

Abstract Submitted
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Hohlraum design for doped-HDC ablator ignition capsule¹ JOSE MILOVICH, DARWIN HO, NATHAN MEEZAN, ANDREW MACKINNON, DEBORAH CALLAHAN, LLNL, LLNL TEAM — Ignition designs using W-doped high-density-carbon (HDC) ablators have performed well in 1D- and 2D-studies [1]. A major advantage of HDC over CH ablators is that the surface roughness is 10x-smoother. However, higher pressure ($\gtrsim 6.5$ MB) is required to stay above the melt curve, to avoid seeding non-uniformities at the fuel-ablator interface. We have used the design code HYDRA to obtain the laser pulse that minimizes the low-mode radiation asymmetry. The HDC design requires a smaller inner-to-outer wavelength separation to achieve symmetry during the peak of the laser pulse and a much smaller inner cone fraction at early times [2] than the CH target. This design has recently been fielded at NIF using undoped-HDC capsules with significant success (largest neutron yields to date). In this paper we will present a low- (4-shock) and high- (3-shock) adiabat designs and compare them with the HDC experimental database.

[1] D. Ho et al, BAPS.2012.DPP.GO4.13

[2] J. Milovich et al, BAPS 2011 DPP.CO6.00003

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