Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Plasma Rotation During Neutral Beam Injection In MST[1] BEN HUDSON, W. DING, G. FIKSEL, S. PRAGER, T. YATES, UW-Madison and Center for Magnetic Self-Organization — The effect of fast ions from neutral beam injection (20 keV, 30 A, 1.5 ms) on plasma rotation and magnetic tearing modes is studied. We observe that during co-injected NBI (with the injection in the same direction as the plasma and mode rotation) the rotation of the core-resonant n = 5 magnetic mode decreases and in many instances lock to the vessel wall. There is an associated drop in the poloidal component of n = 5 magnetic mode amplitude. The drop in the mode velocity suggests a counter-directed torque, perhaps due to modification of the radial electric field. The rotation slows during the injection phase, then restores itself on the timescale of the fast ion slowing down time (5 ms @ T_e = 100 eV). The fluctuation-induced j x b Maxwell stress is measured using MST's FIR diagnostic and presented for comparison. Equilibrium reconstruction suggests a small increase in on-axis $J_{||}$, consistent with the presence of a localized fast ion population moving in the direction of the plasma current. Mode rotation during NBI counter-injection is also presented.

[1]Work supported by D.O.E. and N.S.F.

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Date submitted: 21 Jul 2006 Electronic form version 1.4