Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Hydrodynamic Instabilities at an Oblique Interface CAROLYN KURANZ, University of Michigan, CARLOS DI STEFANO, Los Alamos National Laboratory, W.C. WAN, R.P. DRAKE, University of Michigan, G. MALAMUD, A. SHIMONY, D. SHVARTS, Nuclear Research Center — Hydrodynamic instabilities are an important phenomenon that have consequences in many high-energy-density systems, including astrophysical systems and inertial confinement fusion experiments. Using the Omega EP laser we have created a sustained shock platform to drive a steady shock wave using a $\sim$ 30 ns laser pulse. Coupled with a Spherical Crystal Imager we have created high-resolution x-ray radiographs to diagnose the evolution of complex hydrodynamic structures. This experiment involves a hydrodynamically unstable interface at an oblique angle so that the Richtmyer-Meshkov and Kelvin-Helmholtz processes are present. A dual-mode perturbation is machined onto the interface and we seek to observe the merging of vertical structures. Preliminary data from recent experiments and simulations results will be shown.

This work is funded by the U.S. Department of Energy, through the NNSA-DS and SC-OFES Joint Program in High-Energy-Density Laboratory Plasmas, grant number DE-NA0001840, and the National Laser User Facility Program, grant number DE-NA0002032 and through the Laboratory for Laser Energetics, University of Rochester by the NNSA/OICF under Cooperative Agreement No. DE-NA0001944.

Carolyn Kuranz
University of Michigan

Date submitted: 24 Jul 2015 Electronic form version 1.4