McCormick

Northwestern Engineering

Engineering Science and Applied Mathematics

Mesoscale Modeling of Complex Fluids and Materials

Presented By:

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of

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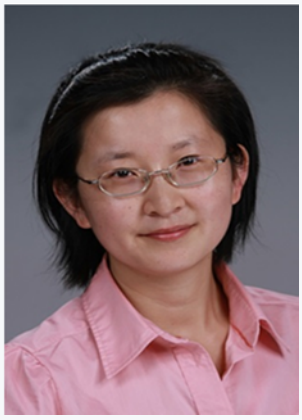

Recent applications in micro-/nano-technology, material assembly and biological systems demand robust and accurate computational modeling of multiphysical processes at the mesoscale. In this talk, I will focus on numerical methods and scientific computing that effectively capture mesoscopic multiphysics in complex fluids and materials. I will discuss both top-down and bottom-up approaches. In the top-down approach, the stochastic PDEs with consistent thermal scaling were solved to describe the important effects of thermal fluctuation in mesoscale. In the bottom-up approach, coarse-grained molecular models were developed to conserve both equilibrium and dynamic properties of underlying microscopic systems. Application systems include stochastic advection-diffusion, polymer solution, colloid suspension, red blood cell and battery.

Monday, December 7, 4:00 PM

Technological Institute M416

For Further information see http://esam.northwestern.edu

Engineering Sciences and Applied Mathematics

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