Abstract Submitted
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Comparison of Resistive Wall Mode Kinetic Stabilization Theory and Experiment[1] J.W. BERKERY, S.A. SABBAGH, H. REIMERDES, Columbia University, R. BETTI, University of Rochester, G. MATSUNAGA, JAEA, M. PODESTA, PPPL — The theory of kinetic modification of ideal MHD stability has the potential to explain the physics of resistive wall mode (RWM) stability in high-beta tokamaks. The observation of unstable RWMs at plasma rotation frequencies between the stabilizing bounce and precession drift frequency resonances in NSTX is well explained by the kinetic theory[1], while energetic particles provide a stabilizing effect that is independent of plasma rotation. A description of the physics of RWM stability which may unify results between various devices is proposed. In certain cases large energetic particle stabilization may be preventing the RWM from going unstable except when triggered by a sudden loss of energetic particles. In NSTX, smaller energetic particle stabilization may be allowing the mode to go unstable more often, and for thermal resonances to be more clearly seen. This hypothesis is applied to analysis with the MISK code of plasmas from NSTX and other devices exhibiting RWMs with various levels of rotation and energetic particle content. [1] J. Berkery et al., *Phys. Rev. Lett.* 104, 035003 (2010).

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J.W. Berkery

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