Bryce Wedig

ORCiD: 0000-0002-0748-7312
GitHub: github.com/bryce-wedig
Website: bryce-wedig.github.io

Research Interests

Strong gravitational lensing, sub-galactic scale dark matter, optical/near-IR space telescopes

Education

Washington University in St. Louis — St. Louis, MO, USA
Ph.D. in Physics — 2022–Present
- Advisor: Dr. Tansu Daylan
- A.M. in Physics (en route) achieved May 2024

Trinity College, University of Cambridge — Cambridge, UK
M.Phil. in History and Philosophy of Science and Medicine, *First Class Honours* — 2018–2019
- Dissertation: "Wavefunction ontology and Koopman-von Neumann theory"
- Supervisor: Dr. Jeremy Butterfield

Kenyon College — Gambier, OH, USA
B.A. in Physics, Philosophy, *magna cum laude* — 2014–2018

Lady Margaret Hall, University of Oxford — Oxford, UK
Visiting Student Programme, Physics and Philosophy — 2016–2017

Professional Experience

- **Technical Consultant**, R&D Technical Services, Veeva Systems — Oct 2021–Jun 2022
  Developed and implemented custom software integrations with Veeva Vault and extended system functionality utilizing Vault Java SDK and REST API, Amazon Web Services. Managed integration and development projects.
- **Associate Consultant**, R&D Services, Veeva Systems — Oct 2019–Oct 2021
  Implemented Veeva's Vault cloud software applications at global life sciences companies. Led candidate case study interviews and mentored new hires' mock projects.

Honors and Awards

- **1st Place (Graduate Division)**, Washington University Physics Research Symposium — 2024
- **Future Investigators in NASA Earth and Space Science and Technology (FINESST)** — 2024
  Maximizing JWST and Roman Dark Matter Science with Strong Gravitational Lensing
  $150,000 award over three years
- **First Class (Distinction)**, M.Phil. Dissertation, University of Cambridge — 2019
- **Member, Phi Beta Kappa**, Beta of Ohio, Kenyon College — 2018
- **Distinction**, Senior Exercise in Physics, Department of Physics, Kenyon College — 2018
- **Distinction**, Senior Exercise in Philosophy, Department of Philosophy, Kenyon College — 2018
- **Member, Sigma Pi Sigma**, the Physics Honor Society (American Institute of Physics) — 2017
- **Merit List Scholar**, Kenyon College — 2014–2018
- **Trustee Opportunity Scholarship**, Kenyon College — 2014–2018

Publications

[1] **B. Wedig**, T. Daylan, S. Birrer, F.-Y. Cyr-Racine, C. Dvorkin, D. P. Finkbeiner, A. Huang, X. Huang, R. Karthik, N. Khadka, P. Natarajan, A. M. Nierenberg, A. H. G. Peter, J. D. R. Pierel, X. T. Tang, and R. H. Wechsler, "The Roman View of Strong Gravitational Lenses", *The Astrophysical Journal*, vol. 986, no. 1, 42, p. 42, Jun. 2025. arXiv: 2506.03390 [astro-ph.CO].

Presentations

Contributed Conference Talks

- "A JWST Survey of Subhalos Across Cosmic Time" Oct 2025
  1st Workshop Scaling up Lensing, University in Liège, Liège, Belgium
- "The Microphysics of Dark Matter with the Habitable Worlds Observatory" Jul 2025
  Towards the Habitable Worlds Observatory: Visionary Science and Transformational Technology Washington, D.C., USA
- "Hunting for Dark Matter with NASA's Next Space Telescope" Apr 2025
  2025 Graduate Research Symposium, Washington University in St. Louis
- "The Roman View of Strong Gravitational Lenses" Jan 2025
  245th Meeting of the American Astronomical Society, National Harbor, MD, USA
- "The Roman View of Strong Gravitational Lenses" Dec 2024
  Mid-American Regional Astrophysics Conference, Lawrence, KS, USA
- "The Roman View of Strong Gravitational Lenses" Jul 2024
  Challenging Theory with Roman: From Planet Formation to Cosmology, Pasadena, CA, USA
- "Image Simulation of Strong Gravitational Lenses Detectable by the Roman Space Telescope" Jan 2024
  243rd Meeting of the American Astronomical Society, New Orleans, LA, USA

Seminars

- "Hunting for Dark Matter with Space Telescopes" Feb 2025
  A&S Research Roundtable, School of Arts & Sciences, Washington University in St. Louis
- "Maximizing JWST and Roman Dark Matter Science with Strong Gravitational Lensing" Nov 2024
  Washington University Cosmology and Astroparticle Physics Meeting
  Department of Physics, Washington University in St. Louis
- "The Roman View of Strong Gravitational Lenses" Nov 2024
  Physics Graduate Student Seminar, Department of Physics, Washington University in St. Louis
- "The Roman View of Strong Gravitational Lenses" Apr 2024
  Washington University Cosmology and Astroparticle Physics Meeting
  Department of Physics, Washington University in St. Louis
- "Investigating Dark Matter Substructure with Gravitational Lensing" Nov 2023
  Physics Graduate Student Seminar, Department of Physics, Washington University in St. Louis
- "Lessons for wavefunction ontology from Koopman-von Neumann theory" Easter 2019
  MPhil Seminar, Department of History and Philosophy of Science, University of Cambridge
- "Assessing the Quantum Liar Paradox" Lent 2019
  MPhil Seminar, Department of History and Philosophy of Science, University of Cambridge
- "Is Nature Nonlocal?" Apr 2018
  Senior Exercise, Department of Physics, Kenyon College
- "Reducing quantum noise in LIGO: Characterization of an ultra-low loss polarizing beam splitter" Aug 2016
  Ole Miss Chemistry Summer Research Program, University of Mississippi

Poster Presentations

- "Hunting for Dark Matter with NASA's Next Space Telescope" Apr 2025
  50th Anniversary Symposium, McDonnell Center for the Space Sciences
  Washington University in St. Louis
- "Hunting for Dark Matter with NASA's Next Space Telescope" Apr 2025
  2025 Imaging Science Pathway Retreat, Washington University in St. Louis
- "The Roman View of Strong Gravitational Lenses" Nov 2024
  Washington University Physics Research Symposium
  Department of Physics, Washington University in St. Louis
- "Image Simulation of Strong Gravitational Lenses Detectable by the Roman Space Telescope" Nov 2023
  Washington University Physics Research Symposium
  Department of Physics, Washington University in St. Louis

Teaching

- **Guest Lecturer**, Astrostatistics (PHYS 4680/5680) Spring 2025
  Department of Physics, Washington University in St. Louis
- **Guest Lecturer**, Ampersand: Gateway Expeditions into Exoplanets (PHYS 1210) Fall 2024
  Department of Physics, Washington University in St. Louis
- **Assistant in Instruction**, Physics I Laboratory (PHYS 191L) Fall 2023
  Department of Physics, Washington University in St. Louis
- **Assistant in Instruction**, Physics II Laboratory (PHYS 192L) Spring 2023
  Department of Physics, Washington University in St. Louis
- **Apprentice Teacher**, Intensive Introductory Japanese (JAPN 111-112Y) Fall 2017
  Department of Modern Languages and Literatures, Kenyon College
- **Teaching Assistant**, Advanced Topics in Physics: Special Relativity (SREL) Summer 2017
  Johns Hopkins Center for Talented Youth
- **Tutor**, Oscillations and Waves (PHYS 245) Spring 2016
  Department of Physics, Kenyon College
- **Apprentice Teacher**, Intermediate Japanese (JAPN 213-214Y) Fall 2015–Spring 2016
  Department of Modern Languages and Literatures, Kenyon College
- **Apprentice Teacher**, Intensive Introductory Japanese (JAPN 111-112Y) Fall 2014–Spring 2015
  Department of Modern Languages and Literatures, Kenyon College

Mentoring

- **Jodie Xiao**, Undergraduate student at Washington University in St. Louis May 2025–Present
  Participated in the LSST Strong Lens Data Challenge in fall 2025. Trained a convolutional neural network to classify strong lenses, achieved score 98.1/100 placing 7th out of 24 teams.

Service and Public Engagement

- **Guest Author**, Astrobites Jun 2025
  "The Surprising Discovery of a Distant, Nearly Perfect Syzygy"
- **Exam Author**, 38th Annual High School Physics Contest Apr 2025
  St. Louis Area Physics Teachers
- **Participant**, Catalyzing Advocacy in Science and Engineering Workshop Apr 2025

American Association for the Advancement of Science

- **Participant**, Congressional Visits Days — Apr 2025
  American Astronomical Society
- **Judge**, Chambliss Astronomy Achievement Student Awards — Jan 2025
  245th Meeting of the American Astronomical Society
- **Co-organizer**, Splinter Session — Jan 2025
  "ExoCore: An open science curriculum for enhanced reproducibility and equity in exoplanet research"
  245th Meeting of the American Astronomical Society
- **Speaker**, Astronomy on Tap STL — Oct 2024
  "Hunting for Dark Matter with NASA's Next Space Telescope"
- **Co-president**, Washington University ProSPER — 2024–Present
  Science communication and policy graduate student group
- **Exam Author**, 37th Annual High School Physics Contest — Apr 2024
  St. Louis Area Physics Teachers

Department of Physics, Washington University in St. Louis

- **Graduate Student Head Mentor** — 2025–2026
- **Speaker**, Saturday Science Lecture: "Seeing the dark with gravitational lensing" — Mar 2025
- **Co-organizer**, Washington University Cosmology and Astrophysics Seminar — 2024–2025
- **Graduate Student Mentor** — 2023–Present
- **Member**, Computing Committee — 2023–Present
- **Member**, Spaces Committee — 2023–2025
- **Member**, BBQ Committee — 2023–2025

Workshops and Summer Schools

- JWST Summer School on High-Redshift Transients — Aug 2025
  Space Telescope Science Institute
- ALMA Cycle 12 Proposal Preparation Workshop — Apr 2025
  University of Missouri