Prajwel Payyappilly Joseph

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Summary

I am a Project Scientist at the AstroSat UltraViolet Imaging Telescope (UVIT) Payload Operations Centre at the Indian Institute of Astrophysics, Bangalore. My research focuses on ultraviolet and multi-wavelength studies of nearby galaxies, AGN feedback, and star formation, supported by extensive experience in space-mission operations and data pipeline development. I actively develop and maintain open-source software for UV astronomy.

Education

PhD **CHRIST (Deemed to be University)**, Physics — Bangalore, India, Dec 2017 – Mar 2025
- Thesis: Study of the effect of AGN activity on star formation in nearby galaxies using UVIT
- Supervisors: Dr. Blesson Mathew, Prof. P. Sreekumar

MSc **CHRIST (Deemed to be University)**, Physics — Bangalore, India, June 2013 – Mar 2015

BSc **Christ College, Irinjalakuda**, Physics — Thrissur, India, June 2010 – May 2013

Experience

Indian Institute of Astrophysics, Project Scientist-I (UVIT Payload Operations Centre) — Bangalore, India, July 2022 – present, 3 years 7 months
- Lead contributor to UVIT Level2 pipeline (v7) and mission data products
- Responsible for UVIT Payload Operations Centre data processing and validation
- Support UVIT observations, calibration activities, and mission data releases

Indian Institute of Astrophysics, Research Trainee (UVIT Payload Operations Centre) — Bangalore, India, Aug 2016 – May 2022, 5 years 10 months

Bishop Cotton Women's Christian College, Guest lecturer — Bangalore, India, June 2015 – Mar 2016, 10 months

Peer reviewed publications

Detection of time delay between UV and X-ray variability in Mrk 1044 using AstroSat observations — Jan 2026
M. Reshma, C. S. Stalin, Amit Kumar Mandal, Abhijit Kayal, S. B. Gudennavar, ***Prajwel Joseph***
(Accepted, Journal of High Energy Astrophysics)

Nine years of UVIT: assessing sensitivity variation — Dec 2025
Akanksha Dagore, ***Prajwel Joseph***, S. N. Tandon, Annapurni Subramaniam, S. K. Ghosh, C. S. Stalin
10.48550/arXiv.2512.24475 (Accepted, The Astronomical Journal)

Redshift ~2.7 is not special: Comment on the Kolmogorov analysis of JWST deep survey galaxies — Sept 2025
Prajwel Joseph
10.1051/0004-6361/202555988 (Astronomy and Astrophysics)

Euclid: Early Release Observations of ram-pressure stripping in the Perseus cluster: Detection of parsec-scale star formation within the low surface brightness stripped tails of UGC 2665 and MCG +07-07-070 — Sept 2025
K. George, A. Boselli, J. C. Cuillandre, M. Kümmel, A. Lancon, C. Bellhouse, T. Saifollahi, M. Mondelin, M. Bolzonella, ***Prajwel Joseph***, …
10.1051/0004-6361/202554836 (Astronomy and Astrophysics)

UVIT data release version 7: Regenerated high-level UVIT data products — July 2025
Prajwel Joseph, S. N. Tandon, S. K. Ghosh, C. S. Stalin
10.1007/s12036-025-10069-5 (Journal of Astrophysics and Astronomy)

Ultraviolet Flux and Spectral Variability Study of Blazars Observed with UVIT/AstroSat — Nov 2024
M. Reshma, Aditi Agarwal, C. S. Stalin, ***Prajwel Joseph***, Akanksha Dagore, Amit Kumar Mandal, Ashish Devaraj, S. B. Gudennavar
10.3847/1538-4357/ad702e (The Astrophysical Journal)

UVIT view of NGC 5291: Ongoing star formation in tidal dwarf galaxies at 0.35 kpc resolution — June 2023
R. Rakhi, Geethika Santhosh, ***Prajwel Joseph***, Koshy George, Smitha Subramanian, Indulekha Kavila, J. Postma, Pierre-Alain Duc, …
10.1093/mnras/stad970 (Monthly Notices of the Royal Astronomical Society)

UVIT Observations of the Small Magellanic Cloud: Point-source Catalog — Apr 2023
A. Devaraj, ***Prajwel Joseph***, C. S. Stalin, S. N. Tandon, S. K. Ghosh
10.3847/1538-4357/acba9c (The Astrophysical Journal)

An automated pipeline for Ultra-Violet Imaging Telescope — Dec 2022
S. K. Ghosh, S. N. Tandon, S. K. Singh, D. S. Shelat, P. Tahlani, A. K. Singh, T. P. Srinivasan, ***Prajwel Joseph***, A. Devaraj, Koshy George, R. Mohan, J. Postma, C. S. Stalin
10.1007/s12036-022-09842-7 (Journal of Astrophysics and Astronomy)

Active galactic nucleus feedback in NGC 3982 — Nov 2022
Prajwel Joseph, Koshy George, K. T. Paul
10.1051/0004-6361/202243923 (Astronomy and Astrophysics)

UVIT view of Centaurus A: a detailed study on positive AGN feedback — Oct 2022
Prajwel Joseph, P. Sreekumar, C. S. Stalin, K. T. Paul, Chayan Mondal, Koshy George, Blesson Mathew
10.1093/mnras/stac2388 (Monthly Notices of the Royal Astronomical Society)

The Astropy Project: Sustaining and Growing a Community-oriented Open-source Project and the Latest Major Release (v5.0) of the Core Package — Aug 2022
Astropy Collaboration, …, ***Prajwel Joseph***, …
10.3847/1538-4357/ac7c74 (The Astrophysical Journal)

In-orbit performance of UVIT over the past 5 years — Oct 2021
S. K. Ghosh, ***Prajwel Joseph***, A. Kumar, J. Postma, C. S. Stalin, Annapurni Subramaniam, S. N. Tandon
10.1007/s12036-020-09685-0 (Journal of Astrophysics and Astronomy)

Curvit: An open-source Python package to generate light curves from UVIT data — Oct 2021
Prajwel Joseph, C. S. Stalin, S. N. Tandon, S. K. Ghosh
10.1007/s12036-020-09680-5 (Journal of Astrophysics and Astronomy)

Performance of the UVIT Level-2 pipeline Oct 2021
S. K. Ghosh, S. N. Tandon, ***Prajwel Joseph***, A. Devaraj, D. S. Shelat, C. S. Stalin
10.1007/s12036-020-09686-z (Journal of Astrophysics and Astronomy)

More insights into bar quenching. Multi-wavelength analysis of four barred galaxies Dec 2020
Koshy George, ***Prajwel Joseph***, Chayan Mondal, Smitha Subramanian, Annapurni Subramaniam, K. T. Paul
10.1051/0004-6361/202038810 (Astronomy and Astrophysics)

Additional Calibration of the Ultraviolet Imaging Telescope on Board AstroSat Apr 2020
S. N. Tandon, J. Postma, ***Prajwel Joseph***, A. Devaraj, Annapurni Subramaniam, I. V. Barve, Koshy George, S. K. Ghosh, …
10.3847/1538-3881/ab72a3 (The Astronomical Journal)

Insights on bar quenching from a multiwavelength analysis: The case of Messier 95 Jan 2019
Koshy George, ***Prajwel Joseph***, Chayan Mondal, Smitha Subramanian, Annapurni Subramaniam, K. T. Paul
10.1051/0004-6361/201834500 (Astronomy and Astrophysics)

Long-term ultraviolet variability of Seyfert galaxies Dec 2018
N. Sukanya, C. S. Stalin, ***Prajwel Joseph***, S. Rakshit, D. Praveen, R. Damle
10.1007/s12036-018-9556-z (Journal of Astrophysics and Astronomy)

Dissecting star formation in the Atoms-for-Peace galaxy. UVIT observations of the post-merger galaxy NGC 7252 June 2018
Koshy George, ***Prajwel Joseph***, Patrick Côté, S. K. Ghosh, J. B. Hutchings, R. Mohan, J. Postma, K. Sankarasubramanian, …
10.1051/0004-6361/201832705 (Astronomy and Astrophysics)

UVIT observations of the star-forming ring in NGC 7252: Evidence of possible AGN feedback suppressing central star formation May 2018
Koshy George, ***Prajwel Joseph***, Chayan Mondal, Ashish Devaraj, Annapurni Subramaniam, C. S. Stalin, Patrick Côté, S. K. Ghosh, …
10.1051/0004-6361/201833232 (Astronomy and Astrophysics)

In-orbit Calibrations of the Ultraviolet Imaging Telescope Sept 2017
S. N. Tandon, Annapurni Subramaniam, V. Girish, J. Postma, K. Sankarasubramanian, S. Sriram, C. S. Stalin, Chayan Mondal, S. Sahu, ***Prajwel Joseph***
10.3847/1538-3881/aa8451 (The Astronomical Journal)

Search for Low-mass Objects in the Globular Cluster M4. I. Detection of Variable Stars Feb 2016
M. Safonova, D. Mkrtichian, P. Hasan, F. Sutaria, N. Brosch, E. Gorbikov, ***Prajwel Joseph***
10.3847/0004-6256/151/2/27 (The Astronomical Journal)

Open source projects

UVIT Level2 pipeline
Used to generate high-level (Level2) UVIT data products; adopted for official UVIT data release version 7 and archived at ISRO Science Data Archive.

Curvit
Curvit is a python package to generate light curves from UVIT data.

Aafitrans

Aafitrans is a Python package that builds upon the capabilities of the Astroalign package's find_transform function. It incorporates several modifications to improve its functionality and performance.

CanUVIT

To check whether a field can be safely observed with UVIT.