

UNIVERSITY OF CONNECTICUT



INSTITUTE OF MATERIALS SCIENCE

POLYMER PROGRAM SEMINAR

“Light-Tunable Fluids, Self-Propelling Microcapsules and Hemostatic Polymers: New Forms of Soft Matter with Unique Properties”

**Prof. Srinivasa Raghavan
University of Maryland**

**Friday, April 3, 2015
11:00 AM, IMS Room 20**

Our laboratory seeks to engineer the assembly of “building blocks” such as polymers, surfactants, or colloids into new forms of complex fluids and soft materials. When such assembly is induced spontaneously by thermodynamic driving forces, it is called self assembly. Alternately, when assembly is directed by bringing materials into contact at interfaces or around predefined templates, it is termed directed assembly. Both processes have their analogs in biology and nature, and both are of great technological interest.

This talk will provide illustrative examples of our work. We have created assemblies that respond to stimuli such as temperature, pH or light; an example of the latter are fluids whose viscosity can be varied million-fold by irradiation with light. Also, we have used microfluidic techniques to create microcapsules of biopolymers, which we have endowed with self-propulsive capabilities in the presence of a chemical fuel. We have also developed self-assembling biopolymers that are able to convert liquid blood into a gel; thereby, the materials stop bleeding from serious injuries. A startup company has been established to commercialize these “hemostatic” materials for military and civilian use.

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