Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Highly-resolved 2D Perturbation Simulations of the NIF 3w low-laser-drive energy (750 kJ) double-shell ignition design.[1] J. MILOVICH, H. ROBEY, P. AMENDT, M. MARINAK, LLNL — Successful target designs driven by laser energies below one MJ are desired for the first ignition campaign on the NIF in 2010. Due to the ease of non-cryogenic preparation and fielding, a double-shell(DS) target indirectly-driven by 750 kJ of laser energy at 3w is being considered as an attractive ignition backup option. However, it is well known that instabilities seeded by interfacial perturbations may pose a major challenge to DS ignition. Previous work (*Physics of Plasmas* **11**, 1552 (2004)) has indicated that the growth of perturbations on the outer surface of the inner shell may potentially disrupt ignition. To control these instabilities new designs will employ a manufactured density-gradient in the bimetallic inner-shell and a material-matching mid-Z nanoporous supporting foam. The difficulties in manufacturing such exotic foams has led to further evaluation of the densities and pore sizes needed for a successful ignition campaign, thereby guiding the ongoing material science R&D efforts. One key finding is that foams with higher densities than previously considered are now permissible. Furthermore, highly-resolved 2D computations are currently being performed to assess the robustness of these new targets to surface perturbations. Results of these simulations will be presented.

[1]This work was performed under the auspices of U.S. Department of Energy by the LLNL under Contract No. W-7405-Eng-48.

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Date submitted: 25 Aug 2005 Electronic form version 1.4