

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Measured nuclear burn region sizes and symmetries in direct-drive ICF implosions vs. capsule and drive conditions F.H. SEGUIN, J. DECIANTIS, C.K. LI, J.A. FRENJE, J.R. RYGG, R.D. PETRASSO, MIT, S. REGAN, J.A. DELETTREZ, J.P. KNAUER, F.J. MARSHALL, D.D. MEYERHOFER, S. ROBERTS, T.C. SANGSTER, V.A. SMALYUK, LLE, K. MIKAELIAN, H.S. PARK, H. ROBEY, R. TIPTON, LLNL — Proton emission imaging is used to measure the size and shape of the nuclear burn region in D³He-filled capsules imploded at the OMEGA laser facility. Systematic differences in burn-region size and symmetry are found for different capsule shells, fill pressures, and drive conditions. For symmetric implosions, measurements for capsules with thin glass shells agree with 1-D simulations while measurements for capsules with thick plastic shells do not. Larger-than-predicted burn regions for plastic shells may be due to effects of mix and/or preheat. Experiments with asymmetric laser drive or asymmetric capsule shells are being performed to determine whether asymmetric capsules might be used to counteract the effects of asymmetric drive either in polar direct drive or in indirect-drive. This work was supported in part by UR-LLE, LLNL, the U.S. DoE, and the N.Y.State Energy Research and Development Authority.

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Date submitted: 21 Jul 2005

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