Alexis Buzzell

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References

- **Dr. Ramón Barthelemy**
  Associate Professor, Department of Physics & Astronomy, University of Utah
  Ramon.S.Barthelemy@utah.edu
- **Dr. Timothy Atherton**
  Chair & Professor, Department of Physics & Astronomy, Tufts University
  timothy.atherton@tufts.edu
- **Dr. Noah Finkelstein**
  Vice Chair & Professor, Department of Physics, University of Colorado Boulder
  noah.finkelstein@colorado.edu

Education

University of Utah, PhD in Physics — Expected May 2026

- Advisor: Ramón S. Barthelemy

Worcester Polytechnic Institute (WPI), MS in Mechanical Engineering — May 2020
Worcester Polytechnic Institute (WPI), BS in Physics — May 2019

- Summa Cum Laude

Publications

Published

- **Buzzell, A.**, Barthelemy, R., & Atherton, T. (2025).Modern physics: Understanding the content taught in the U.S., *Physical Review Physics Education Research* ***Focused Collection in Investigating and Improving Quantum Education through Research****, 21*(1), 010139, https://doi.org/10.1103/PhysRevPhysEducRes.21.010139.
- **Buzzell, A.**, Barthelemy, R., & Atherton, T. (2025). Quantum curriculum in the US: Quantifying the instructional time, content taught, and paradigms used, *Physical Review Physics Education Research* ***Focused Collection in Investigating and Improving Quantum Education through Research****, 21*(1), 010102, https://doi.org/10.1103/PhysRevPhysEducRes.21.010102.

Peer Reviewed Conference Proceedings

- **Buzzell, A.**, Barthelemy, R, & Atherton, T. (2025). Assessing a combined human coding and natural language processing method for qualitative analysis in physics education research. *Physics Education Research Conference Proceedings*, https://doi.org/10.1119/perc.2025.pr.Buzzell.
- **Buzzell, A.**, & Barthelemy, R. (2024). Certain bodies in uncertain fields: Thinking about gender through queer theory & quantum mechanics. *Physics Education Research Conference Proceedings*, https://doi.org/10.1119/perc.2024.pr.Buzzell.

In-Review

- **Buzzell, A.**, Barthelemy, R., & Atherton, T. (2026). Characterization of the Graduate Level Quantum Curriculum within US Physics Doctoral Programs and Theoretical Frameworks of US Quantum Curriculum. *Nature Physics*, Pre-print available at: https://doi.org/10.21203/rs.3.rs-7745493/v1.

In Preperation

- **Buzzell, A.**, Barthelemy, R., & Atherton, T. (2026). *Survey on Faculty Perspective of the US Quantum Currculum*.

Awards

Physics Education Research Leadership and Organizing Council (PERLOC) Domestic Travel Grant, $500 — June 2025

Outstanding Graduate Teaching Assistant, Department of Physics & Astronomy, University of Utah, $1000 — Apr 2025

APS Group on PER (GPER) Journal Publication Fee Mini-Grant Award, $500 — Dec 2024

PERLOC Domestic Travel Grant, $634 — Apr 2024

GPER Conference Support Mini-Grant,$1,000 — Dec 2023

Swigart Fellowship, University of Utah — May 2023 - Aug 2023

Clare Booth Luce Research Scholar, WPI, $6,000 — Oct 2018 - May 2019

Summer Undergraduate Research Fellowship (SURF), WPI, $5,000 — June - Aug 2018

Nuclear Regulatory Commission (NRC) Scholarship, WPI, $10,000 — Jan - May 2018

Talks

Contributed

- **Buzzell, A.**, & Barthelemy, R. (2025, August). *Assessing a combined human coding and natural language processing method for qualitative analysis in physics education research* [Poster presentation]. Physics Education Research Conference Summer Meeting, Washington, DC, USA.
- **Buzzell, A.**, Barthelemy, R. & Atherton, T. (2025, March). *Characterization of US institution's graduate quantum mechanics curriculum* [Contributed talk]. American Physical Society Global Summit Meeting, Anaheim, CA, USA.
- **Buzzell, A.**, Barthelemy, R., & Atherton, T. (2025, March). *Characterization of the four-year undergraduate quantum curriculum across US institutions* [Poster presentation]. American Physical Society Global Summit Meeting, Anaheim, CA, USA.
- Barthelemy, R., **Buzzell, A.**, & Atherton, T. (2025, March). *Characterization of the four-year undergraduate quantum curriculum across US institutions* [Contributed talk]. American Physical Society Global Summit Meeting, Anaheim, CA, USA.
- **Buzzell, A.**, & Barthelemy, R. (2024, July). *Certain bodies in uncertain fields: Thinking about gender through queer theory & quantum mechanics* [Poster presentation]. Physics Education Research Conference Summer Meeting, Boston, MA, USA.
- **Buzzell, A.**, Barthelemy, R., & Atherton, T. (2024, July). *Quantum curriculum in the US: Quantifying the instructional time, content taught, and paradigms used* [Contributed talk]. American Association of Physics Teachers Summer Meeting, Boston, MA, USA.
- **Buzzell, A.**, Barthelemy, R., Atherton, T., & Gerton, J. (2024, April). *Modern physics: Understanding the content taught in the US* [Contributed talk]. American Physical Society April Meeting, Sacramento, CA, USA.

Teaching

Mentor Teaching Assistant, University of Utah — May 2025 - May 2026

- Developed and implemented course materials and curriculum for an online, asynchronous orientation for new departmental teaching assistants
- Developed materials and curriculum for and lead the in person 2025 incoming graduate student orientation
- Conducted observations of teaching assistants to provide feedback
- Developed and lead monthly workshops for teaching assistants with the objective of furthering their teaching skills and professional development

Teaching Assistant, University of Utah — Jan - May 2025

- Held regular office hours for algebra based physics I course via Zoom
- Recorded problem solving tutorials for asynchronous online course
- Graded projects and exams

Teaching Assistant, University of Utah — Aug - Dec 2024

- Held regular office hours for first-semester graduate-level Quantum Mechanics course
- Graded homework and exams

- Created solutions and grading rubrics for homework assignments

Teaching Assistant, University of Utah — Jan - Apr 2024

- Held regular office hours for Advanced Electrodynamics and Quantum Mechanics course
- Graded homework and exams
- Created solutions and grading rubrics for homework assignments

Teaching Assistant, University of Utah — Aug - Dec 2023

- Lead recitations for Intermediate Electrostatics and Quantum Mechanics course
- Held regular office hours
- Graded homework and exams
- Created solutions and grading rubrics for homework assignments

Teaching Assistant, University of Utah — Jan - Apr 2023

- Lead recitations for Modern Physics course
- Held regular office hours
- Graded homework and exams
- Created solutions and grading rubrics for homework assignments

Teaching Assistant, University of Utah — Aug - Dec 2022

- Lead recitations for Algebra based Physics I class
- Held regular office hours

STEM Teacher, Wy'East Mountain Academy, Sandy, OR — Aug 2021- May 2022

- Taught STEM classes including Physics, Precalculus, Algebra, and Geometry

Long Term Substitute Physics Teacher, Hadley Public Schools, Hadley, MA — Oct - Dec 2020

- Taught Introductory Physics, AP Physics I, and Geology
- Created lesson plans, laboratory experiments, homework, and classwork assignments

Peer Learning Assistant, WPI — Oct - Dec 2017

- Instructed Physics II (electricity and magnetism) Laboratory Courses and graded lab reports

Service

Teaching Assistant Committee, Department of Physics & Astronomy, University of Utah — May 2025 - May 2026

- Assigned 52 graduate and undergraduate teaching assistants to roles across 27 courses.

Experience

Graduate Research Assistant, Physics Education Research, University of Utah — Sept 2022 - Present

- Obtained skills in Physics Education Research (PER) methods
- Focused on Quantum Education Research and the undergraduate quantum curriculum offered at US institutions
- Analyzed 167 syllabi across the US to determine content taught in Modern Physics courses
- Determined quantum course time required for 4 year physics degree in US
- Assisted PI in granting writing process for two NSF grants.

Graduate Research Assistant, NanoEnergy Lab, WPI — May - Sept 2019

- Concluded vertically grown BiI3 crystals were the optimum crystal orientation for photovoltaic applications due to record carrier lifetime of 0.6 nanoseconds, characterized by time-resolved photoluminescence spectroscopy

Undergraduate Research Assistant, Ultrafast THz and Optical Spectroscopy Lab, WPI — June 2018 - May 2019

- Characterized nanostructured BiI3 for photovoltaic applications using photoluminescence spectroscopy and time-resolved photoluminescence spectroscopy
- Built experimental optical spectroscopy system to observe radiative lifetime of 2D semiconducting materials
- Completed Major Qualifying Project (MQP)
- Awarded Summer Undergraduate Research Fellowship and Clare Booth Luce Research Scholar Award

Undergraduate Research Assistant, Radiation Laboratory, WPI Jan - May 2018

- Assisted in the development of a technique to enable high-resolution in-vivo functional imaging using neutrons

Organizations

American Association of Physics Teachers (AAPT) 2024-Present
Quantum Education Journal Club 2023-Present
- Organized and hosted monthly meetings.

American Physical Society (APS) 2023-Present
Physics and Astronomy Society for Support and Advocacy for Gender Equity (PASSAGE) 2022-Present
Society of Physics Students (SPS) 2016-2019

Outreach

Women in STEM Club Advisor, Wy'East Mountain Academy, Sandy, OR Sept 2021-May 2022
- Provided Wy'East students with an inclusive space to gain hands on laboratory experience

STEM Started Academy Mentor, Mount Wachusett Community College, MA July 2018
- Taught newly enrolled college students about optical spectroscopy

WPI Touch Tomorrow Science Festival, WPI, Worcester, MA June 2018
- Presented physics experiments to local elementary school students through hands on activities and demonstrations

Undergraduate Projects & Thesis

Buzzell, A. T. & Mendizabal, A. (2019). *Photoluminescence Spectroscopy of BiI3, a 2D Material for Photovoltaic Applications* (Undergraduate Major Qualifying Project). Retrieved from Worcester Polytechnic Institute Electronic Projects Collection.

Buzzell, A. T., Schroeder, C. C., Strauss, J. S., & Alexander, T. D. B. (2018). *A System to Monitor Microplastics on Icelandic Shores.* Retrieved from Worcester Polytechnic Institute Electronic Publications Collection.