Divyansh Tripathi

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RESEARCH INTEREST

- **High Energy Astrophysics**

1. Compact Object Evolution and Merger
2. Gamma Ray Bursts, Astrophysical Jets
3. Accretion Disk in astrophysical systems
4. Using Deep Learning to study Astrophysical Phenomenons

EDUCATION

BS-MS Dual Degree (Physics) CPI: = 8.23/10 (6th Sem) 2020 - 2025(expected)
Indian Institute of Science Education and Research (IISER) Bhopal Bhopal , India
Link to the full grade sheet

INTERNSHIPS AND PROJECTS

1. **Research Project (2022 -)**

   - **Topic: Long Term Evolution of Neutron Stars X-ray Binaries**
     Guide: Dr. Sudip Bhattacharyya (Department of Astronomy and Astrophysics (TIFR))

     In this project, I aim to study how the binary and the neutron parameter values are evolving in the X-ray Binary system in which a Neutron star is accreting material from companion star. I have calculated the critical accretion rate on the accretor in the LXMBs using MESA and studied about the various acrretion states of of pulsars and the effect of accretion rate on pulsar evolution.

2. **Research Project (2021-22)**

   - **Topic: Hubble Tension and its Study using Pulsating Variable Stars**
     Guide: Dr. Vikram Rentala (Indian Institute of Technology (IIT) Bombay)

     In this project, I have studied Pulsating Variable Stars like Cepheids and using their Period Luminosity relation, how can we approach to tackle the problem of Hubble tension, and also studied the distance ladder method and low and high redshift of H_0

3. **Summer Research Project (2021)**

   - **Topic: Constraining ΛCDM using Super Luminous SNe1c**
     Guide: Dr.Abha Dev Habib (Miranda House , University of Delhi)

     Constarined the parameters of the ΛCDM *cosmological model using data from the Supernovae Type 1c and Monte Carlo Simulation*

4. **Summer Reading Project (2021)**

   - **Topic: Study of Asteroids and Orbits**
     Guide: Dr. Chrisphin Karthick (Indian Institute of Astrophysics)

     Studied various types of asteroids and their characteristics and about parameters describing the orbit of asteroids.

PUBLICATIONS

- A Novel Sector-Based Algorithm for an Optimized Star-Galaxy Classification (ICLR-2024 Conference)[Click Here]

COURSE PROJECTS

- DSE 315 (Data Science and Practise):
  LIGHT CURVE ANALYSIS OF VARIABLE STARS FROM GAIA DATA

TECHNICAL SKILLS

- **Astronomical Codes :-** PLUTO , MESA
- **Programming Languages :-** Python , FORTRAN-90 , C , Bash
- **Libraries Used :-** Astropy , Scipy , Pandas , Scikit-Learn , Tensorflow
- **Software :-** Linux, GitHub, LaTeX, SAO DS9

WORKSHOP AND SUMMER SCHOOLS

1. Attended Astrophysics Summer School organised by Indian Institute of Astrophysics from 01-07 July , 2022
2. Attended Vijoshi Camp organised by Department of Science and Technology(Government of India) and IISc Banglore
3. Participated in 2021 and 2022 online Sagan Exoplanet Workshop by NASA(JPL) , Sagan Exoplanet Institute and CALTECH

AWARDS AND ACHIEVEMENTS

1. Recipient of the DST Inspire Scholarship granted to top 1% student in an academic year for their undergraduate studies.

EXTRACURRICULAR ACTIVITIES

- Ocassional Chess and Cricket Player
- Participated in Various Citizen Science Projects related to High Energy Physics and Astrophysics