Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

High-Performance Layered DT Capsule Implosions in Depleted Uranium Hohlraums on the NIF[1] TILO DOEPPNER, O.A. HURRICANE, D.A. CALLAHAN, D. CASEY, T. MA, H.-S. PARK, L. BENEDETTI, E.L. DEWALD, T.R. DITTRICH, D. FITTINGHOFF, S. HAAN, D. HINKEL, L. BERZAK HOPKINS, N. IZUMI, A. KRITCHER, S. LE PAPE, A. PAK, P. PATEL, H. ROBEY, B. REMINGTON, J. SALMONSON, P. SPRINGER, K. WIDMANN, Lawrence Livermore National Laboratory, F. MERRILL, C. WILDE, Los Alamos National Laboratory — We report on the first layered DT capsule implosions in depleted uranium (DU) hohlraums driven with a high-foot pulse shape. High-foot implosions have demonstrated improved resistance to hydrodynamic instabilities. [Hurricane et al., Nature **506**, 343 (2014)]. DU hohlraums provide a higher albedo and thus an increased drive equivalent to 25 TW extra laser power at the peak of the drive compared to Au hohlraums. Additionally, we observe an improved implosion shape closer to round which indicates enhanced drive from the waist. As a result, these first high-foot DU experiments achieved total neutron yields approaching 10^{16} neutrons where more than 50% of the yield was due to additional heating of alpha particles stopping in the DT fuel.

[1]This work performed under the auspices of U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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Date submitted: 11 Jul 2014 Electronic form version 1.4