

Abstract Submitted
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Numerical simulation of drop dynamics with soluble surfactant

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QIMING WANG, University of British Columbia — We use a hybrid numerical
method that combines the boundary integral method with an asymptotic reduction
of surfactant solubility effects neighboring a drop interface in the large bulk Peclet
number limit. This provides an accurate and efficient means of simulating drop dy-
namics with soluble surfactant. The influence of surfactant solubility on steady-state
solution branches for a drop that is stretched in an axisymmetric extensional flow is
presented together with the influence of various parameters, including the capillary
and Biot numbers, on unsteady drop evolution and tipstreaming.

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