

# Eigen Vector

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<http://www.physicsresearch-website.com>

## Education

University of California, Riverside

June 2022

**Bachelor of Science, Physics**

Senior Thesis Topic: *Metal to insulator transition on the Casimir force.*

## Experience and Skills

### Research Experience

*Undergraduate Research Assistant*

June 2021 - Present

Interfer O. Metry, Ph.D. Lab

January 2019 - March 2019

University of California, Riverside

Utilized precision atomic force microscopy for Casimir force measurements in the lab. Tested various techniques to measure separation on contact and kept track of metal conductivity and roughness. Recorded measurements and assisted graduate students with analysis of the data for publication with faculty. Wrote and revised a conference abstract and drafted the literature review section of a paper for publication. Designed figures in Adobe Illustrator and Matlab that visualized data for virtual and poster presentations at a research conference and campus research symposium. Helped provide final edits and input for a paper in publication. Assisting the lab with designing new experiments for upcoming research with future undergraduate students.

*Research Internship*

June 2020 - August 2020

Metron, Inc.

Remote

Developed and tested algorithms in small teams led by a Senior Research Scientist. Worked independently and coordinated as part of a cross-functional team to design and test user interface components and scripts in support of large-scale Department of Defense modeling and simulation systems. Further developed personal expertise with object-oriented C++ while supporting the organization's future research goals for government stakeholders.

## **Teaching Experience**

*MCAT Physics Instructor*

August 2021 - Present

The Princeton Review

Anaheim, CA (Remote and In-Person)

While pursuing a B.S. in Physics, engaging with students on nights and weekends as a subject matter expert, specializing in the science section of the MCAT. Instructing students in a dynamic and supportive manner. Motivating students through the results-oriented Princeton Review curriculum in order to build stronger, more confident learners. Presenting course materials to keep students engaged and adapting to students' learning needs. Beyond sharing technical expertise in problem-solving, acting as a discussion leader and modeling accountability in both the virtual and in-person classroom.

*Physics Tutor*

January 2020 - June 2020

Academic Resource Center

University of California, Riverside (Remote)

Tutored students in subject areas from General Physics (non-physics majors), Introductory Physics (for physics majors), and Classical Mechanics. Helped students develop the underlying math skills required to solve the word problems with which students struggled. Assisted students with the physical concepts of electricity and magnetism which can be difficult to visualize and worked on presenting materials in a way that would connect with different learning styles. Guided students to solve problems on their own by asking questions that helped direct their thought processes.

## **Specialized Skills**

Python, Matlab, C/C++, Unix/Linux scripting, precision atomic force microscopy (AFM).

## **Leadership and Service**

**Science Ambassador**

July 2021 - Present

College of Natural and Agricultural Sciences

University of California, Riverside

Acting as a liaison and champion for the College of Natural and Agricultural Sciences (CNAS) throughout the university. Interacting and networking with students, faculty, deans, staff and community members to enhance the experience of fellow science and math students.

Presenting to various communities, particularly through recruiting events and activities as the face of CNAS and assisting as a host during official university functions.

**Treasurer**  
Society of Physics Students  
University of California, Riverside

July 2019 - Present

Managing a yearly budget of \$1,200 to fund society events such as visiting lecturers and used textbook raffles. Rallying members to engage in fundraising activities to maintain a budget surplus and updating officers of the society's financial status at leadership meetings.

### Awards and Honors

**Summa Cum Laude**, University of California, Riverside  
**SPS Outstanding Service Award** (2021), Society for Physics Students  
**Blake Lilly Prize** (2019), Society for Physics Students  
**Barry Goldwater Scholarship**, University of California, Riverside  
**Dean's List** (11 out of 12 Quarters), University of California, Riverside

### List of Publications and Presentations

1. D.C. Magnetic, A.B. Plasmonic, **E. Vector**, and I.O. Metry. "Investigation of the metal to insulator transition on the Casimir force." *Physical Review A* vol. 75, 062114 (In Publication).
2. **E. Vector**, E.N. Value, and I.O. Metry. "Test of metal insulator transition on the Casimir force, an experimental approach." Meeting of the APS Division on Particles and Fields (DPF21). September 2021. Virtual.
3. D.C. Magnetic, **E. Vector**, E.N. Value, and I.O. Metry (Presenter). "Preliminary results from experimental tests of metal insulator transition on the Casimir force." University of California, Riverside Undergraduate Research Symposium. May 2019. Virtual.

### Professional Memberships

**American Institute of Physics**, Student Member  
**American Physical Society**, Student Member

September 2021 - Present  
October 2020 - Present