

Abstract Submitted
for the MAR11 Meeting of
The American Physical Society

Shape evolution of a thin loop sedimenting in a viscous fluid

JAMES HANNA, CHRISTIAN SANTANGELO, Department of Physics, UMass-Amherst — We consider the non-local elastic problem of a closed thin filament settling under gravity in a fluid at zero Reynolds number. The filament is modeled as an inextensible chain, with no bending or twist rigidity. Although the equations admit rigid motions of the chain, there are no stable trajectories. We explore whether a stable envelope may exist around a recirculating blob and tail arrangement.

James Hanna
Department of Physics, UMass-Amherst

Date submitted: 18 Nov 2010

Electronic form version 1.4