

Abstract Submitted  
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**Biased electrode experiments on MST<sup>1</sup>** A.F. ALMAGRI, C.B. FORSET, S.T.A. KUMAR, J. LAUFENBERG, M.D. NORNBORG, J.S. SARFF, A.H. SELTZMAN, J.C. TRIANA, J. WALLACE, UW-Madison and CMSO — Biased electrodes have been used on MST to study momentum transport. In earlier experiments a single electrode in the outer plasma region increased core toroidal flow from 20 km/s to 45 km/s. Following a fast turn off the toroidal flow relaxes to pre-bias values within 2.5 ms. This is an anomalously fast decay of the flow, similar to the particle and energy confinement times and is related to stochastic transport. A set of three biased electrodes is planned for concurrent use in many experiments. Experiments to explore the limit to the toroidal flow that can be driven with up to three probes. Experiments where the three electrodes are configured to produce a localized sheared-flow in the outer region of the plasma will be performed in standard and improved confinement plasmas to investigate flow shear effects and momentum transport. A compact dipole created by a spherical NdFeB permanent magnet (0.88 T, 1.5 inches) inserted in the outer plasma while plasma flowing around the magnet at speeds up to 60 km/s to simulate Solar winds in a laboratory setting. Results and observations from these experiments will be reported.

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