

ABBY CARDOZA

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1636 Pierson Street
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EDUCATION

Doctor of Philosophy (in progress)

Colorado School of Mines, Golden CO
Major: Applied Chemistry

Expected 2027

Bachelor of Science

University of Oklahoma, Norman OK
Major: Chemistry and Biochemistry
3.92 GPA

May 2023

RESEARCH EXPERIENCE

Undergraduate Research, University of Oklahoma

2022 to 2023

Advisor: Dr. Bayram Saparov

- Excelled on NSF-funded project to develop earth-abundant, inexpensive, and environmentally benign optical materials through the synthesis of hybrid organic-inorganic metal halides. Focused specifically on copper (I) halides using powder X-ray diffraction (PXRD), single crystal X-ray diffraction (SCXRD), diffuse reflectance and photoluminescence spectroscopy measurements for characterization of structural and optoelectronic properties.
- Independently led project focusing on investigating the optoelectronic properties of hybrid polymer perovskites. Utilized solid-state and organic synthesis techniques to produce the layered structures, then characterized using nuclear magnetic resonance (NMR), thermogravimetric analysis (TGA), and differential scanning calorimeter (DSC).

Undergraduate Research, University of Oklahoma

2021 to 2022

Advisor: Dr. Bin Wang

- Gained extensive experience in computer programs such as command line interfaces (CLI), OU's high performance computing software, and Vesta for data analysis related to the development of lithium-sulfur batteries for energy storage and conversion.

SKILLS

- Rigaku 6th generation MiniFlex benchtop X-ray diffractometer
- TA Instruments SDT 650 simultaneous thermal analyzer
- PerkinElmer LAMBDA 750 UV/Vis/NIR spectrophotometer
- Horiba Jobin Yvon Fluorolog-3 spectrofluorometer
- Varian VNMR-500 NMR Spectrometer
- Solid-state synthesis techniques

PUBLICATIONS

Manuscripts in Preparation

Popy, D.A.; Zheng, Z.; Cardoza, A.; Saparov, B, Optical Properties and Solution Chemistry of Highly Luminescent (TEP)₂Cu₂Br₄ (in preparation)

EMPLOYMENT HISTORY

Climbing Coach

2022 to 2023

Summit Climbing, Yoga, and Fitness Norman, OK

- Coached kids aged 6-13 three days per week in climbing to strengthen technique and abilities for competitions.

Personal Care Assistant (CNA/CMA)

2020 to 2022

Hillcrest Mabel Rose Papillion, NE

- Assisted residents to complete daily tasks, to include administering medications. Responsibilities also included reporting any abnormalities or changes in care, coordinating events or visits with family members, and providing a clean and comfortable environment for the residents.

TEACHING EXPERIENCE

General Chemistry 1 Teaching Assistant

2023 to Present

Colorado School of Mines

- Supervises two laboratory sections per week, gives brief lectures on the chemistry behind the experiments, grades weekly assignments, proctors examinations, and helps answer questions related to the class and laboratory component of the course.

Tutor

2021 to 2022

Self-Employed

- Tutored undergraduate students in the subjects of General Chemistry, Organic Chemistry, General Physics, and Statistics.

CERTIFICATIONS

Certified Nursing Assistant (CNA)

Certification used while working in hospital doing rotations in a variety of specialties. Primary duties were to obtain vitals, prepare rooms, and help with any patient's needs.

Certified Medical Assistant (CMA)

Certification used while working in memory-care nursing homes. Primary duties were to administer medications, record any changes in resident care, and assist in any daily care the residents needed.

PROFESSIONAL AFFILIATIONS

American Chemical Society

2021-Present

Member

HONORS AND AWARDS

Outstanding New Graduate Student Fellowship 2023
Awarded by Colorado School of Mines Chemistry Department

President's List 2020, 2021, 2022, 2023
Awarded for 4.0 Grade Point Average

Dean's List 2019, 2021
Awarded for 3.5-4.0 Grade Point Average

Academic Achievement Scholarship 2019
Awarded for ACT scores

COMMUNITY SERVICE

Rocky Mountain Mathematics Engineering Science Achievement (MESA) Mentor
Colorado School of Mines, September 2023- Present
Interact with students on a weekly basis at under-served high schools in the Denver Metro area to design an engineering focused project along with strengthen and develop skills such as problem-solving, critical thinking, and teamwork.

Make-A-Wish Fundraising Events
University of Oklahoma, 2020-2022
Participated in 10 different fundraising events for the Make-A-Wish Foundation.

OTHER ORGANIZATIONS

OU Climbing
President, April 2022- April 2023

- Coordinated a new competition circuit and performed administrative work for the South-Central Climbing region.

Chi Omega Sorority
Member

- Organization dedicated to philanthropy, academics, and building a tight knit community.