

Abstract Submitted
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Results From the New NIF Gated LEH imager¹ HUI CHEN, P. AMENDT, M. BARRIOS, D. BRADLEY, D. CASEY, D. HINKEL, L. BERZAK HOPKINS, J. KILKENNY, A. KRITCHER, O. LANDEN, O. JONES, T. MA, J. MILOVICH, P. MICHEL, J. MOODY, J. RALPH, A. PAK, N. PALMER, M. SCHNEIDER, Lawrence Livermore National Laboratory — A novel ns-gated Laser Entrance Hole (G-LEH) diagnostic has been successfully implemented at the National Ignition Facility (NIF). This diagnostic has successfully acquired images from various experimental campaigns, providing critical information for inertial confinement fusion experiments. The G-LEH diagnostic which takes time-resolved gated images along a single line-of-sight, incorporates a high-speed multi-frame CMOS x-ray imager developed by Sandia National Laboratories into the existing Static X-ray Imager diagnostic at NIF. It is capable of capturing two laser-entrance-hole images per shot on its 1024x448 pixel photo-detector array, with integration times as short as 2 ns per frame. The results that will be presented include the size of the laser entrance hole vs. time, the growth of the laser-heated gold plasma bubble, the change in brightness of inner beam spots due to time-varying cross beam energy transfer, and plasma instability growth near the hohlraum wall.

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