

Abstract Submitted
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Critical Toroidal Rotation Profile for Resistive Wall Modes in Tokamaks¹ K.C. SHAING, University of Wisconsin, M. CHU, General Atomics, S.A. SABBAGH, Columbia University, M. PENG, Oak Ridge National Laboratory — It is known that resistive wall modes in tokamaks can be stabilized by toroidal plasma rotation. The critical toroidal rotation speed is reduced when the enhanced plasma inertia is included in the polarization current density. Here, we develop a model to calculate the critical rotation profile when toroidal plasma rotation is actively controlled. This is accomplished by including the neoclassical dissipation mechanism associated with the perturbed parallel plasma viscosity, and its corresponding inertia enhancement factor. It is illustrated that the important quantity is the toroidal rotation profile and is not necessarily the toroidal plasma rotation speed at a particular radius.

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