

Abstract Submitted
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Shape dynamics of a thin loop sedimenting in a viscous fluid

JAMES HANNA, CHRISTIAN SANTANGELO, Department of Physics, UMass-Amherst — Thin elastic filaments and chains in viscous fluids are idealizations of biological and polymeric systems. We consider the non-local shape evolution, due to hydrodynamic self-interaction, of a chain-like, locally inextensible loop settling under gravity in the creeping flow regime. We find that the rigid translation of a circle along its gravitationally-aligned axis is unstable. A recirculating blob and tail arrangement is explored as a possible attracting state of a long chain.

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