

Abstract Submitted  
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**Nonlinear simulation of the whistler wave excited by the energetic particles** GE WANG, GUOYONG FU, Princeton Plasma Physics Laboratory — The energetic particle induced whistler waves are widely observed in the magnetosphere and fusion related devices. We report the nonlinear delta f- PIC simulation of the oblique whistler wave in the homogeneous background magnetic field, where the longitudinal electric field is observed to be important and the whistler wave deviates from the circular polarization. A nonlinear resonance plays an important role on the damping mechanics at the half electron cyclotron frequency, which helps to transfer the whistler wave energy into the thermal energy of background particles. We also explore the possibility of the frequency chirps when the cyclotron resonance and Landau resonance coexist, where the hole and clump generated in the phase space will provide a candidate for the whistler chorus in the magnetosphere.

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