Abstract Submitted
for the DPP13 Meeting of
The American Physical Society

Momentum transport due to overlapping tearing modes in tokamaks and reversed field pinches A.J. COLE, Columbia University, J.M. FINN, Los Alamos National Laboratory, C.C. HEGNA, P.W. TERRY, University of Wisconsin — Quasilinear calculations related to momentum transport due to a spectrum of stable driven tearing modes in RFPs and tokamaks in the presence of sheared rotation will be presented. The RFP and tokamak cases are treated in the limit that the tearing layers, but not the islands, overlap. The summation over mode contributions to the total Maxwell plus Reynolds force density on the plasma is converted into an integral over wavenumber. This process yields a multimode force density on the plasma that is related to the net force on a layer stemming from a single mode, but involves coefficients that depend on the resonant mode spectrum and the magnetic shear. The multimode effects appear to the plasma as a velocity-shear dependent viscous diffusion from Reynolds stress plus a Maxwell drag. Results are presented for both resistive-inertial and visco-resistive tearing regimes. Work supported by the US DoE under grants DE-FG02-85ER53212, DE-FG02-86ER53218, and contract number DE-AC52-06NA25396.

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Date submitted: 12 Jul 2013 Electronic form version 1.4