

Influence of Equilibrium Perpendicular Shear Flow on Peeling-Ballooning Instability

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The influence of equilibrium perpendicular $E \times B$ shear flow on peeling-ballooning modes is studied with the BOUT++ code. A set of reduced MHD equations is modified by adding a perpendicular equilibrium shear flow. Flow shear has a stabilizing effect on peeling-ballooning instability, but its strength depends on toroidal mode number n . Modes with intermediate mode number n change from most unstable to most stable due to the existence of sufficient large flow shear, while low n and high n modes remain unstable. As a result, a feedback mechanism for ELM crash is proposed.

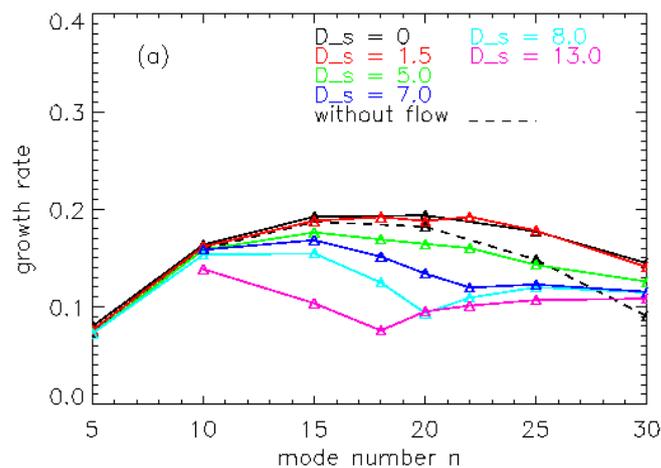


Figure: Growth rate for different modes with different flow shear.