Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

**Accretion Shocks in the Laboratory: Using the OMEGA Laser to Study Star Formation** R. P. YOUNG, C. C. KURANZ, University of Michigan, C. K. LI, Massachusetts Institute of Technology , P. HARTIGAN, Rice University, D. FROULA, Laboratory for Laser Energetics, G. FIKSEL, University of Michigan, J. S. ROSS, Livermore National Laboratory, P. Y. CHANG, Laboratory for Laser Energetics, S. KLEIN, University of Michigan, A. ZYLSTRA, Los Alamos National Laboratory, H. W. SIO, Massachusetts Institute of Technology, A. LIAO, Rice University, D. BARNAK, Laboratory for Laser Energetics — We present an on-going series of experiments using the OMEGA laser (Laboratory for Laser Energetics) to study star formation. Spectra of young stars show evidence of hotspots created when streams of accreting material impact at the surface of the star to create accretion shocks. These accretion shocks are poorly understood, as the surfaces of young stars cannot be spatially resolved. Our experiment series creates a scaled "accretion shock" on the OMEGA laser by driving a plasma jet (the "accretion stream") into a solid block (the "stellar surface"), in the presence of a parallel magnetic field analogous to the star's local field. Thus far, visible image data from this experimental series either shows very thin accretion shocks forming or does not show them forming at all. We intend to present this data, provide possible explanations for why shocks may not have formed, and discuss potential improvements to the experimental design. 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-NA0002956, and the National Laser User Facility Program, grant number DE-NA0002719,

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Date submitted: 15 Jul 2016 Electronic form version 1.4