Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Measurement of Emission from a Radiative Shock A. VISCO, R.P. DRAKE, M.J. GROSSKOPF, University of Michigan — Radiative shocks are shock waves whose structure has been altered by radiation transport from the shock-heated matter. Such shocks are present in numerous astrophysical systems, including supernova remnants, supernovae, and accretion disks. Recent experiments have used the Omega laser to study radiative shock systems that are optically thin upstream and optically thick downstream. In these systems, a radiative precursor and high density cooling layer are formed in response to radiation lost in the upstream region. A thin slab of low-Z material is driven into a 1.1 atm. cylinder of high-Z gas at speeds $>$ 100 km/s, producing strong radiative effects.. Measurements of radiative emission from the shocked region and the precursor region have been made using a streaked optical pyrometer. From these measurements, the temperature of the system can be inferred. Details of the experiment and results will be discussed. This work is funded by the NNSA-DS and SC-OFES Joint Program in High-Energy-Density Laboratory Plasmas, by the National Laser User Facility Program in NNSA-DS and by the Predictive Sciences Academic Alliances Program in NNSA-ASC. The corresponding grant numbers are DE-FG52-09NA29548, DE-FG52-09NA29034, and DE-FC52-08NA28616.

A. Visco
University of Michigan

Date submitted: 16 Jul 2010 Electronic form version 1.4