

# Wynne Turner

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## RESEARCH INTERESTS

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

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## EDUCATION

<b>The Ohio State University</b>	2020 – present
<i>Advisor: Paul Martini</i>	
<b>Ph.D.</b> , Astronomy	(expected) June 2026
<b>M.S.</b> , Astronomy	April 2024
<b>University of California, Los Angeles</b>	2016–2018
<i>Honors College</i>	
<b>B.S.</b> , Physics	Dec. 2018

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## HONORS & AWARDS

Ann S. Tuttle Paper Award (\$500)	2025
Three Minute Thesis (3MT) University Finalist	2025
<a href="#">David J.P. Will Prize in Computational, Survey &amp; Data Science</a> (\$1000)	2024
Edward F. Hayes Advanced Research Forum, 2 <sup>nd</sup> place winner (\$400)	2024
<i>Mathematical &amp; Physical Sciences, Oral Presentations</i>	
OSU University Fellowship (\$28,000)	2020 – 2021
UCLA Honors College	2017 – 2018

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## CONFERENCE & SEMINAR PRESENTATIONS

### Invited Talks

Seminar <i>Ohio University</i>	Dec. 2025
Seminar <i>Berkeley Center for Cosmological Physics (BCCP)</i>	Nov. 2025
Seminar <i>University College London</i>	Oct. 2025
Seminar <i>Institute of Cosmology and Gravitation (Portsmouth)</i>	Oct. 2025
Seminar <i>Institut de Física d'Altes Energies (IFAE)</i>	Sept. 2025
Talk <i>Ohio Cosmic Connections Workshop</i>	Apr. 2025
Talk <i>Lyman-alpha Workshop (OSU)</i>	Oct. 2024
Plenary <i>DESI Collaboration Meeting (Marseille)</i>	July 2024

### Contributed Talks

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

+ *several local and internal DESI talks*

## SERVICE & OUTREACH

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### Activities

DESI Education & Public Outreach Committee	Aug. 2024 – present
<b>Co-Chair</b> <i>Broadening the accessibility of DESI's science and results through the <a href="#">DESI website</a>, the development of <a href="#">paper guides</a>, and coordinating efforts across the 700-member collaboration</i>	Aug. 2025 – present
DESI Support Observer (in-person at Kitt Peak)	7 half-nights, May 2025
OSU Polaris Undergraduate Mentorship Program <i>Mentored undergraduates in astrophysics and advised research projects that resulted in poster presentations.</i>	Mentor, 2021 – 2025
Polygence Mentorship Program <i>Mentored high school students in research projects that led to submission to a high school journal.</i>	Mentor, 2022 – 2023
SciAccess Zenith Mentorship Program <i>Mentored a low-vision high school student in an astronomy project.</i>	Mentor, 2020 – 2021

### Talks & Panels

Friends of Ohio State Astronomy & Astrophysics (FOSAA) <i>Public talk on DESI science</i>	Oct. 2025
Cesar Chavez High School (Arizona) <i>Virtual panel on careers in academia to a Title I high school</i>	Jan. 2024
Queen Elizabeth High School (Zimbabwe) <i>Virtual presentation on my research to a girls' high school physics class in Africa (<a href="#">more information</a>)</i>	June 2023

## PUBLICATIONS ([LINK TO MY ADS LIBRARY](#))

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### Lead Author

1. **W. Turner**, A. Cuceu, P. Martini et al., *Probing the limits of cosmological information from the Lyman- $\alpha$  forest 2-point correlation functions* (2025) | [arXiv:2509.14322](#)
2. **W. Turner**, P. Martini, N. Karacayli et al., *New Measurements of the Lyman- $\alpha$  Forest Continuum and Effective Optical Depth with LyCAN and DESI Y1 Data* (2024), *ApJ*, 976, 143 | [doi:10.3847/1538-4357/ad8239](#)

### Contributing Author

\* *My contributions to DESI papers included extensive validation of different software and analysis choices that benefited the DR2 Lyman- $\alpha$  BAO analysis.*

† *My contributions to ELFIN papers included extensive software development and processing of new scientific data from the space satellite.*

3. 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*
4. DESI Collaboration et al. (incl. **W. Turner**)\*, *DESI DR2 Results I: Baryon Acoustic Oscillations from the Lyman Alpha Forest* (2025) | [arXiv:2503.14739](#)

5. DESI Collaboration et al. (incl. **W. Turner**)<sup>\*</sup>, *DESI DR2 Results II: Measurements of Baryon Acoustic Oscillations and Cosmological Constraints* (2025) | [arXiv:2503.14738](#)
6. DESI Collaboration et al. (incl. **W. Turner**)<sup>\*</sup>, *Data Release 1 of the Dark Energy Spectroscopic Instrument* (2025) | [arXiv:2503.14745](#)
7. L. Casas, H. K. Herrera-Alcantar, J. Chaves-Montero et al. (incl. **W. Turner**)<sup>\*</sup>, *Validation of the DESI DR2 Ly $\alpha$  BAO analysis using synthetic datasets* (2025) | [arXiv:2503.14741](#)
8. A. Brodzeller, M. Wolfson, D. M. Santos et al. (incl. **W. Turner**)<sup>\*</sup>, *Construction of the Damped Ly $\alpha$  Absorber Catalog for DESI DR2 Ly $\alpha$  BAO* (2025) | [arXiv:2503.14740](#)
9. U. Andrade, E. Paillas, J. Mena-Fernández et al. (incl. **W. Turner**)<sup>\*</sup>, *Validation of the DESI DR2 Measurements of Baryon Acoustic Oscillations from Galaxies and Quasars* (2025) | [arXiv:2503.14742](#)
10. K. Lodha, R. Calderon, W. L. Matthewson et al. (incl. **W. Turner**)<sup>\*</sup>, *Extended Dark Energy analysis using DESI DR2 BAO measurements* (2025) | [arXiv:2503.14743](#)
11. W. Elbers, A. Aviles, H. E. Noriega et al. (incl. **W. Turner**)<sup>\*</sup>, *Constraints on Neutrino Physics from DESI DR2 BAO and DR1 Full Shape* (2025) | [arXiv:2503.14744](#)
12. E. Tsai, A. Palla, A. Norris et al. (incl. **W. Turner**)<sup>†</sup>, *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](#)
13. V. Angelopoulos, X. J. Zhang, A. V. Artemyev et al. (incl. **W. Turner**)<sup>†</sup>, *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](#)
14. V. Angelopoulos, E. Tsai, C. Wilkins et al. (incl. **W. Turner**)<sup>†</sup>, *Atmospheric scattering of energetic electrons from near-Earth space* (2021) | [doi:10.21203/rs.3.rs-319558/v1](#)
15. V. Angelopoulos, E. Tsai, L. Bingley et al. (incl. **W. Turner**)<sup>†</sup>, *The ELFIN Mission* (2020), *Space Sci Rev*, 216, 103 | [doi:10.1007/s11214-020-00721-7](#)

## RESEARCH POSITIONS

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Graduate Student Researcher (OSU)	2020 – present
Advisor: Paul Martini	
<i>Lyman-alpha forest cosmology with DESI</i>	
Lab Scientist (UCLA)	2018 – 2020
Advisor: Vassilis Angelopoulos	
<i>Electron Losses and Fields Investigation (ELFIN) science team</i>	
Lab Scientist (UCLA)	2019
Advisor: Matt Malkan	
<i>Extragalactic astrophysics using HSC and Keck data</i>	
Research Assistant (UCLA)	2017 – 2018
Advisor: Steven Furlanetto	
<i>Dust extinction modeling at high-<math>z</math></i>	
Research Assistant (UCLA)	Summers 2017; 2018
Advisor: Jean-Luc Margot	
<i>Asteroid radar database technology</i>	

## ADVISING & MENTORING

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### Undergraduate Students (7)

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

### High School Students (2)

#### *Polygence Mentorship Program*

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

## TEACHING

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### Graduate Teaching Associate (OSU)

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

### Grader (UCLA)

Spring 2017 – Fall 2018

## COLLABORATION & SOCIETY MEMBERSHIPS

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

## PROGRAMMING LANGUAGES & SKILLS

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**Fluent:** Python, L<sup>A</sup>T<sub>E</sub>X, bash, GitHub

**Proficient:** high-performance computing, deep learning, IDL, R, SQL, Mathematica