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Integrated P1 Hohlraum/Capsule Simulations for NIF Experiments[1] DAVID EDER, BRIAN SPEARS, RICHARD TOWN, OGGIE JONES, TAMMY MA, ARTHUR PAK, ROBIN BENEDETTI, STEVE HATCHETT, JAMES KNAUER, ANDREW MACKINNON, CHARLES YEAMANS, JAMES MCNANEY, DANIEL CASEY, Lawrence Livermore National Laboratory — We discuss integrated hohlraum/capsule post-shot simulations of two full-scale cryogenic NIF experiments that drove a DT symcap capsule downward/upward by having the peak power in the upper laser beams 16% greater/less than the lower beams. This laser asymmetry results in a radiation drive P1/P0 at the capsule ablation surface of $\sim$ 2% and a downward/upward capsule velocity of order 100 microns/ns in agreement with the data. The experimental velocity is determined by comparing measurements at different locations of both the arrival times of DD and DT neutrons at time-of-flight detectors, and by zirconium activation measurements that are a function of neutron energy. We compare these two shots to a control shot for the same target with no specified laser asymmetries. We also discuss simulations of planned sub-scale warm symcap experiments that have a goal of measuring DT and DD ion temperatures and the electron temperature as a function of the imposed P1 to characterize the role of non-thermal velocity on temperature measurements.

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