Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Identification of the background plasma damping mechanisms of antenna-driven toroidal Alfven eigenmodes of medium n on JET THEODOROS PANIS, AMBROGIO FASOLI, DUCCIO TESTA, CRPP-EPFL, Lausanne, NICOLAS MELLET, CEA-Cadarache, SERGEI SHARAPOV, CCFE-Culham, JET-EFDA CONTRIBUTORS TEAM — In tokamak burning plasma experiments such as ITER, it is expected that Alfvén eigenmode (AE) instabilities of, typically, medium and high toroidal mode number n will be triggered by populations of energetic ions, such as α-particles. The stability of this specific class of AEs is studied experimentally in the Joint European Torus by observing the plasma response to antenna-driven frequency-sweeping perturbations at the plasma edge. During the 2008/9 experimental campaigns, the complete set of the new antennas was operated and medium-n AEs were excited under various plasma conditions. A big collection of damping rate measurements of, mainly, toroidal AEs (TAEs) has been obtained following the technical optimization of the diagnostic. A subset of these measurements are compared to different plasma models, as implemented in the codes LEMan and CASTOR, allowing the identification of the background plasma damping mechanisms that come into play.

Ambrogio Fasoli
CRPP-EPFL

Date submitted: 14 Jul 2010 Electronic form version 1.4