Investigation of zero-mean-frequency zonal flows and geodesic acoustic modes

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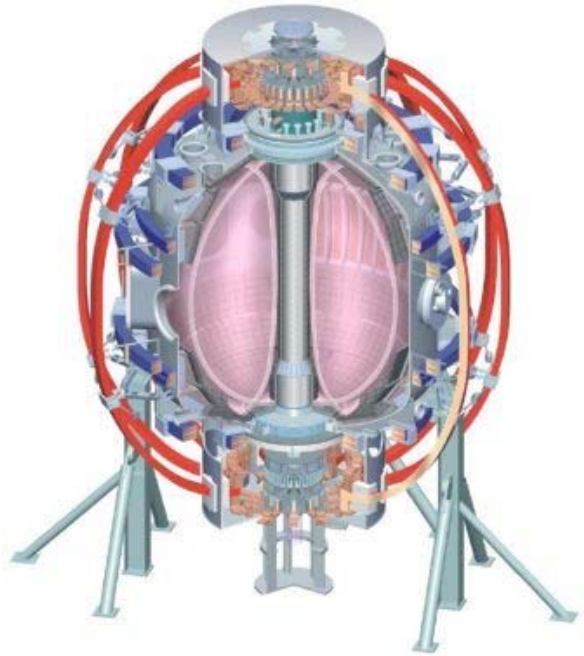

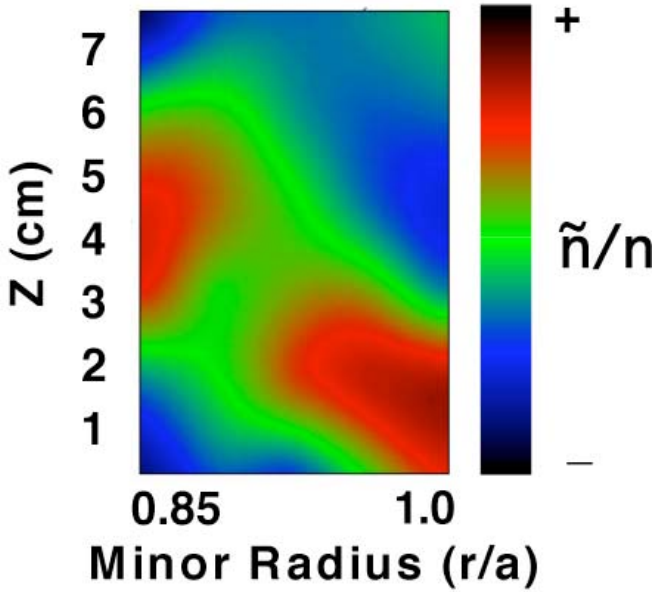

Investigation of zonal flows

- Goal: Identify and document the zero-mean-frequency (ZMF) zonal flow (ZF) and the geodesic acoustic mode (GAM) ZF
- Motivation: Plasma turbulence self-regulates through zonal flow generation
- Method
  - ZMF ZF: Expected at low q, so search near core. Investigate collisionality dependence in ZF correlation time.
  - GAM ZF: Expected at high q, so search near edge. Investigate GAM frequency dependencies on Ti, Te, and R.
  - Use BES poloidal arrays to measure poloidal velocity fluctuations
  - Compare ZF shear to equilibrium E×B shear
- Runtime: 1 day

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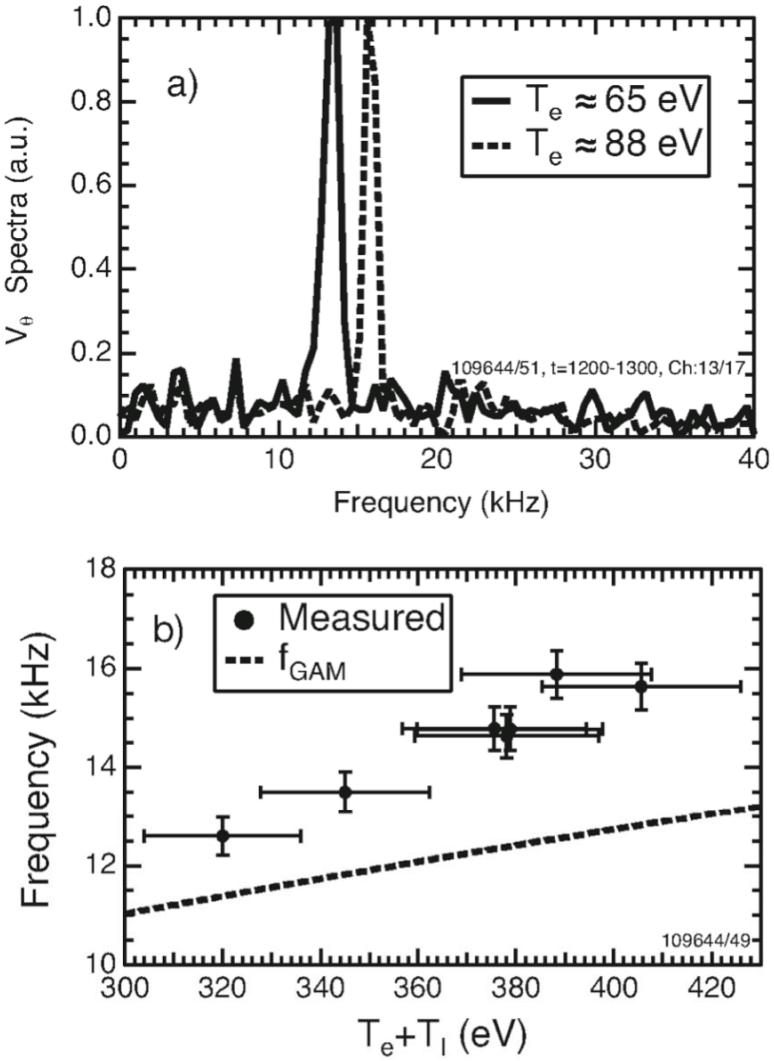

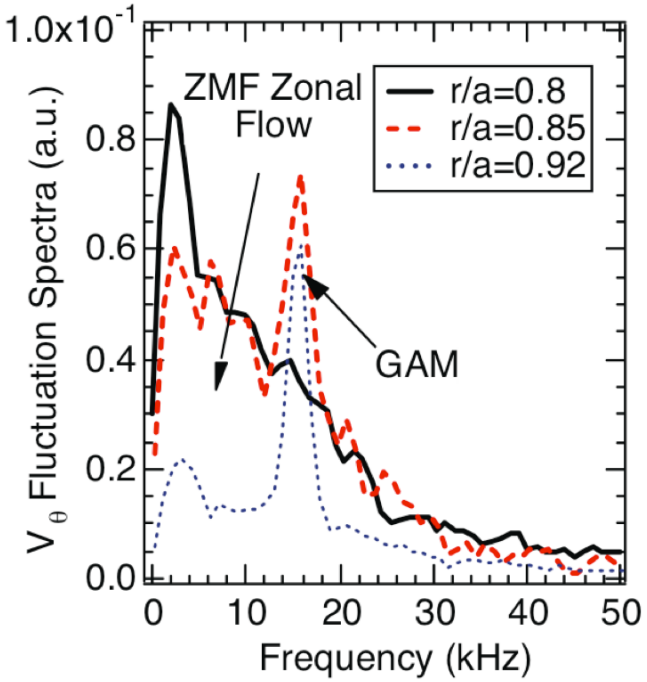

Figures from McKee et al, PoP 2003 and Gupta et al, PRL, 2006