

Arnab Sarkar

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RESEARCH INTERESTS

Early Universe and Galaxy evolution, Quasars, Physics of Galaxy clusters

EDUCATION

- **MIT Kavli Institute for Astrophysics and Space Research**
Current Position: Post-doctoral Associate 2022–present
- **University of Kentucky & Center for Astrophysics | Harvard & Smithsonian**
Ph.D. in Physics and Astronomy 2018–2022
Thesis Title: *"The physics of galaxy clusters out to their virial radii and beyond"*

OBSERVING GRANTS

- **Principal Investigator** – *XRISM* Cycle 1, **85 ksec** – MKW4 Galaxy Cluster 2024
- **Principal Investigator** – *Chandra* Cycle 25, **60 ksec** – Abell 3112 Galaxy Cluster 2023
- **Principal Investigator** – *Chandra* Cycle 25, **740 ksec** – 1E2215/2216 2023
- **Principal Investigator** – *Chandra* Cycle 23, **60 ksec** – Abell 262 Galaxy Cluster 2021
- **Co-Investigator** – *XRISM* Cycle 1, **80 ksec** – Abell 2052 Galaxy Cluster 2024
- **Co-Investigator** – *XRISM* Cycle 1, **220 ksec** – Abell 2199 Galaxy Cluster 2024
- **Co-Investigator** – *XRISM* Cycle 1, **300 ksec** – Abell 1795 Galaxy Cluster 2024
- **Co-Investigator** – *XRISM* Cycle 1, **100 ksec** – 30 Doradus Tarantula Nebula 2024
- **Co-Investigator** – *Chandra* Cycle 26, **50 ksec** – Multi-targets 2024
- **Co-Investigator** – *Chandra* Cycle 25, **55 ksec** – Multi-targets 2023
- **Co-Investigator** – *Chandra* Cycle 24, **100 ksec** – SWIFT J2037.2+4151 XRB 2022
- **Co-Investigator** – *Chandra* Cycle 24, **45 ksec** – Multi-targets 2022

STUDENT MENTORSHIP

Undergraduate Students

- **Sydney Matthews**, Massachusetts Institute of Technology, Cambridge, USA
Project: "Deep Chandra observations of Abell 2345 merging galaxy cluster".
- **Janie du Preez**, North-West University, Potchefstroom, South Africa
Project: "X-ray emission from a massive cool-core galaxy cluster Abell 2667".
- **Dalia Halder**, Jadavpur University, Kolkata, India
Project: "Mars Orbiter Mission (MOM) – an Indian Mars probe mission."

Graduate Students

- **Mona Molham**, The National Research Institute of Astronomy and Geophysics, Egypt
Project: "X-ray background modelling for sample of galaxy clusters using XMM-Newton."

TEACHING

- **Instructor**, General University Physics (PHY 241), Mechanics Fall 2020
- **Teaching Assistant**, The Solar System (AST 191), Astronomy Fall 2020
- **Instructor**, General University Physics (PHY 241), Mechanics Spring 2020
- **Instructor**, General University Physics (PHY 241), Mechanics Fall 2019
- **Instructor**, General University Physics (PHY 242), Electromagnetism Spring 2019
- **Instructor**, General University Physics (PHY 241), Mechanics Fall 2018

PRESS RELEASES

- [NASA Press Release](#), "NASA's Chandra Finds Galaxy Cluster Collision on a "WHIM" 2023
- [AAS and Center for Astrophysics | Harvard & Smithsonian press release](#), "Discovery of a Pre-merger Shock Wave in Abell 98" 2022
- [University of Kentucky press release](#), "Grad Student Discovers Shock Wave in Merging Galaxy Clusters, Confirms a Missing Link" 2022

PROFESSIONAL SERVICES

Mission involvement and Leadership

- **In-Flight Calibration Team Member** – XRISM X-ray observatory 2023 – present
- **Performance Verification Team Member** – XRISM X-ray observatory 2023 – present
- **Next-gen planned X-ray mission team** – NewAthena X-ray Observatory 2022–present
- **Member of Mission Planning Team**– Line Emission Mapper (X-ray) 2022 - present
- **Working group member**– Advanced X-ray Imaging Satellite 2024 - present
- **Working group member** – South Pole Telescope (millimeter wave) 2023–present
- **Working groups member** – Nancy Grace Roman Space Telescope (IR) 2024–present

Service

- **Invited Referee** – Astronomy & Astrophysics, MNRAS, ApJ, and JOAA 2022–present
- **Observing proposal panel** – GMRT & Chandra 2022–2024
- Chambliss Judge, AAS #236

Outreach

- **Lecturer** – COSPAR Capacity Building Workshop, Potchefstroom, South Africa 2023

TALKS (DELIVERED 20+ TALKS, SOME OF SELECTED TALKS)

- **Invited talk**, Center for Astrophysics | Harvard & Smithsonian April 2023
- **Invited lecture -I**, IAU I-HOW and COSPAR Workshop, South Africa February 2023
- **Invited lecture -II**, IAU I-HOW and COSPAR Workshop, South Africa February 2023
- **Invited talk**, Bertinoro, Italy July 2022
- **Invited talk**, Center for Astrophysics | Harvard & Smithsonian Jun 2022
- **Invited talk**, Center for Astrophysics | Harvard & Smithsonian April 2021
- **Invited talk**, University of Kentucky July 2020