Wynne Turner

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Research Interests

Cosmology, dark energy, high-z universe, high-z spectroscopic tracers, Lyman-α forest, intergalactic medium, machine learning

Education

The Ohio State University 2020 – present
Advisor: Paul Martini
Ph.D., Astronomy (expected) June 2026
M.S., Astronomy April 2024

University of California, Los Angeles 2016–2018
Honors College
B.S., Physics Dec. 2018

Honors & Awards

Three Minute Thesis (3MT) University Finalist 2025
David J.P. Will Prize in Computational, Survey & Data Science ($1000) 2024
Edward F. Hayes Advanced Research Forum, 2nd place winner ($400) 2024
Mathematical & Physical Sciences, Oral Presentations
OSU University Fellowship ($28,000) 2020 – 2021
UCLA Honors College 2017 – 2018

Conference & Seminar Presentations

Invited Talks
Seminar *University College London* Oct. 2025
Seminar *Institute of Cosmology and Gravitation (Portsmouth)* Oct. 2025
Seminar *IFAE* Sept. 2025
Talk *Ohio Cosmic Connections Workshop* Apr. 2025
Talk *Lyman-alpha Workshop (OSU)* Oct. 2024
Plenary *DESI Collaboration Meeting (Marseille)* July 2024

Contributed Talks
Parallel Talk *COSMO-25 (Pittsburgh)* Oct. 2025
Parallel Talks (5) *DESI Collaboration Meetings* Dec. 2023 – July 2025
Poster *Astrophysical Frontiers (Portland)* June 2018

+ *several local and internal DESI talks*

Service & Outreach

Activities

DESI Education & Public Outreach Committee — Aug. 2024 – present

Co-Chair — Aug. 2025 – present

Broadening the accessibility of DESI's science and results through the DESI website, the development of paper guides, and coordinating efforts across the 700-member collaboration

DESI Support Observer (in-person at Kitt Peak) — 7 half-nights, May 2025

OSU Polaris Undergraduate Mentorship Program — Mentor, 2021 – 2025

Mentored undergraduates in astrophysics and advised research projects that resulted in poster presentations.

Polygence Mentorship Program — Mentor, 2022 – 2023

Mentored high school students in research projects that led to submission to a high school journal.

SciAccess Zenith Mentorship Program — Mentor, 2020 – 2021

Mentored a low-vision high school student in an astronomy project.

Talks & Panels

Cesar Chavez High School (Arizona) — Jan. 2024

Virtual panel on careers in academia to a Title I high school

Queen Elizabeth High School (Zimbabwe) — June 2023

Virtual presentation on my research to a girls' high school physics class in Africa (more information)

Publications (link to my ADS library)

Lead Author

1. **W. Turner**, A. Cuceu, P. Martini et al., *Probing the limits of cosmological information from the Lyman-α forest 2-point correlation functions* (2025) | under review
2. **W. Turner**, P. Martini, N. Karacayli et al., *New Measurements of the Lyman-α Forest Continuum and Effective Optical Depth with LyCAN and DESI Y1 Data* (2024), *ApJ*, 976, 143 | doi:10.3847/1538-4357/ad8239

Contributing Author

3. DESI Collaboration: M. Abdul-Karim, J. Aguilar, and 147 additional authors including **W. Turner**, *DESI DR2 Results I: Baryon Acoustic Oscillations from the Lyman Alpha Forest* (2025) | arXiv:2503.14739
4. DESI Collaboration: M. Abdul-Karim, J. Aguilar, and 184 additional authors including **W. Turner**, *DESI DR2 Results II: Measurements of Baryon Acoustic Oscillations and Cosmological Constraints* (2025) | arXiv:2503.14738
5. DESI Collaboration: M. Abdul-Karim, A. G. Adame, and 275 additional authors including **W. Turner**, *Data Release 1 of the Dark Energy Spectroscopic Instrument* (2025) | arXiv:2503.14745
6. L. Casas, H. K. Herrera-Alcantar, J. Chaves-Montero, and 95 additional authors including **W. Turner**, *Validation of the DESI DR2 Lyα BAO analysis using synthetic datasets* (2025) | arXiv:2503.14741

7. A. Brodzeller, M. Wolfson, D. M. Santos, and 96 additional authors including **W. Turner**, *Construction of the Damped Lyα Absorber Catalog for DESI DR2 Lyα BAO* (2025) | arXiv:2503.14740
8. U. Andrade, E. Paillas, J. Mena-Fernández, and 116 additional authors including **W. Turner**, *Validation of the DESI DR2 Measurements of Baryon Acoustic Oscillations from Galaxies and Quasars* (2025) | arXiv:2503.14742
9. K. Lodha, R. Calderon, W. L. Matthewson, and 122 additional authors including **W. Turner**, *Extended Dark Energy analysis using DESI DR2 BAO measurements* (2025) | arXiv:2503.14743
10. W. Elbers, A. Aviles, H. E. Noriega, and 116 additional authors including **W. Turner**, *Constraints on Neutrino Physics from DESI DR2 BAO and DR1 Full Shape* (2025) | arXiv:2503.14744
11. E. Tsai, A. Palla, A. Norris, and 36 additional authors including **W. Turner**, *Remote sensing of electron precipitation mechanisms enabled by ELFIN mission operations and ADCS* (2025), *AdSpR*, 75, 9 | doi:10.1016/j.asr.2024.07.008
12. V. Angelopoulos, X. J. Zhang, A. V. Artemyev, and 83 additional authors including **W. Turner**, *Energetic Electron Precipitation Driven by Electromagnetic Ion Cyclotron Waves from ELFIN's Low Altitude Perspective* (2023), *Space Sci Rev*, 219, 37 | doi:10.1007/s11214-023-00984-w
13. V. Angelopoulos, E. Tsai, C. Wilkins, and 80 additional authors including **W. Turner**, *Atmospheric scattering of energetic electrons from near-Earth space* (2021) | doi:10.21203/rs.3.rs-319558/v1
14. V. Angelopoulos, E. Tsai, L. Bingley, and 79 additional authors including **W. Turner**, *The ELFIN Mission* (2020), *Space Sci Rev*, 216, 103 | doi:10.1007/s11214-020-00721-7

Research Positions

Graduate Student Researcher (OSU) — 2020 – present
Advisor: Paul Martini
Lyman-alpha forest cosmology with DESI

Lab Scientist (UCLA) — 2018 – 2020
Advisor: Vassilis Angelopoulos
Electron Losses and Fields Investigation (ELFIN) science team

Lab Scientist (UCLA) — 2019
Advisor: Matt Malkan
Extragalactic astrophysics using HSC and Keck data

Research Assistant (UCLA) — 2017 – 2018
Advisor: Steven Furlanetto
Dust extinction modeling at high-z

Research Assistant (UCLA) — Summers 2017; 2018
Advisor: Jean-Luc Margot
Asteroid radar database technology

Advising & Mentoring

Undergraduate Students (7)

Deeti Patel *primary advisor*	May 2025 – present
Elle Moore *Polaris Program*	Fall 2024 – Spring 2025
Abigail Falk *co-advised with Paul Martini*	Summer 2024
Jane Torma *Polaris Program*	Fall 2023 – Spring 2024
Kwasie Bobie *Polaris Program*	Fall 2022 – Spring 2023
Anya Phillips *Polaris Program*	Fall 2021 – Spring 2022
Hirak Basu *Polaris Program*	Fall 2021 – Spring 2022

High School Students (2)

Polygence Mentorship Program

Haarika M.	Mar. 2023 – Jan. 2023
Amir A.	Apr. 2022 – Dec. 2022

Teaching

Graduate Teaching Associate (OSU)

ASTR 2142: Black Holes, *taught by D. Weinberg* (including one substitute lecture)	Spring 2025
ASTR 2141: Life in the Universe, *taught by M. Pinsonneault*	Spring 2025
ASTR 1101: From Planets to the Cosmos, *Lab*	Fall 2024
ASTR 1221: Astronomy Data Analysis, *taught by J. Wang*	Fall 2024
ASTR 5550: Adv. Astronomy Data Analysis, *taught by P. Martini* (including two substitute lectures)	Spring 2024
ASTR 1143: Cosmology, *taught by C. Hirata*	Spring 2024

Grader (UCLA) Spring 2017 – Fall 2018

Collaboration & Society Memberships

Dark Energy Spectroscopic Instrument (DESI)	2020 – present
American Astronomical Society (AAS)	2025 – present

Programming Languages & Skills

Fluent: `Python`, LaTeX, bash, GitHub
Proficient: high-performance computing, deep learning, `IDL`, `R`, `SQL`, `Mathematica`