

**Abstract Submitted for the Forty-Sixth Annual Meeting  
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Theory     Experiment

**RWM Stabilization Through Feedback Control,\***

M. Okabayashi, M. Chance, H. Takahashi, *Princeton Plasma Physics Laboratory*, M.S. Chu, G.L. Jackson, R.J. La Haye, J.T. Scoville, E.J. Strait, *General Atomics*, A.M. Garofalo, G.A. Navratil, H. Reimerdes, *Columbia University* – The magnetic feedback process provides RWM stabilization by directly coupling the RWM as well as by increasing the plasma rotation via the error field reduction. A series of experiments has been carried out to assess these two processes quantitatively by producing lower rotation plasmas with the active n=1 resonant braking, non-resonant n=3 braking and/or electron cyclotron resonance heating. The nearly zero rotation target with the n=1 resonant braking showed that the feedback can increase  $\beta_N$  30% above the no-wall limit. The achieved values are consistent with theoretical predictions. The detailed process with various gain parameter scans will be discussed in comparison with the MARS code and a lumped parameter model [1].

[1] M. Okabayashi et al., *Plasma Phys. Control. Fusion* **44**, B339 (2002).

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