

Physical Chemistry Seminar

Tuesday,
September 22, 2009

11:00 a.m.

Room 1315
Chemistry Building

Novel Colloidal and Interfacial Phenomena in Liquid Crystalline Systems



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Processes leading to the self-organization of molecules and colloids within and at the interfaces of isotropic liquids have been widely studied in the past. This talk will focus beyond those past studies by addressing interfacial and colloidal phenomena in systems in which the isotropic solvent is replaced by a nematic liquid crystal (LC). Observations derived from two experimental systems will be described. The first system involves LC-in-water emulsion droplets, and the influence of droplet size and interfacial chemistry on the structure of the droplets. Recent experimental observations in our laboratory have unmasked size-dependent ordering of the LC droplets that is not predicted by classical theories of LCs. The second experimental system to be discussed involves the interfacial organization of solid microparticles at aqueous-LC interfaces. Our observations have revealed that the nematic order of a LC can give rise to new classes of inter-particle interactions at these interfaces. Significantly, the symmetries of the interactions differ from those encountered in isotropic solvent systems, thus giving rise to interfacial organizations of particles not previously reported. This presentation will highlight fundamental and unresolved issues related to the behaviors of these LC-colloidal systems.

Refreshments will be available prior to the seminar at 10:45 a.m. outside room 1315