

Abstract Submitted  
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**Current density filaments measured by electrostatic, magnetic and optical diagnostics in RFX-mod** N. VIANELLO, M. SPOLAORE, M. AGOSTINI, V. ANTONI, R. CAVAZZANA, E. MARTINES, G. SERIANNI, P. SCARIN, E. SPADA, M. ZUIN, Consorzio RFX, Associazione Euratom-ENEA sulla Fusione, Corso Stati Uniti 4,35127 Padova, Italy — Edge turbulence is ubiquitous in fusion devices and characterized by the formation of coherent structures which are believed to play a relevant role in driving particle losses. These structures have been observed also in the edge region of the RFX-mod Reversed Field Pinch device. In order to gain insight into their origin and features an original probe system has been used measuring both magnetic and electrostatic fluctuations simultaneously and on the same location with a high time resolution. This insertable probe head allows the direct measurements of several plasma parameters including local vorticity patterns and current density fluctuations. An array of toroidally distributed sensors allows following the structures along the main flow direction. It is found that in the cross-field plane bursts correspond to pressure structures and are related to current density filaments mainly oriented along the magnetic field. These results are compared with those provided by the measured relationship between structures on HeI emitted radiation observed by the Gas Puffing Imaging system and magnetic fluctuations. The presence and features of the current density filaments are assessed at different plasma current regimes.

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