

## **EXCITATION OF ELECTRON TEMPERATURE GRADIENT (ETG) TURBULENCE AND INDUCED EFFECT ON PLASMA TRANSPORT IN LVPD [IAEA- CN- 123/45]**

1. The Electron Temperature Gradient (ETG) driven turbulence, which is considered as a major source of anomalous transport in fusion devices is still not properly understood. Except NSTX, no mention of direct measurement is known in any fusion device. Unambiguous, identification of ETG turbulence is successfully demonstrated in core region of target plasma of LVPD.
2. Confinement of plasma and control of plasma transport remains prevalent and poses significant challenge towards achieving fusion power. In LVPD, ETG turbulence induced convective and conductive heat fluxes are measured. The turbulent convective particle flux gets contribution from fluctuations of electrostatics and or electromagnetic nature whereas conductive particle flux develops due to temperature fluctuations.
3. Particle flux, both electrostatic and electromagnetic components are directed radially outward but the total heat is directed outward, thus supports thermodynamically, entropy production which is definitive positive.