Contribution ID: **2968** Type: **not specified**

# O2.106 Influence of edge plasma parameters on anomalous transport driven by current-convective turbulence in tokamak divertor plasma

*Tuesday, 9 July 2019 12:25 (15 minutes)*

See the full abstract here http://ocs.ciemat.es/EPS2019ABS/pdf/O2.106.pdf

Observations of divertor plasma turbulence in a series of experiments at the DIII-D tokamak has recently demonstrated the onset of parallel current and magnetic field fluctuations [1] with temporal parameters similar to those reported for the fluctuations of divertor plasma radiation intensity at the ASDEX Upgrade tokamak (AUG) [2], when it was operating in the fluctuating state of detachment. This regime is characterized by the strong asymmetry in detachment and, consequently, large difference in electron temperatures between the inner and outer divertor legs of the machine, which can possibly drive the onset of the current-convective instability [3] eventually leading to saturated turbulence with spatial and temporal properties similar to those experimentally observed in DIII-D and AUG [4-6].
In this contribution, we employ the physical model of the current-convective instability of Ref. [6] to analyze the influence of the divertor plasma parameters on the anomalous transport driven by saturated current-convective turbulence under the detachment conditions similar to the DIII-D tokamak. The spatial and temporal spectra of plasma fluctuations are shown and analyzed. In particular, the data on parallel current and magnetic field oscillations at the inner strike point are demonstrated and compared with the available experimental results [1]. Finally, the amplitudes, spatial and frequency compositions of turbulent oscillations of the plasma parameters is used to construct the anomalous transport coefficients in the form applicable for their use in global transport codes, such as SOLPS.

References
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**Session Classification:** MCF

**Track Classification:** MCF