UM-DAE CENTRE FOR EXCELLENCE BASIC SCIENCES

Tuesday Colloquium

X-ray Sky through ASTROSAT's Eyes

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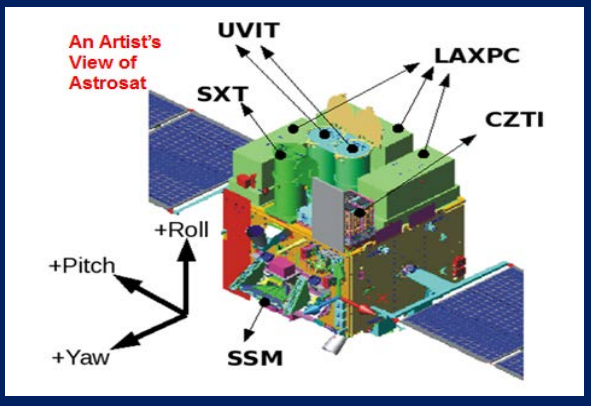
UM-DAE Center for Excellence in Basic Sciences



ASTROSAT , India's first satellite fully dedicated to astronomical studies was launched by PSLV on September 28,2015 in a circular 650 km , 6 degree inclination orbit. This mission is aimed at investigating high energy astrophysical phenomenon in X-ray and UV bands by a complement of 5 instruments. A unique feature of ASTROSAT is its capability of making multi-wavelength observations of cosmic sources covering 5 decades in energy by means of 3 X-ray and one UV instrument that are co-aligned. Details of the instruments and their main characteristics will be briefly presented. Principal science objectives of the ASTROSAT and unique capability of the mission will be highlighted in the talk. The main science goals include high time resolution and moderate spectral resolution observations of binary X-ray stars to probe the radiation processes near the inner regions of X-ray emitting neutron stars, black holes and white dwarfs. The physical parameters like temperature of the radiating plasma, abundances of elements , masses, spin periods , binary periods , magnetic field etc can be derived from the timing and spectral measurements. A class of galaxies known as Active Galactic Nuclei (AGNs) that harbour a massive black hole in their nuclei are powerful emitters of X-ray and UV photons. These will be studied from multi-wavelength observations to investigate physical conditions in their inner most regions. Preliminary results obtained with the LAXPC instrument and other X-ray and UV telescopes during calibration phase will be presented.

Venue: PF AG 14, Seminar Room, Prefabs

Date & Time: Tuesday, January 12, 2016 at 4 p.m.

All are welcome