Rotation-compatible Resistive Wall Mode Modeling in Tokamaks Using Self-consistent Stability Code MARS[1] V.A. SVIDZINSKI, Y. IN, J.S. KIM, FAR-TECH, M.S. CHU, General Atomics, Y.Q. LIU, UKAEA, DIII-D RWM TEAM — Rotational stabilization of resistive wall modes (RWM) has been observed in experiments. To study a rotation profile influence on RWM stabilization, a self-consistent ideal MHD calculation, including plasma rotation, is in progress using code MARS-F. Specifically, the sensitivity of stability (s) and torque (alpha) parameters defined by Boozer in [1] is studied near the RWM onsets. In a single mode approximation, the plasma response on a perturbed RWM magnetic field can be represented as a simple function of these parameters such that the dependence of the growth rate of the mode on s and alpha can be found analytically. The calculated RWM growth rate dependence on s and alpha will be compared with the results of this simple model. This modeling is expected to help us diagnose the proximity to RWM stability boundary based on a rotation profile data.

[1] A.H. Boozer, Phys. Rev. Lett. **86**, 5059 (2001).

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