

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Feedback Control of (2,1) Mode in $q_{edge} \sim 2$ Tokamak Plasma in RFX-MOD PIERO MARTIN, ROBERTO CAVAZZANA, LIONELLO MARRELLI, MATTEO BARUZZO, TOMMASO BOLZONELLA, EMILIO MARTINES, ROBERTO PACCAGNELLA, PAOLO PIOVESAN, MATTEO ZUIN, Consorzio RFX - Associazione EURATOM-ENEA sulla fusione, Padova, Italy, YONGKYOON IN, FAR-Tech, Inc., MICHIO OKABAYASHI, PPPL, Princeton, NJ — RFX-mod is the largest reversed field pinch ($R=2$ m, $a=0.46$ m, plasma current up to 2 MA). Thanks to its great flexibility it can be operated as a 150 kA, 1 s pulse length tokamak. The real-time control system, based on 192 coils independently driven, is used therefore to actively control MHD stability also in such tokamak plasmas. Preliminary results on active control of a current-driven (2,1) mode in a ohmic discharge with ramping current, in presence of a resistive shell, will be presented. In these discharges q_{edge} ramps down to ~ 2 , when the (2,1) mode is destabilized and then feedback controlled. Feedback control allows for stable operation at $q_{edge} \sim 2$, which would be otherwise not possible. Future plans for an extended tokamak campaign in 2011, dedicated to MHD active control and to the interaction of external non axis-symmetric magnetic with the plasma will also be discussed.

Piero Martin
Consorzio RFX - Associazione EURATOM-ENEA
sulla fusione, Padova, Italy

Date submitted: 20 Jul 2010

Electronic form version 1.4