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Characterization of particle confinement properties in RFX-mod at high Ip FULVIO AURIEMMA, MATTEO AGOSTINI, PAOLO FRANZ, RITA LORENZINI, PAOLO INNOCENTE, PAOLO SCARIN, Consorzio RFX, Associazione EURATOM-ENEA sulla Fusione 35127 Padova, Italy — A wide range of plasma density has been explored in order to study the particle confinement properties of RFX-mod plasma at Ip $>$ 1MA. At low density ($n/n_G < 0.25$) the MHD spectrum peaks and 1 mode prevails against the others leading to the SHAx state. The PWI results distorted according to the peculiar 3D magnetic topology of the plasma. A particular effort has been devoted to its reconstruction in order to describe the asymmetries of the particle influx, as highlighted by the H_α emission distribution. Exploiting such description of the particle influx, transport analysis has been carried out with the ASTRA code, comparing different densities and equilibria. At low density, when the SHAx state is achieved, the core diffusivity results one order of magnitude lower than the non-SHAx configuration, whereas large particle transport is still present at the edge. At higher plasma density a better global particle confinement is found, thanks to the transport reduction of a factor 5 at the edge. The relative role on the particle transport of the magnetic diffusion, acting in the plasma core, and of the electrostatic turbulence, localized in the edge region, will be discussed.

Fulvio Auriemma
Consorzio RFX, Associazione EURATOM-ENEA
sulla Fusione 35127 Padova, Italy

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