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Symmetry control strategies in low gas-fill hohlraum[1] CLEMENT GOYON, S. LE PAPE, L. F. BERZAK HOPKINS, L. DIVOL, N. B. MEEZAN, E. DEWALD, D. D. HO, C. WEBER, S. F. KHAN, T. MA, J. L. MILOVICH, A. S. MOORE, R. BENEDETTI, A. E. PAK, J. S. ROSS, S. R. NAGEL, G. P. GRIM, Lawrence Livermore Natl Lab, P. VOLEGOV, Los Alamos Nattional Laboratory, J. BIENER, A. NIKROO, D. A. CALLAHAN, O. A. HURRICANE, W. W. HSING, R. P. TOWN, M. J. EDWARDS, Lawrence Livermore Natl Lab
— The primary neutron yield record, to-date, for an ICF implosion on the NIF (1.47*1016) has been achieved using a doped HDC capsule (D=1.82 mm) in an unlined DU hohlraum (D=6.20 mm, L = 11.3 mm) filled with a low He gas-fill (0.3 mg/cc). This platform uses a new "drooping" pulse designed to keep high remaining mass and short coasting time. Prior to the high convergence (27x) cryogenic DT implosion, our ability to tune hot spot symmetry using this new pulse was tested at lower convergence (15x) using DD gas-filled capsules. Hot spot symmetry was tuned using beam pointing, gas-fill density, and power balance between outer and inner beams. The main metrics to assess the efficiency of each change are the implosion shape (time resolved X-ray emission of the hot spot) and DD neutron yield. In addition, we will describe the irradiation pattern obtained in each case using X-ray (soft and hard) diagnostics and the laser coupling to the hohlraum.

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Clement Goyon
Lawrence Livermore Natl Lab

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