

Seminar

Institute for Plasma Research

Title : Magnetic Shear Stabilized Multiple Instabilities In Convective Fluid Plasma Transport Scenario

Speaker : Dr. J. K. Atul

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Date : 27th July 2017 (Thursday)

Time : 03.30 PM

Venue : Committee Room 3, (New Building), IPR

Abstract :

Simultaneous existence of multi instabilities have been reported in various linear plasma devices [1-5], toroidal devices[6-8] as well as in astrophysical plasma systems [9-10]. The interplay between these participating modes and the associated wave particle interactions are significantly influenced by dominant drivers as well as free energy sources/sinks in the system. The hierarchy of these instabilities needs to be investigated with respect to plasma confinement scenario. In context with it, the influence of magnetic field shear is studied analytically for the EXB (and/or gravitational) and the current convective instabilities to visualize local and global fluid flow patterns in slab geometry configuration. Further, global mix-mode potential eigen-mode structure suggests mode localization off the rational surface due to equilibrium parallel dynamics. It turns out that the magnetic shear induced stabilization is more effective at the larger scale sizes while at the intermediate and small scale sizes, the growth is largely unaffected for these instabilities.

References-

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