Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Self-consistent computation of shear flow generation and energy transfer in plasma interchange turbulence[1] XUEYUN WANG, CHUANKUI SUN, AO ZHOU, BO LI, XIAOGANG WANG, Peking Univ, DARIN ERNST, Massachusetts Institute of Technology — A flux-driven two-fluid model based on drift-reduced Braginskii equations is studied to simulate shear flow generation and energy transfer in plasma interchange turbulence. We find that two regimes exist during the evolution of interchange turbulence. In the first regime, large-scale convective cells are formed and the mean E×B shear flow is low. Then the increased heat flux triggers a transition to the second regime. During the transition, the system responds with higher fluctuation level and the fluctuation-induced energy transfer is stronger. Finally a high mean E×B flow shear is generated in the second regime.

[1]Supported by the ITER-China Grant No. 2013GB112006 and the U.S. Department of Energy Contract No. DE-FC02-08ER54966.

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Date submitted: 22 Jul 2015 Electronic form version 1.4