

Abstract Submitted  
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**Evolution of Rayleigh-Taylor growth following an initial Richtmyer-Meshkov instability** JEREMY MELVIN, Stony Brook University, BAOLIAN CHENG, Los Alamos National Lab, JAMES GLIMM, Stony Brook University, DAVID H. SHARP, Los Alamos National Lab — We investigate the evolution of a Rayleigh-Taylor (RT) growth on top of an already developing Richtmyer-Meshkov (RM) instability. Using numerical simulations utilizing a front tracking algorithm and theoretical analysis through a buoyancy-drag equation, an initially perturbed density discontinuity is subjected to a shock wave and then after a delay, a gravitational field is applied. The early time growth of the RM/RT instability is compared with a pure RT instability and asymptotic growth rate predictions for the RT evolution. A dependence on the RM seeding is shown to produce a meaningful change in the perturbation growth at early times. The implications of this to Inertial Confinement Fusion analysis, which largely focuses on the RT instability, is discussed.

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