

Abstract Submitted
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Multi-Variable Sensitivity Studies of the Beryllium NIF Ignition Target¹ JAY SALMONSON, STEPHEN HAAN, DANIEL CLARK, DEBRA CALLAHAN, Lawrence Livermore National Laboratory — We report the results of our continuing effort to optimize and control sensitivities for the Beryllium NIF ignition capsule. We study the latest (Revision 3) capsule by performing a sensitivity analysis which integrates 35 1D capsule design parameters with 2D surface roughness specifications for each of the seven distinct capsule layer interfaces as well as laser drive asymmetry specifications. First, we perform 10,000 1D simulations of a National Ignition Facility capsule, each varying 35 design parameters. Next, we select a random subset of these 10K 1D capsules which are then simulated as 2D full capsules with nominal specified surface roughnesses applied to each layer interface for Legendre modes 1 through 30. We also apply time dependent laser drive asymmetry as taken from an integrated hohlraum/capsule simulation for modes 2,4,6,8. As such we perform a set of NIF target calculations taking into account the most complete and realistic list of 1D and 2D design specifications to date to explore and diagnose the overall expected performance and robustness of the capsule.

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