

A new branch of EGAM

M. Sasaki, et. al. : TH/P4-12

(A new branch of geodesic acoustic modes driven by fast ions)

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, $\omega - \omega_D \sin \theta = 0$.

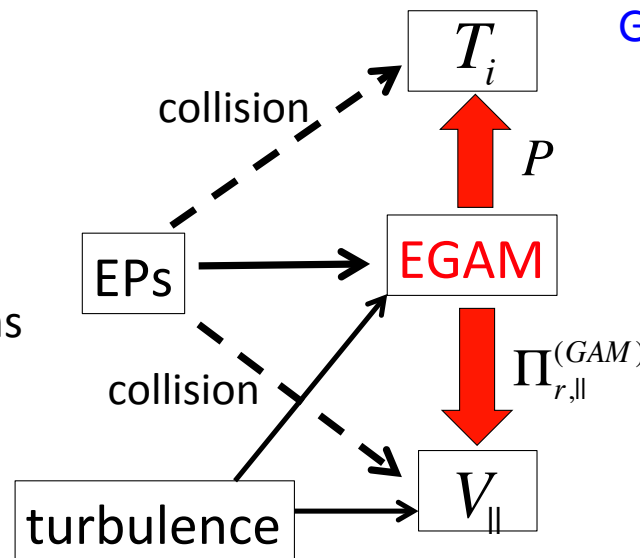
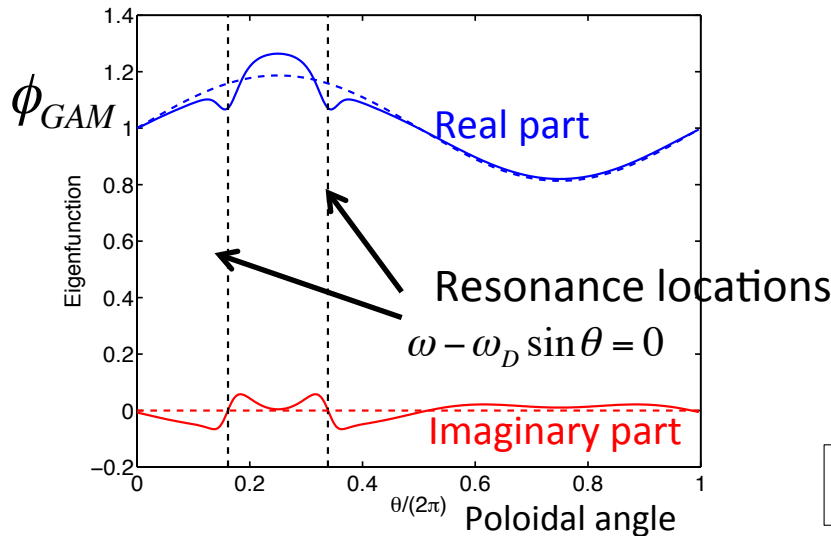
Poloidal eigenfunction has

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



GAM channeling

$$P = \mathbf{J}_G \cdot \mathbf{E}_G$$

$$\Pi_{r||} = \langle \mathbf{v}_r^{(GAM)} \mathbf{v}_{||}^{(GAM)} \rangle$$

are greatly enhanced by the magnetic drift resonance