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Retarding Field Energy Analyzer Measurements of Ion Velocity Distributions in a Helicon Plasma Source¹ ZANE W. HARVEY, EARL SCIME, ROB HARDIN, ALEX HANSEN, WILLIAM PRZYBYSZ, West Virginia University — A four grid retarding field energy analyzer (RFEA), with a fifth grounded entrance grid, has been constructed based on published design criteria [Charles et al., Phys. Plasmas **7**, 5232 (2000).]. A fast amplifier is used to sum the current collected by the suppressor grid and the collector current. Measurements of the ion velocity distribution function (ivdf) as a function of neutral pressure and magnetic field mirror ratio in the HELIX plasma source will be presented. The ivdf measurements will also be compared to laser induced fluorescence measurements made at the same location in the expansion region of the plasma source.

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