

Abstract Submitted
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Demonstration of co-propagating shock formation with a hybrid drive for Mshock experiments at NIF¹ E.C. MERRITT, C.A. DI STEFANO, F.W. DOSS, T. DESJARDINS, B.M. HAINES, Los Alamos National Laboratory, B.G. DEVOLDER, Retired, K.A. FLIPPO, D.W. SCHMIDT, L. KOT, T. PERRY, Los Alamos National Laboratory — The LANL MShock campaign is developing a platform capable of studying RM growth and transition to turbulence in the ICF-relevant regime of thin layers driven with multiple, varying strength shocks. Reshocking an imperfect interface with a counter-propagating shock increases the RM growth rate and hastens the system's transition to turbulence. Shocking a layer multiple times from the same side should change the layer instability growth and mixing properties, but the effects co-propagating reshock have not been studied. The next step of the NIF MShock campaign is to study the isolated physics of RM evolution on a single interface, under the influence of co-propagating shocks. We present results demonstrating the ability to experimentally generate two co-propagating shocks on NIF in a shock-tube target using a hybrid direct/indirect drive scheme; direct drive generates the first shock and indirect drive generates the second shock. This scheme nominally allows independent control of shock strengths and shock timings, even at the long time scales required for instability growth experiments.

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Elizabeth Merritt
Los Alamos National Laboratory

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