

Abstract Submitted
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Hydrodynamic interactions between two semi-flexible in-extensible filaments in Stokes flow¹ YUAN-NAN YOUNG, New Jersey Institute of Technology — Hydrodynamic interactions between two semi-flexible in-extensible filaments are shown to have a significant impact on filament buckling and their subsequent motion in Stokesian fluids. In linear shear flow, hydrodynamic interactions lead to filament shear dispersion that depends on the filament aspect ratio and the initial filament separation. In linear extensional flow, hydrodynamic interactions lead to complex filament dynamics around the stagnation point. These results suggest that hydrodynamic interactions need to be taken into account to determine the self-diffusion of non-Brownian semi-flexible filaments in a cellular flow [Phys. Rev. Lett., 99, 058303, 2007].

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