

# ALEXIS BUZZELL

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## EDUCATION:

### University of Utah, Salt Lake City, UT

Ph.D., Physics, Advisor: Ramón S. Barthelemy

Expected 2027

### Worcester Polytechnic Institute (WPI), Worcester, MA

M.S., Mechanical Engineering, GPA: 3.60/4.0

May 2020

B.S., Physics, Summa Cum Laude, GPA: 3.74/4.0

May 2019

## AWARDS:

Physics Education Research Leadership and Organizing Council (PERLOC) Domestic Travel Grant, \$634 April 2024

APS Group on PER (GPER) Conference Support Mini-Grant, \$1000 December 2023

Swigart Fellowship, University of Utah

May 2023 - August 2023

Clare Booth Luce Research Scholar, WPI, \$6,000

October 2018 - May 2019

Summer Undergraduate Research Fellowship (SURF), WPI, \$5,000

June - August 2018

Nuclear Regulatory Commission (NRC) Scholarship, WPI, \$10,000

January - May 2018

## EXPERIENCE:

### Graduate Research Assistant, Physics Education Research, University of Utah

September 2022 - Present

- Obtained skills in Physics Education research methods
- Focused on Quantum Education Research and student ontology and epistemology
- Analyzed 167 syllabi across the US to determine content taught in Modern Physics courses
- Determined course time required for 4 year physics degree in US

### Graduate Research Assistant, NanoEnergy Lab, WPI

May 2019 - September 2019

- Concluded vertically grown  $\text{BiI}_3$  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  $\text{BiI}_3$  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

January 2018 - May 2018

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

## TEACHING:

### Teaching Assistant, University of Utah

January 2024 - April 2024

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

<b>Teaching Assistant, University of Utah</b>	August 2023 - December 2023
<ul style="list-style-type: none"> <li>• Lead recitations for Intermediate Electrostatics and Quantum Mechanics course</li> <li>• Held regular office hours</li> <li>• Graded homeworks and exams</li> <li>• Created solutions and grading rubrics for homework assignments</li> </ul>	
<b>Teaching Assistant, University of Utah</b>	January 2023 - April 2023
<ul style="list-style-type: none"> <li>• Lead recitations for Modern Physics course</li> <li>• Held regular office hours</li> <li>• Graded homeworks and exams</li> <li>• Created solutions and grading rubrics for homework assignments</li> </ul>	
<b>Teaching Assistant, University of Utah</b>	August 2022 - December 2022
<ul style="list-style-type: none"> <li>• Lead recitations for Algebra based Physics I class</li> <li>• Held regular office hours</li> </ul>	
<b>STEM Teacher, Wy'East Mountain Academy, Sandy, OR</b>	August 2021 - May 2022
<ul style="list-style-type: none"> <li>• Taught STEM classes including Physics, Precalculus, Algebra, and Geometry</li> </ul>	
<b>Long Term Substitute Physics Teacher, Hadley Public Schools, Hadley, MA</b>	October 2020 - December 2020
<ul style="list-style-type: none"> <li>• Taught Introductory Physics, AP Physics I, and Geology</li> <li>• Created lesson plans, laboratory experiments, homework, and classwork assignments</li> </ul>	
<b>Peer Learning Assistant, WPI</b>	October 2017 - December 2017
<ul style="list-style-type: none"> <li>• Instructed Physics II (electricity and magnetism) Laboratory Courses and graded lab reports</li> </ul>	

## PUBLICATIONS:

### IN PREPARATION:

- **Buzzell, A.,** Gerton, J., Atherton, T., and Barthelemy, R. (2024). Modern Physics: Understanding the Content Taught in the U.S. *Physical Review Physics Education Research*.
- **Buzzell, A.,** Gerton, J., Atherton, T., and Barthelemy, R. (2024). Quantum Curriculum in the US: How much coursework in Quantum Mechanics is expected for completion of a four year physics degree? *Physical Review Physics Education Research*.

## PRESENTATIONS:

### CONTRIBUTED:

- **Buzzell, A.,** Barthelemy, R., Atherton, T., and Gerton, J. (April 5, 2024). *Modern Physics: Understanding the Content Taught in the U.S.* Oral Presentation. American Physical Society April Meeting 2024, Sacramento, CA, USA.

## ORGANIZATIONS:

<b>American Association of Physics Teachers (AAPT) Member</b>	2024 - Present
<b>Quantum Education Journal Club</b>	2023 - Present
<ul style="list-style-type: none"> <li>• Organized and hosted monthly meetings</li> </ul>	
<b>American Physical Society (APS) Member</b>	2023 - Present
<b>Physics and Astronomy Society for Support and Advocacy for Gender Equity (PASSAGE)</b>	2022 - Present
<b>Society of Physics Students</b>	2016 - 2019

## LEADERSHIP ACTIVITIES:

### Head Coach, We Are Camp, Sandy, OR

May 2022 - August 2022

- Managed snowboard and ski coaches during 2022 summer camp

### Women in STEM Club Advisor, Wy'East Mountain Academy, Sandy, OR

September 2021 - May 2022

- Provided Wy'East students with an inclusive space to gain hands on laboratory experience

### Women's Snowboard Coach, Self Employed

November 2020 - April 2021

- Coached a competitive female snowboarder to prepare for regional and national slopestyle competitions

### Women's Snowboard Coach and Mentor, American Snowboard Training Center

January 2020 - March 2020

- Provided support and mentorship to competitive female snowboarders, an underrepresented group in snowboarding

### STEM Starter Academy Mentor, Mount Wachusett Community College

July 2018

- Taught newly enrolled college students about optical spectroscopy

### WPI Touch Tomorrow Science Festival

June 2018

- Presented physics experiments to local elementary school students through hands on activities and demonstrations

## PROJECTS:

- **Buzzell, A. T.** & Mendizabal, A. (2019). *Photoluminescence Spectroscopy of BiI<sub>3</sub>, 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.