

**CENTER FOR FLUID MECHANICS
AND
THE FLUIDS, THERMAL AND CHEMICAL PROCESSES GROUP
OF
THE DIVISION OF ENGINEERING
SEMINAR SERIES**

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Evanston, IL**

Hydrodynamic and Electrostatic Self-Assembly

Organization and evolution in systems having many degrees of freedom and operating away from thermodynamic equilibrium (“dissipative systems”) is of fundamental interest for its relevance to life and for potential technological applications. Interestingly, such systems can be designed rationally based on a set of heuristic rules. My talk will focus on the implementation of these rules to engineer two classes of dynamic, self-organizing systems: one based on hydrodynamic vortex-vortex interactions, and the other - on electrostatic forces mediated by contact electrification. I will illustrate how ensembles of identical components interacting by simple potentials can be “complexified” and ultimately developed into self-organizing machines, microfluidic devices and detection systems.”

**TUESDAY, NOVEMBER 16, 2004
BARUS & HOLLEY, ROOM 190
4:00pm**