

Abstract Submitted  
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**Development of a Reliable Operational Scenario for High Current Operation in RFX-mod** R. CAVAZZANA, G. MARCHIORI, L. NOVELLO, P. PIOVESAN, L. PIRON, A. SOPPELSA, A. ZAMENGO, L. ZANOTTO, Consorzio RFX, Associazione Euratom-ENEA - Padova, Italy, RFX-MOD TEAM — The achievement of plasmas with current values close to the maximum design point of 2 MA for the operation of RFX-mod Reversed Field Pinch (RFP) involved acting on three key issues: the RFP start-up method, the MHD equilibrium control and the plasma-wall interaction mitigation. The most effective start-up scheme for high current operation consisted in ramping-up the plasma current in RFP configuration, with an initial weak toroidal bias field (less than 0.1 T). The additional poloidal flux required has been obtained by doubling the flat-top poloidal power supplies, using part of the former toroidal ones. Mitigation of the plasma wall interaction has been achieved either reducing the content of Hydrogen trapped into the graphite first-wall and avoiding wall locking of the tearing modes, by means of improved error field correction and phase gain tuning on the involved modes. The control of MHD equilibrium has been obtained with new real-time algorithms, implemented for the control of reversal parameter  $F$  and the flat-top plasma current. All such actions allowed the access and first experiments at regimes previously not accessible for RFP plasmas.

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