Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Direct-Drive, Fast-Ignition, Cone-in-Shell Fuel-Assembly Simulations K.S. ANDERSON, A.A. SOLODOV, R. BETTI, P.W. MCKENTY, Laboratory for Laser Energetics, FSC, U. of Rochester — Integrated fast-ignition (FI) cone-in-shell scaling experiments have been performed using the newly commissioned OMEGA–OMEGA EP system. Maximizing experimental yields requires achieving high areal densities within the target while, at the same time, providing a clear channel to the target for the petawatt (PW) laser by keeping the reentrant cone interior free of plasma. To accurately predict yields in these experiments requires precise characterization of the plasma conditions at peak compression. These simulations are performed using the 2-D radiation hydrodynamics code *DRACO*, with fast-electron transport and heating calculated by the hybrid-PIC code *LSP*. This paper reports on the current status of simulations exploring the 2-D fuel-assembly parameter space, including capsule and re-entrant cone design, and laser pointing, pulse shaping, and timing between the two laser systems. 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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Date submitted: 15 Jul 2008 Electronic form version 1.4