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A Comparison of Two- and Three-Dimensional Single-Mode Reshocked Richtmyer–Meshkov Instability Growth[1] MARCO LATINI[2], California Institute of Technology, OLEG SCHILLING, Lawrence Livermore National Laboratory — The growth dynamics of two- and three-dimensional single-mode reshocked Richtmyer–Meshkov instability are compared using data from high-resolution implicit LES of a model of the Mach 1.3 air(acetone) and sulfur hexafluoride Jacobs and Krivets shock tube experiment. The numerical amplitude growth is compared to the predictions of several nonlinear instability growth models. The dynamics of reshock are described, and the post-reshock mixing layer amplitude growth rate is compared to the predictions of several reshock models. It is shown that using two-dimensional simulations to understand three-dimensional dynamics is valid only at early-to-intermediate times before reshock. At intermediate-to-late times the three-dimensional growth is larger than the two-dimensional growth. The reshock dynamics are also different between two and three dimensions.

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