

# Anish Kalsi

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## Education

<b>Nicolaus Copernicus Astronomical Center of the Polish Academy of Sciences, Poland</b> <i>Doctor of Philosophy in Astronomy</i> Supervisor: Dr. Krzysztof Helminiak	<b>Oct 2025</b>
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<b>University of Padova, Italy</b> <i>Master of Science in Astrophysics and Cosmology; Grades: 108/110</i> <i>Thesis: Spectro-photometric study of the population of B/Be stars in the open cluster Trumpler 11</i> Supervisors: Prof. Lydia Cidale (UNLP) and Dr. Antonino Milone (UniPd)	<b>2023 - 2025</b>
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<b>Delhi Technological University (Formerly DCE), India</b> <i>Bachelor of Technology (B.Tech) in Engineering Physics</i> <i>Minor in Computational Intelligence; Final Grade: 8.87/10</i>	<b>2019 - 2023</b>
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## Publications

1. A Catalogue of Low-Mass X-ray Binaries in the Galaxy: From the *INTEGRAL* to the *Gaia* era. F. Fortin, **A. Kalsi**, F. García, A. Simaz-Bunzel, and S. Chaty. *Astronomy and Astrophysics*, Vol. 684, January 2024. [Link](#)
2. GRB Optical and X-ray Plateau Properties Classifier Using Unsupervised Machine Learning. S. Bhardwaj, M.G. Dainotti, T.S.S Venkatesh, A. Narendra, **A. Kalsi**, E. Rinaldi, and A. Pollo. *Monthly Notices of the Royal Astronomical Society*, Volume 525, Issue 4, Pages 5204–5223, August 2023. [Link](#)

## Conference Proceedings:

1. Comparative Study of Unsupervised Machine Learning Methods for Membership Association in Clusters Using GAIA DR3 Data. **A. Kalsi**, D. Tyagi, H. Choudhary, and A. Kumar. *ICCASA 2023 Proceedings*, European Chemical Bulletin. [Link](#)
2. Analytical Studies of Electrostatic Solitary Structures in an Ultra-Relativistic Plasma and the Evolution of Rogue Wave. **A. Kalsi** and S. Chandra. *Proceedings of the Summer Workshop on Plasma Physics 2020* (ISBN 9786204198934). [Link](#)

## Experience

<b>Universidad Nacional de La Plata, Argentina</b> <i>International Exchange Program (Master's Thesis)</i>	<b>Mar 2025 - Aug 2025</b> <i>La Plata, Argentina</i>
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- \* Search for B/Be stars in open cluster, Trumpler 11, using photometric and spectroscopic data from Gemini Observatory
- \* Skills: Stellar Astrophysics, Photometry, Spectroscopy.

<b>AstroParticule et Cosmologie (APC) laboratory, Université Paris Cité</b> <i>Summer Internship 2023</i>	<b>June 2023 - Aug 2023</b> <i>Paris, France</i>
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- \* Supervisor: Prof. Sylvain Chaty, catalogue of Low-mass X-ray Binaries (LMXBs) [Catalogue](#)
- \* Skills: Intense literature review and X-ray binaries spectral study.

<b>Delhi Technological University</b> <i>B.Tech Final Year Project (Bachelor's Thesis)</i>	<b>Aug 2022 - July 2023</b> <i>Delhi, India</i>
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- \* Analysis of machine learning algorithms to determine membership probability of stars in clusters using Gaia DR3 data.
- \* Skills: Literature survey, GMM, DBSCAN, and pyUPMASK in PYTHON, scientific writing and group management.

<b>Indian Institute of Technology, Hyderabad</b> <i>Summer Internship 2022</i>	<b>June 2022 - July 2023</b> <i>Remote</i>
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- \* Simulated populations of repeating Fast Radio Bursts (FRBs) sources across the sky. Determined observation patterns of RFRBs by CHIME and its hypothetical variants over a two-year observation run.
- \* Skills: Simulations in PYTHON and radio observations.

<b>Indian Institute of Technology, Bombay</b> <i>Krittika Summer Project 3.0</i>	<b>June 2022 - Sept 2022</b> <i>Remote</i>
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- \* Photometric analysis using SExtractor and PSFEx to obtain a color-magnitude diagram and determine the age of the star population of globular clusters using PanSTARRS data.
- \* Skills: Photometry

## SciComm

*Educator (Experimental Science) and Subject Matter Expert*

**Dec 2019 - Sept 2020**

*Delhi, India*

- \* Taught Science and Astronomy to students by taking sessions and workshops at schools (SRGS Delhi West, TAFS Delhi) and Astrocamps. Night sky observation using telescopes and astrophotography.
- \* Content for Physics, Chemistry, Mathematics, and Logical Reasoning. Authored a high-school-level computer science book for the college entrance exam (CUET). (May 2022)
- \* Skills: Science communication

## Relevant Skills

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**Programming Languages:** C/C++, PYTHON (AstroPy and scikit-learn), SQL, R.

**Softwares and OS:** IRAF, MATLAB, L<sup>A</sup>T<sub>E</sub>X, Linux.

## Awarded Scholarships

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- **Ulisse Exchange Program 2024** for the master thesis at Universidad Nacional de La Plata (UNLP), Argentina. Benefits: travel expenses (up to 1500 Euros) and 700 Euros per month.
- **Regione Veneto Scholarships**: Full tuition fee waiver and 7655 Euros (in 2024)/ 8068 Euros (in 2025) per annum.
- **Charpak Lab Scholarship 2023**: to pursue a research internship in France. Benefits: 700 Euros per month.
- **Merit-Cum-Means Scholarships** Benefits: 50,000 INR per annum from 2019 till 2022.

## Extracurricular

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### DeLTech Engineering Physics Technical Hub (DEPTH)

*Student President*

- \* Elected as President (2022-23) of DEPTH, the official technical and physics society of Delhi Technological University(DCE).
- \* Organised and led numerous events, workshops, expert lecture series, and educational trips, and formed teams to participate in inter-university events.
- \* Collaborated and Contributed as a core team member in the Cosmology Club, DTU.

### Other Projects (Physics)

- \* Joint Institute for Nuclear Research (JINR), May 2021 - Mar 2022. (Remote)  
Study of OPERA experiment [Project Report](#). Analysis of Heavy Ions collisions events [Project Report](#)
- \* Defence Research and Development Organisation (DRDO) SSPL, July 2021 - Aug 2021. (Delhi, India)  
Experiments with/on graphene-based Terahertz detectors and fabrication processes with applications in Astronomy.

## Courses and Workshops

- \* Completed various astronomy and astrophysics MOOC courses.
- \* Attended several astronomy summer schools, workshops, conferences, and lectures like **ExCoDOT 2025, LAPIS Astronomy 2025, Karpacz Winter School 2025, Winter School Tonale 2024, EAS Padova 2024, ESSENA 2024, ATSOA 2023**, IIA Summer School 2022, IUCAA-ISSAA 2021 and 2022, InPTA Student Week 2021 and 2022, RAWS 2021, and many more. [Certificates](#)

## Academic Referees

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### Dr. Krzysztof Helminiak

Associate Professor, Nicolaus Copernicus Astronomical Center of the Polish Academy of Sciences, Poland  
Email: xysiek@ncac.torun.pl

### Prof. Lydia Cidale

Professor, Universidad Nacional de La Plata (UNLP), Argentina  
Email: lydia@fcaglp.unlp.edu.ar

### Dr. Antonino Milone

Associate Professor, University of Padova, Italy  
Email: antonino.milone@unipd.it