN, Northwestern University — We consider dielectrically heterogeneous Janus particles, spherical colloids with a dielectric mismatch between their two hemispheres. When such particles are suspended in solution, this mismatch leads to different polarization charges induced on the two hemispheres. Until now, the role of these polarization charges has not been considered in the context of colloidal self-assembly. Here, we address this challenge by means of a new and efficient computational approach that dynamically and spatially resolves the polarization charge distribution within molecular dynamics simulations. Employing this approach, we explore the effect of dielectric many-body effects on the ion distribution around dielectric Janus colloids. We also investigate ways to exploit these effects for controlling aggregation and self-assembly by tuning the dielectric mismatch.

Huanxin Wu
Northwestern University

Date submitted: 15 Nov 2013

Electronic form version 1.4