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Flux tube gyrokinetic simulations of the edge pedestal[1] SCOTT PARKER, WEIGANG WAN, YANG CHEN, University of Colorado — The linear instabilities of DIII-D H-mode pedestal are studied with gyrokinetic microturbulence simulations. The simulation code GEM is an electromagnetic δf code with global tokamak geometry in the form of Miller equilibrium. Local flux tube simulations are carried out for multiple positions of two DIII-D profiles: shot #98889 and shot #131997. Near the top of the pedestal, the instability is clearly ITG. The dominant instability of the pedestal appears at the steep gradient region, and it is identified as a low frequency mode mostly driven by electron temperature gradient. The mode propagates along the electron diamagnetic direction for low n and may propagate along the ion direction for high n. At some positions near the steep gradient region, an ion instability is found which shows some characteristics of kinetic ballooning mode (KBM). These results will be compared to the results of E. Wang et al. and D. Fulton et al. in the same session.

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