

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

2 A & B, Raja S. C. Mullick Road, Jadavpur, Kolkata-32



OPEN THESIS COLLOQUIUM

Title : " STUDY OF THE SIGNAL OF DARK SECTOR FROM COSMOLOGY"
Speaker : Sk Jeesun ,School of Physical Sciences, IACS
Date : 27.02.2025
Time : 14:00 HRS (IST)
Venue : Physics Seminar Room (C-406), 3rd Floor, Centenary Building, IACS

Abstract : Relativistic degrees of freedom or N_{eff} is one of the crucial cosmological parameters and is sensitive to extra radiation energy density at the time of neutrino decoupling. The precise measurement of N_{eff} at the time of CMB formation by Planck 2018 can be used to understand fundamental interactions and to shed light on beyond standard model (BSM) scenarios. In this talk I will explain how N_{eff} can probe light (MeV) freeze in dark matter models which contain additional neutrino injection at late time. We propose a scenario where a long lived scalar decays to a dark matter and active neutrinos after BBN. Despite the feeble coupling of DM the parameter space can be probed via N_{eff} . I will also talk about how N_{eff} at CMB can constrain light Z' gauge boson realized in generic BSM $U(1)_X$ scenarios.

All are cordially invited to attend.