Simulation of the intermittent behavior of SOL turbulence in TEXTOR.

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By quite a lot of experimental observations, it is now generally accepted that the plasma transport in the scrape-off layer (SOL) is characterized by turbulent intermittency. This process, known as (higher density) blobs which are projected on the wall, increases the wall erosion and reduces the divertor efficiency. In view of ITER and the other machines under construction, this interaction of the plasma with the wall is still an important topic.

In this contribution, we analyse some simulations with the ESEL (Edge Scrape-off Electrostatic) code [1], applied on the geometry of TEXTOR. TEXTOR relevant parameters are used as input into the model for ohmic scenarios at first. The output of the runs is compared to results of the real experiment, in terms of several relevant characteristics.

Since some years, the DED (dynamic ergodic divertor) has been operated in TEXTOR, in various modi operandi. This utility creating an ergodized magnetic boundary is important in optimizing the plasma-wall interaction. Experiments of the SOL-turbulence with and without static DED on TEXTOR have been reported extensively [2].

In this paper, we discuss the modeling of the parallel damping term in case of the static DED. Again, the output of these ESEL-simulations on the basis of the adapted parallel damping, is compared with real results from the tokamak, eventually giving us a clue about the influence of the static DED on SOL-turbulence characteristics.

References
