Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Flow Dynamics and Transport in the Edge of MST M.C. MILLER, A.F. ALMAGRI, University of Wisconsin - Madison, D. CRAIG, Wheaton College, D.A. ENNIS, G. FIKSEL, S. GANGADHARA, A. KURITSYN, S.C. PRAGER, D. STONE, T.D. THARP, University of Wisconsin - Madison, CMSO COLLABORATION — Understanding plasma flow dynamics is important to the study of reconnection, momentum transport, and particle transport. In MST, abrupt changes in flow patterns occur during quasi-periodic magnetic reconnection events (sawteeth). During these events, fluctuation levels are observed to increase in many measurable quantities and can lead to the transport of particles, momentum, and energy. Probes have been used in the edge to measure the three components of velocity and magnetic field, as well as density and temperature. This poster presents first time measurements of plasma flows associated with tearing reconnection. In momentum transport studies, the fluctuation-induced Maxwell and Reynolds stresses were unexpectedly found to be much larger than the rate of change in plasma momentum but approximately in balance with each other. Fluctuation-induced particle transport, measured directly as $\langle \widetilde{n}\widetilde{v_r} \rangle$, increases dramatically during a reconnection event, reaching several times its initial value. From these measurements we can begin to understand the plasma dynamics that lead to transport. Work is supported by the US DOE and the NSF.

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Date submitted: 21 Jul 2009 Electronic form version 1.4