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Calibration of the LLNL Imaging Proton Spectrometer A.M. RASMUS, M.J.-E. MANUEL, C.C. KURANZ, S. KLEIN, P.X. BELANCOURT, J.R. FEIN, M.J. MACDONALD, R.P. DRAKE, University of Michigan: Ann Arbor, A.U. HAZI, B.B. POLLOCK, J. PARK, G.J. WILLIAMS, H. CHEN, LLNL — Ultra intense short pulse lasers incident on solid targets (e.g. Au foil) produce well collimated, broadband proton beams. These proton beams can be used to characterize magnetic fields in high-energy-density systems. The Imaging Proton Spectrometer (IPS) was previously designed and built (H. Chen 2010, RSI) for use with such laser produced proton beams. The IPS has an energy range of 50keV-40MeV with a resolving power (E/dE) of about 250 at 0.5 MeV and 350 at 2 MeV, as well as a single spatial imaging direction. In order to better characterize the imaging capability of this diagnostic, a 3D FEA solver has been used to calculate the magnetic field of the IPS. Particle trajectories are then obtained via numerical integration to calibrate the imaging axis of the IPS. Experiments using alpha sources will be used to verify the calculated calibration. This work is funded by the NNSA-DS and SC-OFES Joint Program in High-Energy-Density Laboratory Plasmas, grant number DE-NA0001840. Work by LLNL was performed under the auspices of U.S. DOE under contract DE-AC52-07NA27344.

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