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**Shock-Ignition Experiments at High Intensity on OMEGA** C. STOECKL, W. THEOBALD, R. BETTI, R.S. CRAXTON, J.A. DELETTREZ, O.V. GOTCHEV, V.YU. GLEBOV, F.J. MARSHALL, D.D. MEYERHOFER, W. SEKA, T.C. SANGSTER, Laboratory for Laser Energetics, U. of Rochester, C.D. ZHOU, Laboratory for Laser Energetics and FSC, U. of Rochester, J.A. FRENJE, R.D. PETRASSO, PSFC, MIT — Shock ignition is a two-step concept in which a strong spherically convergent shock wave is launched at the end of the laser pulse to ignite the compressed core of a low-velocity implosion. Spherical plastic-shell targets were used in experiments on the OMEGA laser at low implosion velocity. A strong shock wave was sent into the converging capsule using an intensity spike at the end of the laser pulse. Both the neutron yield and the areal density improved significantly with an optimized spike pulse. In a second experiment, the 60 OMEGA beams were split into 40 low-intensity beams used for fuel assembly and 20 delayed beams focused to a high intensity (up to $1 \times 10^{16}$ W/cm$^2$) for shock generation. Preheat and laser absorption during the high-intensity spike were studied using hard x-ray detectors and scattered-light measurements. 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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