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Transport Simulations of DIII-D Discharges with Impurity Injection¹ J. MANDREKAS, W. M. STACEY, Georgia Institute of Technology, M. MURAKAMI, Oak Ridge National Laboratory — Several recent DIII-D discharges with external impurity injection into L-mode plasmas are analyzed with a coupled main plasma and multi-charge state $1\frac{1}{2}$ -D impurity transport code. These discharges exhibit various degrees of confinement improvement, which has been attributed to the synergistic effects of impurity induced enhancement of the $E \times B$ shearing rate and reduction of the drift wave turbulence growth rate ². Impurity transport is described by empirical and neoclassical transport models. Both the standard neoclassical theory as well as an enhanced theory which takes into account the effects of external momentum input and radial momentum transport ³ have been considered.

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²M. Murakami, et. al., Nucl. Fusion **41** (2001) 317.

³W.M. Stacey, Phys. Plasmas **8** (2001) 158.

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