

Abstract Submitted
for the DPP17 Meeting of
The American Physical Society

Capsule physics comparison of different ablators for NIF implosion designs¹ DANIEL CLARK, ANDREA KRITCHER, Lawrence Livermore National Laboratory, AUSTIN YI, ALEX ZYLSTRA, Los Alamos National Laboratory, STEVEN HAAN, JOSEPH RALPH, CHRISTOPHER WEBER, Lawrence Livermore National Laboratory — Indirect drive implosion experiments on the National Ignition Facility (NIF) have now tested three different ablator materials: glow discharge polymer (GDP) plastic, high density carbon (HDC), and beryllium. How do these different ablator choices compare in current and future implosion experiments on NIF? What are the relative advantages and disadvantages of each? This talk compares these different ablator options in capsule-only simulations of current NIF experiments and proposed future designs. The simulations compare the impact of the capsule fill tube, support tent, and interface surface roughness for each case, as well as all perturbations in combination. According to the simulations, each ablator is impacted by the various perturbation sources differently, and each material poses unique challenges in the pursuit of ignition.

¹This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

Daniel Clark
Lawrence Livermore National Laboratory

Date submitted: 14 Jul 2017

Electronic form version 1.4