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Performance of layered DT implosions with adiabat-shaped drives on NIF V.A. SMALYUK, H.F. ROBEY, J. MILOVICH, B. BACHMANN, K. BAKER, L.F. BERZAK HOPKINS, E. BOND, D. CALLAHAN, D.T. CASEY, P.M. CELLIERS, C. CERJAN, D.S. CLARK, S.N. DIXIT, T. DOEPPNER, M.J. EDWARDS, S.W. HAAN, A.V. HAMZA, O.A. HURRICANE, K.S. JANCAITIS, O.S. JONES, J.J. KROLL, K.N. LAFORTUNE, O.L. LANDEN, B.J. MACGOWAN, A.G. MACPHEE, LLNL — Layered DT implosions with adiabat-shaped drives were performed to study the physics of performance degradation due to instability growth and convergence. Both 3-shock and 4-shock adiabat-shaped designs were developed and demonstrated significantly reduced ablation-front instability growth. These new drives with DT fuel adiabat ~ 2.1 and ~ 1.6 respectively, were used in layered DT implosions showing significant improvements in performance compared to implosions during the National Ignition Campaign. Comparison of measured and simulated data will be presented. This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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