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Simulations of Fuel Assembly and Fast-Electron Transport in Integrated Fast-Ignition Experiments on OMEGA A.A. SOLODOV, W. THEOBALD, K.S. ANDERSON, A. SHVYDKY, R. EPSTEIN, R. BETTI, J.F. MYATT, C. STOECKL, Laboratory for Laser Energetics and Fusion Science Center, U. of Rochester, L.C. JARROTT, C. MCGUFFEY, B. QIAO, F.N. BEG, U. of California, San Diego, M.S. WEI, R.B. STEPHENS, General Atomics — Integrated fast-ignition experiments on OMEGA benefit from improved performance of the OMEGA EP laser, including higher contrast, higher energy, and a smaller focus. Recent 8-keV, Cu-K_α flash radiography of cone-in-shell implosions and cone-tip breakout measurements showed good agreement with the 2-D radiation–hydrodynamic simulations using the code *DRACO*. *DRACO* simulations show that the fuel assembly can be further improved by optimizing the compression laser pulse, evacuating air from the shell, and by adjusting the material of the cone tip. This is found to delay the cone-tip breakout by $\sim$220 ps and increase the core areal density from $\sim$80 mg/cm^2 in the current experiments to $\sim$500 mg/cm^2 at the time of the OMEGA EP beam arrival before the cone-tip breakout. Simulations using the code *LSP* of fast-electron transport in the recent integrated OMEGA experiments with Cu-doped shells will be presented. Cu-doping is added to probe the transport of fast electrons via their induced Cu K-shell fluorescent emission. This material is based upon work supported by the Department of Energy National Nuclear Security Administration DE-NA0001944 and the Office of Science under DE-FC02-04ER54789.

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