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Momentum Transport by Current-Driven Reconnection[1] S.C. PRAGER, A. ALMAGRI, D.J. DEN HARTOG, F. EBRAHIMI, G. FIKSEL, A. KURITSYN, M. MILLER, V. MIRNOV, J. SARFF, University of Wisconsin, and Center for Magnetic Self-Organization in Laboratory and Astrophysical Plasmas, D. BROWER, W. DING, University of California, Los Angeles, D. CRAIG, Wheaton College — Radial transport of poloidal and toroidal angular momentum is rapid during a global reconnection event in the MST reversed field pinch experiment. Theoretical explanation has evolved for transport from Maxwell and Reynolds stresses from multiple nonlinearly coupled tearing modes. Comparing stresses from multimode computation with those for a single mode shows that nonlinear coupling (multiple reconnections) greatly enhances transport. Measurement of stresses in MST (edge and core) supports, but does not yet completely confirm, this explanation. In the edge, Reynolds and Maxwell stresses are very large and oppositely directed, with the difference of order of the measured inertial (acceleration) term. These results raise the possibility that current-driven instability (reconnection) could be active in astrophysical accretion disks, for which flow-driven instability is the leading explanation. Thus, we have begun computation of transport from current-driven instability in disks.

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