Numerical modeling and theoretical analysis of moderately and strongly nonlinear dynamics of the classical Richtmyer-Meshkov instability[1] MARCUS HERRMANN, Arizona State University, USA, ALEXANDER L. VELIKOVICH, Naval Research Laboratory, USA, SNEZHANA I. ABARZHI, University of Chicago, USA — There are many features of early- and late-time nonlinear RM 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; 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 the nonlinear theory, demonstrating a good agreement. The influences of viscosity, compressibility and the initial spectra on the nonlinear dynamics are outlined.

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