

Abstract Submitted
for the MAR09 Meeting of
The American Physical Society

Suppressing and Amplifying Depletion Attractions between Surfaces Roughened by Asperities KUN ZHAO, THOMAS MASON, UCLA —
Motivated by recent experiments on roughness-controlled depletion attractions, we study the effect of roughness on depletion attractions between flat surfaces decorated using hemispherical and hemispheroidal asperities. Our calculations show that the depletion attraction between rough surfaces can be either dramatically reduced or amplified depending on the details of the surface morphologies. This model also explains the observed self-assembly of rough Janus platelets into dimers and provides quantitative predictions of roughness-controlled depletion attractions for conditions that have not yet been explored experimentally.

Kun Zhao
UCLA

Date submitted: 30 Nov 2008

Electronic form version 1.4