

Subject (2) or (3a)?

## Computational Parameter Studies on Ergodic Edge Transport in TEXTOR-DED

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Since the 3D edge plasma fluid code-package EMC3-EIRENE was adapted for the ergodic divertor in the tokamak TEXTOR-DED in 2003, several parameter studies with this code-package have been carried out. Key findings of these first modeling campaigns are reported here: the recycling neutrals lead to a local flow reversal of the charged plasma particles in front of the divertor surface at least partially due to over-charging of individual flux bundles by recycling neutrals. The perturbation field, the total recycling flux and the anomalous perpendicular transport parameters for particles, momentum and energy were varied. In this task, the variation of the perturbation field showed, that with increasing perturbation field, the plasma density is decreased over the whole domain. The electron and ion temperature profiles are mainly affected by the perturbation field in a poloidal modulation, which correlates with the island structure of the Poincaré-Plots. Finally, a simple effective radial heat transport analysis was carried out, to study the influence of the perturbation field on the radial heat transport. This has shown, as expected, that inside the islands the radial temperature profile is flattened, and on the last 2 cm in front of the divertor surface, the radial heat flux is increased due to the bending of the field lines.