

Abstract Submitted
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Advances in NIF Shock Timing Experiments¹ HARRY ROBEY,
Lawrence Livermore National Lab — Experiments are underway to tune the shock timing of capsule implosions on the National Ignition Facility (NIF). These experiments use a modified cryogenic hohlraum geometry designed to precisely match the performance of ignition hohlraums. The targets employ a re-entrant Au cone to provide optical access to multiple shocks as they propagate in the liquid deuterium-filled capsule interior. The strength and timing of all four shocks is diagnosed with VISAR (Velocity Interferometer System for Any Reflector). Experiments are now routinely conducted in a mirrored keyhole geometry, which allows for simultaneous diagnosis of the shock timing at both the hohlraum pole and equator. Further modifications are being made to improve the surrogacy to ignition hohlraums by replacing the standard liquid deuterium (D2) capsule fill with a deuterium-tritium (DT) ice layer. These experiments will remove any possible surrogacy difference between D2 and DT as well as incorporate the physics of shock release from the ice layer, which is absent in current experiments. Experimental results and comparisons with numerical simulation are presented.

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