

Anirudh Salgundi

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in Anirudh Salgundi

Education

Master of Science (Physics)

Final Grade: 8.5/10

June 2020 – May 2022

CHRIST University

- Thesis: *“Spectral properties of GX 5-1”*
- Utilized archival observations of Low Mass X-ray Binary GX 5-1 from AstroSat.
- Performed Flux Resolved Spectroscopy to understand source spectral evolution along its Hardness Intensity Diagram.

Bachelor of Science (Physics, Chemistry and Mathematics)

Final Grade: 7.89/10

June 2017 – Sep 2020

Bangalore University

- Attended Research Education Advancement program conducted by Bangalore Association for Science Education.
- Recipient of Best Science communicator award by Department of Science and Technology, Government of Karnataka, India.

Research Experience

Research Assistant

Supervisor - Prof. Varun Bhalerao [STAR Lab](#)

January 2023 – Present

Indian Institute of Technology, Bombay

- Conducted time-resolved spectroscopy on 13 thermonuclear burst samples to elucidate the photospheric radius expansion mechanism. Additionally, investigated rapid X-ray variability, in the context of 4U 1728-34 (slow burster), a transient ultra-compact Neutron Star Low Mass X-ray Binary (NS-LMXB).
- Observations and Follow-up campaigns for Gravitational Wave (GW) events from LIGO/Virgo/KAGRA (LVK) collaborations and fast transients using with 0.7m GROWTH-India telescope and collaboration with Zwicky Transient Facility (ZTF) led by Caltech. This concerted effort has yielded in detecting afterglows of Gamma Ray Bursts (GRBs), orphan afterglows and plausible counterpart candidates for a GW events.

Visiting Student Researcher

Supervisor - Dr. Santanu Mondal

December 2022 – January 2023

Indian Institute of Astrophysics

- Conducted energy-dependent time-averaged temporal analysis of a transient black hole X-ray binary, unveiling the prominence of a quasi-periodic oscillation (QPO) soft X-ray band, accompanied by its sub-harmonic and harmonic components. Additionally, the time-resolved study of QPOs revealed the presence of a harmonic component that exhibited frequency evolution, consistent with a propagating oscillatory shock scenario. Furthermore, characterized the source's flux profile, illustrating an alternating pattern over a timescale of $\lesssim 100$ ks with notable Hard X-ray variability.

Publications

Below is the list of my published/to be submitted refereed publications

1. **Salgundi, A.**, et al. (in prep) (2024), “Spectro-Temporal studies of Thermonuclear bursts and kHz QPOs in Slow Burster 4U 1728-34” (submitting to ApJ)
2. Rekhi. P., **Salgundi, A.**, et al. (in prep) (2024), “Timing and spectral studies of 4U 1735-44 using AstroSat” (submitting to ApJ)

3. Ahumada, T., Anand, S., Coughlin, M. W., **Salgundi, A.**, et al. (2024), “Searching for gravitational wave optical counterparts with the Zwicky Transient Facility: summary of O4a”, [arXiv:2405.12403](#), (Submitted to ApJ).
4. Mondal, S., **Salgundi, A.**, Chatterjee, D., et al. (2023), “Evolution of low-frequency quasi-periodic oscillations in GX 339-4 during its 2021 outburst using AstroSat data”, *MNRAS*, 526, 4718. (Citations: 2) [DOI????](#)

Some of my important non-refereed publications are listed below. [Here](#) is a full list of my non-refereed publications (43 GCNs, 3 TNS and 2 ATels)

1. **Salgundi, A.**, Swain, V., Kumar, H., et al. (2023), GRB Coordinates Network, “GRB 230812B: Zwicky Transient Facility Identifies Optical Afterglow Candidate of Fermi GRB (Trigger 713559497)”, *34397*, 1. (Citations: 2)
2. **Salgundi, A.**, Swain, V., Kumar, R., et al. (2023), GRB Coordinates Network, “AT2023sva/GRB230916B: GIT observations of the afterglow”, *34780*, 1.
3. Pathak, U., **Salgundi, A.**, Waratkar, G., et al. (2023), GRB Coordinates Network, “GRB 230812B: Chandra late-time detection of the X-ray afterglow”, *34632*, 1.

Approved Target of Opportunity proposals

Chandra DDT (Co - PI) 50 ks observations with ACIS instrument “Observing GRB230812B - To understand Jet Physics for an Extremely Bright GRB”	September 2023
AstroSat ToO (Co - PI) 40 ks observations with LAXPC and SXT instruments “Spectro-temporal studies of GX 339–4 during its outburst, using AstroSat”	August 2022
AstroSat ToO (Co - PI) 40 ks observations with LAXPC and SXT instruments “Spectro-temporal studies of XTE J1701–462 during its outburst, using AstroSat”	September 2022

Conferences, Workshops and Summer schools

The 42nd meeting of the Astronomical Society of India Conference - Poster Presentation	February 2024 IISc, India
Zwicky Transient Facility time-domain astronomy Summer School Summerschool - Remote Attendee	July 2023 University of Minnesota, USA
The 41st meeting of the Astronomical Society of India Conference - Poster Presentation	2023 IIT Indore, India
Conference on 7 years of AstroSat Conference - Attendee	2022 ISRO Headquarters, Bangalore, India
Time Domain and Multi-Messenger Astronomy workshop Workshop - Remote Attendee	2022 NASA-GSFC, Maryland, USA.

Outreach and Positions of Responsibility

Program Head - Asteroid search campaign Society for Space Education and Research Development <i>My responsibilities encompass coordinating the citizen science program, searching for Near Earth Objects (NEOs). I have a track record of training over 700 participants, resulting in 313 preliminary discoveries.</i>	March 2020 - Present
Astronomy Education Content Developer for ISRO's YUVIKA program Genex Space	June 2022

My primary contribution has been to design and develop a chapter titled "Universe within us" designed to provide high school students with a comprehensive understanding of the subject.

Associate editor - Shasthra Snehi

2020 - Present

Shasthra Snehi

My main role involves crafting science blog articles and conducting proofreading tasks on articles submitted by diverse pool of authors.