Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

**Measurement of High-Frequency Core Magnetic and Density Turbulence in MST** TRAVIS YATES, UCLA, WEIXING DING, TROY CARTER, DAVID BROWER, JOHN SARFF, University of Wisconsin, Madison, STEWART PRAGER — Turbulence plays an important role in plasma physics and is thought to be responsible for both the dynamo and transport in the RFP. Magnetic and current density fluctuations produce a radial component to the mean fields. Particles stream along the field, producing a radial particle flux. Understanding the nature of these fluctuations can lead to methods of suppressing them, an important goal for fusion research. On MST, a high-speed laser-based Faraday rotation-interferometry system allows for non-perturbative measurement of core density and magnetic field, both equilibrium and fluctuating quantities. Recent upgrades permit simultaneous measurements of density and magnetic field fluctuations with broadband turbulence up to 500 kHz being observed. By correlating two displaced Faraday rotation or inteferometry chords, one can extract information on the fluctuation wavenumber spectrum. Preliminary results will be presented.

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Date submitted: 20 Jul 2006 Electronic form version 1.4