Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Coupled hydrodynamic instability growth on oblique interfaces in a heavy to light configuration A.M. RASMUS, K.A. FLIPPO, C.A. DI STEFANO, F.W. DOSS, E.C. MERRITT, T. CARDENAS, D.W. SCHMIDT, J.L. KLINE, Los Alamos National Laboratory, C.C. KURANZ, University of Michigan
— Hydrodynamic instabilities play an important role in the evolution of inertial confinement fusion and astrophysical phenomena. Three of the Omega-EP long pulse beams (10 ns square pulse, ∼14 kJ total energy, 1.1 mm spot size) drive a supported shock across a heavy-to-light, oblique, interface. Simple, single-mode, and more complex, double and multi-mode, initial conditions seed coupled Richtmeyer-Meshkov (RM), Rayleigh-Taylor (RT), and Kelvin-Helmholtz (KH) growth. The obliqueness of the interface is varied to alter the relative importance of KH to RM and RT. The Spherical Crystal Imager is used to take high resolution x-ray radiographs of the interface as it evolves. The results of single and double-mode experiments along with simulations using the multi-physics hydro-code RAGE will be presented. This work is funded by the NNSA-DS and SC-OFES Joint Program in High-Energy-Density Laboratory Plasmas, grant number DE-NA0002956. This work performed under the auspices of the U.S. Department of Energy by LANL under contract DE-AC52-06NA25396. This material is partially supported by DOE Office of Science Graduate Student Research (SCGSR) program.

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Date submitted: 14 Jul 2016 Electronic form version 1.4