National Institute of Technology Rourkela

Progress Seminar

Seminar Title	: A Nonparametric Approach to Study of Variation of Stellar mass of Galaxies in GOODS-North Survey
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Venue	: MC224
Date and Time	: 20 Aug 2025 (4:00 PM)

Abstract : Multiwavelength observations covering wavelengths from the far ultraviolet (UV) to mid-infrared (IR) have facilitated detailed studies of galaxies and the physical processes that govern how they grow and evolve over time. Particularly, the UV light from galaxies plays a crucial role in studying their star-formation properties and hence, tracking their growth as well as for constraining the amount of dust in them. We combine the newly acquired UV imaging data of UVIT with HST imaging from UVCANDELS as well as the existing archival data to improve the photometric redshifts for over 1000 galaxies in 160 arcmin2 of GOODS-North. By comparing the parametric and nonparametric star fromation history (SFH) for the dwarf galaxies ($\le 10^{9.5}$ M?), we find the parametric SHF underestimates the stellar mass where as the nonparametric SFH models fit well with the observed data to give more accurate stellar mass. Furthermore, we measure the physical property of 275 galaxies within redshift $0.5 \le z \le 1.5$ by SED fitting method with nonparametric approach in PROSPECTOR. We see the stellar mass for the galaxies observed in FUV band is 0.57 dex less than that has been estimated earlier in longer wavelengths with higher star formation rate (SFR). Our findings highlight the value of UV photometry for improving SED modelling accuracy to better constrain the photometric redshift, stellar masses and star formation histories of galaxies.