

Abstract Submitted  
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**The MIT HEDP Accelerator Facility for education and advanced diagnostics development for OMEGA, Z and the NIF**<sup>1</sup> R. PETRASSO, M. GATU JOHNSON, E. ARMSTRONG, H.W. HAN, N. KABADI, B. LAHMANN, D. OROZCO, J. ROJAS HERRERA, H. SIO, G. SUTCLIFFE, J. FRENJE, C.K. LI, F.H. SÉGUIN, MIT, R. LEEPER, LANL, C.L. RUIZ, SNL, T.C. SANGSTER, LLE — The MIT HEDP Accelerator Facility utilizes a 135-keV linear electrostatic ion accelerator, a D-T neutron source and two x-ray sources for development and characterization of nuclear diagnostics for OMEGA, Z, and the NIF. The ion accelerator generates D-D and D-<sup>3</sup>He fusion products through acceleration of D ions onto a <sup>3</sup>He-doped Erbium-Deuteride target. Fusion reaction rates around  $10^6 \text{ s}^{-1}$  are routinely achieved, and fluence and energy of the fusion products have been accurately characterized. The D-T neutron source generates up to  $6 \times 10^8$  neutrons/s. The two x-ray generators produce spectra with peak energies of 35 keV and 225 keV and maximum dose rates of 0.5 Gy/min and 12 Gy/min, respectively. Diagnostics developed and calibrated at this facility include CR-39 based charged-particle spectrometers, neutron detectors, and the particle Time-Of-Flight (pTOF) and Magnetic PTOF CVD-diamond-based bang time detectors. The accelerator is also a vital tool in the education of graduate and undergraduate students at MIT.

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