

INVESTIGATIONS ON TEMPERATURE FLUCTUATIONS AND ENERGY TRANSPORT IN ETG DOMINATED LARGE LABORATORY PLASMA

1. The paper discusses the heat flux generated due to finite temperature and potential fluctuations in ETG turbulence dominated plasma.
2. The role of temperature fluctuations in the measurement of conductive heat flux is envisaged. The phase angle between temperature and potential fluctuations shows good match with theoretical prediction obtained from ETG model equations.
3. The observed conductive heat flux ($n_o < \tilde{T}_e \tilde{v}_r >$) is positive in comparison to the observed particle flux in ETG turbulence condition of Large Volume Plasma Device. This observation is in good support of thermodynamically predication of positive change of entropy, as it ensures entropy production positive definite.
4. Further understanding of thermal conductivity obtained due to temperature fluctuations can support to understand the heat/energy loss in fusion devices due small scale fluctuations. This qualitative and quantitative measurement can use to scale the heat flux losses in most of Tokomak and study on control for such losses can helps to better confinement of energy in H-mode.