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Reverse trend in turbulent transport coefficient for H mode edge plasmas YONG XIAO, HUASHENG XIE, Institute of Fusion Theory and Simulation, Zhejiang University, ZHIHONG LIN, UC Irvine — It is generally accepted that the micro-scale turbulence leads to anomalous transport observed in tokamaks. We carry out gyrokinetic simulation using the GTC code to study the relationship between the turbulent transport and its pressure gradient drive. It is found in the weak gradient regime, the turbulent transport coefficient increases with the gradient drive, which is consistent with Dimits 2000 result. However, in strong gradient regime which corresponds to the edge profile for the H mode plasma, the turbulent transport shows a clear reverse trend, i.e., the turbulent transport coefficient decreases with the gradient drive increasing. This feature is found to be closely related to the reduction of radial correlation length in the strong gradient regime, which could be explained by the unconventional ballooning mode structures observed in the gyrokinetic simulations with strong gradients.

Yong Xiao
Institute of Fusion Theory and Simulation, Zhejiang University

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