Abstract Submitted
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Scaling of Two-Shock NIF Capsule Implosions[1] PAUL BRADLEY, J. KLINE, R.E. OLSON, R.R. PETERSON, B.M. HAINES, S.M. FINNEGAN, J.P. SAUPPE, Los Alamos National Laboratory — There has been recent interest in possible next generation Inertial Confinement Fusion facilities that would have enough driver energy to produce ignition and robust burn ($>$ 100 MJ). As part of this work, we are taking round, low convergence capsule implosions from the two-shock campaign (Phys. Plasmas, **23**, 042708, 2016) and increasing their scale size to determine at what size and laser pulse will such a capsule achieve ignition (symcap) and propagating burn (liquid layer capsule, Phys. Plasmas, **26**, 012707, 2019). We show the results of 1-D xRAGE simulations of capsules scaled up in size and in length of the laser drive pulse up to four times the original size. Once the capsule is scaled up more than 50% of the original size, the ablator thickness and laser pulse require retuning to achieve optimal performance. We describe the scaling process and present our performance results, including the required capsule absorbed energy and implications for possible driver size.

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