

Summary

We have shown from nonlinear gyrokinetics that the excitation of zonal flows is stronger close to the **wave-particle resonance**

This is supported by the convergence tests with respect to number of particles in the Cyclone work

In a fluid description the excitation is enhanced in the fluid resonance region

In a resonant ordering the excitation due to the energy equation nonlinearity dominates.

The excitation is sensitive to the fluid closure

For Cyclone base case parameters, the excitation of zonal flows is stronger for larger mode numbers