

Abstract Submitted
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Effect of noise on Rayleigh-Taylor mixing with time-dependent acceleration¹ NORA C. SWISHER, ARUN PANDIAN, SNEZHANA I. ABARZHI, Carnegie Mellon University — We perform a detailed stochastic study of Rayleigh-Taylor (RT) mixing with time-dependent acceleration. A set of nonlinear stochastic differential equations with multiplicative noise is derived on the basis of momentum model and group theory analysis. A broad range of parameters is investigated, and self-similar asymptotic solutions are found. The existence is shown of two sub-regimes of RT mixing dynamics — the acceleration-driven and the dissipation-driven mixing. In each sub-regime, statistic properties of the solutions are investigated, and dynamic invariants are found. Transition between the regimes are studied.

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