Abstract Submitted
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Implosion Dynamics and Mix in Double-Shell ICF Capsule Designs[1] MARK GUNDERSON, WILLIAM DAUGHTON, ANDREI SIMAKOV, DOUGLAS WILSON, ROBERT WATT, NORMAN DELAMATER, DAVID MONTGOMERY, Los Alamos National Laboratory — From an implosion dynamics perspective, double-shell ICF capsule designs have several advantages over the single-shell NIF ICF capsule point design. Double shell designs do not require precise shock sequencing, do not rely on hot spot ignition, have lower peak implosion speed requirements, and have lower convergence ratio requirements. However, there are still hurdles that must be overcome. The timing of the two main shocks in these designs is important in achieving sufficient compression of the DT fuel. Instability of the inner gold shell due to preheat from the hohlraum environment can disrupt the implosion of the inner pill. Mix, in addition to quenching burn in the DT fuel, also decreases the transfer of energy between the beryllium ablator and the inner gold shell during collision thus decreasing the implosion speed of the inner shell along with compression of the DT fuel. Herein, we will discuss practical implications of these effects on double-shell design we carry out in preparation for the NIF double-shell campaign.

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