O. Grace Telford, Ph.D.

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Education

University of Washington

Ph.D. in Astronomy with Specialization in Advanced Data Science 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 2014

University of Pittsburgh

B.S. in Physics and Astronomy 2013

B.S.E. in Bioengineering with Concentration in Signals & Imaging 2013

Academic Positions

Rutgers University

Postdoctoral Associate 2019 –

University of Washington

NSF Graduate Research Fellow 2016 – 2019
NSF Big Data IGERT Fellow 2014 – 2016
Teaching Assistant 2013 – 2014

University of Pittsburgh

Undergraduate Researcher in Physics & Astronomy 2010 – 2013
Undergraduate Researcher at the Simulation & Medical Technology Center 2009 – 2012

National Solar Observatory

NSF REU Student 2010

Awarded Grants and Telescope Time

PI of JWST Cycle 2 Program GO-3449 – 15.4 hours 2023

PI of NASA Keck Observatory Semester 2023A Program – 1 night, $15k 2022

Co-I of Hubble Space Telescope Cycle 30 Program GO-17102 – 16 orbits 2022

PI of NASA Keck Observatory Semester 2022B Program – 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 Semester 2021B Program – 1 night, $12k 2021

Co-I of ALMA Cycle 8 Program – 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 Semester 2020B Program – 1 night 2020
Co-I of Gemini Observatory Semester 2020B Program – 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

Research Advisor to Undergraduate Students:

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

Instructor for Courses and Workshops:

Guest Lecturer for Physics 342: Principles of Astrophysics at Rutgers University 2023
Rutgers JWST Proposal Tools Workshop (**lead organizer**) 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

Lead of XShootU Collaboration Working Group 9 on Massive Star Feedback 2022 –
Referee for Astronomy & Astrophysics 2016 – 2022
Rutgers APS Conference for Undergraduate Women in Physics LOC Member 2021 – 2022
Proposal Reviewer for Hubble Space Telescope Cycles 28, 29 2020 – 2022
Founding co-organizer of Rutgers Physics Equity & Inclusion Journal Club 2020 – 2021

Selected Recent Talks

Invited Seminars & Colloquia:

University of Notre Dame Astrophysics Seminar 2023
Columbia University Local Local-Group Group Meeting 2023
Washington State University Physics & Astronomy Colloquium 2023

University of Pennsylvania Astrophysics Seminar 2022
Universität Heidelberg ARI Galaxy Evolution Group Seminar 2022
Armagh Observatory and Planetarium Research Seminar 2022
Princeton University Star Formation/ISM Rendezvous 2022

Conference Talks:

Galactic Frontiers: Dwarf Galaxies in the Local Volume and Beyond 2023
Lorentz Center Workshop "ULLYSES Sets Sail" (**Invited**) 2022
IAU GA: S370 (Stellar Winds) & FM4 (UV Insights to Massive Stars) 2022
A Holistic View of Feedback and Galaxy Evolution 2022
Splinter Meeting on Early ULLYSES Results at AAS #240 (**Invited**) 2022
IAU Symposium 361: Massive Stars Near and Far 2022
Wolfe Symposium (Conference on the CGM; **Invited**) 2022
RAS Specialist Discussion: the Production and Escape of Lyman Photons 2022
Early Galaxy Formation Near and Far – Preparing for JWST 2021
Baltimore Wind Workshop (**Invited**) 2021
SAZERAC (Conference on the Epoch of Reionization) 2021

Press & Outreach

Results from Telford et al. (2021) profiled in PNAS Front Matter 2022
Public lecturer for amateur astronomy organizations in New Jersey 2021
Interview for *Radio Physics* for KDNK radio and the Aspen Center for Physics 2021
Presenter at the University of Washington Planetarium 2014 – 2017

Publications

Summary statistics from the Astrophysics Data System (May 2023):
14 astrophysics papers with an h-index of 7 and 3415 total citations

First-Author Papers (5):

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 (9):

9. "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. 2023, arXiv: 2305.07672

8. "X-Shooting ULLYSES: massive stars at low metallicity. I. Project Description"
   Vink, J., et al. (including **Telford, O. G.**) 2023, arXiv: 2305.06376

7. "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., 2023, arXiv: 2301.12233

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

Computer Science Paper (1): [NB: not reflected in ADS statistics; 11 citations]

1. "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*