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High-Convergence-Ratio Polar-Drive Experiments on OMEGA F.J. MARSHALL, P.B. RADHA, V.YU. GLEBOV, R. EPSTEIN, Laboratory for Laser Energetics, U. of Rochester, J.A. FRENJE, C.K. LI, R.D. PETRASSO, F.H. SEGUIN, PSFC, MIT — Polar-drive experiments are being performed on OMEGA in preparation for future ignition attempts using the same method at the National Ignition Facility (NIF). This work presents results from multiple-picket laser pulses from 40 OMEGA beams, driving gas-filled shells approximately reproducing the illumination conditions on the NIF. The beams of OMEGA are re-aimed to compensate for the asymmetric beam distribution and in some cases the beam energy is adjusted. A set of such symmetry tests has been performed and diagnosed with x-ray backlighting, fusion yield, and reaction particle spectra from which the implosion symmetry, areal density, and core conditions are inferred. The ability to accurately simulate these experiments, as is done with the two-dimensional hydrodynamics code DRACO, gives confidence to the ability to predict conditions in polar-drive experiments on the NIF. This work was supported by the U.S. Department of Energy Office of Inertial Confinement Fusion under Cooperative Agreement No. DE-FC52-08NA28302.

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