**Title**

*Axisymmetric study of drop interface impact in viscous flow*

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**Abstract:** This work studies the rebounding phenomena in the drop/interface impact problem in a viscous flow. A liquid drop falls through an immiscible viscous liquid and then impacts an interface, below which the liquid is the same as the drop. In the impact, the drop may rebound or coalesce on contact. In this numerical study, we assume the drop falling and impacting processes are axisymmetric. We use an axisymmetric adaptive mesh/finite element/level-set method to solve the Navier-Stokes equations. In this talk, first, we compare with experimental results. Second, we present the details of the draining process in the thin film between the drop and the interface. Third, we use extensive parameter studies of Reynolds and Weber numbers to investigate the regimes when drop breaks into rings, rebounds, or directly coalesces with lower liquid.