

Abstract Submitted
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Review and perspectives of electrostatic turbulence and transport studies in the basic plasma physics device TORPEX¹ FABIO AVINO, ALEXANDRE BOVET, AMBROGIO FASOLI, IVO FURNO, KYLE GUSTAFSON, JOAQUIM LOIZU, PAOLO RICCI, CHRISTIAN THEILER, CRPP-EPFL — TORPEX is a basic plasma physics toroidal device located at the CRPP-EPFL in Lausanne. In TORPEX, a vertical magnetic field superposed on a toroidal field creates helicoidal field lines with both ends terminating on the torus vessel. We review recent advances in the understanding and control of electrostatic interchange turbulence, associated structures and their effect on suprathermal ions. These advances are obtained using high-resolution diagnostics of plasma parameters and wave fields throughout the whole device cross-section, fluid models and numerical simulations. Furthermore, we discuss future developments including the possibility of generating closed field line configurations with rotational transform using an internal toroidal wire carrying a current. This system will also allow the study of innovative fusion-relevant configurations, such as the snowflake divertor.

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