

Abstract Submitted  
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**WITHDRAWN: Axisymmetric Adaptive Drop/Interface Impacting Study** XIAOMING ZHENG, UC Irvine, JOHN LOWENGRUB, Math Dept, UCI, VITTORIO CRISTINI, Math/BME Dept, UCI, UC IRVINE COLLABORATION — The impact of a drop upon an interface is studied using an axisymmetric adaptive level-set/finite element method. Under certain conditions, the drop will rebound off the interface before breaking through. The drop fluid and the fluid below the interface are identical. We characterize the behavior in terms of the relevant nondimensional parameters: the Reynolds number, the Weber number, and the viscosity and density ratios of the fluid components. One of the primary difficulties in performing numerical simulations of such flows is the accurate resolution of the lubrication forces that arise in the near contact region between the drop and interface. To overcome this difficulty, we use a spatially and temporally adaptive mesh together with a new, stable and accurate projection method for the Navier-Stokes equations and a mass-conserving level-set algorithm for capturing the motion of the drop and interface (J. Comp. Phys., v. 208, 2005). We validate our algorithm by successfully matching the recent experimental results on drop/interface impact by Mohamed-Kassim and Longmire (Phys. Fluids, v. 15, 2003).

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