Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Heavy Ion Beam Probe Measurements of Equilibrium Potential in the Interior of the MST RFP[1] D.R. DEMERS, X. CHEN, P.M. SCHOCH, Rensselaer Polytechnic Instutute, Troy, NY, P.J. FIMOGNARI, University of Wisconsin, Madison — The 200keV HIBP in operation on MST is being used to measure the equilibrium plasma potential in the interior of standard and improved confinement plasmas with 40-45keV K^+ beams. The injected beam angle is varied by an electrostatic sweep system which allows us to alter the sample volume location during a single shot. Simultaneous measurements at two sample locations within the plasma are obtained using two apertures to the high voltage electrostatic analyzer; high levels of UV radiation from the RFP plasma require use of the third detector set for noise subtraction. Toroidal and poloidal displacement of the sample volumes allows for inference of the electric field. Improved beam operation is enabling us to obtain increased ion current, and measurements as a function of time throughout the improved confinement period. Measurements in the interior of 380kA standard and improved confinement discharges reveal a positive electric potential. Variations in the potential as a function of discharge condition and individual characteristics will be presented.

[1]Work supported by US-DOE.

D.R. Demers
Rensselaer Polytechnic Institute, Troy, NY

Date submitted: 13 Jul 2009 Electronic form version 1.4