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First experiments of hohlraum asymmetries mitigation in implosions using capsule shims on the National Ignition Facility[1] EDUARD DEWALD, DAN CLARK, DEREK MARISCAL, SHAHAB KHAN, Lawrence Livermore Natl Lab, MARK RATLEDGE, PAUL FITZSIMMONS, MIKE FARELL, MIKE MAULDIN, NEAL RICE, General Atomics, CHRIS CHOATE, PASCALE DI NICOLA, ABBAS NIKROO, VLADIMIR SMALYUK, OTTO LANDEN, DEBBIE CALLAHAN, OMAR HURRICANE, Lawrence Livermore Natl Lab — Low mode asymmetries are suspected to be among the main causes for ignition performance degradation in indirect drive capsule implosions on the National Ignition Facility. Radiation hydrodynamic simulations show that in implosion designs using plastic ablators, the hohlraum driven inflight capsule P4 asymmetry can be tuned significantly with a modest shim of the outer capsule surface (˜7 m inflight P4 per - 1 m P4 shim amplitude). Recent 2D inflight shell radiography experiments on the NIF employed the first P4 shimmed capsules to validate the inflight shape tuning vs shim amplitude. This work will summarize the data and uses simulations to extrapolate the results to future DT fuel implosions for which a significant improvement in fusion neutron yield via capsule shim is expected.

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