

## Gyrokinetic Simulation for Trapped Electron Mode during dominant electron heating in EAST Tokamak

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The mechanism and behavior of trapped electron mode (TEM) is very important to study confinement and transport during electron dominant heating in tokamak [1-3]. Simulations of TEM have been performed for some typical discharges with dominant electron heating by using gyro-kinetic simulation code GTC in EAST.

Calculation results show that the ratio of electron temperature to ion temperature  $T_e/T_i$  and logarithmic density gradient  $R/L_n$  are main factors of affecting on TEM linear growth rate  $\gamma$  rather than electron temperature  $T_e$  individually and normalized electron ion temperature logarithmic gradient  $R/L_{Te}$ . For safety factor  $q$  and magnetic shear  $\hat{s}$ , the dependences of TEM linear growth rate are complex with different  $\hat{s}$  value in the range of normalized minor radius  $\rho < 0.6$ . When  $\hat{s}$  is larger than 0.5 within  $\rho < 0.6$ ,  $\gamma$  increases with  $q$  while decreases with  $\hat{s}$ , which is consistent with theoretical analysis by the reduced model. However, when  $\hat{s}$  is smaller than 0.5 within  $\rho < 0.6$ , the opposite results are obtained, namely  $\gamma$  decreases with  $q$  while increases with  $\hat{s}$ .

References:

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