

Abstract Submitted  
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**Comparison of impurity transport in Alcator C-Mod with fluid models of drift wave turbulence**<sup>1</sup> W.L. ROWAN, I.O. BESPAMYATNOV, X. FU, K.W. GENTLE, W. HORTON, K.T. LIAO, Institute for Fusion Studies, The University of Texas at Austin, S. FUTATANI, France-Japan Magnetic Fusion Laboratory, CNRS, C.L. FIORE, MIT-PSFC — Using a new theory, we investigate the influence of the impurity density and impurity density gradient on turbulent particle transport. Heavy impurities (argon is the example here) appear to have the strongest influence while light impurities (boron, for example) may simply transport as passive tracers when in the presence of a significant quantity of heavy impurity. The theory describes how collisional and trapped electron drift wave dynamics are modified by impurities and how the turbulence transports the impurities in a background hydrogenic plasma. The collisional regime is described using a Hasegawa-Wakatani system of equations. The trapped electron mode is modeled with a generalized form of the Terry-Horton system of equations. Measured positive and negative impurity gradients can be predicted, but new experiments will be required to verify the implications of the theory.

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