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Progresses in resonant modes control in RFX-mod LIONELLO MARRELLI, FEDERICA BONOMO, PAOLO PIOVESAN, LIDIA PIRON, GIANLUCA SPIZZO, PAOLO ZANCA, BARBARA ZANIOL, Consorzio RFX-EURATOM ENEA Association, Corso Stati Uniti, 4- 35127-Padova, Italy — The RFX-mod device is equipped with a sophisticated active feedback system which can produce non axisimmetric magnetic field aimed at controlling both MHD modes and reducing error fields. Due to its flexibility, the system can deal simultaneously with multiple harmonics. A proper tuning of the feedback laws on resonant $m = 1$ modes allowed to put them into rotation and to reduce edge values of the radial fields, allowing to explore the high current regime ($I_p \leq 1.8$MA). A recently developed model of the non-linear dynamics of resonant modes (also named Tearing Modes) has been used to try to further improve the feedback law. The simulated dependence of the edge radial field associated to Tearing harmonics has been compared to the results of a PID parameter scan campaign at $0.8 \div 1.1$ MA, confirming the presence of a minimum value for the edge radial field for optimal PID parameters. Statistical analysis of two important inputs of the code, namely $m = 0$ modes phase relations and plasma flow velocity, as measured by passive spectroscopy of intrinsic impurities, will also be presented.

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