

MAR07-2006-003267

Abstract for an Invited Paper
for the MAR07 Meeting of
the American Physical Society

**Directing and Orienting Nanoparticles and Nanorods at Fluid Interfaces, within Templates, and on
Substrates**

TODD EMRICK, University of Massachusetts Amherst

This presentation will center on the functionalization of nanoparticles and nanorods with organic and polymer ligands that influence the behavior of such particles in solution, at interfaces, and on substrates. When nanoparticles, whether quantum dots, gold nanoparticles, or bionanoparticles (such as tobacco mosaic virus or ferritin), are surface-functionalized with reactive ligands, they not only can form interesting assemblies, but also can be converted to robust structures through performing chemistry on the ligands. Nanoparticle-based capsules and sheets arise from such chemistries, which can be considered for potential applications in for example functional membranes and coatings.