Abstract Submitted
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Magnetized Inertial Confinement Fusion on the National Ignition Facility[1] L. JOHN PERKINS, G. LOGAN, M. RHODES, G. ZIMMERMANN, D. HO, D. STROZZI, D. BLACKFIELD, S. HAWKINS, Lawrence Livermore National Laboratory — We are assessing the potential of imposed magnetic fields on ignition targets for the National Ignition Facility. Both magnetized room-temperature DT gas targets and CH/diamond cryo-ignition capsules are under study. Initial applied fields of 30-70T that compress to greater than 10,000T (100MG) under capsule implosion may relax conditions required for ignition and burn due to suppression of electron heat conduction, reduction of alpha deposition range and stabilization of hydro instabilities. This may permit recovery of ignition, or at least significant alpha particle heating, in otherwise submarginal capsules. We will report on the design and performance simulations of magnetized ignition targets and hohlraum physics, and summarize present experiments testing the attainable magnetic field limits in hohlraum-coil systems driven by a pulsed power supply.

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