Anisotropy impacts ballooning modes
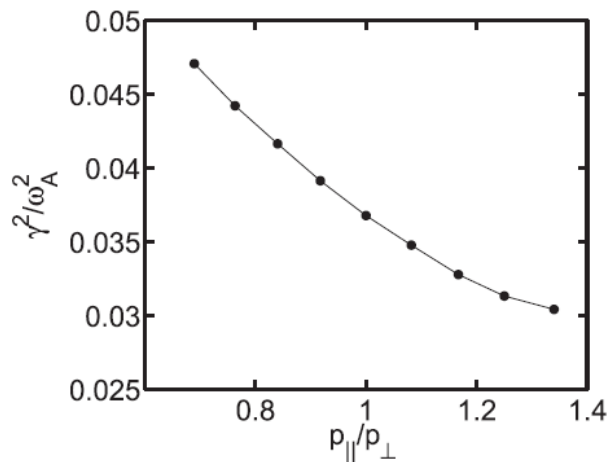
- New tools to study impact of anisotropy on equilibrium / stability
  - HELENA+ATF / remapping tools for equilibria with anisotropy for same J_ϕ, W_{th}
  - MISHKA-A – studies continua, global modes with anisotropy and FLOW

- First application to stability of n=30 ballooning mode. [PPCF 60 (2018) 065006]

γ^2/ω^2 = growth rate of n=30 mode at the outboard location (s≈0.98) where the eigenmode is peak.

γ^2/ω^2 increases with increasing $p_\perp/p_{||}$ (increasing $\widetilde{\Theta}_0 = T_0/T_{||}\left(1 - T_{||}/T_\perp\right)$.

Reason: As $T_\perp$ increases over $T_{||}$, $p_\perp$ surfaces are displaced outboard to bad curvature region *cf* an inward shift of surfaces stabilises the mode.
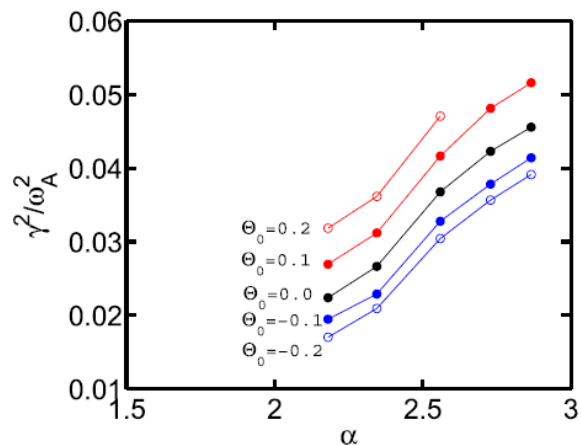
Experimentally, values of $\widetilde{\Theta}_0 = \dfrac{p_\perp}{p_{||}} \gg 2.5$, and

$\widetilde{\Theta}_0 = \dfrac{p_{||}}{p_\perp} \gg 1.7$ have been identified in JET and MAST plasmas, respectively. ***Hence***

Suggests *increasing* $p_{||}/p_\perp$ in the pedestal region might lead to higher ELM-free performance