

Abstract Submitted  
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**Design options for reducing the impact of the fill-tube in ICF implosion experiments on the NIF**<sup>1</sup> CHRISTOPHER R. WEBER, L.F. BERZAK HOPKINS, D.T. CASEY, D.S. CLARK, B.A. HAMMEL, S. LE PAPE, A. MACPHEE, J. MILOVICH, L.A. PICKWORTH, H.F. ROBEY, V.A. SMALYUK, M. STADERMANN, S.J. FELKER, A. NIKROO, C.A. THOMAS, Lawrence Livermore National Laboratory, J. CRIPPEN, N. RICE, General Atomics — Inertial Confinement Fusion (ICF) capsules on the National Ignition Facility (NIF) are filled with thermonuclear fuel through a fill-tube. When the capsule implodes, perturbations caused by the fill-tube allow ablator material to mix into the hot spot and reduce fusion performance. This talk will explore several design options that attempt to reduce this damaging effect. Reducing the diameter of the fill-tube and its entrance hole is the obvious course and has been tested in experiments. Simulations also show sensitivity to the amount of glue holding the fill-tube to the capsule and suggest that careful control of this feature can limit the amount of injected mass. Finally, an off-axis fill-tube reduces the initial squirt of material into the fuel and may be a way of further optimizing this engineering feature.

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