

# ***ASTRONOMY SEMINAR***

July 20, 2011

Speaker : Dr. A. C. Pradhan  
Indian Institute of Astrophysics, Bangalore

Title : Gas and Dust in the Magellanic Clouds

Day, Date & Time : Tuesday, August 2, 2011 at 1600 hrs

Venue : Lecture Theatre (AG-66)

(A. Gopakumar)

## ***Abstract***

*The Magellanic Clouds (MCs) are nearby irregular dwarf galaxies where the gas and dust are known to be different from the Milky Way due to a low metallicity and high gas-to-dust ratio. We have presented the first observations of the far-ultraviolet (FUV: 1000 - 1150 Å) diffuse radiation in the Magellanic Clouds using serendipitous observations made with the Far Ultraviolet Spectroscopic Explorer (FUSE) and have shown that it is predominantly due to scattering of starlight from interstellar dust grains. We have estimated the contribution of FUV diffuse radiation to the total integrated flux in the MCs which is typically 5%-20% of the total at 1100 Å in the LMC and 34% to 44% in the SMC.*

*Five times ionized oxygen (O VI) is a tracer of hot gas in the interstellar medium (ISM) and is produced at the interface of hot ( $T > 10^6$  K) and warm ( $T \sim 10^4$  K) ionized gas. We have used high resolution absorption spectra obtained by FUSE for 70 lines of sight and presented a wide survey of O VI column density measurements for the LMC and its relation with other wavelengths. The column density varies from a minimum of  $\log N(\text{O VI}) = 13.72$  atoms  $\text{cm}^{-2}$  to a maximum value of  $\log N(\text{O VI}) = 14.57$  atoms  $\text{cm}^{-2}$ . We found a high abundance of O VI in both active (superbubbles) and inactive regions of the LMC.*