GAURI PATTI

+91 8580443128 ◇ New Delhi, India
gauripatti28@gmail.com ◇ linkedin.com/in/gauri-patti ◇ Personal Website

EDUCATION

Miranda House, University of Delhi, New Delhi, India *Expected 2023*
Bachelor of Science in Physics (Honours) *Major:* Physics, *Minor:* Mathematics
Cumulative Grade Point Average: 9.32/10.00

RESEARCH EXPERIENCE

Summer Research Intern, California Institute of Technology*, Pasadena, CA, USA*
Mentor: Dr. Hannah Earnshaw *5th July 2022 - 9th Sep 2022*
Project Title: Monitoring Ultraluminous X-Ray Sources (ULXs) using Chandra

- I identified ULXs in the data of three galaxies M51, NGC 253, NGC 4485-4490 observed with a monthly cadence over a period of a year using the Chandra X-Ray Observatory and performed spectral analysis to find their variability behaviour.
- To analyse sources with less number of counts I developed a python wrapper script using Bayesian Estimation of Hardness Ratios (BEHR).

Undergraduate Researcher, Miranda House, University of Delhi*, New Delhi, India*
Mentor: Dr. Sunita Singh *14th June 2021 - 14th Aug 2021*
Project Title: Gravitational Waves

- I undertook an extensive study of tensor analysis and general relativity to understand the notions of metric tensor and mathematics involved. I further studied the formation of linearized gravity and its inference in forming of wave solutions (plus and cross polarisations).
- It was followed by a data analysis of a data set from LIGO's site. This was done by obtaining plots made through python. [Strain (normalised) versus time and frequency versus time].

SKILLS

Technical Languages	C++, Python, SCILab/MATLAB, Mathematica, Shell Scripting, C, Java, LaTeX
Softwares	XSPEC, High Energy Astrophysics Software (HEASoft), Chandra Interactive Analysis of Observations (CIAO), Bayesian Estimation of Hardness Ratios (BEHR), Arduino
Languages	Fluent English, Fluent Hindi

LEADERSHIP

President, Undergraduate Student Council, Department of Physics, *Miranda House, University of Delhi, New Delhi, India* *June, 2021- June, 2022*

AWARDS

- Selected for Dr. B.R. Ambedkar National Merit Award Scheme 2020 merit award with 3rd position (Awarded to students belonging from marginalised communities in India for their outstanding performance in senior secondary examinations)
- Summer Undergraduate Research Fellowship (SURF) 2022 at California Institute of Technology, Pasadena, California, U.S.A.
- Innovation in Science Pursuit for Inspired Research (INSPIRE) Scholar (Awarded to meritorious Students with aggregate marks within top 1% of their Class XII examination of any State/ Central Education Board in India pursuing basic sciences in their bachelors) (Session 2020-2021 onwards)
- Yuva Vigyan Puraskar 2020 (Under Himachal Pradesh Government for securing 8th rank in the state in senior Secondary) (11 February, 2021)

TEACHING EXPERIENCE

Tutored privately, *Kullu, Himachal Pradesh, India* *2019-2021*

- Subjects Taught: Mathematics, Science, Physics, Chemistry; Grades Taught: 8, 9, 10, 11, 12

POSTER PRESENTATION/TALKS

- Presented a poster titled *"Monitoring Ultraluminous Sources using Chandra"* at Summer Seminar Day 2022 at California Institute of Technology, Pasadena, U.S.A. (19th August, 2022).
- Presented my final work in the High Energy Astrophysics Group's weekly meeting at Cahill Center for Astronomy and Astrophysics, Caltech titled *"Monitoring Ultraluminous Sources using Chandra"* on 9th September, 2022.
- Presented a talk titled *"Monitoring the X-Ray Universe"* under a discussion series organised by Vidyut, The Physics Society, Miranda House, University of Delhi for students to share their summer research work (20th October, 2022).

PROJECTS/CAMPS

Selected for **University of Tokyo Undergraduate Internship Program (UTSIP)** at *Graduate School of Frontier Sciences Kashiwa, University of Tokyo*

- (Group B) for the summer 2022 under Dr. ONO Yasushi

National Initiative For Undergraduate Sciences, Camp 18.1, *Homi Bhabha Centre for Science Education, Tata Institute of Fundamental Research, Mumbai, India*
Participant *December 19-30, 2021*

- The camp covered the basic introductory lectures of various research fields in physics and the current developments in their fields.

Guru Dhwani Antenna Designing Competition, *Fergusson College*
Member of team *September 2021- 16 January, 2022*

- Mentor: Dr. Abha Dev Habib, Miranda House, University of Delhi
- The project report involved designing a self resonating magnetic circular loop antenna for the detection of Jovian Radio waves at 20 MHz by using 4Nec2 simulation software.

International Astronomical Search Collaboration *June 2-27, 2021*
Citizen Scientist

- Analysis of Images provided by Pan-STARRS in order to identify asteroids.

EXTRA-CURRICULAR ACTIVITIES

President, Student Council, Department of Physics, Miranda House, University of Delhi *(June 2021- June 2022)*
Member, Robotics Society, Miranda House, University of Delhi *(December 2020- Present)*
Member, Queer Collective [Creative Team], Miranda House, University of Delhi *(December 2020-Present)*
Member, Women's Development Cell, Miranda House, University of Delhi *(June 2021-Present)*

- Contributed to a study titled ***"First Generation Learners: Navigating University Education and Culture"*** along with other First Generation Learner members of the cell. I developed questionnaires of the study and helped to analyse the data obtained from the survey the cell conducted. The study was supported by the Centre of Women's Development Studies, New Delhi, India.