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Simulation of turbulent impurity transport in Alcator C-Mod<sup>1</sup> W.L. ROWAN, I.O. BESPAMYATNOV, K.W. GENTLE, K.T. LIAO, Fusion Research Center, University of Texas at Austin, W. HORTON, X. FU, Institute for Fusion Studies, University of Texas at Austin, C.L. FIORE, MIT-PSFC, S. BENKADDA, S. FUTATANI, France-Japan Magnetic Fusion Laboratory LIA 336 CNRS, X. GARBET, CEA, Cadarache, France — Theory/experiment comparisons are presented for impurity transport in H-mode and ITB discharges in Alcator C-Mod. The impurity profiles are hollow in H-mode and peaked for ITB. This range of profiles is a stringent test for theory and represents cases with significant impact on tokamak performance and particular interest for ITER. The data was selected to optimize the comparison: only one impurity charge state must be analyzed and simulated. H-mode is modeled with a new, generalized Hasegawa-Wakatani model that describes on equal footing the fueling ion, the impurity, and the electrons. The ITB is simulated using a 3-D global fluid code which includes two ion species and electrons which are introduced into the plasma with a fixed source. Transport is due to coupled ITG and TEM modes.

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