

## **ASTRONOMY SEMINAR**

August 23, 2011

Speaker : Yuvraj Harsha Sreedhar  
University of Vienna, Austria

Title : Understanding galaxies in clusters using  
modified Stroemgren photometry

Day, Date & Time : August 30, 2011 (Tuesday) at 1600 hrs

Venue : Lecture Theatre (AG-66)

(A. Gopakumar)

### ***Abstract***

*Galaxies in clusters face several physical processes that results in several changes to their gas content, metallicity, star formation rate and also transformation of the late-types to the quiescent S0 galaxies. Galaxies of a particular Hubble type in clusters are found to be significantly different from their field counterparts and this fact questions if galaxy formation and evolution is an effect of nature or nurture, is a long standing debate.*

*However, in order to decipher these evolutionary mysteries, we analyse the key parameters (age, metallicity, star formation rate) of these cluster galaxies upto  $z \sim 0.2$ .*

*For the accurate estimations of these key parameters, we have introduced a novel technique of the modified Stroemgren photometry that focuses on the galactic spectral regions specifically sensitive to particular parameter. The unique part of our photometric method is its ability to study galaxies at their rest-frame using the narrowband ( $\sim 200$  Angstrom) Stroemgren filter set. We are able to observe and fathom some of the galactic phenomena, namely, bimodality of the late- and the early-types, the downsizing of the massive, old galaxies to their younger, low mass counterparts and the colour evolution of the blue cluster galaxies to red, the so-called the Butcher-Oemler effect, from our short telescopic exposures of narrow band colours.*