Feedback of a neoclassical tearing mode on drift wave – ZF turbulence
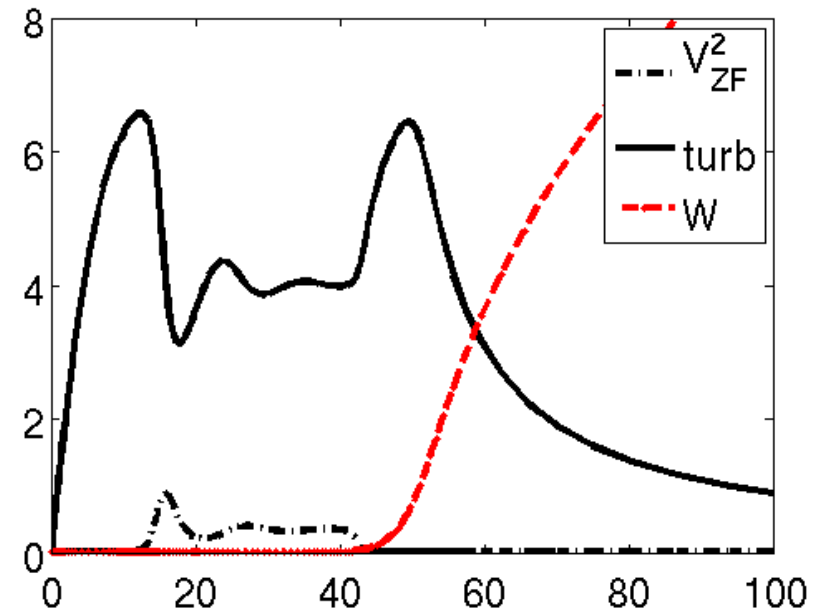
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1) 0D and 1D predator-prey model with NTM feedback

2) Zonal Flows limit saturated turbulence level

Thus destabilize NTM

3) **Implicit** onset **criterion**

$$W_{seed} \geq [\chi_{turb}(W_{seed}, \beta_p)/\chi_{\parallel}]^{1/4}$$

4) for a given seed, onset Beta determined by neoclassical ZF damping $\beta_p \sim \nu_{ii}^{1/2}$

top: NTM model dynamics, bottom: beta scaling with ν_{ii}