

Abstract Submitted
for the MAR08 Meeting of
The American Physical Society

Phospholipid Membranes Restructure Locally Where Nanoparticles Bind BO WANG, YAN YU, STEPHEN ANTHONY, SUNG CHUL BAE, STEVE GRANICK, University of Illinois — In the field of surface science, it is known that metal and semiconductor surfaces may respond to their environment by restructuring. Similar issues are more significant in nanoscience, since large populations of the atoms/molecules reside on the surfaces. It is natural to inquire whether analogous restructuring might also be characteristic of phospholipid membranes, bearing mind that no bulk exists at all in this case. We show here that the two categories of reconstructions, phase state and local curvature, of unicomponent lipid bilayers can occur through non-specific interactions when charged nanoparticles adsorb. This coupling not only modulates the short-range molecular orientation and packing, but also is believed to be responsible for long-range interaction and transportation on fluctuating membranes.

Bo Wang
University of Illinois

Date submitted: 21 Nov 2007

Electronic form version 1.4