

Abstract Submitted
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Relation between edge dynamics and magnetic topology in RFX-mod GIANLUCA DE MASI, BARBARA MOMO, MATTEO AGOSTINI, FULVIO AURIEMMA, ROBERTO CAVAZZANA, ALESSANDRO FASSINA, LIONELLO MARRELLI, EMILIO MARTINES, STEFANO MUNARETTO, PAOLO PIOVESAN, GIANLUCA SPIZZO, NICOLA VIANELLO, Consorzio RFX — The spontaneous transition to the Quasi Single Helicity states, observed in the RFX-mod Reversed Field Pinch plasma at high plasma current, has been favoured by the full exploitation of its advanced feedback control system. The plasma-wall interaction in these states appears to be regulated by the peculiar magnetic topology, in which one single dominant tearing mode ($m=1$, $n=7$) imposes a rotating helical pattern to the whole plasma. This has also a direct effect on the $m=0$ islands, arising at the edge due to the presence of a $q=0$ surface, that display a similar $n=7$ periodicity and keep the more internal confined plasma away from the wall. In this contribution we study the relation between edge topology and global plasma parameters with special attention to the role of the $m=0$ islands using a large set of edge diagnostic systems. In particular, we consider an active approach to the edge topology modification, by applying on the $m=0$, $n=7$ harmonic a non-zero reference amplitude through the feedback control system.

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