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Gyrokinetic Particle Simulation of Kinetic Alfvén Wave Turbulence ONNIE LUK, XI CHENG, PETER PORAZIK[1], ZHIHONG LIN, University of California, Irvine — The previous studies of spectral cascade in Alfvénic turbulence clearly show signs of plasma heating, and there are several highly-debated explanations to this phenomenon. We have developed a nonlinear gyrokinetic particle simulation to study the perpendicular spectral cascade caused by Landau damping of kinetic Alfvén wave, which is one of those possible heating mechanisms. The current nonlinear gyrokinetic code includes scalar potential and vector potential. We will propose a new formulation that implements compressional magnetic perturbation into the existent code to form a complete, self-consistent nonlinear simulation.

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