

Category: 5) Application of stochastic edges to high performance and reactor plasma scenarios

Characterisation of the Edge Density Regimes in the Dynamic Ergodic Divertor

Thibaut Van Rompuy

The dynamic ergodic divertor (DED) produces a perturbation field at the high field side which can rotate up to a frequency of 10 kHz. The thus generated stochastic boundary layer acts as a divertor. Electron temperature and particle flux are measured by flush-mounted Langmuir probes in the divertor plates. The heat flux is measured by thermography and is compared to the probe measurements. Those measurements allow us to characterize the relationship between the central electron density and the input power as plasma control parameters on the one hand, and the plasma parameters in front of the target plate during DED operation on the other hand. The results are studied as a function of both the probe position on the target plate and the DED frequency and are finally compared to the density regimes known from the axisymmetric divertor.