Abstract Submitted
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Benchmarking FASTRAN vs TSC in Integrated ITER Modeling Simulations[1] S.J. DIEM, D.B. BATCHELOR, W.R. ELWASIF, M. MURAKAMI, J.M. PARK, A.C. SONTAG, ORNL, F. POLI, PPPL — ITER steady state scenarios are examined using the Integrated Plasma Simulator (IPS) framework, which finds a self-consistent scenario of heating and current drive, MHD equilibrium, and transport. Both the FASTRAN solver and Tokamak Simulation Code (TSC) have been implemented in IPS to integrate a variety of models for transport, heating, CD and stability. The objective of this exercise is to benchmark the TSC/IPS time-dependent simulation with the FASTRAN/IPS steady-state solution procedure. The benchmark case is a fully non-inductive ITER steady-state scenario. Both simulations include ion cyclotron resonance heating, modeled using TORIC, and neutral beam heating, modeled using NUBEAM. The transport is modeled using GLF23 for both codes. Electron cyclotron heating was modeled using GENRAY. The results at several times of a time-evolving TSC simulation will be used as an initial guess for FASTRAN runs to compare the FASTRAN steady-state solutions to the time evolving TSC simulation.

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