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Plasma Flows in the RFX-mod Reversed Field Pinch BARBARA ZANIOL, LORELLA CARRARO, ERICA GAZZA, MARIA ESTER PUIATTI, PAOLO SCARIN, MARCO SERTOLI, MARCO VALISA, Consorzio RFX, Euratom-ENEA Association, Corso Stati Uniti 4, 35127 - Padova Italy —
Plasma rotation measurements are needed for the determination of radial electric field Er. This is a well known main character in tokamaks and reversed field pinches (RFPs) achieving improved confinement regimes. In this work passive spectroscopic measurements along multiple integrated poloidal and toroidal lines of sight in several experimental RFX-mod scenarios are presented. Due to the magnetic configuration of RFPs, toroidal and poloidal flow components have the same magnitude, and the latter cannot be neglected. The main objective of our analysis is studying the separate role of m=0 and m=1 magnetic perturbations in modifying the carbon flow pattern, and the radial electric field. We have already proved the presence of an edge flow opposite to the core co-current flow, that reverses its direction in presence of externally induced radial magnetic perturbations, and we have also related this behavior to a reversal of the radial electric field. The analysis is complemented by the comparison with the local evaluations of the flow as measured by the edge Gas Puffing Imaging (GPI) diagnostic.

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