SPECIAL SEMINAR

Louisiana Consortium for Neutron Scattering
“Investigations of the Conformation and Dynamics of Soft Colloids using Neutron Scattering”

Monday, November 17, 2014, 3:00-4:00pm
1008B Digital Media Center, LSU

Xin Li
Oak Ridge National Laboratory

Fall Seminar

“Superconducting Transition in a Flat Band”
3:30pm – 4:30pm, Wednesday, November 19, 2014
1008B, Digital Media Center, Louisiana State University

Richard Scalettar
University of California, Davis

PUBLICATIONS:

Investigations of the Conformation and Dynamics of Soft Colloids using Neutron Scattering

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ABSTRACT: Soft colloids, such as dendrimers and star polymers, are hybrids between linear polymers and hard colloids. Their solutions exhibit rich phase phenomenon due to their unique microstructure. In scaling theories a geometrically-defined overlap concentration $c^*$ is used to identify the dilute concentration regime, and it has been well accepted that the conformation of soft colloids remains invariant below $c^*$. However, in the regime below $c^*$, our study discovered the crossover point between the intramolecular relaxation and the intermolecular collision, and the competition between these two dynamical processes leads to a steady conformational evolution. Furthermore, we investigated the correlation between the molecular solvation and the conformation of star polymers above $c^*$. To understand the relationship between the microstructure and the global conformation of a star polymer, we proposed the scattering function of a star polymer with the excluded volume effect incorporated, and the model demonstrated a good agreement with the experiment data.