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**Integrated Fast-Ignition Core-Heating Experiments on OMEGA**

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Integrated fast-ignition core-heating experiments are carried out at the Omega Laser Facility. Plastic (CD) shell targets with a re-entrant gold cone are compressed with a ∼20kJ, UV low-adiabat laser pulse. A 1-kJ, 10-ps pulse from OMEGA EP generates fast electrons in the hollow cone that are transported into the compressed core. The experiments demonstrate a significant enhancement of the neutron yield. The neutron-yield enhancement caused by the high-intensity pulse is $1.5 \times 10^7$, which is more than 150% of the implosion yield. For the first time, measurements of the breakout time of the compression-induced shock wave through the cone were performed for the same targets as used in the integrated experiments. The shock breakout was measured to be ∼100 ps after peak neutron production. The experiments demonstrate that the cone tip is intact at the time when the short-pulse laser interacts with the cone. 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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