

Abstract Submitted
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Experimental studies of particle transport in the TORPEX toroidal plasma.¹ M. PODESTA', A. DIALLO, A. FASOLI, I. FURNO, B. LABIT, S.H. MUELLER, G. PLYUSHCHEV, F.M. POLI, CRPP-EPFL — TORPEX is a toroidal device where plasmas produced by microwaves are embedded in a helical magnetic field. It is mainly dedicated to basic plasma physics studies on instabilities and transport. In this type of devices, the plasma is primarily lost along the open field lines. Nevertheless, particle fluxes across the magnetic field are clearly measurable using different, complementary techniques. The local particle flux can be estimated over most of the cross-section from the plasma response to a modulation of the injected microwave power, and quantified on the basis of a diffusive-convective model. The fraction of the total particle flux caused by plasma instabilities, identified as drift-interchange modes, is also measured and related to the observed spectral features. The results are compared with the transport associated with macroscopic fluctuation structures, reconstructed from a 2D imaging of the spatio-temporal behavior of the density fluctuations.

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