Abstract Submitted
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Integrated Fast-Ignition Experiments on OMEGA W. THEOBALD, C. STOECKL, V.YU. GLEBOV, F.J. MARSHALL, K.S. ANDERSON, R. BETTI, R.S. CRAXTON, D.D. MEYERHOFER, P.M. NILSON, T.C. SANGSTER, A.A. SOLODOV, Laboratory for Laser Energetics, U. of Rochester, J.A. FRENJE, R.D. PETRASSO, PSFC, MIT, D. HEY, P.K. PATEL, LLNL, R.B. STEPHENS, General Atomics, R. LAUCK, PTB, Germany, P.A. NORREYS, RAL, UK — Integrated fast-ignition experiments using room-temperature cone-in-shell targets have begun at the Omega/Omega EP Laser Facility. Empty 40-μm-thick CD shells are imploded using 54 UV beams. At the time of peak compression, a short-pulse ($\sim$10 ps) IR laser with energy >1 kJ is focused into the tip of the hollow cone. A three-fold increase in time-integrated 2- to 7-keV x-ray emission was observed, indicating that fast-electron energy is coupled into the core. Neutron detectors are strongly affected by the emission of an intense γ-ray pulse, making it challenging to measure neutron yield. Significant reduction of the γ-ray background has been achieved by gating the MCP detector and using a liquid scintillator to suppress the afterglow. The D_2 neutron yield is being measured. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement Nos. DE-FC52-08NA28302, DE-FC02-04ER54789, and DE-FG02-05ER54839.

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