

Abstract Submitted  
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**Fluctuations, turbulence and related transport in the TORPEX magnetised toroidal plasma** AMBROGIO FASOLI, AHMED DIALLO, IVO FURNO, DAVOUD IRAJI, BENOIT LABIT, GENNADY PLYUSHCHEV, FRANCESCA POLI, PAOLO RICCI, CHRISTIAN TEILER, CRPP-EPFL, Lausanne CH-1015, Switzerland, STEFAN MULLER, UCSD, CA92093, USA, MARIO PODESTA', UCI, CA92697, USA — Progress in understanding fluctuations, turbulence and related transport in magnetized plasmas is achieved in TORPEX via high-resolution measurements of plasma parameters and wave fields throughout the plasma cross-section. Electrostatic drift-interchange instabilities are characterized in terms of dispersion relation, driving mechanisms and development into turbulence. Measurements of density fluctuation time series across the plasma cross-section in a variety of plasma conditions reveal universal aspects such as a quadratic relation between skewness and kurtosis. Full spatio-temporal imaging of the electrostatic fluctuations is undertaken, using a multiple probe array or via conditional sampling of data obtained from movable probes. Blobs are observed to carry plasma from the core to the plasma edge. The blob generation and ejection are related to the a strongly sheared ExB flow. The blob effect on cross-field transport is investigated in details. Future research lines, such as active control of drift-interchange spectra using tunable antennas, optical turbulence imaging, and the study of the interaction of suprathermal ions with drift-interchange turbulence, will be discussed.

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