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Regulation of ETG turbulence by TEM driven zonal flows YUUICHI ASAHI, Tokyo Institute of Technology, AKIHIRO ISHIZAWA, TOMOHIKO WATANABE, National Institute for Fusion Science, HIROAKI TSUTSUI, SHUNJI TSUJI-IIO, Tokyo Institute of Technology — Anomalous heat transport driven by electron temperature gradient (ETG) turbulence is investigated by means of gyrokinetic simulations. It is found that the ETG turbulence can be suppressed by zonal flows driven by trapped electron modes (TEMs). The TEMs appear in a statistically steady state of ETG turbulence and generate zonal flows, while its growth rate is much smaller than those of ETGs. The TEM-driven zonal flows with lower radial wave numbers are more strongly generated than those driven by ETG modes, because of the higher zonal flow response to a density source term. An ExB shearing rate of the TEM-driven zonal flows is strong enough to suppress the long-wavelength ETG modes which make the main contribution to the turbulent transport.

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