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The structure of the Laser Entrance Hole in NIF Ignition gas-filled hohlraums[1] M.B. SCHNEIDER, T. DOEPPNER, C.A. THOMAS, K. WIDMANN, S.A. MACLAREN, N.B. MEEZAN, P.M. BELL, L.R. BENEDETTI, D.K. BRADLEY, D.A. CALLAHAN, D. EDER, J.H. HAMMER, D.E. HINKEL, O.S. JONES, P. MICHEL, J.L. MILOVICH, J.D. MOODY, Lawrence Livermore Natl Lab, A.J. MOORE, Atomic Weapons Establishment, H.S. PARK, J.E. RALPH, Lawrence Livermore Natl Lab, S.E. REGAN, Laboratory for Laser Energetics, D.J. STROZZI, R.P. TOWN, Lawrence Livermore Natl Lab — At the National Ignition Facility (NIF), the energy from 192 laser beams is converted to an x-ray drive in a gas-filled hohlraum. The drive heats and implodes a fuel capsule. The laser beams enter the hohlraum via laser entrance holes (LEHs) at each end. The LEH size decreases as heated plasma from the LEH material blows radially inward but this is largely balanced by hot plasma in the laser deposition region pushing radially outward. Compared to models, the LEH size is larger than predicted. In addition, the plasma in the LEH region is hotter than predicted. Instead of being at the radiation temperature of about 300 eV, it is at an electron temperature of 1 to a few keV. The experimental measurements for this conclusion are discussed. Data on the LEH as a function of laser pulse shape, gas fill, and energy transfer are presented.

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