

CURRICULUM VITAE

Nationality: Indian

Website: aswinpvijayan.github.io

RESEARCH INTERESTS

Simulations of galaxy formation and evolution, high-redshift galaxies, dust in galaxies, forward modelling, synergy between simulations and observations.

WORK EXPERIENCE

Astronomy Research Fellow April 2024 – Present
Astronomy Centre, University of Sussex, United Kingdom

DAWN Postdoctoral Fellow Oct 2021 – March 2024
Cosmic Dawn Center, DTU Space, Technical University of Denmark (DTU)

EDUCATION

PhD in Astronomy 30 Sept 2017 – 30 Sept 2021
Astronomy Centre, University of Sussex, United Kingdom
Advisors: Prof. Peter A. Thomas & Dr. Stephen M. Wilkins
Title: The effect of dust in observing galaxies in the early Universe

MSc. Research in Astronomy, Cosmology 1 Sept 2015 - 31 July 2017
Sterrewacht Leiden, Universiteit Leiden, The Netherlands
Major Project: Analysing the impact of environment and mergers on halo concentrations, supervisor Dr. Camila A. Correa.
Minor project: A search for serendipitous emission lines in *ALMA* observations of high-redshift galaxies, supervisor Dr. Jacqueline Hodge.

Bachelor of Technology (B.Tech) in Engineering Physics 1 Aug 2010 - 31 July 2014
National Institute of Technology Calicut (NITC), Kerala, India
Bachelor Thesis: One Dimensional Organic Semiconductor Nanostructures for Solar Cell Fabrication, supervisor Dr. Vari Sivaji Reddy

FIRST & SECOND AUTHOR PUBLICATIONS

- 2024 – **First Light And Reionisation Epoch Simulations (FLARES) XVI: Size Evolution of Massive Dusty Galaxies at Cosmic Dawn from UV to IR.** Published, A&A, [arXiv:2408.11037](https://arxiv.org/abs/2408.11037)
Authors: Paurush Punyasheel, Aswin P. Vijayan, and others
- 2023 – **First Light And Reionisation Epoch Simulations (FLARES) XII: The consequences of star-dust geometry on galaxies in the EoR.** Published, MNRAS, [arxiv:2303.04177](https://arxiv.org/abs/2303.04177)
Authors: Aswin P. Vijayan, Peter A. Thomas, and others
- 2022 – **First Light And Reionisation Epoch Simulations (FLARES) VII: The Star Formation and Metal Enrichment Histories of Galaxies in the early Universe.** Published, MNRAS, [arXiv:2208.00976](https://arxiv.org/abs/2208.00976)
Authors: Stephen M. Wilkins, Aswin P. Vijayan, and others
- 2022 – **First Light And Reionisation Epoch Simulations (FLARES) VI: The colour evolution of galaxies $z=5-15$.** Published, MNRAS, [arXiv:2207.10920](https://arxiv.org/abs/2207.10920)
Authors: Stephen M. Wilkins, Aswin P. Vijayan, and others
- 2022 – **First Light And Reionisation Epoch Simulations (FLARES) V: The redshift frontier.** Published, MNRAS, [arXiv:2204.09431](https://arxiv.org/abs/2204.09431)
Authors: Stephen M. Wilkins, Aswin P. Vijayan, and others
- 2022 – **First Light And Reionisation Epoch Simulations (FLARES) III: The properties of massive dusty galaxies at cosmic dawn.** Published, MNRAS, [arXiv:2108.00830](https://arxiv.org/abs/2108.00830)
Authors: Aswin P. Vijayan, Stephen M. Wilkins, and others
- 2021 – **First Light And Reionisation Epoch Simulations (FLARES) II: The Photometric Properties of High-Redshift Galaxies.** Published, MNRAS, [arXiv:2008.06057](https://arxiv.org/abs/2008.06057)
Authors: Aswin P. Vijayan, Christopher C. Lovell, and others

8. 2021 – **First Light And Reionisation Epoch Simulations (FLARES) I: Environmental Dependence of High-Redshift Galaxy Evolution.** Published, MNRAS, [arXiv:2004.07283](#)
Authors: Christopher C. Lovell, **Aswin P. Vijayan**, and others
9. 2019 – **Detailed dust modelling in the L-Galaxies semi-analytic model of galaxy formation.** Published, MNRAS, [arXiv:1904.02196](#)
Authors: **Aswin P. Vijayan**, Scott J. Clay, Peter A. Thomas, and others

Metrics on all publications can be found from the SAO/NASA Astrophysics Data System (ADS) webpage [here](#).

TEACHING & OTHER EXPERIENCE

Lecturer, Astrophysical Processes	Spring term 2025, University of Sussex, UK
Supervision of Paurush Punyasheel, MPhys student at BITS Pilani, Goa, India Dust-continuum sizes of galaxies in FLARES, co-supervision with Prof. Thomas R. Greve	Cosmic Dawn Center, DTU September-May 2023/24
Co-supervision of Andreas Kyster Rasmussen & Maria Madsen, BSc students An analysis of photometric redshifts in CEERS using eazy & bagpipes, co-supervision with Dr. Minju M. Lee, Dr. Steven Gillman & Prof. Thomas R. Greve	Cosmic Dawn Center, DTU September-November 2022
Supervision of Rebeca G Reyes Carrion, Dawn-IRES student Star formation efficiency in the First Light And Reionisation Epoch Simulations	Cosmic Dawn Center, DTU June-August 2022
Co-supervision of Søren Staal, BSc student Analysing the morphology of high-z galaxies with FLARES and JWST, co-supervision with Dr. Steven Gillman	Cosmic Dawn Center, DTU Feb-June 2022
2022 DAWN Fellowship Committee Member Committee of peers to select from applicants for the 2022 Dawn Postdoctoral Fellowship	Jan-Feb 2022
DISCnet Work Placement , with Kenya Red Cross Society, Kenya (Online) Validation of inferences from satellite observations with ground survey data for drought impact studies	Mar-Nov 2020
Co-supervision of Hamish Garnett, Mphys student Mass and metallicity gradients in FLARES, main supervisor Prof. Peter A. Thomas Effect of random seeds and AGN on galaxy properties in the EoR using EAGLE simulation physics, main supervisor Prof. Peter A. Thomas	Astronomy Centre, University of Sussex Oct-Apr 2019/20 Oct-Apr 2020/21
Associate Tutor , School of Mathematical & Physical Sciences, University of Sussex Associate Tutor for the Foundation year physics course Properties of Matter (F3216) Associate Tutor for the third year undergraduate physics course Extragalactic Astronomy (F3209)	2018-2020

SELECTED TALKS

Seminar , University of Tokyo Talk Title: <i>The early Universe through the FLARES lens</i>	Jan 2025
IReNa Online seminar series (Invited Talk) Talk Title: <i>First Light And Reionisation Epoch</i>	April 2024
Bridging the models & observations of galaxies' dust in the JWST era , Trieste, Italy (Invited Talk) Talk Title: <i>Reliability of emission line ratios in the early Universe - consequences of star-dust geometry</i>	April 2024
Shedding new light on the first billion years of the Universe , Marseille, France Talk Title: <i>Reliability of Emission Line Ratios in EoR Galaxies: Impacts of Complex Star-Dust Geometry</i>	July 2023
Dawn Summit 2023 , Cosmic Dawn Center, Denmark (Review Talk) Talk Title: <i>First Stars and Galaxies</i>	June 2023
L-Galaxies Workshop , University of Hertfordshire, UK (Invited Talk) Talk Title: <i>Dust modelling in L-Galaxies and some applications</i>	Nov 2022
ADAM (Annual Danish Astronomy Meeting), Fredericia, Denmark Talk Title: <i>FLARES: Unraveling the properties of massive galaxies at cosmic dawn</i>	May 2022

NAM (National Astronomy Meeting), Bath, UK (Online) Talk title: <i>FLARES: The photometric properties of galaxies at cosmic dawn</i>	July 2021
EAS (European Astronomical Society) Meeting (Online) Talk title: <i>Obscured star formation in the EoR with FLARES</i>	July 2021
SAZERAC2 (Online) Talk title: <i>Properties of massive dusty-galaxies at cosmic dawn</i>	June 2021
SAZERAC (Online) Talk Title: <i>Photometric properties of galaxies in the FLARE simulation</i>	July 2020
EAS (European Astronomical Society) Meeting, Leiden, The Netherlands (Online) Talk title: <i>FLARES: First Light And Reionisation Epoch Simulations</i>	Aug 2020
Virgo Consortium Meeting , Leiden, The Netherlands Talk title: <i>Detailed dust modelling in the L-GALAXIES' semi-analytic model of galaxy formation</i>	Dec 2018

PROFESSIONAL ACTIVITIES AND ORGANISATION EXPERIENCE

co-PI of the FLARES Project , suite of re-simulations specially designed to study galaxies observable in the high-redshift Universe	Jan 2020-Present
co-developer of the SYNTHESIZER Project , package to generate galaxy synthetic observations	2022-Present
Chair of High-Redshift galaxies: Apples to oranges from dusk to dawn , EAS 2024, Padova Special Session	July 2024
co-Chair of Dust enrichment of early galaxies ($z>5$) in the era of JWST and ALMA , EAS 2024, Padova Special Session	July 2024
co-Chair of Removing the Disguise: SMGs in the era of JWST , EAS 2024, Padova Special Session	July 2024
LOC for D-LOCKS 2024 , at DTU Space, Denmark	January 2024
Virgo Consortium Meeting , Organised discussion session on Mock observations of simulations The Virgo Consortium is an international grouping of scientists to carry out state-of-the-art cosmological simulations	July 2022
DAWN Conference , Co-chair of 'DAWN to Noon' discussion session	June 2022
Astronomy on Tap (AoT), Copenhagen, Organising committee member	2022 – 2023
Reviewer for Monthly Notices of the Royal Astronomical Society (MNRAS)	Oct 2021 – Present
Co-organiser of DAWN caketalks , Weekly talks at the Cosmic Dawn Center on related topics	Oct 2021 – Present
Scientific Organizing Committee (SOC) Member, Models and Simulations of High-Redshift Galaxies - Sazerac Sip A short online conference to discuss current models and simulations of high-redshift galaxies	Oct 2021
SOC Member, CIDER: The Cold ISM During the Epoch of Reionisation - Sazerac Sip A short online conference to discuss current works on the cold ISM and dust in the EoR	Feb 2021

OUTREACH

Astronomy on Tap (AoT), Copenhagen, Denmark Talked about cosmological simulations of galaxy formation and evolution	Feb 2021
BlueDot Festival , Manchester, UK Volunteered at the Webb Telescope stand, talking to the public about the realm of astronomy it would be exploring	July 2018

ACHIEVEMENTS

MSCA Postdoctoral Fellowships Seal of Excellence	2024
DISCnet scholarship to pursue PhD at University of Sussex, UK	30 Sept 2017 – 30 Sept 2021
Partial Oort/NOVA MSc scholarship from Leiden Observatory, The Netherlands	1 Sept 2015 – 31 July 2021
GATE (Graduate Aptitude Test) and JEST (Joint Entrance Screening Test) in Physics, All India Rank 88 and 71 (Some of the most competitive exams for graduate schools in India)	2015
NET (National Eligibility Test, for Junior Research Fellowships) in the Physical Sciences, All India Rank 51	Dec 2014

COMPUTING SKILLS

Languages	C, Fortran (Basic), Julia (Basic), Python
Astronomy Software	casa, cloudy, gadget, SED fitting
Others	L ^A T _E X, High Performance Computing, Machine Learning, Natural Language Processing

LANGUAGES

Malayalam (Native), English (Fluent), Hindi (Intermediate), Sanskrit (Intermediate)

REFERENCES

- Prof. Stephen M. Wilkins, Astronomy Centre, University of Sussex, Brighton, UK
- Prof. Thomas R. Greve, Cosmic Dawn Center, DTU Space, DTU, Kongens Lyngby, Denmark
- Prof. Georgios E. Magdis, Cosmic Dawn Center, DTU Space, DTU, Kongens Lyngby, Denmark