Numerical modelling of edge tokamak plasma: impact of collisionality on turbulence properties

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Impact of collisionality on tokamak edge plasma turbulence

- Experimental evidence that the change of collisionality influences the turbulence properties of edge and SOL plasma with impact of mean field profiles (Carralero D et al. PRL 2015)
- 3D numerical modelling in limiter geometry with anisothermal version of TOKAM3X code.

Poloidal section of density fluctuation

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Poloidal section of electron temperature fluctuations

3D Tracking of coherent structure with $N>1.5\sigma_N$

Poloidal size of blob over radial direction

BRAT algorithm described in F. Nespoli, submitted Nuclear Fusion 2019

Low collisionality

High collisionality