

## **Comparison of the magnetic topologies of Tore Supra ED and TEXTOR DED and their influence on density regimes.**

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The variation of the electron temperature ( $T_e$ ) in front of and the parallel ion flux ( $J_{||}$ ) towards the neutralizer plates as a function of the averaged central density ( $\langle n_e \rangle$ ) have been studied using measurements with embedded Langmuir probes for both the Ergodic Divertor (ED) on Tore Supra and the Dynamic Ergodic Divertor (DED) on TEXTOR. For all the probe locations on the ED target plates, similar behaviour of the plasma parameters was observed and density regimes comparable to those reported for the axisymmetric divertor have been identified. On the other hand, for analogous measurements made at the DED, clear determination of linear and high recycling regimes was only possible for probes located inside strike zones and for discharges in the DED 3/1 mode. In order to explain the reasons for this dissimilarity through comparison of the different magnetic topologies of ED and DED, the magnetic field line mapping code developed specifically for the DED was adapted to a model of the specific ED geometry. One particular aspect that is investigated is the possible difference in dependency on beta poloidal of the magnetic topologies of ED and DED, as variations of  $\langle n_e \rangle$  on Tore Supra and TEXTOR cause non-negligible changes on beta poloidal and have been shown to result in strong variations of the detailed magnetic topology and thus of the behaviour of  $T_e$  and  $J_{||}$  in front of the various probe locations on TEXTOR.