

Abstract Submitted
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Spatio-temporal correlations in edge tokamak plasma J. HORACEK, Institute of Plasma Physics AS CR, A.H. NIELSEN, O.E. GARCIA, Risoe National Laboratory, Denmark, R.A. PITTS, CRPP EPFL Lausanne Switzerland, CRPP EPFL LAUSANNE SWITZERLAND COLLABORATION — Plasma fluctuations in the scrape-off layer (SOL) of tokamak TCV have been investigated by means of electrostatic probes, and compared directly with two-dimensional fluid interchange turbulence simulation ESEL. This model permits electron density, temperature and vorticity (potential) to evolve freely at the outside midplane region of a tokamak. The viscosity and parallel particle loss are based on the neoclassical Pfirsch-Schluter diffusion and classical parallel transport, respectively. In this contribution we focus on comparing the time-scales, spatial scales of fast fluctuations of density and temperature, using the unique tunnel probe capable of fast (1 MHz) electron temperature measurement. Significant difference in statistical behaviour of both density and temperature fluctuations between the tokamak top and the low-field side location has been found experimentally on the small tokamak CASTOR, whilst still the statistical characteristics correspond well at the low-field side with the ESEL simulations. This further confirms dominance of the interchange turbulence at the low-field side, where the observed bursty events are generally attributed to the radial motion of blob-like structures through the SOL.

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