



Physical Research Laboratory, Ahmedabad

Special Colloquium 15-01

Speaker: **Dr. M. S. Nandakumar**
Centro de Astrofisica da Universidade do Porto, Portugal.

Title: **“The formation of high mass stars”**

Time: **Thursday, 15 January 2015, 16.00 hrs.**

Venue: **K. R. Ramanathan Auditorium, PRL**

Abstract

Stars that are eight times the mass of Sun or more are defined as high-mass stars; they control the chemistry and dynamics of our Milkyway Galaxy. Four decades ago, theorist's put forth on the table a singular challenge in the physics of formation of such stars. For stars above 20-solarmasses, the outward force exerted by the star's radiation on the dusty circumstellar gas should be capable of reversing or halting accretion flows. Today we recognize additional factors such as fragmentation, ionized gas pressure, magnetic fields and stellar winds, as capable of posing further difficulties in collecting matter through accretion to form high-mass stars. Even so, we do know that such beastly stars exist both in our own and other Galaxies. Advancements in computing and numerical simulations together with the cutting-edge technology such as the 8-meter Very Large Telescope's and the Atacama Large Millimeter Array, is rapidly impacting the research on this subject opening new vistas. In this talk this classic problem in the view point of an observer confronting the theory with observations will be discussed.

The Speaker

After completing an M.Sc. from Mysore University, Dr. Nanda Kumar conducted his doctoral research on near-infrared studies of star formation at PRL, Ahmedabad. Subsequently he worked as a postdoctoral fellow at the National Observatory of Spain in Madrid and moved to Centro de Astrofisica da Universidade do Porto, Portugal in 2002 where he works as a researcher. Dr. Kumar's research aims to understand how stars of a wide-range in masses within stellar nurseries are born and interact. He uses a variety of observational methods encompassing the X-ray to radio parts of the electromagnetic spectrum and employed the world's cutting edge facilities such as the telescopes in Hawaii, Chile, and the latest Atacama Large Millimeter Array.

Dr. Kumar has published 50+ research papers and edited a book. He served as the Portuguese representative for the European Southern Observatory's user's committee during 2010-2013 and led as Principal Investigator of a Marie-Curie International Research Staff Exchange program between EU-India during 2009-2012. He is a co-investigator of several wide-field infrared astronomical surveys, serves as a referee for major astronomical journals and has presided on commissions of trust. He also actively participates in outreach, and his research has attracted attention from the press, radio and television.

Tea at 15:30 hrs.

ALL ARE WELCOME

