

Abstract Submitted
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Creation of warm dense matter with a proton beam generated by the OMEGA EP laser beam SUGREEV CHAWLA, UCSD,LLNL, F.N. BEG, UCSD, A.G. MACPHEE, M. FOORD, M.B. SCHNEIDER, T. DOEPPNER, D.L. JAMES, A. ELSHOLZ, J. EMIG, A.J. MACKINNON, H.S. MCLEAN, R.B. STEPHENS, K.U. AKLI, C. FREDERICK — The creation of warm dense states of matter has important implications in astrophysics and the fast ignition scheme for inertial confinement fusion. We report on an experiment performed using OMEGA EP laser (1 kJ, 10 ps), which was focused on a hollow Cu hemisphere to produce an intense, focused proton beam. This proton beam was used to heat a 25 μm thick, 2 mm diameter Be disk placed 375 μm from the apex of the hemisphere. Variable spaced grating spectrometers were used to diagnose the continuum spectrum emitted from the rear side of the disk. The results were then compared to LASNEX simulations to infer a bulk temperature. A detailed analysis will be presented. Work performed under the auspices of the U.S. DOE by LLNL under contracts DE-AC52-07NA27344 and DE-FG-02-05ER54834. The authors acknowledge the support of OMEGA EP and LLNL technical staff.

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