Abstract Submitted
for the DPP11 Meeting of
The American Physical Society

Resistive Wall Modes Identification and Control in RFX-mod low qedge tokamak discharges MATTEO BARUZZO, TOMMASO BOLZONELLA, ROBERTO CAVAZZANA, GIUSEPPE MARCHIORI, LIONELLO MARRELLI, PIERO MARTIN, ROBERTO PACCAGNELLA, PAOLO PIOVESAN, LIDIA PIRON, ANTON SOPPELSA, PAOLO ZANCA, Consorzio RFX, YONGKYOON IN, FAR-TECH, YUEQIANG LIU, CCFE, MICHIO OKABAYASHI, PPPL, MANABU TAKECHI, JAEA, FABIO VILLONE, CREATE — In this work the MHD stability of RFX mode tokamak discharges with q_{edge} <3 will be studied. The target plasma scenario is characterized by a plasma current 100kA<Ip<150kA, a Greenwald density fraction included between 0.5 and 1 and a minimum q_{edge}=1.7 value. The operation in this regime is limited by the onset of a slowly rotating m=2 n=1 kink mode, which eventually locks to the wall and induces a disruption. The mode growth rates have been characterized with regard to the main plasma parameters and have been compared with predictions by the linear MHD code MARS-F, and the 3D finite elements code CARMA, permitting a full Resistive Wall Mode identification. The stability of the mode in the vicinity of the unstable operational space has been studied using MHD spectroscopy on the (2/1) mode. A good discharge behaviour with q_{edge} <2 has been routinely obtained using the RFX-mod MHD active control system, which is capable of fully stabilizing the mode acting on the radial magnetic field at the plasma edge.

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Date submitted: 20 Jul 2011 Electronic form version 1.4