Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Damping Rate Measurements of Medium n Alfvén Eigenmodes in JET[1] ALEXANDER KLEIN, MIT, DUCCIO TESTA, CRPP, Association EURATOM-EPFL, JOSEPH SNIPES, MIT, AMBROGIO FASOLI, CRPP, Association EURATOM-EPFL, HERVÉ CARFANTAN, Laboratoire Astrophysique de Toulouse , JET-EFDA CONTRIBUTORS TEAM — Alfvén Eigenmodes (AE's) with mode numbers $5 < n < 20$ are expected to be unstable in burning tokamaks and may lead to loss of fast particle confinement. The active MHD spectroscopy program at JET has already provided a wealth of information about low n ($n \leq 2$) AE's in the past decade, but a recently installed array of four antennas is capable of driving higher mode numbered ($n < 100$, $30 < f < 350$ kHz) perturbations. In the latest JET campaign, the damping rates for several types of AE's were measured parasitically in a wide range of tokamak scenarios. We review the active MHD diagnostic and present the first measurements of medium-n AE stability on JET, then describe future plans for the active MHD spectroscopy project. The data analysis involves a novel method for resolving multiple AE's that exist at identical frequencies, which uses techniques based on the SparSpec code.

[1]This work is supported by US DOE Grant DEFG02-99ER54563.

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Date submitted: 23 Aug 2007 Electronic form version 1.4