

JASHANPREET SINGH DINGRA

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Amritsar, Punjab, India

Education

Guru Nanak Dev University - MSc. FYIP Physics - CGPA 8.60 <i>Amritsar, Punjab, India</i>	2024 – Present
The Millennium School - Non Medical - 82.4% <i>Patiala, Punjab, India</i>	2022 – 2024
The Kaintal School - Secondary Education - 94.4% <i>Patiala, Punjab, India</i>	2010 – 2022

Achievements

Academic Awards

- **ICNPA** (International Conference on Nuclear Physics and Application) **Best Contribution Award.** (2024)
- **JEE Mains** (Joint Entrance Examination) **AIR 231.** (2024)
- **NSEA** (National Standard Examination For Astronomy) **Scholar.** (2023)
- **IAAC** (International Astronomy and Astrophysics Competition) **Bronze Honours.** (2021)

Other Awards and Honours

- **IAAC** (International Astronomy and Astrophysics Competition) **Ambassador.** (2024 - Present)
- **ISRO** (Indian Space and Research Organisation) **Space Tutor.** (2023 - Present)
- **APY** (Astronomy Photographer of the Year) **Shortlisted.** (2021)
- **SDNP** (South Down National Park Astrophotography Competition) **Runner Up.** (2021)

Hackathons

- **HACKOWASP7.0** (North India's Biggest Hackathon, TIET) **Runner Up.** - 150000 INR (2025)
- **Ad Astra** (National Astronomy Ideathon, NIT, Jalandhar, Punjab) **Second Runner Up.** - 5000 INR (2025)
- **Technovista 2.0** (Ideathon, Guru Nanak Dev University) **Frist Prize.** - 1100 INR (2025)
- **Zinnovatio 2.0** (Hackathon, Chandigarh University) **Top 10 of 1500 Teams.** (2025)

Publications

Investigating the relationship between black hole mass and galaxy dynamics in Seyfert Type II and LINER galaxies (2024)

- * Presented, for the first time, the correlation between M_{BH} and σ specifically for Seyfert Type II and LINER galaxies—an analysis made challenging due to obscuration by nuclear dust and the presence of a torus.
- * *Authors: Jashanpreet Singh Dingra and Harjeet Kaur*
- * *Submitted in the Monthly Notices of Royal Astronomical Society (Reviewing Phase)*

Other International Publications

Shortlisted in International Astronomy Photographer of the Year Award (2021)
Published in : The Forbes, The BBC, The Royal Museums Greenwich

South Down National Park International Release (2021)

Recent Research Projects

Deep Learning Model for Alzheimer Detection and MRI Brain Segmentation (2025)

- * *Authors: Jashanpreet Singh Dingra and Hardeep Kaur*

Deep Learning Model for Galaxy Morphology Prediction (2025)

- *Authors: Jashanpreet Singh Dingra and Virkarmjeet Singh (Guru Nanak Dev University)*

Galamo – A Python Package for Astronomy Researchers for Comprehensive Galaxy Analysis (2025 – Present)

- *Authors: Jashanpreet Singh Dingra, Vikramjeet Singh (Guru Nanak Dev University)*

Study of Stellar Dynamics of Open Star Clusters Using the Runge-Kutta Method (2025)

- *Authors: Jashanpreet Singh Dingra and Suprit Singh (IIT Delhi)*

Crab Pulsar Spin Down Rate Over 5 Years (2015–2023) (2024)

- *Authors: Jashanpreet Singh Dingra, Pratham Jain (IIIT Raichur), Uttakarshika (IIIT Raichur) and Manam Tiwari (BNM Institute of Technology)*

Major Astronomy/Coding Contributions

Astropy - Astrophysics and astronomy python package (2025 - Present)

· Contributed in *astropy.coordinates* and many more

Galamo¹ – A Python package for astronomy researchers for comprehensive galaxy analysis. (2025 – Present)

· Founder: *Jashanpreet Singh Dingra (Guru Nanak Dev University)*

Conferences, Schools & Talks

13th IIST Astronomy and Astrophysics School (IAAS) Selection in Round 1 (2025)

Summer School on Gravitational-Wave Astronomy, ICTS-TIFR (2025)

National Conference on Active Galactic Nuclie, Central University of Himachal Pardesh, India (2025)

Invited Speaker @ Star Party, The Millennium School, Patiala, Punjab (2025)

Zinnovatio 2.0, Chandigarh University (2025)

International Conference on Nuclear Physics and Its Applications, New Delhi (2024)

68th Symposium on Nuclear Physics, IIT Roorkee (2024)

Speaker at Astronomy Webinar, Astronomy Club, Kosovo (2023)

Pulsar Data Analysis, HEASARC (NASA), India (2022)

Investigations

SFR Correlation with the Mass and Metallicity of Galaxies from SDSS DR7 (2023)

Conducted an analysis revealing a positive correlation between the star formation rate (SFR) and the stellar mass of galaxies, indicating that more massive galaxies tend to have higher star formation rates. Also observed a positive correlation between galaxy mass and metallicity, suggesting that massive galaxies are typically more metal-rich.

Correlation Between the Recessional Velocity and Distance of Type Ia Supernovae (2022)

Identified a strong positive correlation between the distance of a Type Ia supernova and its recessional velocity, consistent with Hubble's Law. Notably discovered a supernova with a recessional velocity of $0.8c$, located approximately 1000–1500 Mpc away.

Simulation that Predicts Mars Oppositions (2020)

Developed a Python-based simulation to predict Mars oppositions over the next 100 years, aiding in observational planning and planetary alignment studies.

24-Hour Sun Analysis from SDO Data (2020)

Analyzed solar activity using 24-hour observational data from the Solar Dynamics Observatory (SDO) on December 26, 2020, focusing on sunspot activity and solar flares.

Extra Projects

Web Development: International Music Academy - Gurmat Sangeet Taksal (2024)

Web Development: Religious Place - Gurdwara Saheedgarh Sahib, Hamilton, Ontario, Canada (2024)

Rocket Flight Computer (2023)

Capable of telemetry up to 7 km, equipped with an accelerometer, gyroscope, temperature sensors for the abort system, GPS modules, barometric sensors, servos, and biological slides for microbial collection from the toposphere.

Leadership / Social Work

Recognized by the Municipal Commissioner for heroically saving a child during a bus accident.

Founder of Dingraastro.Club, a global astronomy community with over 200 members.

Active Member of Over 7 Astronomy Clubs Worldwide

Technical Skills

Languages: Julia, Matlab, Python, R, HTML, CSS, JavaScript, PHP, C++ and SQL

Skills: Matlab, Astronomy Data Analysis, Scientific Communication, Web Development and Cooking

¹Preparing a manuscript for peer-reviewed publication. The project has received over 100 stars on <https://github.com/galamo-org/galamo>