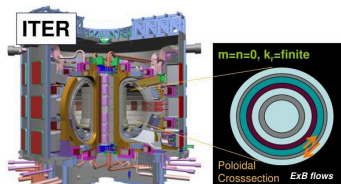


Effects of anisotropic slowing-down energetic particle distribution function in ITER-like regime, De Vinci Research Center, Paris

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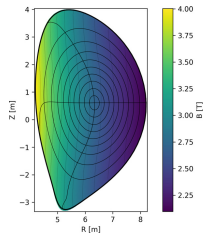
- Turbulence develops in tokamak plasmas, due to the gradients of the density and temperature profiles.
- Zonal, i.e. axisymmetric, flows take part in the nonlinear saturation of turbulence.
- Two kinds of zonal flows exist:
 - **Zero Frequency Zonal Flows,**
 - finite frequency **Geodesic Acoustic Modes (GAM).**



P. H. Diamond et al. 2005

- GAMs can also be driven by energetic particles (EP) due to inverse Landau damping, → **EP-driven GAMs (EGAM).**

- The EP population used has an anisotropic slowing-down (ASD) distribution : it is closer to the experimentally measured distrib. funct., like for neutral beam injection.
- Effects of ASD distrib. funct. on EGAMs are investigated by using **ORB5** which is a multispecies electromagnetic gyrokinetic particle-in-cell code.



T. Hayward-Schneider, et al. 2022

- Magnetic equilibrium from ITER-like regime scenario is considered.

Few results :

- Numerical results are shown for linear electrostatic simulations with **ORB5**.
- The growth rate strongly depends on the phase-space shape of the distrib. funct.
- Results show which phase-space shape of EP distrib. funct. can lead to stable or unstable modes.

