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Effects of m=0 mode suppression on m=1 magnetic and velocity fluctuations in the RFP D. CRAIG, Wheaton College (IL), D.J. DEN HARTOG, University of Wisconsin - Madison, D. MARTIN, Wheaton College (IL), M.R. NORNBERG, J.A. REUSCH, J. TRIANA, University of Wisconsin - Madison, MST TEAM — Poloidal mode number m=0 and m=1 fluctuations are strongly coupled in the Reversed Field Pinch (RFP) and hence suppression of one mode can have a significant effect on the other. We present measurements of differences in magnetic and velocity fluctuations in MST when m=0 modes are suppressed by removal of their resonant surface from the plasma. The m=1 magnetic fluctuation amplitudes are similar without m=0 present but the velocity fluctuations are lower and have a different phase with respect to the magnetic field fluctuation. We have reproduced the experiment in nonlinear resistive MHD simulations with the DEBS code. In the code, removal of the reversal surface reduces m=0 modes but not as strongly as in the experiment. The m=1 magnetic fluctuations in the code are of similar amplitude with and without the reversal surface but the velocity fluctuations are reduced without m=0 present. The phase between v and b does not change significantly in the code in contrast to the experiment. Advection of the mean flow profile by the magnetic fluctuations (an effect not included in the code) may be responsible for the difference in phase observed in the experiment. This work has been supported by the USDOE and NSF.

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