O. Grace Telford, Ph.D.

University of Utah Department of Physics & Astronomy grace.telford@utah.edu
275 South University Street, Salt Lake City, UT 84112 http://ogtelford.github.io

Employment & Education

University of Utah
Assistant Professor of Physics & Astronomy 2026 –

Princeton University & Carnegie Observatories
Carnegie-Princeton Postdoctoral Fellow 2023 – 2026

Rutgers University
Postdoctoral Associate 2019 – 2023

University of Washington
Ph.D. in Astronomy with Specialization in Advanced Data Science 2014 – 2019
Thesis: "Using Metals and Stars to Constrain Galaxies' Past Gaseous Inflows and Outflows"
Advisors: Julianne Dalcanton and Jessica Werk
Data science coursework: machine learning, database management, data visualization
M.S. in Astronomy 2013 – 2014

University of Pittsburgh
B.S. in Physics and Astronomy 2008 – 2013
B.S.E. in Bioengineering with Signals & Imaging Concentration 2008 – 2013

Awarded Grants and Telescope Time

PI of NASA Keck Observatory Program 2025B_N091 – 1 night, $16k 2025
Co-I of JWST Cycle 4 Program GO-7800 – 20 hours 2025
Co-I of JWST Cycle 4 Program GO-7396 – 42 hours 2025
Co-I of HST Cycle 32 Program GO-17833 – 162 orbits 2024
PI of NASA Keck Observatory Program 2024B_N014/N015 – 2.5 nights, $21k 2024
Co-I of JWST Cycle 3 Program GO-5255 – 14.7 hours 2024
PI of NASA Keck Observatory Program 2024A_N063 – 1.5 nights, $16k 2023
PI of Hubble Space Telescope Cycle 31 Treasury Program GO-17491 – 110 orbits, $269k 2023
Co-PI of Hubble Space Telescope Cycle 31 Program AR-17557 2023
PI of JWST Cycle 2 Program GO-3449 – 15.4 hours, $191k 2023
PI of NASA Keck Observatory Program 2023A_N048 – 1 night, $15k 2022
Co-I of Hubble Space Telescope Cycle 30 Program GO-17102 – 16 orbits 2022
PI of NASA Keck Observatory Program 2022B_N011 – 1 night, $14k 2022
PI of Hubble Space Telescope Mid-Cycle 29 Program GO-16920 – 14 orbits, $109k 2022
PI of Hubble Space Telescope Cycle 29 Program GO-16767 – 32 orbits, $357k 2021

PI of NASA Keck Observatory Program 2021B_N194 – 1 night, $12k 2021
Co-I of ALMA Cycle 8 Program 2021.1.00169.S – 14.9 hours 2021
Co-I of JWST Cycle 1 Program GO-1617 – 35.7 hours 2021
PI of Hubble Space Telescope Cycle 28 Program AR-16155 – $158k 2020
Co-I of Hubble Space Telescope Cycle 28 Program AR-16144 2020
Co-I of NASA Keck Observatory Program 2020B_N194 – 1 night 2020
Co-I of Gemini Observatory Program GS-2020B-FT-201 – 13.7 hours 2020
Co-I of Hubble Space Telescope Mid-Cycle 27 Program GO-16048 – 13 orbits 2019

Fellowships

Carnegie-Princeton Postdoctoral Fellowship 2023
NASA Hubble Postdoctoral Fellowship (Declined) 2023
Momental Foundation Mistletoe Research Fellowship 2022
NSF Graduate Research Fellowship 2015
NSF Integrative Graduate Education and Research Traineeship for Data Science 2014

Teaching & Mentoring

Students Advised:

Abby Mintz (Princeton) – analyzed DEIMOS spectra of NGC 3109 (PI: Telford) 2023 – 2025
Ciarán Furey (Amsterdam, co-advised) – master's thesis on metal-poor O stars 2023 – 2025
Arya Lakshmanan (Rutgers) – Henry Rutgers Scholar Award for senior thesis 2021 – 2023
Avery Kiihne (Rutgers) – Chambliss Award Honorable Mention at AAS #238 2019 – 2021
Olivia Petry, Travis Mandeville (UW Pre-Major in Astronomy Program) 2017 – 2018

Teaching Experience:

Instructor for the Princeton Undergraduate Summer Research Program Bootcamp 2024
Guest Lecturer for Astronomy 522: Extragalactic Astronomy at Princeton University 2023
Guest Lecturer for Physics 342: Principles of Astrophysics at Rutgers University 2023
Lead organizer and instructor for Rutgers JWST Proposal Tools Workshop 2020
Software Carpentry Workshops (taught Python, Linux, Git, and GitHub) 2017 – 2018
TA for undergraduate courses: Introduction to Astronomy, The Planets 2013 – 2014

Leadership, Service, & Inclusion Work

PI of the Treasury of Extremely Metal-Poor O Stars (TEMPOS) Collaboration 2023 –
Member of Habitable Worlds Observatory Working Groups 2023 –
Lead of XShootU Collaboration Working Group 9 on Massive Star Feedback 2022 –

Referee for the Astrophysical Journal, Astronomy & Astrophysics	2016 –
Lead organizer of a 3-week Aspen Center for Physics 2025 Summer Workshop	2024 – 2025
Lead of seminars on applying for postdoctoral positions (Rutgers & Princeton)	2022 – 2024
Completed Advancing Inclusive Mentoring (AIM) Training at Carnegie Science	2024
Time Allocation Committee Member for HST Cycle 28, 29 and JWST Cycle 2	2020 – 2023
Founding co-organizer of Rutgers Physics Equity & Inclusion Journal Club	2020 – 2021

Selected Recent Talks

Invited Seminars & Colloquia:

Carnegie Observatories Colloquium	2025
Aspen Center for Physics Colloquium	2025
NASA Goddard Space Flight Center Colloquium	2025
Penn State Astronomy & Astrophysics Seminar	2024
UC Santa Cruz Astronomy & Astrophysics Seminar	2024

Invited Conference Talks:

The Baryon Cycle from Reionization to Cosmic Noon	2025
STScI Spring Symposium: The Intersection Between Stars and the ISM	2025
KITP Conference: Cosmic Dawn Revealed by JWST	2024
UV Galaxies 2023: Illuminating Galaxy Properties Across Cosmic Time	2023

Press

Results presented in Telford et al. (2025) featured in a *Nature Research Briefing* 2025

- Telford, O. G. & Sandstrom, K., "Molecular gas in a low-dust galaxy hints at how stars formed in the early Universe," https://doi.org/10.1038/d41586-025-01979-z

Rutgers press release for McQuinn, Newman, Skillman, Telford et al. (2024) 2025

Astrobites summary of results presented in Telford et al. (2023) 2024

Armagh Observatory & Planetarium press release for XShootU Survey Paper 2023

Results presented in Telford et al. (2021) profiled in *PNAS Front Matter* 2022

- Croswell, K., "Nearby primitive galaxies offer a window into the early universe," https://doi.org/10.1073/pnas.2204371119

Publications

29 astrophysics papers published or under peer review (see papers on ADS)
Summary statistics from ADS: 4601 citations, h-index = 14

First-Author Papers (7):

7. "Molecular Hydrogen in the Extremely Metal-Poor, Star-Forming Galaxy Leo P"
   Telford, O. G., Sandstrom, K., McQuinn, K., Glover, S., Tarantino, L., Bolatto, A., and Rickards Vaught, R. 2025, Nature, DOI: 10.1038/s41586-025-09115-7

6. "Observations of Extremely Metal-Poor O Stars: Weak Winds and Constraints for Evolution Models"
   Telford, O. G., Chisholm, J., Sander, A., Ramachandran, V., McQuinn, K., and Berg, D. 2024, ApJ, 974 85

5. "The Ionizing Spectra of Extremely Metal-Poor O Stars: Constraints from the Only H II Region in Leo P"
   Telford, O. G., McQuinn, K., Chisholm, J., and Berg, D. 2023, ApJ, 943, 65

4. "Far-Ultraviolet Spectra of Main-Sequence O Stars at Extremely Low Metallicity"
   Telford, O. G., Chisholm, J., McQuinn, K., and Berg, D. 2021, ApJ, 922, 191

3. "Mass-to-Light Ratios of Spatially Resolved Stellar Populations in M31"
   Telford, O. G., Dalcanton, J., Williams, B., Bell, E., Dolphin, A., Durbin, M., and Choi, Y. 2020, ApJ, 891, 32

2. "Spatially Resolved Metal Loss from M31"
   Telford, O. G., Werk, J., Dalcanton, J., and Williams, B. 2019, ApJ, 877, 120

1. "Exploring Systematic Effects in the Relation between Stellar Mass, Gas Phase Metallicity, and Star Formation Rate"
   Telford, O. G., Dalcanton, J., Skillman, E., and Conroy, C. 2016, ApJ, 827, 35

Contributing-Author Papers (22):

22. "SDSS-V LVM: Detectability of Wolf-Rayet stars and their He II ionizing flux in low-metallicity environments I. The weak-lined, early-type WN3 stars in the SMC"
    González-Torà, G., et al. (including **Telford, O. G.**) 2025, submitted to A&A, arXiv:2509.04569

21. "Counting Little Red Dots at $z < 4$ with Ground-based Surveys and Spectroscopic Follow-up"
    Ma, Y. et al. (including **Telford, O. G.**) 2025, submitted to ApJL, arXiv:2504.08032

20. "Leonessa: An Extremely Metal-poor Galaxy Undergoing Secular Chemical Evolution" Breneman, J., McQuinn, K., Menchaca, A., Berg, D., **Telford, O. G.**, Newman, M., Dolphin, A., and Zeimann, G. 2025, accepted to ApJ, arXiv:2508.09248

19. "The wind properties of O-type stars at sub-SMC metallicity" Furey, C.†, **Telford, O. G.**, de Koter, A., Backs, F., Brands, S., Vink, J., Kaper, L., Gomez-Mantecon, J., Tramper, F., and Garcia, M. 2025, A&A, 698, A9
†*Student-led paper, co-advised by Grace Telford & Alex de Koter*

18. "A Spectroscopic Survey of Metal-Poor OB Stars in Local Dwarf Galaxy NGC 3109" Mintz, A.†, **Telford, O. G.**, Kirby, E., Chisholm, J., McQuinn, K., and Berg, D. 2025, ApJ, 985, 150
†*Student-led paper analyzing data from NASA Keck Program 2023A_N048 (PI: Telford)*

17. "X-Shooting ULLYSES: Massive Stars at Low Metallicity X. Physical Parameters and Feedback of Massive Stars in the LMC N11 B Star-Forming Region" Gómez-González et al. (including **Telford, O. G.**) 2025, A&A, 695, 197

16. "Early Bright Galaxies from Helium Enhancements in High-Redshift Star Clusters" Katz, H., Ji, A., **Telford, O. G.**, and Senchyna, P. 2024, OJAp, 9, 160

15. "The Ancient Star Formation History of the Extremely Low-Mass Galaxy Leo P: An Emerging Trend of a Post-Reionization Pause in Star Formation" McQuinn, K., Newman, M., Skillman, E., **Telford, O. G.**, Brooks, A., Adams, E., Berg, D., Boyer, M., Cannon, J., Dolphin, A., Pahl, A. Rhode, K., Salzer, J., Cohen, R., and Goldman, S. 2024, ApJ, 976, 60

14. "An Empirical Calibration of the Tip of the Red Giant Branch Distance Method in the Near Infrared. II. JWST NIRCam Wide Filters" Newman, M., McQuinn, K., Skillman, E., Boyer, M., Cohen, R., Dolphin, A., and **Telford, O. G.** 2024, ApJ, 975, 195

13. "Scylla III. The Outside-In Radial Age Gradient in the Small Magellanic Cloud and the Star Formation Histories of the Main Body, Wing and Outer Regions" Cohen et al. (including **Telford, O. G.**) 2024, ApJ, 975, 43

12. "Scylla II. The Spatially Resolved Star Formation History of the Large Magellanic Cloud Reveals an Inverted Radial Age Gradient" Cohen et al. (including **Telford, O. G.**) 2024, ApJ, 975, 42

11. "The Scatter Matters: Circumgalactic Metal Content in the Context of the M-σ Relation" Sanchez, N., Werk, J., Christensen, C., **Telford, O. G.**, Tremmel, M., Quinn, T., Mead, J., Sharma, R., and Brooks, A. 2024, ApJ, 967, 100

10. "An Empirical Calibration of the Tip of the Red Giant Branch Distance Method in the Near Infrared. I. HST WFC3/IR F110W and F160W Filters" Newman, M., McQuinn, K., Skillman, E., Boyer, M., Cohen, R., Dolphin, A., and **Telford, O. G.** 2024, ApJ, 966, 175

9. "A Comprehensive Investigation of Metals in the Circumgalactic Medium of Nearby Dwarf Galaxies"
   Zheng, Y., Faerman, Y., Oppenheimer, B., Putman, M., McQuinn, K., Kirby, E., Burchett, J., **Telford, O. G.**, Werk, J., and Kim, D. 2024, ApJ, 960, 55

8. "Spatially-Resolved Recent Star Formation History in NGC 6946"
   Tran, D., Williams, B., Levesque, E., Lazzarini, M., Dalcanton, J., Dolphin, A., Koplitz, B., Smercina, A., and **Telford, O. G.** 2023, ApJ, 954, 211

7. "X-Shooting ULLYSES: massive stars at low metallicity. I. Project Description"
   Vink, J., et al. (including **Telford, O. G.**) 2023, A&A, 675, A154

6. "The Panchromatic Hubble Andromeda Treasury: Triangulum Extended Region (PHATTER) II. The Spatially Resolved Recent Star Formation History of M33"
   Lazzarini, M., et al. (including **Telford, O. G.**) 2022, ApJ, 934, 76

5. "Star Formation Histories from SEDs and CMDs Agree: Evidence for Synchronized Star Formation in Local Volume Dwarf Galaxies over the Past 3 Gyr"
   Olsen, C., Gawiser, E., Iyer, K., McQuinn, K., Johnson, B., **Telford, O. G.**, Wright, A., Broussard, A., and Kurczynski, P. 2021, ApJ, 913, 45

4. "CANDELS Visual Classifications: Scheme, Data Release, and First Results"
   Kartaltepe, J., et al. (including **Telford, O. G.**) 2015, ApJS, 221, 11

3. "The host galaxies of X-ray selected active galactic nuclei to z = 2.5: Structure, star formation, and their relationships from CANDELS and Herschel/PACS"
   Rosario, D., et al. (including **Telford, O. G.**) 2015, A&A, 573, A85

2. "CANDELS: The Cosmic Assembly Near-infrared Deep Extragalactic Legacy Survey – The Hubble Space Telescope Observations, Imaging Data Products, and Mosaics"
   Koekemoer, A., et al. (including **Telford, O. G.**) 2011, ApJS, 197, 36

1. "CANDELS: The Cosmic Assembly Near-infrared Deep Extragalactic Legacy Survey"
   Grogin, N., et al. (including **Telford, O. G.**) 2011, ApJS, 197, 35

Other Publications:

1. "X-Shooting ULLYSES: Massive Stars at Low Metallicity"
   Vink, J., et al. (including **Telford, O. G.**) 2024, ESO Messenger, arXiv:2405.00085

2. "Gaussian Mixture Models Use-Case: In-Memory Analysis with Myria"
   Maas, R., Hyrkas, J., **Telford, O. G.**, Balazinska, M., Connolly, A., and Howe, B. 2015, *Proceedings of the 3rd Very Large Databases Workshop on In-Memory Data Management*
   • NB: computer science paper not reflected in ADS statistics; 12 citations.