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Quantifying design trade-offs of beryllium targets on NIF[1] S.A. YI, A.B. ZYLSTRA, J.L. KLINE, E.N. LOOMIS, G.A. KYRALA, R.C. SHAH, T.S. PERRY, R.J. KANZLEITER, S.H. BATHA, LANL, S.A. MACLAREN, J.E. RALPH, L.P. MASSE, J.D. SALMONSON, R.E. TIPTON, D.A. CALLAHAN, O.A. HURRICANE, LLNL — An important determinant of target performance is implosion kinetic energy, which scales with the capsule size. The maximum achievable performance for a given laser is thus related to the largest capsule that can be imploded symmetrically, constrained by drive uniformity. A limiting factor for symmetric radiation drive is the ratio of hohlraum to capsule radii, or case-to-capsule ratio (CCR). For a fixed laser energy, a larger hohlraum allows for driving bigger capsules symmetrically at the cost of reduced peak radiation temperature (T_r). Beryllium ablators may thus allow for unique target design trade-offs due to their higher ablation efficiency at lower T_r. By utilizing larger hohlraum sizes than most modern NIF designs, beryllium capsules thus have the potential to operate in unique regions of the target design parameter space. We present design simulations of beryllium targets with a large CCR = 4.3 $\sim$ 3.7. These are scaled surrogates of large hohlraum low Tr beryllium targets, with the goal of quantifying symmetry tunability as a function of CCR.

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