Abstract Submitted
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Gyrokinetic physics of L-H bifurcation in tokamak edge[1] C.S.
CHANG, S. KU, R. HAGER, R.M. CHURCHILL, Princeton Plasma Physics Laboratory, L. SCHMITZ, UCLA, THE SCIDAC HBPS TEAM TEAM, THE INTERNATIONAL XGC COLLABORATION COLLABORATION — We have expanded our previous gyrokinetic L-H bifurcation study [1, 2] in the edge gyrokinetic code XGC to include the isotope and size $(a/\rho_i))$ effects. The interplay between the turbulence modes, Reynolds stress, and the neoclassical ExB shearing rate will be discussed in relation to the isotope and a/i effects. Two different neoclassical effects will be included in the study: the X-point orbit loss effect and the radial plasma gradient effect. Influence on the enhanced $E \times B$ shearing rate by reduction in the neutral particle recycling rate will also be discussed. [1] C.S. Chang, S. Ku, G.R. Tynan, R. Hager et al., Phys. Rev. Lett. 118, 175001 (2017) [2] S. Ku, C. S. Chang, R. Hager, R. M. Churchill et al. Phys. Plasmas 25, 056107 (2018)

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