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# P5.1072 Short wavelength ion temperature gradient mode in tokamak plasmas with hollow density profile

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See full abstract here http://ocs.ciemat.es/EPS2019ABS/pdf/P5.1072.pdf

The short wavelength ion temperature gradient (SWITG) driven instability in tokamak plasmas with hollow density profiles is numerically investigated by using the gyrokinetic integral eigenmode equation. It is found that for the hollow density profile (negative R / L_n , ), there exists a critical ion temperature gradient R / L_Tic above which the SWITG mode is unstable, and that R / L_Tic for negative R / L_n is somewhat higher (lower) than that for positive R / L_n in the moderate (steep) density gradient region. In addition, the effect of temperature ratio on the SWITG mode has been investigated, indicating the SWITG mode is harder to be excited in hot ion plasmas than that in hot electron ones. Besides, two critical R / L_Ti (positive and negative) exist in hot electron plasmas. In particular, it is found that non-adiabatic electron response can stabilize the SWITG mode, which is different from the conventional long wavelength ITG mode. Moreover, when the nonadiabatic electron is considered, the eigenfunctions have broad structures along the magnetic field line and have oscillatory tails with a periodicity about π.

## pppo

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