

School of Physics, Faculty of Science  
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## Education

2017–2020	<b>Doctor of Philosophy</b> <i>Thesis:</i> “The Host Galaxies of High-Redshift Quasars” <i>Supervisors:</i> Professor Stuart Wyithe, Dr Simon Mutch <i>Expected Completion:</i> August 2020	<b>University of Melbourne</b>
2016	<b>Bachelor of Science with First Class Honours</b> <i>Thesis:</i> “Triggering Active Galactic Nuclei in Galaxy Clusters” <i>Supervisors:</i> Dr Stanislav Shabala, Dr habil. Martin Krause	<b>University of Tasmania</b>
2015–2017	<b>Diploma of Philosophy</b>	<b>University of Tasmania</b>
2013–2015	<b>Bachelor of Science</b> <i>GPA:</i> 7.0 (on a 7-point scale)	<b>University of Tasmania</b>

## Awards & Scholarships

- **Alan Kenneth Head Travel Scholarship**, University of Melbourne, 2018
- **Women in Physics Award**, University of Melbourne, 2017
- **Australian Government Research Training Program (RTP) Scholarship**, University of Melbourne, 2017–2020
- **Bok Prize**, for outstanding research in astronomy by an Honours student or eligible Masters student at an Australian university, Astronomical Society of Australia, 2017
- **University Medal**, the highest undergraduate award, University of Tasmania (UTAS), 2017
- **Tasmania Honours Scholarship**, UTAS, 2016
- **Adrian La Palombara Annual Appeal Honours Scholarship in Physics**, UTAS, 2016
- **Dean’s Honour Roll for the Faculty of Science, Engineering and Technology**, UTAS, 2013–2016
- **Australian Institute of Physics Prize**, for greatest proficiency in final year undergraduate Physics, UTAS, 2015
- **Premier of Tasmania National Undergraduate Scholarship**, UTAS, 2013–2016

## Selected Talks

Oct. 2020	<b>DAO Astronomy Colloquium</b> NRC Herzberg, Victoria, Canada (Remote) <i>The Host Galaxies of High-Redshift Quasars</i>
July 2020	<b>Astrophysics Seminar</b> University of Sussex, Brighton, UK (Remote) <i>The Host Galaxies of High-Redshift Quasars</i>
Mar. 2020	<b>Black Holes and Galaxies at the Edge of the Universe</b> Ringberg Castle, Germany <i>Observing quasar hosts with JWST: preparations with HST and simulations</i>
Oct. 2019	<b>Cosmic Evolution of Quasars: From the First Light to Local Relics</b> Kavli Institute for Astronomy and Astrophysics, Peking University, Beijing, China <i>The Host Galaxies of High Redshift Quasars</i>
Aug. 2019	<b>Astrophysics Seminar</b> Carnegie Mellon University, Pittsburgh, USA <i>The Host Galaxies of High-Redshift Quasars</i>

July 2019	<b>Barefoot Reionization: Exploring the First Billion Years of the Universe</b> Fitzroy Island, Queensland, Australia <i>The Host Galaxies of High-Redshift Quasars</i>
July 2018	<b>Are AGN Special?</b> Durham University, Durham, United Kingdom <i>Ram Pressure Triggers AGN in Galaxy Clusters</i>
July 2018	<b>The Early Growth of Supermassive Black Holes</b> Sexten Center for Astrophysics, Sexten, Italy <i>Exploring High-<math>z</math> Black Hole–Bulge Relations with Semi-Analytics</i>
June 2018	<b>Astronomical Society of Australia Annual Scientific Meeting</b> Swinburne University of Technology, Melbourne, Australia <i>Exploring High-<math>z</math> Black Hole–Bulge Relations with Semi-Analytics</i>
July 2017	<b>Astronomical Society of Australia Annual Scientific Meeting</b> Australian National University, Canberra, Australia <i>Triggering AGN in Galaxy Clusters</i> Bok Prize Talk

## Skills

- **Programming experience:** Python, C, MATLAB, IRAF, PyRAF,  $\text{\LaTeX}$
- **Astrophysical simulation experience:** Meraxes (development), BlueTides, SAGE
- **Data/observing experience:** JWST observation planning (APT and ETC) for large projects; Basic image processing using IRAF/PyRAF; HST WFC3 photometric analysis; Long Baseline Array data analysis

## Selected Workshops & Training

- **Galaxy Formation and Evolution in the Era of the Nancy Grace Roman Space Telescope**, Virtual Conference, July 2020
- **SAZERAC Summer All Zoom Epoch Of Reionization Astronomy Conference**, Virtual Conference, July 2020
- **São Paulo School of Advanced Science on First Light: Stars, Galaxies and Black Holes in the Epoch of Reionization**, Instituto de Astronomia, Geofísica e Ciências Atmosféricas da Universidade de São Paulo, Brazil, July–August 2019
- **SciCoder Workshop**, University of Melbourne, November 2018
- **Harley Wood School of Astronomy**, Ballarat Observatory, June 2018 (LOC member)
- **ITSO/AAO Observational Techniques Workshop**, Australian Astronomical Observatory Headquarters, April/May 2018
- **ADACS - Introduction to high performance computing (HPC) for astronomers**, Swinburne University of Technology, November 2017
- **Harley Wood School of Astronomy**, Australian National University, July 2017

## Undergraduate Research

Nov. 2015–Jan. 2016	<b>Summer Research Program</b> <i>Thesis:</i> “Simulating Binary Neutron Star Mergers with SPH” <i>Supervisors:</i> Dr James Wurster, Dr Paul Lasky	<b>Monash University</b>
July–Nov. 2015	<b>Physical Science Research Project</b> <i>Thesis:</i> “Methanol absorption in PKS B1830-211 at milliarcsecond scales” <i>Supervisor:</i> Professor Simon Ellingsen	<b>University of Tasmania</b>
Nov.–Dec. 2014	<b>Summer Vacation Research Program</b> <i>Thesis:</i> “Exoplanet Detection using Radial Velocities” <i>Supervisor:</i> Professor Robert Wittenmyer	<b>University of New South Wales</b>

## Teaching and Outreach

- **Tutor, Physical Cosmology (Masters level)**, University of Melbourne, 2018–present
- **Lab Demonstrator, Third Year Laboratory and Computational Physics**, University of Melbourne, 2018–present
- **Lab Demonstrator, First Year Physics (Advanced)**, University of Melbourne, Semester 2 2017
- **Year 10 Work Experience volunteer**, University of Melbourne, 2017–2019
- **Invited outreach talk**, Smithton Rotary Club, Tasmania, 2018,2020
- **Invited school talk**, Smithton Primary School, Tasmania, 2019
- **Invited school talk**, Riana Primary School, Tasmania, 2020

**Marshall, M. A.**, Mechtley, M., Windhorst, R. A., Cohen, S. H., Jansen, R. A., Jiang L., Jones, V. R., Wyithe, J. S. B., Fan, X., Hathi, N. P., Jahnke, K., Keel, W. C., Koekemoer, A. M., Marian, V., Ren, K., Robinson, J., Röttgering, H. J. A., Ryan, Jr., R. E., Scannapieco, E., Schneider, D. P., Schneider, G., Smith, B. M., and Yan, H.: 2020, “*Limits to Rest-Frame Ultraviolet Emission From Far-Infrared-Luminous  $z \simeq 6$  Quasar Hosts.*” ApJ 900, 21 DOI: 10.3847/1538-4357/abaa4c.

**Marshall, M. A.**, Ni, Y., Di Matteo, T., Wyithe, J. S. B., Wilkins, S., and Croft R. A. C: 2020, “*The host galaxies of  $z = 7$  quasars: predictions from the BlueTides simulation.*” Accepted for publication in MNRAS. DOI: 10.1093/mnras/staa2982.

**Marshall, M. A.**, Mutch, S. J., Qin, Y., Poole, G. B., and Wyithe, J. S. B.: 2020, “*Dark-ages Reionization and Galaxy Formation Simulation – XVIII. The high-redshift evolution of black holes and their host galaxies.*” MNRAS 494, 2747 DOI: 10.1093/mnras/staa936.

**Marshall, M. A.**, Mutch, S. J., Qin, Y., Poole, G. B., and Wyithe, J. S. B.: 2019, “*Dark-ages Reionization and Galaxy Formation Simulation – XVII. Sizes, angular momenta and morphologies of high redshift galaxies.*” MNRAS 488, 1941. DOI: 10.1093/mnras/stz1810.

**Marshall, M. A.**, Shabala, S. S., Krause, M. G. H., Pimbblet, K. A., Croton, D. J., and Owers, M. S.: 2018, “*Triggering active galactic nuclei in galaxy clusters.*” MNRAS 474, 3615. DOI: 10.1093/mnras/stx2996.

**Marshall, M. A.**, Ellingsen, S. P., Lovell, J. E. J., Dickey, J. M., Voronkov, M. A., Breen, S. L: 2017, “*Methanol absorption in PKS B1830-211 at milliarcsecond scales.*” MNRAS 466, 2450. DOI: 10.1093/mnras/stw3295.