

Abstract Submitted
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Measurements of fluctuations in density and potential using a heavy ion beam probe in improved confinement MST discharges D.R. DEMERS, P.J. FIMOGNARI, Xantho Technologies, LLC, P.M. SCHOCH, Rensselaer Polytechnic Institute, X. CHEN, University of CA - Irvine — A heavy ion beam probe (HIBP) is used to diagnose the interior of Madison Symmetric Torus improved confinement discharges. Drift turbulence may be important in this regime, which is produced through current density profile control and exhibits reduced magnetic fluctuation activity. Characterization of electrostatic turbulence with the HIBP has begun using spatially localized measurements acquired concurrently from two sample volumes. The measurements are affected by characteristics of the 3D beam trajectory, sample volumes, and RFP discharges; these necessitate alternative methods of data analysis and operation. The spectra of fluctuations in density and potential measured out to 500 kHz are broadband with most power below 100 kHz and peak at frequencies associated with tearing modes. Results also suggest that the phase between fluctuations in density and potential is near 180 degrees in the 0-40 kHz range, but smaller at 100-300 kHz. Examination of the Boltzman relation is also presented. (Work supported by US DoE.)

Diane Demers
Xantho Technologies, LLC

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