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Performance of foam-filled hohlraums G. GREGORI, K. CAMPBELL, L. DIVOL, S.H. GLENZER, O.L. LANDEN, J. SCHEIN, C. SORCE, L.J. SUTER, R.E. TURNER, R.J. WALLACE, P.A. AMENDT, LLNL — We present time-resolved hohlraum wall hydrodynamics, drive and capsule implosion symmetry measurements in foam-filled holraums driven by 40 beams of the Omega laser facility (University of Rochester) with 14 kJ total energy in a 2.6 ns shaped pulse. Performance of hohlraums filled with silica aerogels at various densities (SiO_2 at 1, 2 and 4 mg/cc) is compared with LASNEX simulations, showing good agreement with modeling. Integrated x-ray flux measurements (DANTE) show that the radiation temperature inside the gold cavity is marginally affected by the lowest density foams, with low levels of laser backscatter. Similarly, time-of-flight neutron yield data are comparable with measurements taken with empty hohlraums. Targets filled with 1 mg/cc SiO_2 present good implosion symmetry as well as reduced holraum wall motion, as indicated by soft x-rays framing images taken along the hohlraum axis. We also show that beam pointing can be tuned to control the implosion symmetry. These results are important for assessing performance and benchmarking of inertial confinement fusion target designs for the National Ignition Facility. This work was performed under the auspices of the U.S. Department of Energy by University of California Lawrence Livermore National Laboratory under contract No. W-7405-Eng-48.

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