

Abstract Submitted  
for the DPP07 Meeting of  
The American Physical Society

**Preliminary Results from ULQ Experiments in RFX-mod R.**  
PIOVAN, S. CAPPELLO, L. ZANOTTO, D. TERRANOVA, M. ZUIN, F. AURIEMMA, P. SCARIN, Consorzio RFX — Plasma configurations with Ultra-Low safety factor, ULq, have been set up in RFX-mod, a RFP study oriented machine (R=2m, a=0.46m). The first tests have been carried out with the following parameters:  $I_p = 250 \div 500$  kA,  $q = 0.2 \div 0.6$ , pulse length up to 100 ms,  $I/N = 1 \div 5 \cdot 10^{-14}$  A m. Plasma current evolution exhibits a staircase-like behaviour, likewise in other previous experiments, with a natural tendency to sustain the configurations with discrete  $q$  values at the edge, which are near to the major rational numbers. The plasma current flat phases are preceded by the raise of very large single modes, having n,m numbers depending on the q-value at the edge: a large kink deformation of the plasma column, with strong interaction with the wall, is present during that time. The flat current phase is characterized by both low and high frequency MHD activity (modes  $m = 1$ ,  $n = 1 \div 20$ ) with very low amplitude, more than one order of magnitude lower than the corresponding RFP pulses in RFX-mod. Very low I/N pulses have been established, with density near or slightly over the Greenwald limit and a peaked profile, differently from the RFP configurations of RFX in which the high density produced always hollow profiles. We report the details of the ULq experimental results and comparison with RFP plasmas, together with the plan for future experiments with improved  $q$ -value and plasma control.

Susanna Cappello  
Consorzio RFX

Date submitted: 22 Jul 2007

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