Abstract Submitted
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Capsule Design for Hybrid Shock Ignition[1] J.A. BAUMGAERTEL, E.S. DODD, E.N. LOOMIS, Los Alamos National Laboratory — Hybrid Shock-Ignition (HSI) is an alternate fusion energy concept that combines indirect drive and shock ignition schemes in order to access new regimes in National Ignition Facility (NIF) hohlraum physics. Building off of tetrahedral hohlraum experiments [1] at the OMEGA laser facility, we have preliminary designs for spherical hohlraums that combine symmetrically arranged laser entrance holes for indirect-drive beams (to initially compress the capsule) and holes for direct-drive beams to drive a strong ignitor shock (to further compress and ignite the fuel). A LANL Eulerian hydrodynamic code is being used to find optimal laser drive, hohlraum, and capsule specifications, via criteria such as implosion symmetry, implosion time, and neutron yield. At first, drive will be modeled using a radiation source to mimic the hohlraum drive, and later, ignitor beams will be added. Initial capsule designs will be presented for experiments to develop the HSI platform on the sub-ignition scale OMEGA laser facility in FY15.

[1] J. M. Wallace, T. J. Murphy, N. D. Delamater, et al., Phys. Rev. Lett., 82 3807 (1999)

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