

Measurement of the Resistive-Wall-Mode Stability in a Rotating Plasma Using Active MHD Spectroscopy

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Abstract. The stability of the resistive-wall mode (RWM) in DIII-D plasmas above the conventional pressure limit, where toroidal plasma rotation in the order of a few percent of the Alfvén velocity is sufficient to stabilize the $n=1$ RWM, has been probed using the technique of active MHD spectroscopy at frequencies of a few Hertz. The measured frequency spectrum of the plasma response to externally applied rotating resonant magnetic fields is well described by a single mode approach and provides an absolute measurement of the damping rate and the natural mode rotation frequency of the stable RWM.