Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Investigating the importance of low-mode symmetry on double shell performance ERIC LOOMIS, DOUG WILSON, DAVID MONTGOMERY, ELIZABETH MERRITT, WILLIAM DAUGHTON, EVAN DODD, JOSHUA SAUPPE, DRU RENNER, SASI PALANIYAPPAN, STEVE BATHA, Los Alamos Natl Lab — Implosions of hohlraum-driven double shell targets as an alternative inertial confinement fusion (ICF) concept are underway at the National Ignition Facility. The double shell system relies on a series of efficient energy transfer processes starting from thermal x-ray absorption by the outer shell, followed by collisional transfer of kinetic energy to an inner shell, and final conversion to fuel internal energy. Beyond these zero-dimensional processes double shells must also be designed for robust performance against hydrodynamic instability growth, engineering features, and implosion asymmetry. In this talk we will present simulation results on the shape transfer process between the outer shell and inner shell during collision. We will discuss the mechanisms involved in the shape transfer process and give numerical predictions on their importance to double shell designs.

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Date submitted: 12 Jul 2017 Electronic form version 1.4