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**Relaxation of an elastic filament on a viscous interface** JOEL MARTHELOT, S. GANGA PRASATH, NARAYANAN MENON, TCIS, TIFR, Hyderabad — What is the shape of an elastic filament floating on a fluid interface? We observe the time-dependent relaxation of a bent filament reopening towards its straight, stress-free, configuration. We study a regime in which the dynamics are overdamped, but with the rod initially bent into a geometrically nonlinear regime. The dynamics of reopening are governed by a competition between the viscous drag of the liquid and the bending elastic force of the rod. We study the relaxation of shape as a function of the length, diameter and elasticity of the rod, and the viscosity of the fluid interface. The opening dynamics are governed by a time scale that is much smaller than a time constructed from these quantities, but scales in the same way. This simple system could provide an easy method to characterize interfacial properties of fluid interfaces.

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