

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Polar-Driven Implosions on OMEGA: Observations and Simulations of Low-Mode Perturbations in the Main Fuel Layer and Hot Spot
F.J. MARSHALL, R.S. CRAXTON, R. EPSTEIN, V.YU. GLEBOV, V.N. GONCHAROV, J.P. KNAUER, P.W. MCKENTY, P.B. RADHA, A. SHVYDKY, Laboratory for Laser Energetics, U. of Rochester, J.A. FRENJE, C.K. LI, R.D. PETRASSO, F.H. SÉGUIN, PSFC, MIT — Low-adiabat, directly driven implosion experiments have been performed on OMEGA using 40 beams in the polar-drive configuration, emulating the configuration of the beams of the NIF. The targets are non-cryogenic, D₂-gas-filled CH capsules. The areal-density time history of the CH shell and its low-mode perturbations are determined from x-ray radiographs. The conditions of the central fuel region are diagnosed with particle measurements including neutron yield and time history, while low-mode perturbations of the hot spot are determined from framed images of the hot spot's x-ray emission. The observed perturbations are compared with simulations using the 2-D hydrocode *DRACO*. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

F.J. Marshall
Laboratory for Laser Energetics, U. of Rochester

Date submitted: 14 Jul 2009

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