Abstract Submitted
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Separation of momentum diffusion and pinch using n=3 non-resonant braking perturbations on NSTX[1] W. DAVIS, W.M. SOLOMON, S.M. KAYE, R.E. BELL, B.P. LEBLANC, J.E. MENARD, Princeton Plasma Physics Laboratory, Princeton University, Princeton NJ, S.A. SABBAGH, Dept. of Applied Physics, Columbia University, NYC, NY — Perturbative studies of momentum transport have been made on NSTX using n=3 non-resonant braking as a means of perturbing the rotation profile. The braking was applied for 50 ms during a relatively MHD-quiescent phase of the discharge, after which the evolution of the plasma rotation was measured. The non-local torque perturbation created by the n=3 error field created some distortion to the toroidal rotation profile, allowing the separation of momentum flux caused by diffusion (proportional to the gradient in the toroidal rotation) and a momentum pinch (proportional to the toroidal rotation). Preliminary analysis indicates the necessity of a momentum pinch to explain the profile evolution. The effect of off-diagonal terms in the momentum balance equation (eg grad(Ti), grad(ne)) are also considered.

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