Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Characterization of initial state of radiative shock experiments on Omega C.C. KURANZ, R.P. DRAKE, F.W. DOSS, A.J. VISCO, C.M. HUNTINGTON, M.J. GROSSKOPF, D.C. MARION, University of Michigan — Radiative shocks, which exist in a regime where most of the incoming energy flux is converted into radiation, can be created in a laboratory using a high-powered laser. We have performed experiments on the Omega Laser that irradiate a 20μm thick Be disk with $\sim$4 kJ of laser energy. This shocks and accelerates the disk into a Xe or Ar gas at 1.1 atm. These radiative shocks reach velocities well above 100 km/s. Diagnostics for this experiment have included x-ray radiography, x-ray Thomson scattering, optical pyrometry, and UV Thomson scattering. A 3D, MHD code with a radiation solver is being developed by the Center for Radiative Shock Hydrodynamics to model this experiment. It is important for this modeling effort that the initial pressure deposited by the laser and the initial state of the Be plasma be well characterized. The design of a new experiment that will use VISAR and optical pyrometry for early time diagnosis of this initial state will be presented. Supported by the US DOE NNSA under the Predictive Science Academic Alliance Program by grant DE-FC52-08NA28616.

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Date submitted: 20 Jul 2009 Electronic form version 1.4