

Abstract Submitted
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Heavy ion beams from an Alphatross source for use in calibration and testing of diagnostics¹ R.J. WARD, G.M. BROWN, D. HO, B.F.O.F. STOCKLER, C.G. FREEMAN, S.J. PADALINO, SUNY Geneseo, S.P. REGAN, Laboratory for Laser Energetics — Ion beams from the 1.7 MV Pelletron Accelerator at SUNY Geneseo have been used to test and calibrate many inertial confinement fusion (ICF) diagnostics and high energy density physics (HEDP) diagnostics used at the Laboratory for Laser Energetics (LLE). The ion source on this accelerator, a radio-frequency (RF) alkali-metal charge exchange source called an Alphatross, is designed to produce beams of hydrogen and helium isotopes. There is interest in accelerating beams of carbon, oxygen, argon, and other heavy ions for use in testing several diagnostics, including the Time Resolved Tandem Faraday Cup (TRTF). The feasibility of generating these heavy ion beams using the Alphatross source will be reported. Small amounts of various gases are mixed into the helium plasma in the ion source bottle. A velocity selector is used to allow the desired ions to pass into the accelerator. As the heavy ions pass through the stripper canal of the accelerator, they emerge in a variety of charge states. The energy of the ion beam at the high-energy end of the accelerator will vary as a function of the charge state, however the maximum energy deliverable to target is limited by the maximum achievable magnetic field produced by the accelerator's steering magnet.

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