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Effects of Plasma Rotation on Stabilization of Resistive Wall Modes in DIII-D[1] L.C. JOHNSON, M. OKABAYASHI, Princeton Plasma Physics Laboratory, R.J. LA HAYE, J.T. SCOVILLE, E.J. STRAIT, A.D. TURNBULL, GA, J. BIALEK, A.M. GAROFALO, G.A. NAVRATIL, Columbia U. — Recent DIII-D experiments in plasmas with pressures at or above the no-wall ideal MHD stability limit have shown that rapid toroidal rotation can enhance the stabilizing effect of a surrounding conductive wall and delay the onset of resistive wall modes or, in some cases, prevent them altogether. When the braking arising from magnetic error fields is reduced, either by feedback or preprogrammed control of currents in correction coils, the plasma rotation can be sustained by torque applied by neutral beam heating. Stable operation has been achieved with pressures well above the no-wall limit for up to one second. These results are compared with cases where the input torque was reduced by using more nearly perpendicular beam injection or electron cyclotron heating.

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