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**Studies of shock convergence in ICF implosions using nuclear burn history measurements** J.R. RYGG, J.A. FRENJE, C.K. LI, F.H. SEGUIN, R.D. PETRASSO, MIT, J.A. DELETTREZ, V.YU GLEBOV, D.D. MEYERHOFER, T.C. SANGSTER, LLE — Ignition of ICF capsules on the NIF will be critically dependent on the quality of hot-spot heating due to converging shock waves. On OMEGA, the convergence of strong spherical shocks heats the inner gas sufficiently to induce nuclear fusion. Measurements of the time history of this nuclear burn show that the burn induced by shock convergence occurs several hundred picoseconds before the deceleration-phase compression burn. The nuclear burn history measurements of two distinct nuclear reactions will be compared to a Guderley self-similar imploding shock analysis, as well as to 1-D hydrodynamic simulations. This work was supported in part by LLE, LLNL, the U.S. DoE, the Univ. of Rochester, and the N.Y.State Energy Research and Development Authority.

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