

Abstract Submitted
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Micro-Instabilities of Tokamak Edge Pedestal WEIGANG WAN, SCOTT PARKER, YANG CHEN, University of Colorado - Boulder — We study micro turbulence of the tokamak edge pedestal with global and flux tube gyrokinetic particle simulations using the electromagnetic particle code GEM. In global simulations, three different sets of DIII-D H-mode experimental profiles are used and the simulation results exhibit quite similar characteristics. The dominant instabilities appear to be two kinds of modes with comparable linear growth rates: a low n , high frequency mode that propagates in the electron diamagnetic direction and a high n , low frequency mode that propagates in the ion direction. The global results of the high n mode agree with our flux tube simulations, which are well benchmarked against other codes in the same study, including GYRO, GTC and HD7. These results are important for the EPED model which is developed to predict the maximum height and width of the edge pedestal.

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