

Curriculum Vitae



Alpish Srivastava

DOB: 5th October 2001

PhD Candidate

University of Rome Tor Vergata

Nationality: Indian

✉ alpish.srivastava@roma2.infn.it

✉ alpish.sri@gmail.com

LinkedIn Profile

GitHub Profile

OBJECTIVE

I am a PhD candidate in Astrophysics at the University of Rome Tor Vergata, focusing on X-ray and sub-mm observations of galaxy clusters. I am interested in studying the thermal and non-thermal properties of the intracluster medium (ICM) using a Planck-selected sample with Chandra, XMM, and eROSITA. Through this project, I aim to develop my expertise in X-ray and sub-mm observations, cluster surveys, impact of dark matter collapse, and AGN feedback on cluster gas. My long-term goal is to build an independent research career in cluster astrophysics and cosmology.

EDUCATION

- **Università degli Studi di Roma Tor Vergata, Italy** Nov 2025 - Ongoing
PhD in Astrophysics
- **Universität Bonn, Germany** Oct 2022 - Feb 2025
M.Sc. Astrophysics at the Argelander Institute for Astronomy Grade - Thesis: 1.0/1.0, Overall: 1.5/1.0
- **Amity University, Noida, India** Aug 2019 - Jul 2022
B.Sc. (Honours) Physics Grade: 9.24/10 (Gold Medalist)

PROJECTS/INTERNSHIPS

- **eRASS:4 and Chandra analysis of Abell 1060** Mar - Sep 2025
An approved project within the cluster working group of the eROSITA-DE consortium Bonn, DE
- **Master's Thesis Project** Feb 2024 - Feb 2025
*Argelander Institute for Astronomy (**Supervisors:** Prof. Thomas Reiprich & Dr. Florian Pacaud)* Bonn, DE
– Title: A comprehensive X-ray analysis of Hydra I galaxy cluster (Abell 1060) using eROSITA and Chandra.
- **Research Assistant** Dec 2023 - Mar 2024
*Argelander Institute for Astronomy (**Supervisors:** Prof. Frank Bertoldi & Ankur Dev)* Bonn, DE
– Development of a Python framework to test maximum likelihood maps of the CMB.
- **Research Internship** Nov 2023 - Jan 2024
*Argelander Institute for Astronomy (**Supervisors:** Prof. Thomas Reiprich & Dr. Florian Pacaud)* Bonn, DE
– Title: XMM-Newton Imaging Analysis of the Galaxy Cluster Fornax
- **Research Internship** Sep - Oct 2023
*Argelander Institute for Astronomy (**Supervisor:** Dr. Kaustuv Basu)* Bonn, DE
– Title: Mock Data, MCMC Fitting, and Signal Stacking: Navigating Noise in tSZ/rSZ Spectra
- **Research Internship** May 2020 - May 2022
*Amity Institute of Applied Sciences (**Supervisor:** Dr. Chiranjib Konar)* Noida, IN
– Project 3: Studying Relic Radio Emissions from Abell 2256 Cluster of Galaxies (Jan-May 2022)
– Project 2: Clusters of Galaxies and the Feedback Between SMBH and Ambient Medium (May-June 2021)
– Project 1: Estimating the Virial Mass of the Coma Cluster (May-June 2020)

TECHNICAL SKILLS AND INTERESTS

- Research Interests:** Galaxy clusters, large-scale structure, observational cosmology, X-ray and radio astronomy
- Techniques & Methods:** Multiwavelength data reduction, X-ray imaging and spectroscopy, Bayesian inference, Monte Carlo methods, code development, machine learning, cosmological simulations
- Languages:** Hindi (Native Proficiency), English (Native Proficiency), German (Elementary Proficiency)
- Programming Languages:** Python (Advanced), C/C++ (Intermediate), Java (Basic), HTML (Basic)
- Important Packages:** numpy, scipy, astropy, matplotlib, emcee, healpy, reproject, pyproffit, MLX, PyTorch, TensorFlow, RayTune
- Data Analysis Software & Simulations:** SExtractor, HEASOFT, XSPEC, eSASS, CIAO, XMM-SAS, ds9, sherpa, TOPCAT, Astrometry.net, PySM3, IllustrisTNG
- Other Languages & Tools:** Git, BASH, C Shell, LaTeX, MySQL, VS Code, Jupyter Hub, GIMP, FITS Liberator
- Operating Systems:** MacOS, Linux, Windows

PUBLICATIONS

- Srivastava, A., Reiprich, T.H., Veronica, A., Pacaud, F., Dietl, J., Knies, F., Sasaki, M., "The SRG/eROSITA all-sky survey: A comprehensive X-ray analysis of the Hydra I galaxy cluster", arXiv preprint, arXiv:2512.00518 [astro-ph.CO], 2025.
- Reiprich, T.H., Veronica, A., Pacaud, F., Stöcker, P., Nazaretyan, V., Srivastava, A., Pandya, A., Dietl, J., Sanders, J.S., Yeung, M.C.H., Chaturvedi, A., Hilker, M., Seidel, B., Dolag, K., Comparat, J., Ghirardini, V., Kluge, M., Liu, A., Malavasi, N., Zhang, X., Hernández-Martínez, E., "The SRG/eROSITA all-sky survey: View of the Fornax galaxy cluster", *A&A*, 703 (2025) A9

ACHIEVEMENTS & SCHOLARSHIPS

- **Master's Stipend:** A monthly stipend awarded by Prof. Thomas Reiprich for preparing my first lead-author publication. *Apr - Sep 2025*
- **DAAD STIBET-I Scholarship:** A scholarship awarded by the international office of the University of Bonn under the DAAD STIBET-I program. *Oct 2024*
- **Gold Medal:** For the highest grade in B.Sc. (Hons.) Physics, batch of 2019-22. *Jul 2022*
- **Asteroid Discovery:** A confirmed provisional discovery of a near-Earth/Main Belt asteroid named "2021 RG66". *Nov 2021*
- **Second Prize:** For creating a gesture-controlled rover for the National Science Day Exhibition, organized by the DRDO, Government of India. *May 2018*

CONFERENCES/SCHOOLS ATTENDED

- **AAL/eROSITA Multiwavelength School** *May 2025*
Organized by: AAL and eROSITA-DR consortium *Online*
- **22nd eROSITA-DE Consortium Meeting** *Apr 2025*
Organized by: IAAT, University of Tübingen *Tübingen, DE*
- **Summer School on Cosmology 2024** *Jul 2024*
ORAL PRESENTATION, Organized by: The International Centre for Theoretical Physics *Trieste, IT*
- **Radio Astronomy Winter School 2021** *Dec 2021*
ORAL PRESENTATION, Organized by: National Centre for Radio Astrophysics - TIFR *Pune, IN*
- **International Conference for Physics Students 2021** *Aug 2021*
ORAL PRESENTATION, Organized by: International Association for Physics Students *Copenhagen, DEN*

COURSES TUTORED

- **S261:** Optical Astronomy (Lab) *Summer Semester 25*
- **astro849:** Multiwavelength Observations of Galaxy Clusters *Summer Semester 24*
- **physics725:** Scientific Programming with Python *Summer Semester 24*

ADDITIONAL TECHNICAL COURSES

- **Scalable Machine Learning Methods for Astrophysical Surveys** *Winter Semester 24/25*
By Dr. Alexander Rüttgers, Institute of Software Technology, German Aerospace Center (DLR) *Bonn, DE*
- **Foundations of Machine Learning** *Sep 2024*
Offered by the BNTrAinee project, Institute of Computer Science, The University of Bonn *Bonn, DE*
- **Introduction to Bayesian Statistical Learning** *Mar 2024*
By Dr. Alina Bazarova as part of the training program of Forschungszentrum Jülich *Jülich, DE*

COLLABORATION MEMBERSHIP

- **eROSITA-DE Consortium** *Mar 2025 - Ongoing*
Full member

POSITIONS OF RESPONSIBILITY

- **Member**, DEI Committee at the Argelander Institute for Astronomy, Bonn *2023 - Ongoing*
- **Secretary**, Kugelblitz, The Physics Club of Amity University, Noida *2021-2022*
- **Member**, DCC, A Local committee to International Association of Physics Students *2020-2022*
- **IT Team Lead**, Kugelblitz, The Physics Club of Amity University, Noida *2020-2021*