

# William Miyahira

✉ whmiyahira@wm.edu

☎ (650) 740-2306

🌐 LinkedIn

🔍 Scholar

🌐 Website

## Summary

Experienced physicist with a passion for harnessing quantum mechanics for developing next-generation sensors and devices with real-world applications.

## Education

- 2021 – present    📖 **Ph.D., William & Mary**  
Advisor: Seth Aubin    Research: Ultracold Atomic Physics
- 2019 – 2021    📖 **M.S. Physics, William & Mary**
- 2015 – 2019    📖 **B.S. Physics and Mathematics, University of Puget Sound**


## Skills

- Research    📖 Experimental planning, hardware control, data analysis and visualization, scientific writing, ability to work independently and in a team
- Instrumentation    📖 Oscilloscopes, spectrum analyzers, vector network analyzers, electronics (analog, digital, RF), optics (lasers, optomechanics), RF sources, ARDUINO, 3D printing, Dektak Surface Profiler
- Programming    📖 Matlab, Python, C++, LaTeX, HTML
- Software    📖 FEKO, HFSS, SONNET, FUSION 360, INKSCAPE
- Languages    📖 English (native), French (elementary)






## Employment History

- 2020 – . . . .    📖 **Graduate Research Assistant**, Physics Department, William & Mary.
- Maintain and improve apparatus for routinely producing ultracold atoms on a micro-magnetic atom chip trap
  - High-frequency electromagnetic design and simulation of atom chip structures, microstrip resonators, and coplanar waveguides using FEKO, SONNET, and HFSS
  - Design, construction, and testing of a multi-channel microwave source at 6.8 GHz based on IQ modulation with precision digital phase control and agile frequency sweeping (100 MHz scan range)
  - Experimental measurements of atom chip potential roughness suppression for a DC and AC Zeeman chip trap
  - Mentor and train undergraduates and new graduate students working in the lab
- 2018    📖 **Sherman Fairchild Research Scholar**, Physics Department, University of Puget Sound.
- Worked with Dr. David Latimer to theoretically investigate methods of polarizing Majorana fermions via their anapole moment.
  - Collaborated on a paper, “Dipoles in Quantum Field Theory”, which appeared in the American Journal of Physics





## Employment History (continued)

- 2017      **Adam S. Goodman Research Scholar**, Physics Department, University of Puget Sound.
- Worked with Dr. Randy Worland to study the effects of commercial dampeners on the modal decay rates of a circular drum.
  - “Top Undergraduate Research Poster” – 2018 APS Northwest Division Conference

## Grants and Awards

- 2024      FIO+LS Poster Competition Winner – Optical Cooling and Trapping Technical Group
- 2022-24      “Microwave Atom Chip for Spin-Specific Atom Interferometry”, Virginia Space Grant Consortium Graduate Fellowship – \$6,000/year (\$12,000 total)
- 2018      Top Undergraduate Research Poster – 2018 APS Northwest Division Conference
-  University of Puget Sound Concerto Aria Competition Winner
- 2015      Eagle Scout – Boy Scouts of America (Troop 44, San Mateo, CA)

## Professional Service

- 2024-present      William & Mary Physics Graduate Student Association President
- Organize events to develop and maintain a culture amongst the physics graduate students as well as address graduate student concerns within the department
- 2021-present      Optica (formally OSA) Student Chapter Vice President
- Organize quantum/AMO career seminars and journal clubs
  - Design and manage W&M Optica chapter website
- 2020-21      Optica (formally OSA) Student Chapter Treasurer
-  Physics Graduate Student Association Vice President

## Select Publications

### Journal Articles

- 1     A. P. Rotunno, **W. Miyahira**, S. Du, and S. Aubin, “Radio-frequency ac zeeman force for ultracold atoms,” *Submitted to Physical Review A*, 2024.
- 2     S. Du, A. Ziltz, **W. Miyahira**, and S. Aubin, “Suppression of potential roughness in atom-chip ac zeeman traps,” *Physical Review A*, vol. 105, no. 5, p. 053 127, 2022.
- 3     **W. Miyahira**, A. P. Rotunno, S. Du, and S. Aubin, “Microwave atom chip design,” *Atoms*, vol. 9, no. 3, p. 54, 2021.
- 4     **W. Miyahira** and D. C. Latimer, “Dipoles in quantum field theory,” *American Journal of Physics*, vol. 87, no. 2, pp. 146–152, 2019.

### Conference Proceedings

- 1     **W. Miyahira** and S. Aubin, “Potential roughness suppression in a rf ac zeeman atom chip trap,” in *Quantum Sensing, Imaging, and Precision Metrology II*, SPIE, vol. 12912, 2024, pp. 247–251.