Validation of thermal transport model used for ITER startup scenario predictions with DIII-D experimental data

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Abstract

Control simulations of ITER startup using 2D free-boundary equilibrium and 1D transport codes rely on accurate predictions of the electron and ion temperature profiles that determine the electrical conductivity and pressure profiles during the current rise. We present results of validation studies that apply the transport model used by the ITER team to DIII-D discharge evolution and compare predictions with data from similarity experiments. Results presented here detail difficulties and sensitivities associated with the modeling of time-dependent current profile evolution required to asses performance of the poloical field coil system and controllers on ITER.

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