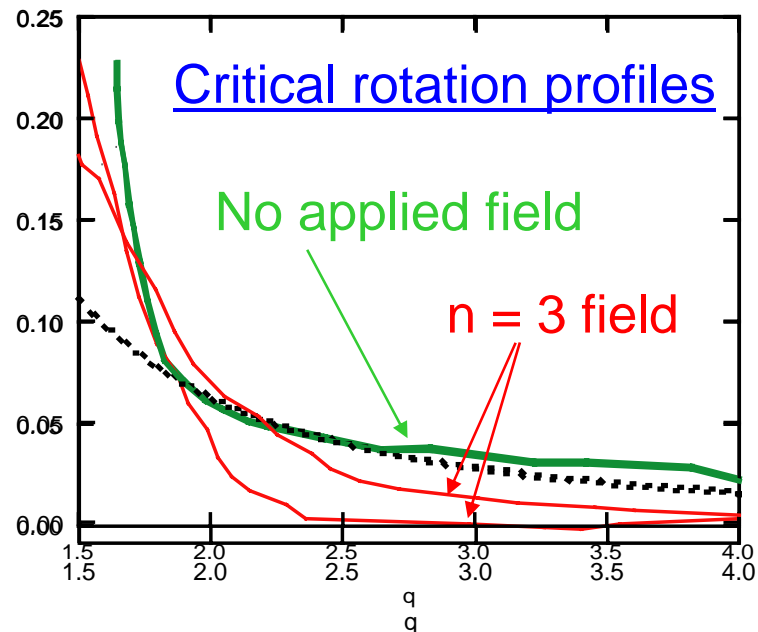
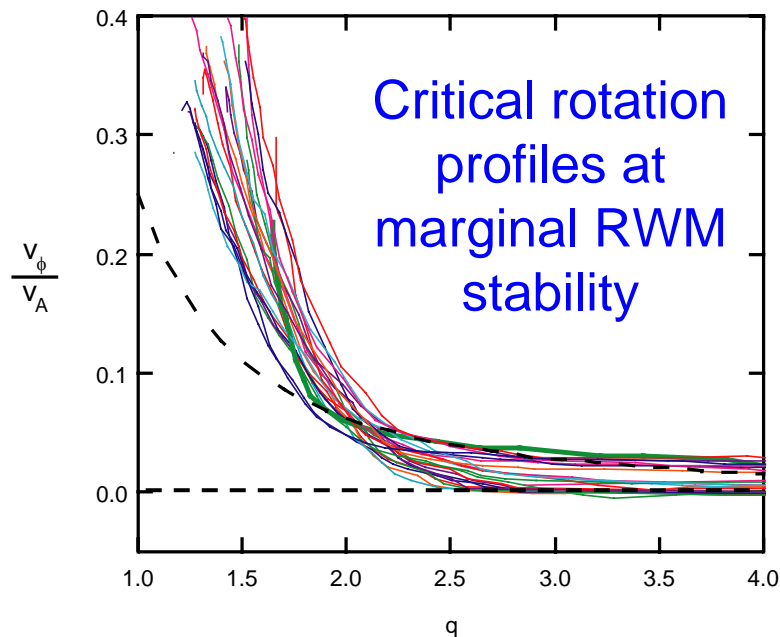


Potential EPS 06 Invited Talk on RWM Research

- World-leading advances in RWM physics – analysis ongoing
 - Plasma rotation control
 - $n=1,3$ applied fields enabled new analysis; generated ITER relevant target
 - Critical rotation frequency
 - Higher order rational surfaces not required for stabilization
 - DIII-D similarity experiment supports $\Omega_c/\omega_A \sim \varepsilon/q^2$ (Reimerdes APS invited)
 - Plasma rotation damping (with applied $n=1$ and $n=3$ fields)
 - Details of NTV scaling shown by experiment (n^2 ; role of resonant surfaces)
 - Damping evolution from “vacuum field” to RFA to full RWM shown to follow NTV theory
 - Resonant field amplification
 - Clear phase shift based on applied frequency
 - Single mode model may not explain data – analysis being done now
 - RWM dynamics
 - Evolution of field amplification and RWM, tearing modes triggering, etc.
 - Potential for initial active RWM stabilization experiments
- Intend to submit abstract for IAEA 06 as well

Plasma rotation on higher order rational surfaces is not required for RWM stability



- $n=3$ applied field used to alter plasma rotation profile
- Critical rotation *profile*, rather than just a scalar value
 - Investigate dependence on plasma parameters

- Without applied damping field
 - $\Omega_c/\omega_A \sim 1/(4q^2)$ reasonable critical profile for 2004 data
- With applied damping field
 - RWM stable with nearly zero rotation at $q > 2.5$

A. Sontag



NSTX