

# Samuel Smith

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## Education

### University of New Mexico

Doctor of Philosophy: Chemistry

Albuquerque, New Mexico

Expected May 2027

### University of New Mexico

Bachelor of Arts: Chemistry

Albuquerque, New Mexico

May 2022

## Work Experience

### The University of New Mexico

Research Assistant

Albuquerque, NM

Aug. 2021 - Present

- Investigated HTE processes to expedite inorganic synthesis and scale-up, including facile electrochemical methods for Fe(II) coordination complexes.
- Modified spectroscopic instrumentation to improve resolution and sensitivity.
- Conducted DFT studies on metal complexes to elucidate their electronic structure and rationalize spectroscopic results.
- Designed tools for processing spectroscopic data in Python, using common scientific packages.
- Designed workflow for production of input files and interpretation of output files for electronic structure calculations on the combinatorial generation of isomers.
- Characterized complexes through UV-VIS spectroscopy, femtosecond pump-probe spectroscopy, Magnetic Circular Dichroism spectroscopy and NMR.

### Sandia National Labs

Technical Intern, Year-Round

Albuquerque, NM

May 2022—May 2023

- Designed and tested photonic devices in Silvaco TCAD, optimizing metal-semiconductor contact formation process Germanium photodiodes.
- Characterized photonic devices using SEM, reflectometry, profilometry and ellipsometry, producing detailed reports and recommendations for device improvement, resulting in the identification and resolution of several critical process issues.
- Created a program to track lot movement and throughput, and monitored lots using Manufacturing Execution System (MES) to reduce dead time for device fabrication.
- Developed tools to automate statistical interpretation of data from metrology tools for the engineering team, reducing data processing time by over 50%.
- Coordinated work with a diverse group of engineers, post-docs, principal investigators, and technicians.

### New Mexico Office of the Medical Investigator

Research Assistant, Morphology Technician

Albuquerque, NM

Dec. 2018 - May 2021

- Assisted with the collection of forensic and toxicological evidence and the conduct of autopsy.
- Facilitated CT imaging of all decedents, comprising the largest database of death data in the world.
- Assisted in processing of CT data for forensic anthropology.

## Skills

**Programming** Python (e.g. Pandas, PyTorch, NumPy, Scikit, Rdkit), JMP, Batch

**Miscellaneous** Gaussian, Silvaco TCAD

## Publications

### JOURNAL ARTICLES

Electron withdrawing meso-substituents turn-on magneto-optical activity in Porphyrins

Emigdio Turner, Trong-Nhan Pham, Samuel Smith, Kaytlin Ward, Joel Rosenthal, Jeffrey Rack

*Inorganic Chemistry* (2023). 2023

## Languages

**German** B1 - Intermediate proficiency