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[ ] Theory [X] Experiment

Development of an IMFIT Particle Transport Module and Modeling of Tokamak Particle Transport,* C. Pan, *ASIPP*, L.L. Lao, M.S. Chu, H.E. St. John, R. Prater, *GA*, G.Q. Li, Q. Ren, W. Guo, *ASIPP*, J.M. Park, *ORNL*, W.M. Stacey, *Georgia Tech* – A predictive understanding of particle transport is essential to present tokamak and future burning plasma experiments. It will shed light on plasma fueling, impurity control, and removal of helium ash. Particle flux can be deduced from experimental measurements using the particle balance equation and the ONETWO transport code. To improve the analysis, the GTNEUT neutral transport code is being coupled to ONETWO. Neutral source from the surrounding wall can contribute significantly to the particle balance, although it is less well-determined. One way to proceed is to vary the neutral particle flux at the boundary to match the measured line-average density. To facilitate the modeling, a particle transport module is being developed for integration into the IMFIT tool. IMFIT provides a convenient platform for interactions among particle transport physics codes and testing of particle transport theory against experimental observations. Details will be presented.

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