

Modeling and analytic study of plasma flows on tearing mode stability

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- **Examine the effects of flow shear on the stability of a (2,1) tearing mode**
- **Reduced MHD runs using cylindrical CUTIE code :**
 - **Linear runs :**
 - Pure axial/poloidal sheared flow – destabilizing/stabilizing – symmetric w.r.t direction of flow
 - Helical flow – stabilizing for positive helicity – sign of helicity matters
 - 2-fluid symmetry breaking even for pure axial sheared flows -Excitation of diamagnetic poloidal flows
 - **Nonlinear runs :**
 - Always Symmetry breaking in nonlinear regimes w.r.t direction of flow
 - Nonlinear generation of all flow components – any flow turns helical
- **Generalized Reduced MHD runs using toroidal NEAR/TOQ code:**
 - Toroidal Flow induced centrifugal effect: ‘Shafranov’ like shift modifies q and p : stabilizing due to reduction of Δ'

