Abstract Submitted
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Magnetically-assisted ignition project on the National Ignition Facility[1] J. D. MOODY, B. B. POLLOCK, H. SIO, D. J. STROZZI, D. D. HO, S. O. KUCHEYEV, S. D. BHANDARKAR, J. FRY, E. G. CARROLL, S. E. WINTERS, B. G. LOGAN, W. W. HSING, M. C. HERRMANN, J. D. BUDE, Lawrence Livermore Natl Lab, C. A. WALSH, J. P. CHITTENDEN, Imperial College, J. DAVIES, J. PEEBLES, University of Rochester, S. FUJIOKA, University of Osaka — We are planning a project to apply an external magnetic field to a high performing DT-layered implosion on the NIF. The magnetic field can reduce hot-spot losses through reduced electron thermal conduction and increased alpha particle confinement. In addition, it may suppress mix instabilities. Two dimensional simulations show that applying a $\geq$ 30 T field to an experiment already performed on NIF can lead to hot-spot conditions significantly in the self-heating regime. Magnetizing an indirect drive target requires development of specialized hohlraums with high electrical resistivity while maintaining good x-ray conversion of laser drive. This talk will review the key physics goals and project challenges and outline the research needed to perform a test which quantifies the magnetization improvement in the hot-spot conditions of a DT-layered implosion.

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