

Abstract Submitted
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Operations at High I_N in the Pegasus Toroidal Experiment¹

E.A. UNTERBERG, D.J. BATTAGLIA, M.W. BONGARD, M.J. FROST, G.D. GARSTKA, A.C. SONTAG, University of Wisconsin-Madison — In efforts to define the operating space of a near-unity aspect ratio ST, the external kink boundary is explored by operating at high normalized current (I_N) and toroidal field utilization (I_P/I_{TF}). Recent experiments have accessed I_N up to 14 MA/m-T ($I_P/I_{TF} \sim 2.3$) through current profile manipulation. Three techniques are employed to access high I_N . The first two involve electrostatic current sources for helicity injection, while the third uses TF rampdowns. Equilibrium reconstructions indicate that two techniques are allowing dramatic changes in the current profile and the third is accessing high I_N through greater experimental flexibility. Mode analysis during the current manipulation experiments shows no consistent mode activity. The MHD activity that is observed appears to coincide with reduced shear at rational flux surfaces destabilizing tearing modes at higher m . This is opposed to earlier experiments with ohmic-only current drive where low-order tearing modes were universally observed, limiting I_N ($\sim 6-8$ MA/m-T) and I_P/I_{TF} to unity. There has yet to be evidence of ideal MHD mode activity during these experiments giving encouragement that further gains in I_N can be made.

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