

# PHYSICAL MATHEMATICS SEMINAR

## Dynamics of vesicles and flexible polymers in external flows

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### ABSTRACT:

Dynamics of deformable particles in external flows has been extensively studied both experimentally and theoretically. Unlike solid particles, soft objects can experience a whole variety of different types of motions in steady flows. For instance, at least three qualitatively different behaviors have been for lipid bilayer vesicles: tumbling, tank-treading, trembling. I will review recent experiments and our theoretical results on the dynamics of lipid bilayer vesicles in external flows. Specifically, I will present and analyze the phase diagram of possible vesicle motions and characterize the phenomena of vesicle wrinkling in transient flows. In the end of the talk I will briefly discuss the effect of hydrodynamic interactions and their possible connection to the elastic turbulence phenomena.

**TUESDAY, MAY 8, 2012**

**2:30 PM**

**Building 2, Room 105**

*Reception at 3:30 PM in Building 2, Room 290  
(Math Dept. Common Room)*

<http://math.mit.edu/pms>



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