



Parichay Mazumdar

Ph.D. researcher in Radioastronomy

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Education

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| 2014–2017 | M.Sc. (Physics & Astronomy), Bonn–Cologne Graduate School (BCGS), Germany
Grade 1.7 (1.0 highest; 5.0 lowest). |
| 2011–2014 | B.Sc. (Physics Honors), St. Stephen's College (SSC), University of Delhi, India,
Score 89.2% (passing grade 40%). |
| 2011 | All India Secondary School Certificate Examination, Kendriya Vidyalaya, Bargarh,
Score 94.4% overall and 97.5% in sciences. |

Work Experience

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| 2017–
Present | Ph.D. in Astronomy & Astrophysics, Max–Planck–Institute for Radio Astronomy (MPIfR), Bonn, Germany <ul style="list-style-type: none">• Lead a team of international scientists to kick-start a large survey of our Galaxy.• Collaborated with multiple international researchers on multiple projects (see publication list).• Data Reduction Pipeline : designing data reduction pipeline for large survey.• Statistical Techniques: stacked spectral analysis; hypothesis testing (statistical tests).• Image Analysis : Dendrograms |
| 2016–2017 | Masters Thesis Research, MPIfR, Bonn, Germany <ul style="list-style-type: none">• Numerical Modelling : parameter space of 2,500,000 models in a 3 dimensional grid.• Numerical Optimization : reduced chi square analysis to find best fit models.• Data assimilation : constraining observations with numerical and physical models. |
| 2014 | Visiting Research Student, National Center for Radio Astrophysics, Pune, India
Topic: “A Green Bank Telescope (GBT) search for redshifted 3He II emission from a group of Lyman-alpha blobs (LABs) at $z \sim 3.09$ in the SSA22a field” |
| 2013 | Visiting Research Student, National Center for Radio Astrophysics, Pune, India
Topic: A Green Bank Telescope (GBT) search for HI-21 cm Emission from recently discovered Damped Lyman-alpha Absorbers (DLAs) at low Redshifts. |

Skills

ANALYTICAL

- Formulating and implementing numerical and mathematical problems.
- Data reduction, assimilation & analysis
- Spectral & Image analysis
- Numerical modelling & optimization
- Statistical techniques

PROGRAMMING LANGUAGES & PLATFORMS

- **Python (advanced)**: numpy; scipy; astropy; spectral_cube; matplotlib, seaborn, astrodendro
- **C++**
- **GILDAS–CLASS**

Awards and Achievements

ACADEMIC SCHOLARSHIPS

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| 2017–2020 | IMPRS Fellowship : Only recipient of fully funded PhD in the sub-mm astronomy group of MPIfR. |
| 2014–2017 | H1 Scholarship, German Excellence Initiative : awarded to 3 students at BCGS. |
| 2011–2014 | INSPIRE scholarship, Govt. of India : Top 0.1% students in India pursuing natural sciences. |

AWARDS & ACHIEVEMENTS

2011–2014	Sumitomo award, SSC: Best student in each dept. of the college.
2014	Usha India Ltd. Prize, SSC: Best pre-final year student .
2009	National Science Olympiad, 3rd in State and 40th rank at National level.
2008	Regional Mathematics Olympiad, 10th in State and 39th rank at National level.
2007	International Children's Film Festival India (ICFFI) : 1 of 4 student delegates from Odisha.

Conferences

2020	Science with APEX Conference, Germany (Talk): International conf. of 70 astronomers.
2019	Zooming in on Star Formation, Greece (Poster): International conf. of 118 astronomers.
2019	Spectroscopy with SOFIA, Germany : International conf. of 70 astronomers.
2018	YERAC, Netherlands (Talk): European conf. of 35 top pre & post-doctoral researchers .
2018	Science with APEX Conference, Germany (Talk): International conf. of 70 astronomers.

Publications

FIRST AUTHOR

- Mazumdar, P. et al. (2021), "G305 Giant Molecular Cloud: II. Clump Properties", Astronomy & Astrophysics, accepted, in print.
- Mazumdar, P. et al. (2021), "G305 Giant Molecular Cloud: I. Feedback on Molecular Gas", Astronomy & Astrophysics, Volume 650, id.A164, 16 pp.
- Mazumdar, P. et al. (2014), "Constraints on the gas masses of low-z DLAs.", MNRAS, Vol. 443, p. L29-L33.

CO-AUTHOR

- Yang et al. (2021), "The SEDIGISM survey: a search for molecular outflows", Astronomy & Astrophysics, accepted, arXiv:2111.10850
- Colombo et al. (2021), "OGHReS: Large-scale filaments in the outer Galaxy", Astronomy & Astrophysics Letters, accepted, arXiv:2111.02768v1.
- Schuller et al. (2021), "SEDIGISM: First data release", MNRAS, Vol. 500, Issue 3, pp.3064-3082.
- Duarte-Cabral et al. (2021), "The SEDIGISM survey: molecular clouds in the inner Galaxy", MNRAS, Vol. 500, Issue 3, pp.3027-3049.
- Neufeld et al. (2021), "Terahertz Water Masers. II." ApJ, Vol. 907, Issue 1, id.42, 16 pp.
- Vol'vach, L.N. et al. (2019), "A Giant Water Maser Flare in the Galactic Source IRAS 18316-0602", Astronomy Reports, Volume 63, Issue 1, pp.49-65.

Positions of Responsibility

Present	Tutor, University of Bonn : A Pro-Seminar in "Presentation Techniques"
2019	Industry Expert, Internproship programme, SUPROS, India <ul style="list-style-type: none">• Design a 4 week internship for high school students experience astronomical research hands on.
2016–2021	APEX Telescope Operator, APEX, Chile: On site operator of APEX Telescope (3 shifts/year).
2019	Tutor, Radio Astronomy Lab, University of Bonn : Tutored master students in Physics.
2015–2016	AstroClub Member, University of Bonn <ul style="list-style-type: none">• revived a club• organized weekly talks in Astronomy for general audience.
2012–2014	Evening Classes program, St. Stephen's College: Taught underprivileged kids.
2013	Secretary, Astronomy Club, St. Stephen's College <ul style="list-style-type: none">• Oversaw the running of the club and organized invitational talks.

Languages

English (Fluent), Hindi (Fluent), Bengali (Fluent),
Odia (Fluent), German (A2-B1 - Learning), Dutch
(A1- Learning).

Hobbies & Interests

Singing, Bouldering, Cooking, Boardgames, Playing
Cajon, Football, Ultimate Frisbee.