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Fast Chirping Event during Global Gyrokinetic Particle Simulations of the Toroidicity Induced Alfvén Eigenmode WENLU ZHANG, CHENXI ZHANG, University of Science and Technology of China, ZHIHONG LIN, University of California, Irvine — Fast chirping event is observed in the nonlinear large scale gyrokinetic particle simulations for the toroidicity induced Alfvén eigenmode (TAE) in the absence of external source and dissipation. It is found that the energetic particle drives the chirping through nonlinear kinetic effects while the nonlinear kinetic effect of thermal ions is the key to saturate the turbulence. Simulation result shows that the dynamical evolution of coherent structure in energetic particle phase space induces the TAE chirping.

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