

Abstract Submitted  
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**Design of High-Performance Symmetry Capsule Implosions<sup>1</sup>**

CHRISTOPHER YOUNG, Stanford University, NATHAN MEEZAN, Lawrence Livermore National Laboratory — Symmetry capsules (symcaps) are surrogate targets used in the National Ignition Facility (NIF) that are easier to field than regular DT capsules. Subject to the same implosion physics as their DT counterparts, symcaps have yet to achieve as high compression ratios or implosion velocities. A high performance symcap would facilitate experimental characterization of hohlraum drive asymmetry and implosion velocity. This work proposes such a symcap design that does not depart significantly from current DT capsule and radiation drive configurations. The increased capsule compression and implosion velocity are achieved by altering the shock timing of the driver pulse and reducing the density of the interior D-<sup>3</sup>He gas. We characterize capsule performance through numerical simulations conducted with the production radiation-hydrodynamics code HYDRA and a simplified analytic model of spherical rocket drive.

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