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Category Number and Subject: 5.6.2 DIII-D Tokamak

[ ] Theory [x] Experiment

RWM Feedback Stabilization in DIII–D: Experiment-Theory Comparisons,* A.M. Garofalo, J. Bialek, G.A. Navratil, H. Reimerdes, *Columbia U.*, M.S. Chance, M. Okabayashi, *PPPL.* M.S. Chu, G.L. Jackson, R.J. La Haye, J.T. Scoville, E.J. Strait, *GA* –
Direct feedback stabilization of the RWM, i.e., with toroidal plasma rotation below the critical value for RWM stability, has been observed in DIII–D experiments. These RWM feedback experiments with near-zero plasma rotation provide excellent data to benchmark the various feedback simulation codes. Reduced correction of the n=1 error field is used in order to slow down the plasma rotation to essentially zero over most of the plasma. The feedback field is applied using the internal control coil (I-coil) in response to the signal from internal poloidal field sensor. Discharges without feedback become unstable when the rotation is reduced, while discharges with RWM feedback control survive for more than 100 ms after the rotation has decreased near zero. Comparisons with MARS, VALEN, and slab models are presented.

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