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Gyrokinetic linear stability analysis of NSTX L-mode plasmas[1]
KE HAN, Harbin University of Commerce, YANG REN, PPPL — NSTX offered unique opportunities in studying transport and turbulence with low aspect ratio, strong plasma shaping and strong E×B shear. NSTX L-mode plasmas have some favorable properties to facilitate the study of the relation between microturbulence and thermal transport: easier to obtain stationary profiles; easier to maintain MHD quiescence; no complications from edge transport barrier. Studies of NSTX RF/NBI-heated L-mode plasmas have provided new insight into the role of ion and electron-scale turbulence in driving anomalous transport [1,2]. Here we present linear stability analysis of some NSTX L-mode plasmas with GS2 gyrokinetic code. GS2 is an initial value gyrokinetic code which, in its linear mode, finds the fastest growing mode for a given pair of poloidal and radial wavenumbers. The linear simulations used local Miller equilibria and plasma parameters derived from measured experimental profiles with electromagnetic effects, electron and ion collisions and carbon impurity.
1. Y. Ren et al, Phys. Plasmas 22, (2015) 110701
2. W.X Wang et al., Phys. Plasmas 22, (2015) 102509

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Ke Han
Harbin University of Commerce

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