Abstract Submitted
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Momentum transport studies in the MST RFP[1] M.D. NORNBERG, A.F. ALMAGRI, J.K. ANDERSON, D.J. DEN HARTOG, D. LIU, J.S. SARFF, J. WAKSMAN, Univ. of Wisconsin-Madison, W.X. DING, L. LIN, UCLA, Center for Magnetic Self-Organization — The self-organization process that shapes the current density profile in the standard RFP plasma simultaneously gives rise to large turbulent stresses that shape the parallel flow profile of the plasma. While outward momentum transport and profile flattening are evident during sawtooth crashes, these stresses could also play a roll in the spontaneous plasma spin-up observed between crashes. Several different experiments have been performed on MST to quantify these effects using a range of diagnostics to measure the flow profile and correlated magnetic, velocity, and density fluctuations. External momentum sources are also employed to manipulate the plasma flow. Biased electrodes are used to drive a pulsed torque at the plasma edge to perform transient momentum transport experiments in standard and improved-confinement plasmas. A recently added 1 MW, tangentially-oriented neutral beam injector provides a new tool to deposit momentum in the core region of plasma. Co-current injection is used to spin up the plasma to measure momentum confinement while counter-current injection is used to balance the spontaneous acceleration to facilitate core stress measurements.

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