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Category Number and Subject: 5.6.2. DIII-D Tokamak

Theory Experiment

Single-row Versus Double-row RMP ELM Suppression in DIII-D,* J.S. deGrassie, T.E. Evans, P.B. Snyder, *GA*; M.E. Fenstermacher, M.J. Lanctot, *LLNL*; R.A. Moyer, D.M. Orlov, *UCSD*; R. Nazikian, W.M. Solomon, *PPPL* – RMP ELM suppression in DIII-D is consistent with the pedestal conditions being rendered stable to ELMs [1] by the application of resonant static magnetic perturbations. The detailed physical mechanism causing this pedestal relaxation is being pursued experimentally and theoretically. It is necessary to understand the relation between the RMP mode spectrum and attaining suppression in order to design efficient RMP coils for future devices. In DIII-D ELM suppression conditions are being compared using the standard 2-row even-parity set of I-coils and a single row of I-coils, with the latter having a broader monopole-like spectrum compared with the former. In particular, we have achieved suppression in the ITER baseline shape and I/aB with a single row, a condition not yet achieved with 2-row operation. We will discuss the possible differences in single and double-row RMP suppression in relation to resonant and non-resonant components of the applied field.

[1] P.B. Snyder, et al., *Nucl. Fusion* **47**, 961 (2007).

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