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Development of a magnetically-assisted ignition experimental platform for the National Ignition Facility[1] JOHN MOODY, B. B. POLLOCK, H. SIO, D. J. STROZZI, D. D. HO, C. A. WALSH, B. G. LOGAN, J. D. BUDE, W. W. HSING, M. C. HERRMANN, S. O. KUCHEYEV, S. D. BHANDARKAR, B. KOZIOZIEMSKI, J. SATER, J. FRY, E. G. CARROLL, V. TANG, S. E. WINTERS, Lawrence Livermore Natl Lab, J. P. CHITTENDEN, S. O'NEILL, B. APPELBE, A. BOXALL, A. CRILLY, Imperial College, London, J. DAVIES, J. PEEBLES, U. of Rochester, NY, S. FUJIOKA, ILE, Osaka, Japan
— An external seed magnetic field applied to an inertial confinement fusion (ICF) indirect drive target is expected to increase the ion temperature by ≥ 0.5 keV and the neutron yield by 30 50% due to reduced electron thermal conduction. Room temperature implosions using a 30 T seed field and a D2 filled capsule will start in the fall of this year. Multiple changes to the hohlraum target and the NIF facility are required to successfully apply a sufficient field to the fuel capsule at shot time. We describe progress on developing a high electrically resistive hohlraum, the experiment design, effects of magnetization on shock propagation and dynamic effects on the cryogenic DT fuel layer.

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