Reconstruction of MHD modes for energetic particle dynamics studies in toroidal equilibria with arbitrary q profile

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A fast and simple method is presented ...

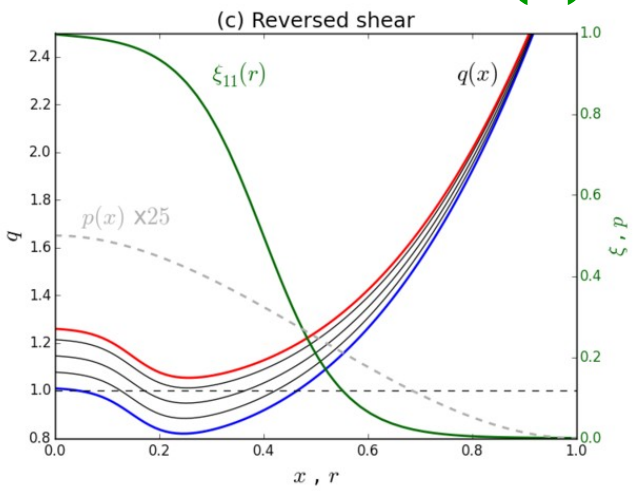
----> to reconstruct **internal magnetic activity** in **advanced tokamaks,**

------>> from **arbitrary plasma profiles** + **radial displacement** of MHD modes

----------->>> resulting fields are used to study **particle redistribution**

(using an efficient GPU implementation)

(1)

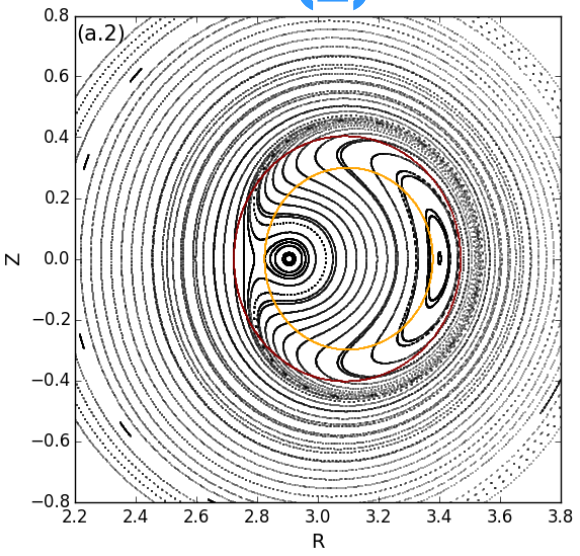


Input data (1D)

(i) Equilibrium profiles (q and p)

(ii) Radial displacement of MHD modes

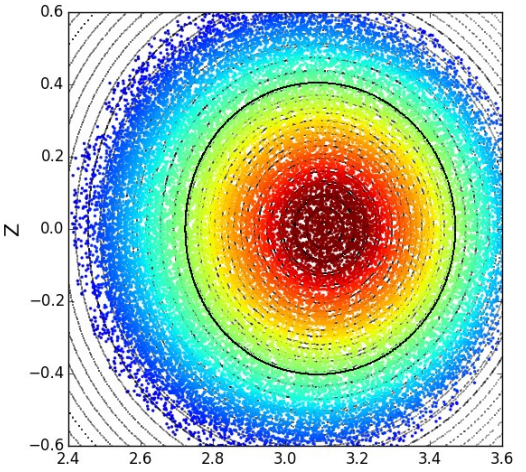
(2)



Reconstruction of MHD activity (3D)

Time dependent 3D Magnetic and Electric fields are computed using <u>minimal information</u>

(3)



Initial

Particle redistribution

Final