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Improved Resistive Wall Mode Stability in DIII-D with Optimal Error Field Correction[1] T.J. SCOVILLE, E.J. STRAIT, R.J. LA HAYE, General Atomics, A.M. GAROFALO, G.A. NAVRATIL, Columbia University, L.C. JOHNSON, M. OKABAYASHI, Princeton Plasma Physics Laboratory — In the development of an advanced tokamak plasma, beta may be limited by the Resistive Wall Mode (RWM). Sufficient plasma rotation can stabilize the RWM,[2] but rotation can be reduced by the torque from uncompensated error fields. In DIII-D plasmas with beta above the "no wall" limit, the rotation steadily drops and leads to an $n = 1$ RWM when the rotation decreases below a critical value.[3] This is consistent with enhanced drag caused by a resonant response to an uncompensated $n = 1$ error field once beta exceeds the no wall limit. A simple torque balance model that includes this effect will be compared with data. The experimental results show that careful error field correction leads to a much longer period of sustained rotation and RWM stability with beta above the no wall limit before the eventual RWM growth is observed.

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[2]A. Boozer, Phys. Plasmas **2**, 4521 (1995).
[3]A.M. Garofalo *et al.*, Phys. Rev. Lett. **82**, 3811 (1999).

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