

Abstract Submitted
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Simulations of Ion Coupling Experiments on NDCX-II relevant to IFE¹ J.J. BARNARD, LLNL, R.M. MORE, LLNL/LBNL, M. TERRY, LLNL — The Neutralized Drift Compression Experiment II (NDCX-II) is an induction accelerator for which the construction project was completed at Lawrence Berkeley National Laboratory in March, 2012, and is presently being commissioned. The baseline design for NDCX-II will accelerate $\sim 0.03 \mu\text{C}$ of singly charged lithium ions to 1.2 MeV (with possible upgrades up to 3.1 MeV), delivered in sub-ns pulses with sub-mm rms beam radii. The purpose of NDCX-II is to carry out beam and target interaction experiments relevant to IFE. We have carried out detailed hydrodynamic simulations of planar targets having several configurations. In this poster we will focus on experiments that maximize shock strength by traveling wave deposition (i.e. by varying ion beam energy in a velocity chirp) and/or by varying intensity profile, and we will also explore methods to optimize shock strengths in composite materials where shocks can be formed at material boundaries and at end-of-range. These results will be discussed in the context of heavy ion fusion direct drive targets.

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