

National Research Council Canada  
 Dominion Astrophysical Observatory  
 Victoria, Canada

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## Employment

2020–present    **Research Associate (Plaskett Fellowship)**    **National Research Council Canada**  
 Herzberg Astronomy and Astrophysics Research Centre  
 Dominion Astrophysical Observatory, Victoria, BC

## Education

2017–2020    **Doctor of Philosophy**    **University of Melbourne**  
*Thesis:* “The Host Galaxies of High-Redshift Quasars”  
*Supervisors:* Professor Stuart Wyithe, Dr Simon Mutch  
*Conferred:* March 5th 2021

2016    **Bachelor of Science with First Class Honours**    **University of Tasmania**  
*Thesis:* “Triggering Active Galactic Nuclei in Galaxy Clusters”  
*Supervisors:* Dr Stanislav Shabala, Dr habil. Martin Krause

2013–2015    **Bachelor of Science**    **University of Tasmania**

## Grants

- **NASA JWST General Observer (GO) Grant, \$211,622 USD**, Space Telescope Science Institute via Arizona State University, Funding PI Rogier Windhorst, Science PI Madeline Marshall
- **Canadian Space Agency JWST GO Grant, \$29,930 CAD**, Canadian Space Agency via University of Victoria, Funding PI Laura Ferrarese, Science PI Madeline Marshall

## Awards

- **NRC President’s Award**, Outstanding Achievement Award for the HAA James Webb Space Telescope Team, National Research Council Canada, 2023
- **Faculty of Science Postgraduate Writing-Up Award, The Albert Shimmins Fund**, University of Melbourne, 2020
- **Faculty of Science Travelling Scholarship**, University of Melbourne, 2019
- **Scholarship to attend São Paulo School of Advanced Science on First Light**, São Paulo Research Foundation (FAPESP), 2019
- **Alan Kenneth Head Travel Scholarship**, University of Melbourne, 2018
- **Rowden White Scholarship**, University of Melbourne, 2017
- **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

## Involvement in Observing Programs

- **PI**, JWST GO-1813: *Unveiling Stellar Light from Host Galaxies of  $z \sim 6$  Quasars*, (15.9 hours)
- **PI**, Gemini North, *Finding Suitable Stars to Help Uncover the Hosts of the First Quasars with JWST*, (1.33 hours DDT in 2021 and 0.45 hours FTT in 2022)
- **Co-I**, JWST GTO-1176: *Prime Extragalactic Areas for Reionization and Lensing Science (PEARLS)*, PI Windhorst
- **Associate**, *Galaxy Assembly with NIRSpec Integral Field Spectroscopy (GA-NIFS) GTO program*, PIs Arribas and Maiolino
- **Co-I**, JWST GO-1764: *A Comprehensive JWST View of the Most Distant Quasars Deep Into the Epoch of Reionization*, PIs Fan, Yang & Banados

- **Science Team Member**, CASTOR—Cosmological Advanced Survey Telescope for Optical and UV Research, 2021–present

## Student Supervision

### Graduate Students

- **Sabrina Berger (U. Melbourne)**, co-supervised with Stuart Wyithe, Dec. 2022–present  
*Using simulations to understand observations of high-redshift quasar host galaxies*

### Undergraduate Students

- **Scott Holtshousen (NRC Herzberg)**, primary supervisor, co-supervised with Laura Ferrarese and Chris Willott, 4 months full time, Sept.–Dec. 2023  
*Measuring quasar host galaxies with ALMA*
- **Laurie Amen (NRC Herzberg)**, co-supervised with Tyrone Woods and Patrick Côté, 4 months full time, May–Aug. 2022  
*Developing the CASTOR Image Forecasting Simulations (FORECASTOR) to create mock CASTOR observations*
- **Katelyn Watts (NRC Herzberg)**, primary supervisor, 4 months full time, Sept.–Dec. 2021  
*Creating BlueTides mock images to understand how observations affect the measured sizes of high- $z$  galaxies*

## Publications List

13 first-authored publications, 45 co-authored published publications, and 6 co-authored publications undergoing peer-review. Combined total of 1,552 citations, with 249 as first author. Citation counts [#] taken from the SAO/NASA Astrophysics Data System (ADS) on February 24th 2025. Students that I have supervised are also highlighted in bold-face.

### First-authored Publications

- [0] **Marshall, M. A.**, Windhorst, R. A., Ferrami, G., Willner, S. P., Polletta, M., Keel, W. C., et al. (2025), “*JWST’s PEARLS: A  $z=6$  Quasar in a Train-Wreck Galaxy Merger System*”, arXiv e-prints, arXiv:2502.20550, DOI: 10.48550/arXiv.2502.20550.
- [8] **Marshall, M. A.**, Yue, M., Eilers, A.-C., Scholtz, J., Perna, M., Willott, C. J., et al. (2024), “*GA-NIFS & EIGER: A merging quasar host at  $z=7$  with an overmassive black hole*”, Submitted to A&A, arXiv:2410.11035, DOI: 10.48550/arXiv.2410.11035.
- [1] **Marshall, M. A.**, **Amen, L.**, Woods, T. E., Côté, P., Yung, L. Y. A., Amenouche, M., et al. (2025), “*FORECASTOR - II. Simulating galaxy surveys with the Cosmological Advanced Survey Telescope for Optical and UV Research*”, MNRAS, 537, 1703, DOI: 10.1093/mnras/staf065.
- [53] **Marshall, M. A.**, Perna, M., Willott, C. J., Maiolino, R., Scholtz, J., Übler, H., et al. (2023), “*GA-NIFS: Black hole and host galaxy properties of two  $z \simeq 6.8$  quasars from the NIRSpec IFU*”, A&A, 678, A191, DOI: 10.1051/0004-6361/202346113.
- [11] **Marshall, M. A.**, **Watts, K.**, Wilkins, S., Di Matteo, T., Kuusisto, J. K., Roper, W. J., et al. (2022), “*The BLUETIDES mock image catalogue: simulated observations of high-redshift galaxies and predictions for JWST imaging surveys*”, MNRAS, 516, 1047, DOI: 10.1093/mnras/stac2111.
- [29] **Marshall, M. A.**, Wilkins, S., Di Matteo, T., Roper, W. J., Vijayan, A. P., Ni, Y., et al. (2022), “*The impact of dust on the sizes of galaxies in the Epoch of Reionization*”, MNRAS, 511, 5475, DOI: 10.1093/mnras/stac380.
- [19] **Marshall, M. A.**, Wyithe, J. S. B., Windhorst, R. A., Di Matteo, T., Ni, Y., Wilkins, S., et al. (2021), “*Observing the host galaxies of high-redshift quasars with JWST: predictions from the BLUETIDES simulation*”, MNRAS, 506, 1209, DOI: 10.1093/mnras/stab1763.
- [28] **Marshall, M. A.**, Ni, Y., Di Matteo, T., Wyithe, J. S. B., Wilkins, S., Croft, R. A. C., et al. (2020), “*The host galaxies of  $z = 7$  quasars: predictions from the BLUETIDES simulation*”, MNRAS, 499, 3819, DOI: 10.1093/mnras/staa2982.
- [29] **Marshall, M. A.**, Mechtley, M., Windhorst, R. A., Cohen, S. H., Jansen, R. A., Jiang, L., et al. (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.
- [12] **Marshall, M. A.**, Mutch, S. J., Qin, Y., Poole, G. B., & 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.

3. [17] Marshall, M. A., Mutch, S. J., Qin, Y., Poole, G. B., & 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.
2. [36] Marshall, M. A., Shabala, S. S., Krause, M. G. H., Pimbblet, K. A., Croton, D. J., & Owers, M. S. (2018), “*Triggering active galactic nuclei in galaxy clusters*”, MNRAS, 474, 3615, DOI: 10.1093/mnras/stx2996.
1. [6] 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.

## Selected Talks

Sept. 2024	<b>Probing the Genesis of Supermassive Black Holes Conference</b> Kavli IPMU, Kashiwa, Japan (attended virtually)
Sept. 2024	<b>The First Gigayear(s) Conference</b> NOIRLab, Hilo, USA
Jan. 2024	<b>Astrophysics Colloquium</b> Australian National University, Canberra, Australia
Jan. 2024	<b>Astrophysics Colloquium</b> University of Melbourne, Melbourne, Australia
June 2023	<b>First Light Conference (Invited Talk)</b> Massachusetts Institute of Technology, Cambridge, USA
June 2023	<b>Fake Light Conference</b> Center for Computational Astrophysics, Flatiron Institute, NYC, USA
Apr. 2023	<b>CANadian Virtual Astronomy Seminar (CANVAS)</b> Canada (Virtual)
Mar. 2023	<b>Astrophysics Seminar</b> University of Victoria, Victoria, Canada
Mar. 2023	<b>A New Era in Extragalactic Astronomy: Early Results from the JWST Conference</b> Cambridge University, UK
Dec. 2022	<b>First Science Results from JWST Conference</b> Baltimore (attended virtually)
Oct. 2022	<b>Cosmic Dawn with the James Webb Space Telescope Workshop</b> (invited participant) Ringberg Castle, Germany
Feb. 2022	<b>Center for Astrophysics Seminar</b> Harvard, Cambridge, USA (Virtual)
Jan. 2022	<b>Quasars and Galaxies through Cosmic Time</b> Virtual Conference
Oct. 2021	<b>SAZERAC: Models and Simulations of High-Redshift Galaxies</b> Virtual Conference
Oct. 2021	<b>Astrophysics Colloquium</b> University of British Columbia, Vancouver, Canada (Virtual)
June 2021	<b>European Astronomical Society Annual Meeting</b> Virtual Conference
June 2021	<b>SAZERAC 2</b> Virtual Conference
Dec. 2020	<b>SAZERAC: Quasars During Reionisation</b> Virtual Conference
Oct. 2020	<b>DAO Astronomy Colloquium</b> NRC Herzberg, Victoria, Canada (Virtual)
July 2020	<b>Astrophysics Seminar</b> University of Sussex, Brighton, UK (Virtual)
Mar. 2020	<b>Black Holes and Galaxies at the Edge of the Universe Workshop</b> (invited participant) Ringberg Castle, Germany
Oct. 2019	<b>Cosmic Evolution of Quasars: From the First Light to Local Relics Conference</b> Kavli Institute for Astronomy and Astrophysics, Peking University, Beijing, China
Aug. 2019	<b>Astrophysics Seminar</b> Carnegie Mellon University, Pittsburgh, USA
July 2019	<b>Barefoot Reionization: Exploring the First Billion Years of the Universe Conference</b> Fitzroy Island, Queensland, Australia
July 2018	<b>Are AGN Special? Conference</b> Durham University, Durham, UK
July 2018	<b>The Early Growth of Supermassive Black Holes Conference</b> Sexten Center for Astrophysics, Sexten, Italy
June 2018	<b>Astronomical Society of Australia Annual Scientific Meeting</b> Swinburne University of Technology, Melbourne, Australia
July 2017	<b>Astronomical Society of Australia Annual Scientific Meeting (Bok Prize Talk)</b> Australian National University, Canberra, Australia

## Professional Activities

- **Scientific Organising Committee Member**, Kaba Kada: Exploring the First Billion Years of the Universe, Port Douglas, Australia, 2025
- **DAO Seminar Series organising committee**, NRC Herzberg, 2021–2024
- **Early Career Research Network (NRC ECRN)**, National Research Council of Canada, 2020–2022
- **Local Organising Committee Member**, Harley Wood School of Astronomy, Ballarat, Australia, 2018
- **Member of the Astronomical Society of Australia**, ASA, 2017–present
- **Member of the Canadian Astronomical Society**, CASCA, 2021–2024
- **Member of the ARC Centre of Excellence for All Sky Astrophysics in 3D**, ASTRO 3D, 2017–2024
- **Referee for Monthly Notices of the Royal Astronomical Society, the Astrophysical Journal and Nature Astronomy**
- **Referee for Gemini Canadian Time Allocation Committee (CanTAC)**
- **External Panelist for JWST peer review**