

ROWINA NATHAN

PhD Candidate

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Melbourne, Australia



rowina-n.github.io

COLLABORATIONS

Parkes Pulsar Timing Array

MeerKAT Pulsar Timing Array

International Pulsar Timing Array

OzGrav ARC

LIGO-Virgo-Kagra Scientific
Collaboration

MEDIA

ABC News TV Interview

Gravitational-wave background
discovery

Cosmos Magazine

Issue 102 scientist profile

Instagram and TikTok Science Communicator

3M+ views, 12K+ followers

RESEARCH INTERESTS

Pulsar timing, gravitational-wave background mapping, cosmic variance, bayesian inference, machine learning, pulsar glitches, physics education, data visualisation, graphic design.

EDUCATION

PhD in Astrophysics | Monash University | 2022 - 2025

Thesis due August 2025

Supervised by Paul Lasky, Eric Thrane and Greg Ashton

Profile domain timing, gravitational-wave background sky-mapping, pulsar physics

Honours in Astrophysics | Monash University | 2021

Supervised by Paul Lasky and Greg Ashton

Dynamic pulse fitting, profile domain timing, pulsar glitches

2021 Faculty of Science Dean's List Award

Bachelor of Science | Monash University | 2017 - 2020

Majors in Astrophysics, Minor in Mathematics

Bachelor of Commerce | Monash University | 2017 - 2020

Major in Business Analytics

PUBLICATIONS

FIRST-AUTHOR

Grunthal, K. & **Nathan, R. S.**, et al. (2024). [The MeerKAT Pulsar Timing Array: Maps of the gravitational-wave sky with the 4.5 year data release](#). Monthly Notices of the Royal Astronomical Society (*submitted*)

Nathan, R. S., et al. (2023). [Improving pulsar-timing solutions through dynamic pulse fitting](#). Monthly Notices of the Royal Astronomical Society, 523(3), 4405-4412.

CO-AUTHOR

Miles, M. T., et al., (2024). [The MeerKAT Pulsar Timing Array: The first search for gravitational waves with the MeerKAT radio telescope](#). Monthly Notices of the Royal Astronomical Society (*submitted*)

Miles, M. T., et al., (2024). [The MeerKAT Pulsar Timing Array: The 4.5-year data release and the noise and stochastic signals of the millisecond pulsar population](#). Monthly Notices of the Royal Astronomical Society (*submitted*)

Tong, H., Guttman, N., Clarke, T. A., Lasky, P. D., Thrane, E., Payne, E., ... & Di Marco, V. (2024). [Transdimensional inference for gravitational-wave astronomy with Bilby](#). arXiv preprint arXiv:2404.04460.

Zic, A., Reardon, D. J., Kapur, A., Hobbs, G., Mandow, R., Curyło, M., ... & Zhu, X. J. (2023). [The Parkes Pulsar Timing Array Third Data Release](#). Publications of the Astronomical Society of Australia, 40, e049.

Reardon, D. J., Zic, A., Shannon, R. M., Di Marco, V., Hobbs, G. B., Kapur, A., ... & Zhu, X. J. (2023). [The gravitational-wave background null hypothesis: Characterizing noise in millisecond pulsar arrival times with the Parkes Pulsar Timing Array](#). The Astrophysical Journal Letters, 951(1), L7.

ROWINA NATHAN

OUTREACH

OzGrav Education and Public Outreach Coordinator

Monash Node, 10+ school visits and outreach events

Women and Non-binary People+ in Physics and Astronomy

Committee Member and Mentor

Girls in Physics Breakfast

Vicphysics Teachers' Network, visiting physicist, 2023, 2024

SUPERVISION

Modelling Glitch Rises in Pulsars

Jennifer Quinlan

Honours and Undergraduate project

Dynamic Precision Pulsar Timing using Trans-dimensional Bayesian Inference

Ella Garth

Undergraduate project

PUBLICATIONS

Reardon, D. J., Zic, A., Shannon, R. M., Hobbs, G. B., Bailes, M., Di Marco, V., ... & Zhu, X. J. (2023). [Search for an isotropic gravitational-wave background with the Parkes Pulsar Timing Array](#). *The Astrophysical Journal Letters*, 951(1), L6.

Sarin, N., Lasky, P. D., & **Nathan, R. S.** (2023). [Missed opportunities: GRB 211211A and the case for continual gravitational-wave coverage with a single observatory](#). *Monthly Notices of the Royal Astronomical Society*, 518(4), 5483-5489.

Ashton, G., Lasky, P. D., **Nathan, R.**, & Palfreyman, J. (2020). [Flickering of the Vela pulsar during its 2016 glitch](#). arXiv preprint arXiv:2011.07927.

WORKSHOPS AND CONFERENCES

International Pulsar Timing Array Science Meeting | 2024
Contributed talk

International Pulsar Timing Array Student Week | 2024
Invited Talk

European Pulsar Timing Array Science Meeting | 2024
Invited Talk

International Pulsar Timing Array Science Meeting | 2023
Contributed talk and Local organising committee

International Pulsar Timing Array Student Week | 2023
Organising committee

Gravitational Wave Physics and Astronomy Workshop | 2022
Poster

Astronomical Society of Australia Scientific Meeting | 2022, 2023
Contributed talk and Talk prize honourable mention (2023)

Australian National Institute of Theoretical Astrophysics Meeting | 2022, 2023
Contributed Talk and Summer School Session Assistant (2023)

OzGrav retreat | 2021 - 2023
Contributed Talk and Outreach Award Highly Commended (2023)

EMPLOYMENT

Teaching associate | Monash University | 2022 - Present

Experience delivering workshops and labs for Introductory Astronomy (ASP1010), Astrobiology (ASP1022), Introduction to Astrophysics (APS2062), Observational Astronomy (ASP3231) and Relativity and Cosmology (ASP3051).

Social Media Coordinator | Monash Astrophysics | 2023 - Present

Responsible for running the Instagram, Facebook, Twitter, Linked-in and Bluesky accounts for Monash University Astrophysics.

Head Teacher | Code Camp | 2018 - 2022

Taught coding to children aged 6 to 13 in a classroom setting, helping them find a passion for STEM subjects from an early age.

Finance and Performance Intern | Deloitte Australia | 2019

Assisted on a project implementing Workday Financials at a tertiary institution.

Short Term Staff | Kandersteg International Scout Center | 2018 - 2020

Alpine ski guiding and internal chalet operations in the remote Swiss Alps.