

Abstract Submitted
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The magnetohydrodynamic Richtmyer-Meshkov instability in two-dimensional implosions WOUTER MOSTERT, VINCENT WHEATLEY, The University of Queensland, DALE PULLIN, California Institute of Technology, RAVI SAMTANEY, King Abdullah University of Science and Technology — We present numerical results showing the behaviour of the magnetohydrodynamic Richtmyer-Meshkov instability in two-dimensional implosions in the presence of an externally applied seed magnetic field. An initially perturbed cylindrical density interface is accelerated from the outside by a set of imploding magnetohydrodynamic shocks, themselves generated by a cylindrical Riemann problem. We characterize the process of shock refraction with the density interface and examine the subsequent growth of the interface perturbations, comparing with the zero-field case. We test two candidate seed magnetic field configurations: a uniform-strength, unidirectional field; and a field with a saddle point at the domain origin. Both field configurations show suppression of interface perturbation growth, with the latter exhibiting the least asymmetry in the implosion.

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