Theory and simulation of moderately and strongly nonlinear dynamics of the classical Richtmyer-Meshkov instability M. HERRMANN, Arizona State University, A.L. VELIKOVICH, Plasma Physics Division, NRL, S.I. ABARZHI, The University of Chicago — There are many features of early- and late-time nonlinear Richtmyer-Meshkov instability growth that are not captured by simplified or ad hoc phenomenological models, such as Layzer's or drag-buoyancy. These include but are not limited to: late-time evolution of the bubble curvature, early-time acceleration of the spike, and effect of finite values of ripple amplitude and Atwood number on early-time bubble and spike growth. We compare the results of numerical simulations with the predictions of nonlinear theory, demonstrating good agreement. The influences of viscosity, the initial spectra, and other effects on the nonlinear dynamics are discussed.

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