Curriculum Vitae of Ryan White

Current as of November, 2025

PERSONAL & CONTACT INFORMATION

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EDUCATION

Master of Research (Astrophysics) — Jan 2025 – Nov 2025 (expected)
MACQUARIE UNIVERSITY
Thesis Title: *Dancing Atop The Grave That Has Their Name: Geometric, Radiative, And Hydrodynamic Simulations of Colliding Wind Nebulae*
Supervisors: A/Prof Benjamin Pope and Prof Orsola De Marco

Bachelor of Science (Hons) — Jan 2024 – Nov 2024
THE UNIVERSITY OF QUEENSLAND
Graduated with Class I Honours in Physics (Astrophysics)
Thesis Title: *Geometric Modelling of Wolf-Rayet Binary Colliding Wind Nebulae*
Supervisors: Dr Benjamin Pope (UQ) and Prof Peter Tuthill (USyd)

Bachelor of Science and Bachelor of Mathematics — Jul 2017 – Dec 2023
THE UNIVERSITY OF QUEENSLAND
Science: Extended Major in Physics
Mathematics: Major in Applied Mathematics

TEACHING EXPERIENCE

MACQUARIE UNIVERSITY

COMP2200 – Data Science — 2025–Present
Ran group activity tutorials for classes of ∼ 30 computer science students.

PHYS1210 – Physics for Life Sciences — 2025–Present
Ran laboratory sessions for classes of ∼ 30 first-year students.

THE UNIVERSITY OF QUEENSLAND
Teaching evaluations are available on request.

PHYS3080 – Extragalactic Astrophysics & Cosmology — 2023–4
Developed a simulated universe for use in the course, and taught weekly workshops of ∼ 30 students.

PHYS3071 – Computational Physics — 2024
Developed an interactive Python self-study tool, and tutored the course.

PHYS2082 – Space Science & Stellar Astrophysics — 2022–4
Teaching workshops of ∼ 60 students and moderated course delivery.

SCIE1000 – Theory & Practice in Science — 2021–4
"Super tutored" the course for multiple offerings, and routinely taught classes of ∼ 60 students.

PUBLICATIONS

FIRST AUTHOR PUBLICATIONS:

Ryan White, Benjamin Pope, Peter Tuthill et al., *"The Serpent Eating Its Own Tail: Dust Destruction in the Apep Colliding-Wind Nebula"* arXiv:2507.14610 (2025) — accessible summary

Ryan White, Tamara Davis, Geraint Lewis et al., *"The Dark Energy Survey Supernova Program: Slow supernovae show cosmological time dilation out to $z \sim 1$."* arXiv:2406.05050 (2024) — accessible summary

OTHER PUBLICATIONS:

Yinuo Han, **Ryan White** et al., *"The formation and evolution of dust in the colliding-wind binary Apep revealed by JWST"* arXiv:2507.14498 (2025)

Noel Richardson et al. (including **Ryan White**), *"Carbon-rich dust injected into the interstellar medium by Galactic WC binaries survives for hundreds of years"* arXiv:2505.11616 (2025)

Book Chapters

Ryan White & Peter Tuthill, *"Wolf-Rayet Colliding Wind Binaries"* arXiv:2412.12534 (2024), for publication in Elsevier's *Encyclopedia of Astrophysics*

Talks

Stars in Newcastle – University of Newcastle	Nov 2025
Astronomy Open Night, Macquarie University – Slides	Sep 2025
Stars + Planets Research in Greater Sydney (SPRIGS), Macquarie University	Aug 2025
SIfA Seminar, University of Sydney – Slides	May 2025
CSIRO Co-learnium, CSIRO Marsfield – Slides	Jan 2025
Stars in Brisbane, University of Southern Queensland	Nov 2024
Physics Club Honours Talks, University of Queensland	Oct 2024
Mount Stromlo Student Seminars, Australian National University	Sep 2024
UQ Science Undergraduate Research Conference, University of Queensland	Sep 2024
Department Astronomy Seminar, University of Tasmania	Jul 2024

Outreach and Communication

Astrobites Writer – Paper summaries available on my author page 2025 – Present
Annotated Papers – accessible summaries of my papers
Media outreach – I have had media attention surrounding my research, including:

- a press-release program jointly facilitated by Space Telescope Science Institute (STScI), Caltech, and Macquarie, available on the NASA website,
- an interview for an article covering White et al (2024) in Scientific American,
- and another interview for White et al (2025) in IFLScience.

Cosmology Talks – Accompanying video for White et al (2024) on Cosmological Time Dilation
UQ Work Experience Program 2024 – Helped introduce high school students to astrophysics at UQ, involving programming projects, telescope demonstrations, and a "Meet the Researcher" talk
Laura Street Festival 2024 – Ran a stall focusing on solar telescope viewing aimed at the public, fielding any questions

Awards and Scholarships

Best Masters Poster, Australian Institute of Physics ($500 AUD) – Link	2025
JWST Australian Data Centre Travel Grant ($900 AUD)	2025
The Andy Thomas Space Foundation Uranus Scholarship ($10k AUD)	2024
Best Science Talk, Mount Stromlo Student Seminars	2024
Student Publication Award Honourable Mention, University of Queensland, for White et al (2024) arXiv:2406.05050	2024
Honours Research Project Runner-Up, UQ Science Undergraduate Research Conference	2024
Dean's Commendation for Academic Excellence	2023, 2024
Outstanding Contribution Award, UQ School of Mathematics and Physics	2022

Further Research Experience

CSIRO Undergraduate Vacation Scholarship Nov 2024 – Feb 2025
Supervisor: Dr Andrew Zic

- The project included analysing and cleaning large volumes of interferometric ATCA and ASKAP radio data and developing a new pipeline to search for periodic pulses associated with long period radio transients. An academic paper is currently in preparation based on my work.

Swinburne CAS Vacation Scholarship Nov 2023 – Feb 2024
Supervisor: Dr Simon Stevenson

- I devised the research question for this project which involved me developing N-body simulations in Python/C using the open-source code `Rebound`. We modelled binary black hole formation within active galactic nuclei accretion disks, and made available our code integrating approximate general relativistic effects into the open-source code.

University of Queensland Winter Research Scholarship Jun – Nov 2023
Supervisor: Prof Tamara Davis

- Using data of ~ 1500 supernovae from the Dark Energy Survey (DES), I developed data-driven techniques to measure the time dilation of our expanding Universe, publishing a paper on our results (in White et al [2024]).

Undergraduate Research Jun – Nov 2022
Supervisor: Dr Benjamin Pope

- Using high cadence time-series data from the TESS Space Telescope, I inferred analytic surface maps of the surfaces of stars. I found that one star in the DI Herculis system is a long-period variable, and our results are awaiting publication.

Observing and Proposals

Primary Investigator:

- VLTI observing of the colliding wind binary *Apep*, ESO Period 114 2024/5

Co-Investigator:

- ATCA Observing of Long Period Radio Transients, ATNF Semester 2025APRS + Semester 2025OCT 2025

Observing:

- Australian Telescope Compact Array (ATCA), 24hr 2025

Technical Skills

- *Programming Languages*: Python/Jax, C/C++, Git/Bash, R, Matlab, WSL/Linux, HTML
- *High-Performance Computing*: I have frequently run code on the HPC systems *OzStar* (Swinburne) and *getafix + Bunya* (University of Queensland), using the Slurm scheduling language
- *Misc. Skills*: Proficient in LaTeX, Python IDEs (e.g. VSCode), Jupyter Notebooks, among other applications/environments
  - I was a self-taught, professional artist for 3 years (2017-2020, view here), specialising in photo-realistic small scale landscapes in oil and acrylic media for which I won several statewide and local awards. I was represented in 19Karen Gallery for 2 years, and sold numerous artwork for thousands of AUD to collectors and via commissions. This experience is something I continue to bring into my work, e.g. my annotated paper summaries.

References

A/Prof Benjamin Pope
Macquarie University – Associate Professor in Astrostatistics
Academic and Teaching Supervisor of 4 Years
benjamin.pope@mq.edu.au

Professor Orsola De Marco
Macquarie University – Professor in Astrophysics
Academic Supervisor of 1 Year
orsola.demarco@mq.edu.au