

Abstract Submitted
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Influence of toroidal rotation on tearing modes¹ HUIZHAN CAI, University of Science and Technology of China, JINTAO CAO, DING LI, Institute of Physics — Tearing modes stability analysis including toroidal rotation is studied. It is found that rotation affects the stability of tearing modes mainly through the interaction with resistive inner region of tearing mode. The coupling of magnetic curvature with centrifugal force and Coriolis force provides a perturbed perpendicular current, and a return parallel current is induced to affect the stability of tearing modes. Toroidal rotation plays a stable role, which depends on the magnitude of Mach number and adiabatic index Γ , and is independent on the direction of toroidal rotation. For $\Gamma > 1$, the scaling of growth rate is changed for typical Mach number in present tokamaks. For $\Gamma = 1$, the scaling keeps unchanged, and the effect of toroidal rotation is much less significant, compared with that for $\Gamma > 1$. Reference: [1] Huishan Cai, Jintao Cao, Ding Li, influence of toroidal rotation on tearing modes, Nuclear Fusion 57, 056006(2017)

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Huishan Cai
University of Science and Technology of China

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