

Abstract Submitted
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On the late-time behavior of the single-mode Rayleigh-Taylor problem PRAVEEN RAMAPRABHU, GUY DIMONTE, Los Alamos National Laboratory — We report on the behavior of a single-mode Rayleigh-Taylor flow at late-times. Numerical simulations in a long square duct of size $\lambda \times \lambda \times 8\lambda$ exhibit four distinct stages of evolution: exponential growth, transition to nonlinear saturation, terminal velocity,¹ and acceleration. In the terminal velocity phase, the bubble has a rounded tip consistent with potential flow calculations. Later in time, the bubble tip becomes more streamlined and the bubble accelerates. Such acceleration has been observed in other simulations, where the flow was allowed to develop to such late-times. We will survey these results, and put forth a possible explanation for our observations.

¹P. Ramaprabhu and Guy Dimonte, Phys. Rev. E 71, 036314 (2005)

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