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Simulations of Implosion and Core Heating for Integrated Cone-in-Shell Fast-Ignition Experiments on OMEGA A.A. SOLODOV, K.S. ANDERSON, W. THEOBALD, R. BETTI, J.F. MYATT, C. STOECKL, Laboratory for Laser Energetics and Fusion Science Center for Extreme States of Matter, U. of Rochester — Integrated cone-in-shell fast-ignition experiments on OMEGA will benefit from improved performance of the OMEGA EP laser, including higher contrast, higher energy, and a smaller focus. A new target design will be used with a low-Z aluminum cone tip, which is expected to significantly reduce the scattering losses of the fast electrons. Resistive magnetic-field collimation will be employed by shaping the cone tip toward the target center. The electrical resistivity mismatch between the Al tip and the surrounding CD plasma can collimate fast electrons into the assembled fuel. The performance of the new target design is investigated using integrated two-dimensional hydrodynamic simulations of implosion and hybrid-PIC simulations of electron transport. The hydrocode *DRACO* simulates the compression of cone-in-shell targets and the hybrid-PIC code *LSP* simulates the transport of fast electrons through the cone tip to the compressed core. Energy deposition of fast electrons in the assembled fuel is investigated. Core heating and neutron yield are computed. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement Nos. DE-FC52-08NA28302 and DE-FC02-04ER54789.

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