

Sana Asrar.

I am an undergraduate student pursuing my degree in Physics with a minor in Mathematics at I.U.S.T, Awantipora, Pulwama, 192122. My interests lie in High-Energy Astrophysics, Astrophysics, Archaeology, Advanced Mathematics, etc.

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EXPERIENCE

January 2024 - November 2025

Astrophysics Editor, *Young Scientist Journal*

- My key role is to edit physical science and astrophysical science-based research papers, as well as review papers, depending on my chosen area of editing.
- As an Astrophysics editor at Young Scientist Journal, I have critically evaluated numerous significant papers, including “Cosmological Concept of Time” and “Black Holes: A Key to Time Travel,” among others.
- These works explore complex phenomena such as the Kerr-Newman metric and event horizons, central to understanding black holes.
- Editing these manuscripts requires a deep comprehension of theoretical frameworks like Einstein’s General Relativity and the no-hair theorem, ensuring clarity and scientific rigour.
- My role advances the dissemination of cutting-edge research that bridges cosmology and quantum physics.

June 2025- July 2025

Summer School, India Space Academy.

The prestigious internship helped me achieve:

- cutting-edge research and foster a deeper understanding of the universe.
- The program included expert-led lectures on astronomy and astrophysics, hands-on research projects, and outreach activities like blog writing and webinars, all aimed at fostering public interest in the cosmos.

September 2024- Current

Student Council, *Islamic University of Science and Technology*

July 2025- April 2026

Program Coordinator, Kashmir Care Foundation.

As the program coordinator, my job will be to:

- Offer foundational mentorship to support academic and career growth.
- Facilitate internship placements through national and international networks.
- Equip students with soft skills vital for professional success.
- Offer resume-building workshops tailored to targeted career paths.
- Provide mock interview training and coaching to boost confidence.
- Enhance students' exposure to global work cultures, research standards, and industry best practices.
- Foster a strong community of peer-to-peer learning and alumni engagement.

August 2025 - April 2026

Global Ambassador, *Kashmir Care Foundation.*

- Youngest global ambassador of the organisation.

August 2025 - April 2026

Student Leader, *Kashmir Care Foundation.*

- The second youngest student leader in the organisation.
- A core team member of the program, 'PARWAAZ'.

October 2025- February 2026

Winter School in Astrophysics and Astronomy, Propagation Institute for Advanced Studies.

- Participating in the Winter School in Astrophysics and Astronomy at the Propagation Institute for Advanced Studies represents an invaluable opportunity to delve into the complexities of our universe.
- Through various mini-assignments and lectures, I have engaged with critical concepts such as the Hertzsprung-Russell (H-R) diagram, stellar life cycles, supernovae, neutron stars, black holes, and galaxy classification.
- This immersive experience not only solidifies foundational knowledge but also fosters analytical skills essential for future research endeavors.

October 2025–Current.

Campus Recruitment Coordinator, Islamic University of Science and Technology.

- As a Campus Recruitment Coordinator at the Islamic University of Science and Technology (IUST), my purpose extends beyond simply attracting prospective students; it encompasses fostering a vibrant academic community that embodies the university's values and mission. In an era where higher education is increasingly competitive, I play a pivotal role in bridging the gap between potential students and the myriad opportunities offered by IUST. This position allows me to advocate for the university's commitment to academic excellence, social responsibility, and cultural diversity, thereby enhancing our recruitment strategies.

October 2025—Current

Campus Ambassador, Islamic University of Science and Technology.

Responsible for:

- Increasing awareness of products, services, or events within the IUST campus.
- Organizing webinars, seminars, and workshops to engage students.
- Utilizing social media to disseminate information and enhance the organization's reach.
- Gaining experience in leadership, marketing, and communication.
- Promoting brand initiatives, organizing workshops or events, managing social media awareness, and fostering networking opportunities to boost student engagement.

April 2025—December 2025

NIUS Astronomy, TIFR-HBCSE.

- The program focused on "proto-research" projects, allowing students to learn general scientific skills, practices, and data analysis techniques essential for a research career.
- Got the opportunity to visit advanced facilities, such as the Giant Metrewave Radio Telescope (GMRT).
- The programme included specialized lectures and mini-workshops designed to deepen understanding of Astronomy and Astrophysics.

March 2026–Current

SHE4STEM Kalpana Fellow, VigyanShala International.

- Access to personalized guidance from a global network of STEM professionals, industry leaders, and academic researchers to help navigate STEM career paths.
- A Powerful Sisterhood/Network.
- The program is designed to enhance self-efficacy and career vision, with reported increases in confidence among participants.

February 2026–Current

Fellow, ASPIRE Institute.

- Access to HarvardX courses, mentorship from world-class faculty, professional networking, seed funding, and skill development to drive community impact, fostering a global community of emerging leaders.
- Connect with a diverse, international cohort of peers and mentors, fostering collaboration and a sense of belonging.
- Cohort-I Score: 96%.
- Cohort-II Score: 76%.

March 2026–Current

Council Member of Student Affairs, Islamic University of Science and Technology.

Responsible for:

- Key liaisons between students and administration, fostering a holistic, and secure campus environment.
- Serving as a bridge between the student body and university authorities (Vice-Chancellor, Registrar, Deans) to discuss grievances and improvements.
- Actively participating in eradicating ragging, managing hostels, ensuring sanitation, and facilitating health services.
- Organizing sports, cultural, and recreational activities.

- Promoting leadership, entrepreneurship, and awareness regarding gender equality and environmental sustainability.

Education

September 2024—Current

Islamic University of Science and Technology.

- Currently pursuing Bachelor of Science in Physics with a minor in Mathematics.
- **Courses done in Physics :** Vector Calculus, Classical Mechanics-I, Waves and Oscillations, Electromagnetism, Classical Mechanics-II(Qualitative Analysis only), Semiconductors, Solid State Physics, Optics, Thermal Physics, Classical Electrodynamics, Mathematical Physics-I, Classical Mechanics-II, Statistical Mechanics, Quantum Mechanics-I.
- **Lab: 1.** Measurement of length (or diameter) using vernier calipers, screw gauge and travelling microscope, **2.** To determine the Moment of Inertia of a Flywheel, **3.** To determine ‘g’ by Bar pendulum, **4.** To determine ‘g’ by Kater’s pendulum, **5.** Verification of Ohm’s law, **6.** To study series and parallel combination of resistances, **7.** Study of Coulomb's Law, Study of Biot-Savart law, **8.** Study of Helmholtz coil, Determination of Capacitance of a parallel plate capacitor, **9.** To study V-I characteristics of PN junction diode, and Light Emitting diode, **10.** To study the V-I characteristics of a Zener diode and its use as voltage regulator, **11.** Study of V-I and power curves of solar cells, and find maximum power point and efficiency, **12.** To determine the wavelength of a laser source by Young’s double slit experiment, **13.** To determine the wavelength of sodium light by diffraction grating, **14.** To determine the wavelength of prominent lines of mercury by diffraction grating, **15.** To determine the dispersive power of crown/flint glass prism, **16.** To determine the wavelength by Fresnel’s Biprism, **17.** To study single slit diffraction patterns and determine the wavelength.
- **Courses done in Mathematics:** Computational Mathematics, Linear Algebra, Matrices and Determinants, Set Theory, Data Analysis in R-Programming.

May 2023– June 2024

Higher Secondary, Presentation Convent Higher Secondary School

- I completed my higher secondary in PCBM(HS-I) and PCM(HS-II) with distinction.
- I was a part of the top 10% of the school in grade XII

November 2013– February 2022

High School Diploma, Presentation Convent Higher Secondary School

- I completed my high school with A+ and A grades throughout.
- I was a part of the top 5% of the school.

SKILLS

Technical skills: Google Colab, R-Programming.

Non-Technical Skills: Strong Communication Skills, Leadership, Time management, Teamwork, Prioritisation.

RESEARCH PROJECTS

May 2024—Current

Astrophysics, Astronomy and Physics Research Project, Indigo Research.

- The research project is on ‘Magnetars: Birth and Evolution’, under the guidance of Dr./Prof. Giannos Charitou.

September 2025—Current

Research Intern in High-Energy Astrophysics, Acceleron Aerospace.

- As a research intern at Acceleron Aerospace, this report details the crucial role of neutrinos in understanding cosmic evolution. Neutrinos, often called "ghost particles" due to their weak interaction with matter, provide a unique probe into the universe's past, from its earliest moments to the formation of its largest structures. By studying their properties, we gain insights unavailable from light-based astronomy.
- Conduct extensive reviews of the latest research in neutrino cosmology, particle physics, and relevant aerospace applications.
- Work with existing cosmological data sets or particle physics experiments to analyze neutrino properties. This could involve using simulation tools like MATLAB or other scientific software.
- Investigate the theoretical feasibility of using neutrinos for space-related applications.
- Develop theoretical models for a space-based neutrino detector that could potentially overcome the challenges of terrestrial observation. The aim would be to get a clearer picture of neutrino properties, which have a profound effect on the universe's evolution.

Grades:

Class 10: "A+" (JKBOSE)

Class 11: "A" (JKBOSE)

Class 12: "A" (JKBOSE)

HOBBIES:

Sleep, Music and Reading.

LIST OF PUBLICATIONS:

1. <https://www.ijsr.net/getabstract.php?paperid=SR25817011922>,

List of Conference Publication:

1. [view](#).

AWARDS:

1. **NIUS Astronomy-2025**: Awarded fully funded camp by HBCSE-TIFR in Mumbai, where classes and workshops on Astronomy and Astrophysics were conducted for a period of 8 days. I was the first woman from my region to have been selected for the program.
2. **ASPIRE Leadership Program-2026**: Awarded fully funded leadership program by ASPIRE Institute for cohort-1, where classes are given on personal and professional growth and the importance of nurturing your inner leader.
3. **CCIR Mentorship-2024**: Awarded **CCIR fellowship** and **CCIR Humanities Scholarship** to work on a **Classical Archaeological** paper under **Dr. Karolina Sekita, Oxford University**. Due to financial issues, I couldn't proceed further.
4. **University of Liverpool**: Awarded a seat in **BA Egyptology** at University of Liverpool for the class of 2027 along with **partial scholarship** in Humanities.
5. **Durham University**: Awarded a seat in **BS Physics** at Durham in a highly competitive pool of 925 students, along with a **partial scholarship of £15,000** for the class of 2028.
6. **University of Exeter**: Awarded a seat in **BSc Physics with Astrophysics** plus the **University of Exeter Global Excellence Scholarship of £7,500** for the class of 2028.
7. **Swansea University**: Awarded a seat to study **MPhys (Hons)** for the class of 2028.
8. **Wolfram Institute**: Selected for the winter school-2026. Due to personal reasons, I couldn't proceed with round 02 of the application.
9. **Saint Mary College of California**: Selected for **Honors Program-2024** with **Research Excellence Scholarship** alongside **Academic Scholarship** for the class of 2028.
10. **Alma College**: Selected for **BSc Physics Program** with **partial scholarship**.
11. **University of St. Andrews**: Selected for **Bachelor of Science (Honours) Physics and Astronomy (Gateway)** programme for the batch 2028 with **partial funded scholarship**.

