
Defence Seminar

Seminar Title	: Broadband Spectral study of Blazars
Speaker	: Jyotishree Hota (Rollno : 518ph1004)
Supervisor	: Prof. Ananta Charan Pradhan
Venue	: Committee Room (Hybrid mode)
Date and Time	: 28 Nov 2024 (11:00 AM)
Abstract	: Blazars are radio-loud active galactic nuclei (AGN), with their relativistic jet directed towards the observer. We have made multi-wavelength study of high-energy peaked blazar (HBL), Mkn 421 and extreme HBL (EHBL), 1ES 0229+200 using observations obtained with various instruments including AstroSat&minusLAXPC, SXT, UVIT, Swift&minusUVOT, XRT, Fermi-LAT, and MAGIC. A physically motivated model is required to understand the intrinsic curvature of the blazar spectrum and its evolution. We have developed the one-zone synchrotron and self-synchrotron Compton (SSC) emission models of blazar-jets, which incorporate various particle energy distributions such as (i) power law with &ximax model (ii) energy-dependent diffusion (EDD model), and (iii) energy dependent acceleration (EDA model). We found that all these models describe the spectra of Mkn 421, and 1ES 0229+200 although EDD and EDA models were marginally better. We have explored the correlations between the derived spectral parameters of various particle distribution models for both the sources and discussed their consistency and inconsistency with respect to the model assumptions. We have estimated the jet power using broken power law particle distribution for 1ES 0229+200 which is in the order of 10^{47} (10^{44}) erg/s for a minimum electron energy ~ 10 (10^4). A detail discussion about the blazar sources, multi-wavelength observations used to validate the models and important results obtained from model viz-viz observations will be presented.

Google Meet Link to the meeting: <https://meet.google.com/qsr-hzyq-npj>