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Simulations of Cone-in-Shell Targets for Integrated Fast-Ignition Experiments on OMEGA A.A. SOLODOV, W. THEOBALD, K.S. ANDERSON, A. SHVYDKY, R. BETTI, J.F. MYATT, C. STOECKL, Laboratory for Laser Energetics and Fusion Science Center, U. of Rochester, R.B. STEPHENS, General Atomics — 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 has been developed with a 60-μm-thick, low-Z aluminum cone tip. A very thin ($\sim$2-μm) gold layer inside the cone tip is used to shield the radiation. Hydrodynamic *DRACO* simulations predict that this design is more resilient against shock than the previous gold-only design and the cone-tip breakout is delayed by about 100 ps. *DRACO* simulations are confirmed by the recent 8-keV flash radiography and shock-breakout measurements on OMEGA. Simulations of core heating by fast electrons generated by the OMEGA EP pulse using the hybrid particle-in-cell code *LSP* integrated with *DRACO* are performed. The electrical resistivity mismatch between the aluminum tip and the surrounding plastic plasma is shown to collimate fast electrons into the assembled fuel. Energy deposition of fast electrons in the compressed core is investigated. Core heating and neutron yield are computed. This work was supported by the U.S. Department of Energy under Cooperative Agreement Nos. DE-FC52-08NA28302 and DE-FC02-04ER54789.

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