Abstract Submitted
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Optimized hohlraum-driven double-shell designs at 750 kJ 3ω laser absorbed energy for demonstrating ignition on the National Ignition Facility[1] PETER AMENDT, CHARLIE CERJAN, ALEX HAMZA, JOSE MILOVICH, HARRY ROBEY, Lawrence Livermore National Laboratory — An effort is underway to redesign indirectly-driven double-shell ignition targets [1] that can accommodate as little as 750 kJ of total absorbed 3ω laser energy in the hohlraum. The advantages of double-shell ignition include (1) noncryogenic preparation and fielding, (2) expected low levels of laser backscatter with use of a reverse-ramp power profile, and (3) a relatively low threshold ignition temperature (≈ 4 keV) to facilitate requirements on implosion symmetry. A one-dimensional thermonuclear yield of nearly 3.5 MJ for this target is obtained with adequate fall-line behavior or margin to potentially destructive fuel-pusher mix. Integrated two-dimensional hohlraum simulations will be presented and assessed for implosion symmetry and potential backscatter from laser-plasma interactions. [1] P. Amendt et al., Phys. Plasmas 9, 2221 (2002).

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