

Astronomy & Astrophysics Division Seminar

Title : Enigma of Be/X-ray binary pulsars near the critical luminosity

Speaker : Mr. Prahlad Epili (PRL, Ahmedabad)

Date : 26.04.2018 (Thursday)

Time : 16:00 Hrs

Venue : Seminar Room # 113/114 (Thaltej Campus)

Abstract: Be/X-ray binaries (BeXBs) form a major sub-group of High mass X-ray binaries. In these systems, a neutron star (also a pulsar) co-rotates with a normal O or B-type star, and accretes a copious amount of matter from an extended disk. Accretion of the matter into the enormous gravitational field of neutron star gives rise to X-ray outbursts. Most of the high energy emission originates from a tiny region on the surface of the pulsar, known as accretion column. For the present study, two BeXB pulsars were probed using RXTE, Suzaku and NuSTAR observations to understand the column emission, its geometry, and spectral characteristics as a function of mass accretion rate. We have also seen that the luminosity dependence of pulse profiles and spectral parameters could explain the existence of different accretion regimes (above and below a specific or critical luminosity) in these sources. It also helped us in estimating the magnetic field of neutron star that was remained ambiguous due to non-detection of cyclotron line(s) in them. The findings from our work will be discussed in detail in this talk.
