

Linear Study of Electrostatic Ion Temperature Gradient Mode with Entropy Gradient Drift and Sheared Ion Flows

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Abstract : History of plasma reveals that continuous struggle of experimentalists and theorists are not fruitful for confinement up to now. It needs a change to bring the research through entropy. Approximately, all the quantities like number density, temperature, electrostatic potential, etc. are connected to entropy. Therefore, it is better to change the way of research. In ion temperature gradient mode with the help of Braginskii model, Boltzmannian electrons, effect of velocity shear is studied inculcating entropy in the magnetoplasma. New dispersion relation is derived for ion temperature gradient mode, and dependence on entropy gradient drift is seen. It is also seen velocity shear enhances the instability but in anomalous transport, its role is not seen significantly but entropy. This work will be helpful to the next step of tokamak and space plasmas.

Keywords : entropy, velocity shear, ion temperature gradient mode, drift

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