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The Application of Imposed Magnetic Fields to Ignition and Thermonuclear Burn on the National Ignition Facility L. JOHN PERKINS, G. LOGAN, D. HO, G. ZIMMERMAN, D. STROZZI, M. RHODES, R. PLUMMER, S. HAWKINS, Lawrence Livermore Natl Lab — We are studying the impact of highly compressed axial 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 seed fields of 30-70T that compress to greater than 10000T (100MG) under implosion can reduce hotspot conditions required for ignition and propagating burn [L.J.Perkins et al, *Phys. Plasmas*, 2013]. The field can also reduce hohlraum laser-plasma interactions by increasing the temperature, and supress the transport of hot electron preheat to the capsule. These combined attributes of compressed B-fields may permit recovery of ignition, or at least significant alpha particle heating, in submarginal capsules that would otherwise fail because of adverse hydrodynamic conditions and, more generally, may permit attainment of ignition in targets redesigned to operate under reduced drive and/or lower convergence ratios. Present engineering studies are also assessing the maximum attainable fields for a NIF hohlraum coil driven by a pulsed power supply located in a NIF Diagnostic Insertion Module (DIM). LLNL is operated by LLNS, LLC, for the U.S.DOE, NNSA under Contract DE-AC52-07NA27344. This work supported by LLNL LDRD 14-ER-028

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