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Hohlraum Energetics with Elliptical Phase Plates on OMEGA S.P. REGAN, D.D. MEYERHOFER, T.C. SANGSTER, R. EPSTEIN, Laboratory for Laser Energetics, U. of Rochester, L.J. SUTER, O.S. JONES, N.B. MEEZAN, M.D. ROSEN, S. DIXIT, C. SORCE, O.L. LANDEN, J. SCHEIN, E.L. DEWALD, LLNL — A set of 40 elliptical phase plates (E-IDI-300) was produced for hohlraum experiments on OMEGA to increase the coupling of laser energy to x-ray drive by reducing laser scattering losses from stimulated Brillouin and Raman scattering. A series of experiments were conducted with vacuum, gas-filled, and glass-lined Au hohlraums having a single laser entrance hole ("halfraums") to quantify the effects of E-IDI-300 drive on the radiation temperature T_r and the scattering losses. A ~17eV increase in T_r was observed for the gas-filled targets driven with a shaped laser pulse (PS26). Gated (~80-ps) hard xray (>8-keV) images of the thin-walled (5- μ m) hohlraums are used to illustrate the radiation hydrodynamics. The experimental results will be presented and compared to LASNEX simulations. Measured characteristics of the single-beam, E-IDI-300 far-field intensity distribution will also be presented. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-92SF19460.

> S.P. Regan Laboratory for Laser Energetics, U. of Rochester

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