

Abstract Submitted  
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**Effects of Initial Conditions on the Planar Richtmyer-Meshkov Instability**<sup>1</sup> FERNANDO GRINSTEIN, AKSHAY GOWARDHAN, LANL — In the large eddy simulation (LES) approach, large-scale energy-containing structures are resolved, smaller structures are filtered out, and unresolved subgrid effects are modeled. Extensive recent work has demonstrated that predictive under-resolved simulations of the velocity fields in turbulent flows are possible without resorting to explicit subgrid models, when using a class of physics-capturing high-resolution finite-volume numerical algorithms. This strategy is denoted implicit LES (ILES) [1]. Tests in fundamental applications ranging from canonical to complex flows indicate that ILES is competitive with conventional LES in the LES realm proper - flows driven by large scale features. The performance of ILES in the substantially more difficult problem of under-resolved material mixing driven by under-resolved velocity fields and initial conditions is the focus of the present work. Progress in addressing relevant resolution issues in RAGE simulations of planar shocked and reshocked driven turbulence is reported. [1] F.F. Grinstein, L.G. Margolin, and W.J. Rider 2007, Eds., *Implicit Large Eddy Simulation: Computing Turbulent Flow Dynamics*, Cambridge.

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