Curriculum Vitae of Ryan White

Current as of August 14, 2025

PERSONAL & CONTACT INFORMATION

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EDUCATION

Master of Research — Jan 2025 – Nov 2025 (expected)
MACQUARIE UNIVERSITY
Topic: Radiative and Hydrodynamical Modelling of Colliding Wind Binaries
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
Thesis Title: *Geometric Modelling of Wolf-Rayet Binary Colliding Wind Nebulae*
Supervisors: Dr Benjamin Pope (UQ) and Prof Peter Tuthill (USyd)

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

Bachelor of Mathematics — Jul 2017 – Dec 2023
THE UNIVERSITY OF QUEENSLAND
Major in Applied Mathematics

TEACHING EXPERIENCE

SCHOOL OF MATHEMATICAL AND PHYSICAL SCIENCES, MACQUARIE UNIVERSITY

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

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

SCHOOL OF MATHEMATICS AND PHYSICS, THE UNIVERSITY OF QUEENSLAND

PHYS3080 – Computational Physics — 2023–4
Developed an interactive Python self-study tool, and tutored the course.

PHYS3071 – Extragalactic Astrophysics & Cosmology — 2024
Developed a simulated universe for use in the course, and taught weekly workshops.

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.*

RESEARCH EXPERIENCE

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

- We researched the mysterious long period radio transients. The project included analysing and cleaning ATCA and ASKAP radio data and developing new techniques to discover hidden periodic signals within interferometric visibilities.

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

- We developed N-body simulations in Python/C to model binary black hole formation within active galactic nuclei accretion disks. The simulations were compared to the rate of binary black hole inspiral measured with LIGO/VIRGO.

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

- We investigated how the expanding universe induces time dilation in the photometry of Type Ia supernovae. Using data from the Dark Energy Survey (DES), we measured the effective time dilation stretching in light curves as a function of redshift using our own Python algorithms.

Undergraduate Research Jun – Nov 2022
Supervisor: Dr Benjamin Pope

- We analysed binary star light curves utilising data from the TESS Space Telescope within Python. We inferred analytic surface maps to each component of the binary stellar system DI Herculis and found that the primary star is likely a SPB star.

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)

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

Select 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*

Awards and Scholarships

Best Masters Poster, Australian Institute of Physics Poster Day 2025
The Andy Thomas Space Foundation Uranus Scholarship 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

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 2025

Observing:

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

Talks

Stars + Planets Research in Greater Sydney (SPRIGS), Macquarie University August 2025
SIfA Seminar, University of Sydney May 2025
Weekly Co-learnium, CSIRO Marsfield January 2025
Stars in Brisbane Conference, University of Southern Queensland November 2024
Physics Club Honours Talks, University of Queensland October 2024
Mount Stromlo Student Seminars, Australian National University September 2024
UQ Science Undergraduate Research Conference, University of Queensland September 2024
Weekly Astronomy Seminar, University of Tasmania July 2024

Outreach and Communication

Astrobites Writer – Paper summaries available on my author page 2025 – Present
Annotated Papers – accessible summary of DES Time Dilation paper
Scientific American – Interviewed for an article covering White et al (2024)
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

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Technical Skills

- *Programming Languages*: Python/Jax, C/C++, Git, Windows Subsystem for Linux and Bash scripting, R, Matlab, Fortran.
- *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, VSCode/Spyder, Jupyter Notebooks, confident with the Microsoft/Google Suite, among other applications/environments. I am also a professional (but retired) traditional landscape artist.

References

Please email me to request reference contact information.