

Abstract Submitted
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Role of stable eigenmodes in ETG-driven turbulence JUHYUNG KIM, PAUL W. TERRY, University of Wisconsin at Madison — We investigate the role of the stable eigenmodes in the electron-temperature-gradient driven (ETG) turbulence. The low-wavenumber stable eigenmodes are thought to play a role in the dissipation mechanism leading to the saturation of CTEM [1] and ITG [2] turbulence. Based on the ETG slab fluid model [3], the condition and parameter regime for the saturation by the stable mode are analytically explored through statistical closure theory. In the simulation, the evolution of heat flux and turbulent energy are traced with the correlation of the stable and unstable modes. Possible effect of the stable mode saturation on zonal flow and magnetic fluctuation will be discussed. In the future, we will extend the analysis to the nonlocal ETG fluid model and kinetic model.

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