

February 12, 2013

STEVE GRANICK

Professor of Materials Science and Engineering, of Chemistry, and of Physics,
University of Illinois

Fun and profit with soft materials

A fundamental materials challenge is to form structure that is not frozen in place but instead reconfigures internally driven by energy throughput and adapts to its environment robustly. Predicated on fluorescence imaging at the single-particle level, this talk describes quantitative studies of how this can happen. With Janus colloidal clusters, we show the powerful role of synchronized motion in self-assembly. In living cells, we find that transportation efficiency problems bear a provocative parallel with polymer chain trajectories with their spatial extent, and with jammed matter in their time evolution. A picture emerges in which simple experiments, performed at single-particle and single-molecule resolution, can dissect macroscopic phenomena in ways that surprise.

Please join us for refreshments beforehand, outside Room 3-370.

For more information, visit our website at <http://web.mit.edu/mmec/>

Organizers: Ken Kamrin (kkamrin@mit.edu); Pedro Reis (preis@mit.edu); Kostya Turitsyn (turitsyn@mit.edu)

Coordinator: Ray Hardin (xray@mit.edu - x 3-5328)