Wynne Turner

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Education

The Ohio State University 2020 – present
Dissertation title: *Novel methods for Lyman-alpha forest cosmology*
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

Ann S. Tuttle Paper Award ($500) 2025
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 of California, Riverside* Jan. 2026
Seminar *Ohio University* Dec. 2025
Seminar *Berkeley Center for Cosmological Physics (BCCP)* Nov. 2025
Seminar *University College London* Oct. 2025
Seminar *Institute of Cosmology and Gravitation (Portsmouth)* Oct. 2025
Seminar *Institut de Física d'Altes Energies (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

Dissertation Talk *247th AAS Meeting (Phoenix)* Jan. 2026
Parallel Talks (6) *DESI Collaboration Meetings* Dec. 2023 – Dec. 2025
Parallel Talk *COSMO-25 (Pittsburgh)* Oct. 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

Plenary, DESI Collaboration Meeting (Phoenix) — Dec. 2025

Update from the Education & Public Outreach Committee

Friends of Ohio State Astronomy & Astrophysics (FOSAA) — Oct. 2025

Public talk on DESI science

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)

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. 2024
Amir A.	Apr. 2022 – Dec. 2022

Teaching

Graduate Teaching Associate (OSU) Spring 2024 – Spring 2025

TA for six courses over three semesters, with responsibilities including Cosmology, Advanced Astronomy Data Analysis, laboratory instruction, and three guest lectures

Grader (UCLA) Spring 2017 – Fall 2018

Programming Languages & Skills

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

Publications (link to my ads library)

Lead Author

1. **W. Turner**, *A hybrid approach to covariance denoising for cosmological inference* | in preparation
2. **W. Turner**, A. Cuceu, P. Martini et al., *Probing the limits of cosmological information from the Lyman-α forest 2-point correlation functions* (2025), arXiv:2509.14322
3. **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*, *ApJ*, 976, 143 (2024)

Contributing Author

⋆ *My contributions to DESI papers included extensive validation of different software and analysis choices that benefited the DR2 Lyman-α BAO analysis.*
† *My contributions to ELFIN papers included extensive software development and processing of new scientific data from the space satellite.*

4. Q. Hang, L. Casas, W. d'Assignies, **W. Turner**, A. Font-Ribera, and B. Joachimi, *Calibrating redshift distributions at $z > 2$ with Lyman-α forest cross-correlations* (2026), arXiv:2601.16962 | *Contributions: Produced the LyCAN data products used in the primary analysis; authored the majority of Section 3.2.*

5. J. Pearson, H. Dickinson, S. Serjeant et al. (incl. **W. Turner**), *Galaxy Zoo: Cosmic Dawn – morphological classifications for over 41,000 galaxies in the Euclid Deep Field North from the Hawaii Two-0 Cosmic Dawn survey* (2025), arXiv:2509.22311 | *Contributions: Developed the galaxy morphology catalog used in Section 4.3*
6. DESI Collaboration et al. (incl. **W. Turner**)*, *DESI DR2 results. I. Baryon acoustic oscillations from the Lyman alpha forest*, *Phys. Rev. D*, 112, 083514 (2025)
7. DESI Collaboration et al. (incl. **W. Turner**)*, *DESI DR2 results. II. Measurements of baryon acoustic oscillations and cosmological constraints*, *Phys. Rev. D*, 112, 083515 (2025)
8. DESI Collaboration et al. (incl. **W. Turner**)*, *Data Release 1 of the Dark Energy Spectroscopic Instrument* (2025), arXiv:2503.14745
9. L. Casas, H. K. Herrera-Alcantar, J. Chaves-Montero et al. (incl. **W. Turner**)*, *Validation of the DESI DR2 Lyα BAO analysis using synthetic datasets* (2025), arXiv:2503.14741
10. A. Brodzeller, M. Wolfson, D. M. Santos et al. (incl. **W. Turner**)*, *Construction of the damped Lyα absorber catalog for DESI DR2 Lyα BAO*, *Phys. Rev. D*, 112, 083510 (2025)
11. U. Andrade, E. Paillas, J. Mena-Fernández et al. (incl. **W. Turner**)*, *Validation of the DESI DR2 measurements of baryon acoustic oscillations from galaxies and quasars*, *Phys. Rev. D*, 112, 083512 (2025)
12. K. Lodha, R. Calderon, W. L. Matthewson et al. (incl. **W. Turner**)*, *Extended dark energy analysis using DESI DR2 BAO measurements*, *Phys. Rev. D*, 112, 083511 (2025)
13. W. Elbers, A. Aviles, H. E. Noriega et al. (incl. **W. Turner**)*, *Constraints on neutrino physics from DESI DR2 BAO and DR1 full shape*, *Phys. Rev. D*, 112, 083513 (2025)
14. E. Tsai, A. Palla, A. Norris et al. (incl. **W. Turner**)†, *Remote sensing of electron precipitation mechanisms enabled by ELFIN mission operations and ADCS*, *AdSpR*, 75, 9 (2025)
15. V. Angelopoulos, X. J. Zhang, A. V. Artemyev et al. (incl. **W. Turner**)†, *Energetic Electron Precipitation Driven by Electromagnetic Ion Cyclotron Waves from ELFIN's Low Altitude Perspective*, *Space Sci Rev*, 219, 37 (2023)
16. V. Angelopoulos, E. Tsai, C. Wilkins et al. (incl. **W. Turner**)†, *Atmospheric scattering of energetic electrons from near-Earth space* (2021) | doi:10.21203/rs.3.rs-319558/v1
17. V. Angelopoulos, E. Tsai, L. Bingley et al. (incl. **W. Turner**)†, *The ELFIN Mission*, *Space Sci Rev*, 216, 103 (2020)