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Changes in core-resonant m=1 tearing mode activity with and without edge-resonant m=0 tearing modes in MST RFP D. CRAIG, Wheaton College, Wheaton IL USA, D.J. DEN HARTOG, S.T.A. KUMAR, M.D. NORNBERG, J.S. SARFF, University of Wisconsin - Madison, WI USA — Dynamo activity, momentum transport, ion heating, and electron thermal transport result from core-resonant m=1 magnetic fluctuations in the Madison Symmetric Torus. However, these effects are severely suppressed when edge-resonant m=0 fluctuations are absent. We investigate changes in the m=1 mode structure and temporal dynamics with and without m=0 modes present. Passive Doppler spectroscopy measurements of m=1 ion velocity fluctuations show a clear change in phase with and without m=0 present. Active charge exchange recombination spectroscopy measurements are underway to confirm this trend and to yield spatially localized information regarding the changes in velocity fluctuations. This change in phase alters the degree to which the modes produce dynamo terms even though the mode amplitudes remain similar with and without m=0 modes. Despite the lack of m=0 fluctuations, it appears that m=1 fluctuations with different toroidal mode numbers still couple to one another, though perhaps less strongly. Work supported by U.S.D.O.E.

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