Abstract Submitted
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Particle transport measurements on DIII-D using perturbative techniques[1] E.J. DOYLE, L. ZENG, T.L. RHODES, L. SCHMITZ, W.A. PEEBLES, U. California-Los Angeles, T.E. EVANS, General Atomics, S. MORDIJCK, The College of William and Mary — Perturbative particle transport measurements have been initiated on DIII-D and data obtained under a wide variety of operating conditions, including: L-mode, ELMing and ELM-free H-mode, QH-mode, and L- and H-mode plasmas with resonant magnetic perturbations (RMPs). Particle diffusivities (D) and pinch velocities (V) are determined from high resolution profile reflectometry data using perturbative techniques (e.g. modulated gas puffing), employing a simple analytic model [1]. Results show a considerable variation in D and V with operating regime, e.g. D is in general higher in L-mode than in H-mode, while V is more negative (inward) in H-mode than L-mode. Using these techniques we have obtained the first direct measurements to confirm that D increases and the magnitude of V is reduced but still inward during $n = 3$ RMP application, in both L- and H-mode plasmas.

[1] H. Takenaga, et al., Plasma Phys. Control Fusion **40**, 183 (1998).

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