

Abstract Submitted
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Simulation of heat transport in LHD plasmas using the integrated code: TASK3D¹ A. WAKASA, A. FUKUYAMA, S. MURAKAMI, Kyoto University, M. YOKOYAMA, M. SATO, S. TODA, H. FUNABA, R. SEKI, K. TANAKA, K. IDA, H. YAMADA, N. NAKAJIMA, National Institute for Fusion Science — An integrated transport simulation code for helical plasmas, TASK3D, has been developed and applied to the LHD plasmas. The neoclassical transport in LHD plasma is evaluated by the neoclassical transport database module, DGN/LHD, using a neural network technique. The radial electric field module, ER, which solves the differential equation of the radial electric field has been also developed. In this study, the behavior of the LHD plasmas is simulated with several anomalous transport models and the temperature profiles are compared with experimental observations. Reasonable agreements of the radial electric field profile between simulation results and the experimental ones are obtained by use of the ER module. It is found that the anomalous transport dominates in the electron heat transport, while the neoclassical transport plays a crucial role in the ion heat transport.

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