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Comparison of Turbulent Transport Models and Transport Simulation of Internal Transport Barrier Formation MITSURU HONDA, ATSUSHI FUKUYAMA, Department of Nuclear Enginerring, Kyoto University — In order to predict the performance of ITER plasma, it is important to validate the existing theory-based turbulent transport models by systematicallycomparing them with the experimental observations. Taking experimental data from the ITPA profile database, we have carried out transport simulations with the CDBM, GLF23 and Weiland models by the one-dimensional diffusive transport code TASK/TR. The results are evaluated by the six figures of merit as specified in ITER Physics Basis[1]. From the simulation on 55 discharges, it is found that each model has unique dependence on devices and operation modes and the CDBM model gives the most satisfactory results. We have incorporated the dependence on the elongation on the CDBM model[2] and confirmed that the accuracy of the prediction is improved for H-mode discharges. Single-particle-species heat transport simulations have indicated that the CDBM model reproduces $T_{\rm i}$ profiles more accurately than $T_{\rm e}$ profiles. We will also show the results of the predictive simulations coupling TASK/TR and TASK/EQ, two-dimensional equilibrium code, for high performance plasmas with internal transport barriers like the high $\beta_{\rm p}$ and reversed shear plasmas. [1] ITER Physics Basis Expert Groups, Nucl. Fusion, **39**, 2175 (1999) [2] M. Yagi et al., J. Phys. Soc. Japan, **66**, 379 (1997)

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