

Abstract Submitted  
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**Hard X-Ray Compton Radiography of Cryogenic Implosions on OMEGA** R. EPSTEIN, S.P. REGAN, F.J. MARSHALL, J.A. DELETTREZ, V.N. GONCHAROV, S.X. HU, P.W. MCKENTY, D.D. MEYERHOFER, P.B. RADHA, T.C. SANGSTER, Laboratory for Laser Energetics, U. of Rochester, R. TOMASSINI, N. LANDEN, A.J. MACKINNON, LLNL — Compton scattering radiography of hard backlight x rays is being developed to measure the mass density distribution and areal density of cryogenic implosions on OMEGA. This work builds on previous success with Compton radiography of warm polymer-shell implosions using bremsstrahlung backlighters driven by the OMEGA EP short-pulse laser. Analyses of simulated radiographic data, based on simulated cryogenic implosions and the weak spectral and material dependence of Compton scattering, demonstrates measurable signal levels. Mass distributions are obtained by Abel inverting the radiographs of spherically symmetric models and spherical ice-block models with offset cores. The results of recent Compton radiography measurements are analyzed. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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