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Theory Experiment

Measuring Kinetic Contributions to Resistive Wall Mode Stability Using Active MHD Spectroscopy,* J.M. Hanson, J. Berkery, G.A. Navratil, S.A. Sabbagh, *Columbia U*; M.J. Lanctot, *LLNL*; H. Reimerdes, *CRPP*; I. Chapman, Y. Liu, *Euratom/CCFE*; M. Okabayashi, *PPPL*; Y. In, *FAR-TECH*; G.L. Jackson, E.J. Strait, P.E. Sieck, *GA* – Recent DIII-D experiments showcase the usefulness of active MHD spectroscopy for understanding resistive wall mode (RWM) stability. Plasma response measurements made using this technique have manifested evidence of wave-particle interactions with the trapped ion population now believed to play a critical role in influencing RWM stability above the ideal MHD no-wall limit. The beam ion distribution function can now be modified in DIII-D by tilting the injection angle of one of the neutral beams downward from the magnetic axis. When the toroidal field direction is chosen so that the field line pitch is closely aligned with the trajectories of the off-axis beam neutrals, the trapped ion fraction is reduced. Measurements and comparisons with theory of the effect of off-axis neutral beam injection on RWM stability will be reported.

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