

Abstract Submitted
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MD Simulations of the Mesostructure Phase of Microspheres at an Air-Water Interface ROY M. LINDSAY, DANIEL W. SINKOVITS, Univ of Wisconsin, Stout — The interaction between like-charged particles in a bulk-phase system is adequately described by the standard Derjaguin-Landau-Overbeek-Verwey (DLVO) theory, but the interactions between particles trapped at an interface cannot be readily described by DLVO theory. Theoretical and experimental research over the past three decades has elucidated the dominant phenomena governing these interactions, but puzzles remain, including an experimentally observed mesostructure phase. In this project, we introduce a 4-term pair potential function in the molecular dynamics simulation to incorporate both short and long range repulsive and attractive forces. We reproduce an experimentally observed surface-area isotherm, and we attempt to reveal the dominant forces governing the formation of the mesostructure phase in these interfacial particle arrays.

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