Liam Dubay

Ph.D. Candidate in Astronomy
The Ohio State University

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Education

The Ohio State University — Columbus, OH
Ph.D. Candidate in Astronomy — 2024 – Present
M.S. in Astronomy — August 2024
Thesis Advisor: Prof. Jennifer A. Johnson

Whitman College — Walla Walla, WA
B.A. in Physics-Astronomy, Music (Performance), *summa cum laude* — May 2021
Honors in Physics-Astronomy, Thesis Advisor: Prof. Andrea K. Dobson
Honors in Music (Performance), Thesis Advisor: Dr. Sally Singer Tuttle

Honors & Awards

NSF Graduate Research Fellowship Proposal, Honorable Mention — 2022
The Ohio State University Graduate Fellowship — 2021 – 2022
Financial support for first-year graduate students
Whitman College Scholarships
Campbell Music Scholarship — 2017 – 2021
Walter Brattain Scholarship — 2017
William O. Douglas Valedictorian Scholarship — 2017

Research Experience

Understanding Heavy Elements as Chemical Clocks — 2025 – Present
The Ohio State University
Advisors: Prof. Jennifer A. Johnson, Prof. Keith Hawkins, Dr. James W. Johnson

Constraining the Milky Way's Accretion History — 2024 – 2025
The Ohio State University
Advisors: Prof. Jennifer A. Johnson, Dr. James W. Johnson

Timescale of Iron Production in Galaxy Evolution Models — 2021 – 2024
The Ohio State University
Advisors: Prof. Jennifer A. Johnson, Dr. James W. Johnson

Rare Supernovae in Archival Space Telescope Data 2020 – 2021
University of Hawai'i Institute for Astronomy, NSF REU program
Advisors: Prof. Benjamin J. Shappee, Dr. Michael A. Tucker

Instrumentation Noise of Space-Based Gravitational Wave Detectors 2019
The University of Alabama in Huntsville /
NASA Marshall Space Flight Center, NSF REU program
Advisor: Dr. Tyson Littenberg

Publications

Dubay, L. O., Johnson, J. A., Johnson, J. W., Roberts, J. D. 2025, "Challenges to the Two-Infall Scenario by Large Stellar Age Catalogs", submitted to *The Astrophysical Journal*, arXiv:2508.00988

Roberts, J. D., Pinsonneault, M. H., Johnson, J. A., **Dubay, L. O.**, & Johnson, J. W. 2025, "[C/N] Ages for Red Giants and their Implications for Galactic Archaeology", accepted by *The Astrophysical Journal*, arXiv:2509.25321

Johnson, J. W. et al. (inc. **Dubay, L. O.**) 2025, "The Milky Way Radial Metallicity Gradient as an Equilibrium Phenomenon: Why Old Stars Are Metal Rich", *The Astrophysical Journal* 988, 8, doi:10.3847/1538-4357/addbe5

Dubay, L. O., Johnson, J. A., & Johnson, J. W. 2024, "Galactic Chemical Evolution Models Favor an Extended Type Ia Supernova Delay-Time Distribution", *The Astrophysical Journal* 973, 55, doi:10.3847/1538-4357/ad61df

Dubay, L. O., Tucker, M. A., Do, A., Shappee, B. J., & Anand, G. S. 2022, "Late-Onset Circumstellar Medium Interactions are Rare: An Unbiased *GALEX* View of Type Ia Supernovae", *The Astrophysical Journal* 926, 98, doi:10.3847/1538-4357/ac3bb4

Talks & Posters

SDSS-V Collaboration Meeting, Heidelberg, Germany 2025
Poster: "Challenges to the Two-Infall Scenario by Large Stellar Age Catalogs"

SDSS-V Collaboration Meeting, Las Cruces, NM 2024
Talk: "Galactic Chemical Evolution Models Favor an Extended Type Ia Supernova Delay-Time Distribution"

Surveying the Milky Way: The Universe in Our Own Backyard 2023
California Institute of Technology, Pasadena, CA
Poster: "The Galactic Delay-Time Distribution of Type Ia Supernovae: A Chemical Evolution Perspective"

241st American Astronomical Society Meeting, Seattle, WA 2023
Talk: "The Delay Times of Type Ia Supernovae: A Chemical Evolution Perspective"

237th American Astronomical Society Meeting, Virtual 2021
Poster: "Late-Onset Circumstellar Medium Interactions are Rare: An Unbiased *GALEX* View of Type Ia Supernovae"

235th American Astronomical Society Meeting, Honolulu, HI 2020
Poster: "Investigating the stationarity of sensing noise in LISA Pathfinder data"

Teaching

Polaris Mentorship Course Instructor, The Ohio State University 2025 – Present
Physics 2050, *Instructor of record*
Year-long course that pairs first- and second-year physics undergraduates with graduate student mentors; topics include study skills, science identity, and impostor syndrome; introduces students to physics research with a guided project and poster presentation.

Graduate Teaching Assistant, The Ohio State University 2022 – 2023
Astronomy 3350: Methods of Astronomical Observation & Data Analysis Fall 2023
Astronomy 1221: Astronomy Data Analysis Spring – Fall 2023
Astronomy 1101: Planets to Cosmos Lab (2 sections) Fall 2022

Astronomy Teaching Assistant & Tutor, Whitman College 2019 – 2020
Astronomy 177: Sky and Planets Spring 2020
Astronomy 179: Galaxies and Cosmology Fall 2019
Astronomy 178: Sun and Stars Spring 2019

Outreach

Planetarium Presenter, Arne Slettebak Planetarium 2021 – Present
The Ohio State University, Columbus, OH
Lead presenter for over 100 planetarium shows.
Audiences include: K-12, boy & girl scouts, university groups, and the general public.

Library Talks, Columbus Metropolitan Libraries Summer 2023
Astronomy talks for elememtary school audiences.

Service & Mentoring

Polaris Leadership Committee, The Ohio State University 2023 – Present
Website: `https://u.osu.edu/polaris`
Graduate student-led organization dedicated to fostering community and improving retention of non-traditional and underrepresented students in physics and astronomy.

"Galaxy Hour" Meeting Co-Organizer, Ohio State Astronomy Dept. 2023 – Present
Organize weekly topical research meeting and visiting speaker seminars.

Python Coding Workshops Lead Instructor 2023 – 2025
Organized lectures and developed engaging challenge problems on Python fundamentals for undergraduate summer research students.

Near-Peer Mentor, Polaris Mentorship Course 2022 – 2025
Mentored four first- and second-year undergraduates from underrepresented backgrounds during a year-long course; lead guided research projects culminating in poster presentations.