A new branch of EGAM

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An branch with

\[ \omega \sim \omega_D \] (magnetic drift frequency of EP) is found in the family of EGAM.

This branch is destabilized by the resonance, \( \omega - \omega_D \sin \theta = 0 \).

Poloidal eigenfunction has bumps and phase shift around the resonance locations.

This branch contributes to ion heating and to driving the toroidal rotation.

Violation of up-down anti-symmetry

This branch is destabilized by the resonance, \( \omega - \omega_D \sin \theta = 0 \).

GAM channeling

\[ P = J_G \cdot E_G \]

\[ \Pi_{r,\parallel}^{(GAM)} = \left\langle v_r^{(GAM)} v_{\parallel}^{(GAM)} \right\rangle \]

are greatly enhanced by the magnetic drift resonance.