

Abstract Submitted
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Upgrades to a Table-top System for Characterizing ICF Charged Particle Detectors¹ HANNAH MILLER, KRISTINA PUNZI, JOHN DER-MIGNY, KURT FLETCHER, STEPHEN PADALINO, SUNY Geneseo, T. CRAIG SANGSTER, Laboratory for Laser Energetics, University of Rochester — A simple, high-current system has been assembled to test and calibrate charged particle detectors for ICF. A duoplasmatron ion source system produces 0-30 keV deuterons that are focused by an einzel lens and strike a deuterated polyethylene target, initiating the ${}^2\text{H}(\text{d},\text{p}){}^3\text{H}$ and ${}^2\text{H}(\text{d},\text{n}){}^3\text{He}$ reactions. An upgrade of the system is underway to increase the count rate for the fusion products. The main challenge is the stability of the polymer target, which melts and disintegrates under bombardment by the intense (1 mA) beam. Using a thermocouple system to monitor the target temperature, modifications to the water-cooled target mount and different target designs have been studied. In addition, a Wien filter has been installed downstream of the einzel lens to ensure that the ion beam is well characterized. The deflection of the individual electric and magnetic fields of the Wien filter have been measured and compared to calculated values.

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Kurtis Fletcher
SUNY Geneseo

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