

Abstract Submitted  
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**Simulations of bubble-wall collision and bouncing**<sup>1</sup> SOHRAB TOWFIGHI, HADI MEHRABIAN, Department of Chemical and Biological Engineering, University of British Columbia, ROBERTO ZENIT, Materials Research Institute, National Autonomous University of Mexico, JAMES J. FENG<sup>2</sup>, Department of Chemical and Biological Engineering, University of British Columbia — The collision of a rising bubble with a hydrophilic upper wall is studied numerically using an axisymmetric phase-field model. Prior experiments show bubble bouncing or adhesion depending on its incoming velocity. Using experimental parameters, our computation reproduces these different behaviors, including bubble breakup, arrest, and rebound. In particular, dimples are observed on both the fore and aft sides. We further investigate the scaling of the coefficient of restitution and the critical condition delineating arrest from rebound. The latter is plotted as a phase diagram in terms of the Ohnesorge and Weber numbers.

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