

Abstract Submitted
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Tuning Implosion Symmetry on the National Ignition Facility¹

S.V. WEBER, D. CALLAHAN, M.J. EDWARDS, N. MEEZAN, B. SPEARS, LLNL, G. KYRALA, D.C. WILSON, LANL — Implosion symmetry on the National Ignition Facility (NIF) will be achieved through experiments employing a series of surrogate capsules of increasing fidelity to the ignition target. Initial tuning will employ gas-filled symmetry capsules (SymCaps) of reduced size from the ignition targets. These are tuned to minimize asymmetry of the imploded core x-ray emission by varying hohlraum length, relative powers of the laser beam cones, and cone frequency difference. Later experiments, still at smaller scale, employ duded-fuel capsules with reduced-deuterium THD ice layers, which are closer surrogates of the ignition capsule. The modest neutron yields of these targets are compatible with our full suite of x-ray diagnostics. Finally, full-size THD capsules will be tested, preparing us for ignition attempts with live DT fuel. Single parameter sensitivity studies have been used to set fabrication tolerances.

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Stephen Weber
Lawrence Livermore National Laboratory

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