

**Abstract Submitted for the 53rd Annual Meeting  
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Category Number and Subject:

Theory      Experiment

**Effect of Resonant Magnetic Perturbations on Fluctuations and Transport on DIII-D,\*** T.L. Rhodes, L. Zeng, E.J. Doyle, G. Wang, W.A. Peebles, L. Schmitz, J.C. Hillesheim, *UCLA*; S. Mordijck, *The College of William & Mary*; T.E. Evans, *GA*; G.R. McKee, Z. Yan, *U. Wisc.* – Resonant magnetic perturbations (RMPs) have been shown to suppress ELM activity during H-mode and so is a very attractive (but not well understood) technology for ITER and future burning plasmas. In a series of experiments conducted on DIII-D, RMPs are found to significantly affect fluctuations, flow, transport, and resulting profiles on the DIII-D tokamak. Intermediate- $k$  fluctuation levels ( $1 \leq k\rho_s \leq 2$ , measured by Doppler backscattering) and poloidal flow can increase in magnitude ( $\tilde{n}/n$  increases of 20%-30% or larger) in the pedestal region during RMP. Linear growth rates from the trapped-gyro-Landau-fluid TGLF code indicate increased growth rates in this range of wavenumbers consistent with measurements. In addition, correlation electron cyclotron measurements of temperature fluctuations show a broadband increase during ELM suppressed RMP operation consistent with increased thermal transport.

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