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Performance scalings for indirect drive high-foot NIF beryllium targets[1] S.A. YI, A.N. SIMAKOV, D.C. WILSON, J.L. KLINE, R.E. OLSON, N.S. KRASHENINNIKOVA, G.A. KYRALA, T.S. PERRY, S.H. BATHA, LANL, D.S. CLARK, B.A. HAMMEL, J.L. MILOVICH, J.D. SALMONSON, LLNL — Beryllium (Be) ablators offer an attractive path to ignition on the National Ignition Facility (NIF). We have designed a 1.4 MJ, 350 TW cryogenic target for the first NIF Be experiments, utilizing a 3-shock high-foot pulse shape. This initial target is designed to perform close to 1D predictions at the expense of absolute yield ($\sim 10^{15}$ neutrons). Two target parameters that can be used to scale to higher yields are the DT fuel layer thickness and the power in the initial portion of the laser pulse (i.e., the laser "foot"). Designs with thicker fuel layers and higher feet are more hydrodynamically stable, but at the expense of implosion velocity and compression. Targets with thinner fuel layers and lower foot drives achieve higher velocity, but are more susceptible to instabilities. Thus, different trade-offs are possible between 1D yield and 2D hydrodynamic stability. We present a range of NIF Be targets and quantify these trade-offs as we scale to higher performance designs.

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