

Abstract Submitted  
for the DFD10 Meeting of  
The American Physical Society

**Evolution of an elastic capsule in two-dimensional Stokes flow**

MICHAEL HIGLEY, MICHAEL BOOTY, MICHAEL SIEGEL, New Jersey Institute of Technology — We consider an inviscid bubble surrounded by an elastic membrane. In planar Stokes flow, the deformation of the capsule can be described by adapting existing conformal mapping techniques. We present analytical and numerical results for the evolution and steady states of the capsule. These include the effects of different far-field conditions in the flow, resulting in behaviors such as tank-treading and cusp formation.

Michael Higley  
New Jersey Institute of Technology

Date submitted: 06 Aug 2010

Electronic form version 1.4