

Abstract Submitted  
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**Recent High-Energy Resolution NPA Measurements on MST RFP Plasmas**<sup>1</sup> E.D. MEZONLIN, J.B. TITUS, Center for Plasma Science & Technology, Florida Agricultural & Mechanical University, Tallahassee, FL, J.A. JOHNSON III, Pyramid Plasmas, LLC, Lawrenceville, GA, A.F. ALMAGRI, J.K. ANDERSON, M. NORBERG, University of Wisconsin, Madison, WI, MST TEAM — Ion distribution and temperature measurement have been made on the Madison Symmetric Torus (MST) using the Florida A&M University compact neutral particle analyzer (CNPA). The CNPA is a low energy (0.34-5.2 keV), high-energy resolution (25 channels) neutral particle analyzer, with a radial view on MST. Majority ion temperatures from Rutherford scattering diagnostic and neutral fluxes for plasma ranging in currents between 200 – 600 kA have been used to constrain the ion distribution function. Ion distributions have also been studied during standard and neutral beam injection (NBI) plasmas. Early results have shown that NBI shots at 25 keV have an ion distribution tail in the 2.0 to 5.2 keV range, which shows the capability of detecting the fast ions as they slow down on the thermal background and indicating sufficiently good confinement for heating the plasma.

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