

J. R. Oppenheimer Postdoctoral Fellow
Los Alamos National Laboratory
Los Alamos, New Mexico, USA, 87545

Email: madeline_marshall@outlook.com
Website: <https://madelinemarshall.github.io>

Employment

- 2024–present **J. R. Oppenheimer Postdoctoral Fellow**
Los Alamos National Laboratory, Los Alamos, NM, USA
- 2020–2024 **Research Associate (Plaskett Fellowship)**
National Research Council Canada, Herzberg Astronomy and Astrophysics Research Centre,
Dominion Astrophysical Observatory, Victoria, BC, Canada

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
Double major in Physics and Applied Mathematics”

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 ~ 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

- **Claire Whitley (LANL)**, primary supervisor, co-supervised with Joyce Guzik, 3 months full time, May–Aug. 2025
Determining merging frequencies of quasars in the BlueTides simulation
- **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 and 56 co-authored peer-reviewed publications. Combined total of 2,527 citations, with 334 as first author. Citation counts [#] taken from the SAO/NASA Astrophysics Data System (ADS) on December 12th 2025. Supervised students are also highlighted in bold-face.

First-authored Publications

13. [8] **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*”, A&A, 702, A174, DOI: 10.1051/0004-6361/202554307.
12. [33] **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*”, A&A, 702, A50, DOI: 10.1051/0004-6361/202452650.
11. [3] **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.
10. [77] **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.
9. [14] **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.
8. [35] **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.
7. [20] **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.
6. [30] **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.

5. [36] **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.
4. [13] **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. [42] **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

Dec. 2025	Highly Accreting Supermassive Black Holes Across all Cosmic Times Conference ESO, Santiago, Chile (attended virtually)
Sept. 2025	Exploring the First Billion Years of the Universe Conference Port Douglas, Australia
Apr. 2025	Astrophysics Seminar Texas A&M University, College Station, USA (Virtual)
Sept. 2024	Probing the Genesis of Supermassive Black Holes Conference Kavli IPMU, Kashiwa, Japan (attended virtually)
Sept. 2024	The First Gigayear(s) Conference NOIRLab, Hilo, USA
Jan. 2024	Astrophysics Colloquium Australian National University, Canberra, Australia
Jan. 2024	Astrophysics Colloquium University of Melbourne, Melbourne, Australia
June 2023	First Light Conference (Invited Talk) Massachusetts Institute of Technology, Cambridge, USA
June 2023	Fake Light Conference Center for Computational Astrophysics, Flatiron Institute, NYC, USA
Apr. 2023	CANadian Virtual Astronomy Seminar (CANVAS) Canada (Virtual)
Mar. 2023	Astrophysics Seminar University of Victoria, Victoria, Canada
Mar. 2023	A New Era in Extragalactic Astronomy: Early Results from the JWST Conference Cambridge University, UK
Dec. 2022	First Science Results from JWST Conference Baltimore (attended virtually)
Oct. 2022	Cosmic Dawn with the James Webb Space Telescope Workshop (invited participant) Ringberg Castle, Germany
Feb. 2022	Center for Astrophysics Seminar Harvard, Cambridge, USA (Virtual)
Jan. 2022	Quasars and Galaxies through Cosmic Time Virtual Conference
Oct. 2021	SAZERAC: Models and Simulations of High-Redshift Galaxies Virtual Conference
Oct. 2021	Astrophysics Colloquium University of British Columbia, Vancouver, Canada (Virtual)
June 2021	European Astronomical Society Annual Meeting Virtual Conference
June 2021	SAZERAC 2 Virtual Conference
Dec. 2020	SAZERAC: Quasars During Reionisation Virtual Conference
Oct. 2020	DAO Astronomy Colloquium NRC Herzberg, Victoria, Canada (Virtual)
July 2020	Astrophysics Seminar University of Sussex, Brighton, UK (Virtual)
Mar. 2020	Black Holes and Galaxies at the Edge of the Universe Workshop (invited participant) Ringberg Castle, Germany
Oct. 2019	Cosmic Evolution of Quasars: From the First Light to Local Relics Conference Kavli Institute for Astronomy and Astrophysics, Peking University, Beijing, China
Aug. 2019	Astrophysics Seminar Carnegie Mellon University, Pittsburgh, USA
July 2019	Barefoot Reionization: Exploring the First Billion Years of the Universe Conference Fitzroy Island, Queensland, Australia
July 2018	Are AGN Special? Conference Durham University, Durham, UK

July 2018	The Early Growth of Supermassive Black Holes Conference Sexten Center for Astrophysics, Sexten, Italy
June 2018	Astronomical Society of Australia Annual Scientific Meeting Swinburne University of Technology, Melbourne, Australia
July 2017	Astronomical Society of Australia Annual Scientific Meeting (Bok Prize Talk) Australian National University, Canberra, Australia

Teaching Experience

- **Tutor, Physical Cosmology (Masters level)**, University of Melbourne, 2018–2020
- **Lab Demonstrator, Third Year Laboratory and Computational Physics**, University of Melbourne, 2018–2019
- **Lab Demonstrator, First Year Physics (Advanced)**, University of Melbourne, Semester 2 2017

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)**
- **Referee for Subaru Telescope Open Use proposal peer-review**
- **External Panelist for JWST peer review**

Last updated on December 15th, 2025.