Astronomy & Astrophysics Division Seminar

Title : Spectroscopic and photometric study of cool and evolved stars

Date : 03.05.2018 (Thursday)

Speaker : Supriyo Ghosh (S. N. Bose National Centre for Basic Sciences, Kolkata)

Time Venue : 16:00 Hrs

Seminar Room: # 113/114 (Thaltej Campus)

Abstract: The cool and evolved stars with low-to intermediate-mass (0.8–8 Msun) lie in the Red Giant Branch (RGB) and Asymptotic Giant Branch (AGB) in post-main-sequence evolutionary phase. Precise estimation of fundamental parameters of these stars is very important to characterize the stellar populations in the galactic and extra-galactic environments. The atmospheres of AGB stars are strongly affected by the radial pulsation, and therefore, the time-dependent spectroscopy provides the understanding of ongoing physical processes in its atmosphere. I shall talk about the precise estimation of fundamental parameters from dominant spectral features of K–M giants derived by constructing a new near-infrared (1.50–2.45 μm) spectral library of 72 K–M giants using TIRSPEC instrument on 2m HCT. We also derive new empirical correlations between fundamental parameters and 12CO bands strength and study their relative effectiveness for the estimation of parameters. The presentation focuses on the characterization of a red optical transient, which was found as an O-rich (C/O<1) Mira variable, and a poorly known OH/IR star, using long-term optical/near-infrared photometric and spectroscopic observations.