

CTEM Turbulence and Transport Dynamics

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The collisionless trapped electron mode (CTEM) turbulence and transport dynamics are studied in global gyrokinetic particle simulation with the GTC code and its improved capabilities in treating kinetic electrons. The nonlinear interactions underlying the saturation and transport processes are reflected in the characteristic time scales. Both kinetic and fluid time scales are systematically studied in our simulations. Comparative studies of time scales in CTEM with the ion temperature gradient mode (ITG) and the electron temperature gradient mode (ETG) turbulence could provide new insights to the underlying nonlinear physics and the essential information to improve the current turbulence models.