Ankur Barsode

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Postdoctoral Fellow (gravitational-wave astronomy) at the Chennai Mathematical Institute

Education

- PhD thesis submitted to the International Centre for Theoretical Sciences (ICTS-TIFR), Bengaluru (August 2026), titled "Detecting strong gravitational lensing of gravitational waves"
- MSc (Physics) and BE (Mechanical engineering), Birla Institute of Technology and Science Pilani, Rajasthan, 2021

Research Profile

- I develop Bayesian methods and scalable searches for strongly lensed gravitational waves (GWs).
- I use GW lensing to investigate dark matter and cosmology.

Selected Publications

- **Barsode, Ankur**. "Tool for Accurate Model Selection Using Bayes Factors." *Physical Review D*, vol. 114, 2026, article 064045. [link]
- **Barsode, Ankur**, Koustav N. Maity, and Parameswaran Ajith. "Search for Strong Lensing of Gravitational Waves in the Binary Black Hole Events from O1–O4a." *The Astrophysical Journal*, vol. 1009, no. 1, 2026, article 43. [link]
- **Barsode, Ankur**, Koustav N. Maity, and Parameswaran Ajith. "Lensing, Not Luck! Detection Prospects of Strongly Lensed Gravitational Waves." *The Astrophysical Journal*, vol. 998, no. 2, 2026, article 294. [link]

Full publication list can be found at INSPIRE-HEP and Google Scholar.

Experience

- Postdoctoral Fellow, Chennai Mathematical Institute, Chennai (2026–present)
- PhD Student, ICTS-TIFR, Bengaluru (2021–2026)
- Short-term Visitor, Chinese University of Hong Kong (CUHK), Hong Kong (2026)
- Short-term Visitor, Albert Einstein Institute (AEI), Potsdam (2024)
- Short-term Visitor, UCLouvain, Belgium (2024)
- Long-term Research Student, National Center for Radio Astronomy, Pune (2021)
- Summer Research Student, National Center for Radio Astronomy, Pune (2020)

Research Collaboration and Leadership

LIGO–Virgo–KAGRA (LVK)

- Data analyst: search for strongly lensed GWs (2022–present)
- Editor: LVK Collaboration paper on the search for lensed GWs in O4b and O4c (2025–present)

Invited Talks and Seminars

- "Gravitational waves and their lensing," Multi-Messenger Lensing workshop, Lorentz Center, Leiden, Netherlands (2026)
- "Detecting strongly lensed gravitational waves," CUHK, Hong Kong (2026)
- "Detecting strongly lensed gravitational waves," Indian Institute of Science (IISc), India (2026)
- "GWTC-4.0: Searches for Gravitational-Wave Lensing Signatures," LVK Webinar (2026)
- "PO2.0: Fast and efficient GW strong lensing search," AEI, Potsdam (2024)

– "PO2.0: Fast and efficient GW strong lensing search," UCLouvain (2024)

Honors and Awards

– International Travel Support from ANRF for presenting my work at the Summer School in Cosmology at the International Centre for Theoretical Physics (ICTP), Trieste (2024)
– Prabhat Award by BITS alumnus to the best outgoing research-oriented student of physics (2021)
– KVPY by the Department of Science and Technology, Government of India, to encourage research at the undergraduate level (2016)

Teaching and Mentoring

– Lecturer, GW-Open Data Workshop, ICTS-TIFR, Bengaluru (2025–2026)
– Tutor, GW-Open Data Workshop, ICTS-TIFR, Bengaluru (2024–2026)
– Tutor, Summer School on GW astronomy, ICTS-TIFR, Bengaluru (2023–2025)
– Teaching Assistant, Tools of Astrophysics, ICTS-TIFR, Bengaluru (2024)
– Mentoring a PhD student in the basics of doing research (2025–present)
– Guiding a master's student in their thesis and research (2026–present)
– Informally advised a master's student on a research project (2025)

Service and Outreach

– Organizer, GW-Open Data Workshop, ICTS-TIFR, Bengaluru (2024–2025)
– Reviewer, LIGO–Virgo–KAGRA Papers and Publications
– Created The Gravitational Wave Chirp Bottle for public outreach in GW astronomy
– Organized and conducted public demonstrations as a member of Astro Club (ICTS-TIFR)
– Contributed to an exhibition on Climate Change (ICTS-TIFR)

Skills

Programming	PYTHON, C++, JAVASCRIPT; git, large-scale computing, pipelining
Analysis	gravitational-wave data analysis, statistics, parameter estimation, machine learning
Visualization	MATPLOTLIB, PROCESSING/p5js, BLENDER
Communication	Scientific writing (LaTeX, Markdown), presentation (slides, posters, blackboard)
Miscellaneous	Agentic AI, ARDUINO, workshop