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Theory Experiment

Interpretive and Predictive Transport Analysis in DIII-D ITER Baseline and QH-Mode Discharges,* B.A. Grierson, R.V. Budny, W.M. Solomon, X. Yuan *PPPL*; J. Candy, T.C. Luce, C.C. Petty, *General Atomics* – Development of a set of predictive modeling tools requires models to be continually benchmarked against experimental measurements. In order to support a predictive capability for future fusion reactors the accuracy of predictive modeling tools must be verified and validated. In this work, selected DIII-D discharges from inductive ITER baseline and QH-mode scenarios are investigated with interpretive analysis and predictive transport models. TRANSP is used in an interpretive mode to determine heating sources and transport fluxes during steady phases of the discharges. TGYRO-TGLF is used to examine steady-state transport solutions whereby profiles are calculated based on flux-matching gradients. Time-dependent predictive modeling will be done with PTRANSP, using the PT_SOLVER solution with the TGLF transport model.

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