



Contribution ID: 64

Type: Poster

## **【633】 Hysteresis in the drift wave turbulence to zonal flow bifurcation in magnetised plasma**

*Tuesday, 31 August 2021 19:03 (1 minute)*

Drift wave turbulence occurs ubiquitously in inhomogeneous magnetised plasmas, and determines transport in magnetic fusion experiments. The quasi two-dimensional turbulence implies an inverse energy cascade that condensates in persistent zonal flows, which correspond to a global sheared rotation in a torus. We study bifurcation from turbulence to flow regimes by simulations with a gyrofluid Hasegawa-Wakatani model when dissipative coupling as control parameter is increased. In addition to previous fluid models, our gyrofluid simulations include finite Larmor radius (FLR) effects for a temperature ratio  $\tau = T_i / T_e > 0$ . We discuss changes in transition characteristics related to FLR effects, and conditions for hysteresis in the back transition.

**Primary author:** Mr LOCKER, Franz Ferdinand (University of Innsbruck)

**Co-authors:** Mr BALASUBRAMANIAN, Pradeep Somu (University of Innsbruck); Mr KEIM, Maximilian (University of Innsbruck); Prof. KENDL, Alexander (University of Innsbruck); Mr ZARATE SEGURA, Guillermo Wenceslao (University of Innsbruck)

**Presenter:** Mr LOCKER, Franz Ferdinand (University of Innsbruck)

**Session Classification:** Poster Session

**Track Classification:** Applied Physics and Plasma Physics