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Collapsing Radiative Shocks in Xenon Gas on the Omega Laser A.B. REIGHARD, R.P. DRAKE, K.L. KILLEBREW, D.J. KREMER, T. DONA-JKOWSKI, M. GROSSKOPF, M.R. TAYLOR, D.C. MARION, C. KRAULAND, U.MI, S.G. GLENDINNING, B.A. REMINGTON, R.J. WALLACE, D.D. RYU-TOV, J. GREENOUGH, LLNL, J. KNAUER, LLE, S. BOUQUET, L. BOIREAU, CEA Bruyeres, M. KOENIG, T. VINCI, Ecole Polytechnique — A number of astrophysical systems involve radiative shocks that collapse spatially in response to energy lost through radiation, producing thin shells believed to be Vishniac unstable. We report experiments intended to study such collapsing shocks. The Omega laser drives a thin slab of material at >100 km/s through Xe gas. Simulations predict a collapsed layer in which the density reaches 45 times initial density. X-ray backlighting techniques have yielded images of a collapsed shock compressed to <1/25 its initial thickness (45  $\mu$ m) at a speed of ~100 km/s when the shock has traveled 1.3 mm. Optical depth before and behind the shock is important for comparison to astrophysical systems. This research was sponsored by the National Nuclear Security Administration under the Stewardship Science Academic Alliances program through DOE Research Grants DE-FG52-03NA00064, DE-FG53-2005-NA26014, and other grants and contracts.

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