

Comparison of Transport Models With a Transport Profile Database

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Abstract

A fast transport modeling code is applied to the transport profile database recently assembled by the ITER Transport Modeling and Database Group. Five published transport models currently in use are tested against a subset of DIII-D, JET, and TFTR L- and H-mode discharges. The database provides little discrimination between the best-fitting and worst-fitting models. Allowing for the fact that given experimental boundary conditions are critical elements of the models, we show that the present one-dimensional transport models give only marginally better predictions of the ITER89P and ITER93H global scaling laws. The difficulty of distinguishing the relative gyroradius (ρ_*) scaling of transport models is discussed by focussing on the DIII-D dimensionally-similar discharge pairs. There is a considerable difference in how the models project to ignition in ITER.

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