# ASTRONOMY & ASTROPHYSICS DIVISION SEMINAR

**Title : Disks and Outflows around Massive YSOs**

**Speaker : Dr. Bhargav Vaidya, University of Leeds, Leeds, UK**

**Date : 03 . 01 . 2013 (Thursday)**

**Time : 16:00 Hrs**

**Venue : Room # 114 (Thaltej Campus)**

## ABSTRACT :

**The inner most regions around massive young stellar objects (YSO) are associated with complex interactions between numerous physical processes. Since the inner few Astronomical Units (AU) are tough to resolve observationally, a theoretical approach is important to create a qualitative picture for these regions around young high-mass stars. In this talk, I will focus on the interplay between important physical processes with respect to the dynamics of jets and inner accretion disks.**

**In particular, I will discuss the applicability of a thin accretion disk model with proper dust and gas opacity for a luminous young high-mass star. Further, I will examine the stability of such inner accretion disks and argue that they form an ideal launching base for long-lasting outflows. Outflows and jets are an ubiquitous phenomenon in young massive star forming regions. Observational surveys have suggested that the outflows become wider as the star grows in luminosity (thus mass) with time. In this talk, I will present results from magneto-hydrodynamic (MHD) simulations of wind launching in presence of radiative forces from the luminous star and the inner hot accretion disk. The major outcome of this work, is that the radiative force from the central star plays a dominating role in accelerating and de-collimating the magnetically launched jet, while the influence of the disk radiative force is rather small. This interplay of radiative and magnetic forces provides a physical insight to the trend in degree of collimation suggested by observations. Lastly, I will apply this model of MHD wind driving to study a particular outflow from a high mass proto-binary - Orion Source I.**

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**All are welcome.....**
**Bus will be available from PRL main campus at 15:30 Hrs**

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