Abstract Submitted
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An Assessment of Laser-Plasma Instabilities in NIF Ignition Hohlraums with Different Capsule Ablators.[1] R.P.J. TOWN, D.A. CALLAHAN, L. DIVOL, M.J. EDWARDS, S.W. HAAN, D.E. HINKEL, D.D. HO, O.S. JONES, P. MICHEL, L.J. SUTER, E.A. WILLIAMS, Lawrence Livermore National Laboratory, Livermore, CA — The NIF ignition point design uses a cryogenic DT fuel enclosed within a copper-doped beryllium ablator. The capsule is placed in a gold-uranium cocktail hohlraum driven to a peak drive temperature of 285eV. As part of a system optimization study we are examining two alternative ablator materials: high-density carbon, and germanium-doped plastic. High-density carbon, for a given capsule size, absorbs most x-ray energy. Changing the ablator material alters the plasma conditions inside the hohlraum, consequently modifying the laser-plasma interactions (LPI). We report on LASNEX simulations of hohlraums with these three ablator materials, quantifying the bulk plasma conditions, and use them to estimate the relative risk for LPI.

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