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Role of stable eignmodes in ETG-driven turbulence[1] JUHYUNG KIM, PAUL T. TERRY, Dept. of Physics, Univ. Wisconsin at Madison — The role of stable eigenmodes in the saturation of plasma turbulence is investigated in the framework of the ETG fluid model. Previously, Kelvin-Helmholtz instability has been involved as a saturation mechanism, applying to the transition from the linear to nonlinear regime where the structure of linearly unstable modes breaks down. This saturation mechanism is investigated from the "energetic" point of view with the damped eigenmodes. The nonlinear energy transfer between the unstable and damped eigenmodes is traced in the simulations. It is observed that the energy of the linearly unstable modes is transferred to the damped eigenmodes at the corresponding wavelength at the time of the linear structure break-down. Additional details of energy balances among eigenmodes in the nonlinear state are presented for a 2D sheared slab geometry. Extension to 3D has also been developed and results will be given. The analysis of energetics that complement dynamical approaches, such as the analysis of phase mixing, will be considered and described.

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