1060-76-175 **Petia M Vlahovska*** (`petia.vlahovska@dartmouth.edu`), 8000 Cummings Hall, Hanover, NH 03755. *Microhydrodynamics of soft particles.*

The dynamics of deformable particles such as drops and cells in flow or electric fields represents a long standing problem of interest in many branches of science and engineering, for instance because of its relevance to the rheology of emulsions and biological suspensions such as blood. The problem is challenging because the shape of these "soft" particles is not given a priori but is governed by the balance between interfacial forces, e.g. due to stretching and/or bending of the interface, fluid, and electric stresses. In this talk I will present theoretical analyses of the behavior of drops and vesicles (closed lipid bilayer membranes) in various flows. Analytical solutions by perturbation expansions and numerical solutions using Boundary Integral Method will be presented. (Received March 29, 2010)