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Effect of Rotation and Rotation Shear on Stability of RWM in DIII-D Tokamak Using MARS[1] Y. LIU, Dalian University of Technology, M.S. CHU, L.L. LAO, General Atomics, Y.Q. LIU, EURATOM/UKAEA Fussion Assoc.
— It was established that RWM can be stabilized by fast plasma rotation (at a few percent of the Alfvén frequency). The experiment in DIII-D and JT-60U observed mode stabilization at plasma rotation frequency lower than that predicted by the fluid theory. To understand the mechanism in this work, the plasma in DIII-D with a low rotation and surrounded by an external resistive wall is revisited. Based on fluid [1] and kinetic [2] MHD models, the effect of plasma rotation and shear flow on RWM in DIII-D is studied numerically with the MARS code. Using different wall parameters and plasma rotation profiles, the numerical results of the growth rates with different wall locations are obtained. From analysis of the numerical results, the linear stability of RWM with these lower plasma rotations in DIII-D is studied and compared with previous results.

[1] M.S. Chu, et al., Phys. Plasmas **2**, 2236 (1995).
[2] Y.Q. Liu, et al., Phys. Plasmas **15**, 112503 (2008).

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