Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Nonlinear dynamics of toroidal Alfvn eigenmodes in presence of tearing modes JIA ZHU, ZHIWEI MA, SHENG WANG, WEI ZHANG, Institute for Fusion Theory and Simulation, Zhejiang University — A new hybrid kinetic-MHD code CLT-K is developed to study nonlinear dynamics of n=1 toroidal Alfvn eigenmodes (TAEs) with the m/n=2/1 tearing mode. It is found that the n=1 TAE is first excited by isotropic energetic particles in the earlier stage and reaches the steady state due to wave-particle interaction. After the saturation of the n=1 TAE, the tearing mode intervenes and triggers the second growth of the mode. The modes goes into the second steady state due to multiple tearing mode-mode nonlinear coupling. Both wave-particle and wave-wave interactions are observed in our hybrid simulation.

Jia Zhu
Institute for Fusion Theory and Simulation, Zhejiang University

Date submitted: 14 Jul 2016 Electronic form version 1.4