Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Active MHD Spectroscopy measurements in the low torque ITER Baseline Scenario in DIII-D*[1] F. TURCO, J.M. HANSON, G.A. NAVRATIL, Columbia University, C. PAZ-SOLDAN, A. TURNBULL, W. SOLOMON, General Atomics — The first measurements of active MHD spectroscopy in ITER Baseline Scenario plasmas ($q95 = 3, betaN = 1.9, T = 0 - 1nm$) in DIII-D show the approach to an instability at low torque, where most of the discharges are terminated by a disrupting $m = 2/n = 1$ tearing instability. The amplitude of the response increases rapidly as rotation slows, and the phase measurements show an abrupt change by $20 - 25^{\circ}$ in the same rotation range, which has been shown to be typical of crossing an ideal stability limit [1]. This technique could represent a potential warning system for impending disruptions. Modelling with the MARS-K code [2] shows that the inclusion of drift kinetic effects and collisionality is crucial to obtain quantitative agreement in the amplitude results at moderate to high rotation, while resistivity is necessary to observe a partial increase in the plasma response at low rotation. However the code does not quantitatively predict the rise in amplitude and change in phase at lowest rotation investigation of the potential causes of this discrepancy will be described.

[1] M.J. Lanctot, Phys. Plasmas 17, 0307001 (2010); [2] Y. Liu, Phys. Plasmas 15, 092505 (2008)

[1]Supported by the US DOE under DE-FG02-04ER54761 and DE-FC02

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Date submitted: 04 Oct 2016 Electronic form version 1.4