

Abstract Submitted
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A Magnetic Particle-Time-Of-Flight (MagPTOF) diagnostic for simultaneous measurements of shock- and compression bang-times at the NIF C. WAUGH, H. RINDERKNECHT, J. FRENJE, M. GATU JOHNSON, H. SIO, MIT, M. SHOUP, V. GLEBOV, LLE, A. HOUSE, J.R. RYGG, J. KIM-BROUGH, A. MACPHEE, G.W. COLLINS, LLNL, R. OLSON, SNL, J. KLINE, LANL, J. KILKENNY, GA — A magnetic particle-time-of-flight (MagPTOF) diagnostic has been designed for simultaneous measurements of shock- and compression-bang time at the National Ignition Facility (NIF). This type of measurement combined with the measured shock-burn weighted ρR will significantly constrain the modeling of the implosion dynamics. The MagPTOF design is an upgrade to the existing particle time-of-flight (pTOF) diagnostic, which has recorded accurate bang times in cryogenic DT implosions, DT exploding pushers and D^3He implosions with accuracy better than 70 ps. The inclusion of a deflecting magnet will increase proton signal-to-background by a factor of 1000, allowing for simultaneous measurements of shock- and compression-bang times in D^3He -filled surrogate implosions using D^3He protons and DD-neutrons, respectively. This work was supported in part by the U.S. DOE, NNSA, LLNL and LLE.

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