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Shock timing measurements in DT ice layers[1] H.F. ROBEY, P.M. CELLIERS, J.D. MOODY, J. SATER, T. PARHAM, B. KOZIOZIEMSKI, R.J. DYLLA-SPEARS, J.S. ROSS, S. LEPAPE, J.E. RALPH, L.F. BERZAK HOPKINS, J.J. KROLL, B.E. YOXALL, A.V. HAMZA, T.R. BOEHLY, Lawrence Livermore National Laboratory, A. NIKROO, General Atomics, O.L. LANDEN, M.J. EDWARDS, Lawrence Livermore National Laboratory — Shock timing experiments on the National Ignition Facility (NIF) are routinely conducted using the keyhole target geometry, in which the strength and timing of multiple shocks are measured in a liquid-deuterium (D2) filled capsule interior. These targets have recently been modified to improve the surrogacy to ignition implosions by replacing the standard, continuous liquid D2 capsule fill with a deuterium-tritium (DT) ice layer with a central DT gas fill. These experiments remove any possible material surrogacy difference between D2 and DT as well as incorporating the physics of multiple shock release and recompression events from an ice layer of finite thickness, an effect that is absent in the liquid-filled targets. Experimental results and comparisons with numerical simulation are presented.

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