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Momentum and Current Transport in the MST Reversed Field Pinch W.X. DING, LIANG LIN, D.L. BROWER, University of California, Los Angeles, A.F. ALMAGRI, B.E. CHAPMAN, D.J. DEN HARTOG, J. DUFF, J.S. SARFF, University of Wisconsin, Madison — Self-generated flows and current (dynamo effects) are routinely observed in the MST RFP where both parallel flow and electric field reverse sign compared to the edge. In the absence of external torque and applied poloidal electric field, both the flow and electric field may arise from kinetic effects. Kinetic effects, defined as the correlated product of parallel pressure and radial magnetic field fluctuations, have been measured by using a high-speed polarimetry-interferometry diagnostic (for combined radial magnetic field and density fluctuation measurement). Between sawtooth crashes it is found that the measured kinetic effects associated with density fluctuations (a component of parallel pressure fluctuation) has a finite amplitude that may account for the observed flow in the core. In addition, the same fluctuations also influence electron dynamics via the kinetic dynamo. These results suggest kinetic effects may play an important role in coupling between momentum transport and current transport. Work supported by US DOE and NSF.

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