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Interferometric Measurement of Density and Magnetic Fluctuations in MST TRAVIS YATES, WEIXING DING, TROY CARTER, DAVID BROWER, UCLA — Fluctuations play an important role in anomalous particle, momentum and energy transport. Knowledge of local density and magnetic field fluctuations allow for the measurement of particl flux. Simultaneous interferometry-polarimetry measurements with a bandwidth of ∼500 kHz and 8 cm chord spacing have been utilized to determine the core density and magnetic field fluctuations in MST. Local density and radial magnetic field fluctuation profiles can be reconstructed from line-integrated measurements by employing newly developed analysis techniques. These techniques model the fluctuation spatial distribution and include toroidal effects. Both the density fluctuation amplitude and phase relative to radial magnetic fluctuations are obtained. This allows evaluation of the convective magnetic fluctuation-induced electron particle flux, $\Gamma_r = v_{||}\frac{<\tilde{n}\tilde{b}_r>}{B_0}$. Spatial structure of fluctuations for modes m=1, n=1-15 are described. Work supported by U.S. Department Of Energy.

Travis Yates
UCLA

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