

Annalise Elizabeth Maughan

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Education

Colorado State University, Fort Collins, CO

August 2013-Present

Doctor of Philosophy, Chemistry

- Anticipated Award Date: May 2018
- GPA: 3.889

Northern Arizona University, Flagstaff, AZ

August 2009-May 2013

Bachelor of Science, ACS Certified Chemistry

- Minor: Mathematics
- GPA: 3.72, *Cum Laude*

Research

Solid State Chemistry Graduate Research Assistant under Professor James R. Neilson

January 2013-Present

- **Research Objectives:** Design and discovery of functional hybrid materials for sustainable energy applications.
- **Research Activities:** 1) Discover new hybrid materials and solve their crystal structures using X-ray diffraction techniques, specifically *ab-initio* structure determinations from powder X-ray diffraction data, 2) Elucidate the structure-property relationships with respect to applications in photovoltaic materials, 3) Utilize the structure-property relationships of previously discovered materials to facilitate the design of new hybrid materials with desired properties.
- **Publications:**
A. E. Maughan, J. A. Kurzman, J. R. Neilson; "Hybrid Inorganic-Organic Materials with an Optoelectronically Active Aromatic Cation: $(C_7H_7)_2SnI_6$ and $C_7H_7PbI_3$ " *Submitted Oct. 24 2014.*

Synthetic Inorganic Chemistry under Professor Stephanie K. Hurst

July 2012-May 2013

- **Research Objectives:** 1) To determine the effect of variable ligands on the structure, yield, and catalytic success of the dibenzylideneacetone analog structures and palladium/platinum sandwich complexes, 2) To understand the organometallic interactions between the central metal atoms with the aromatic ring systems in sandwich complexes, 3) Determine bonding properties of the central metal atoms with variable ligands, and to determine how the ligands affect the haptic interactions in Palladium/Platinum sandwich complexes, 4) Determine new synthetic pathways for dibenzylideneacetone analogs and sandwich complexes to increase yield and purity.
- **Research Activities:** Palladium Suzuki Coupling reactions, synthesis of organic dibenzylideneacetone complex analogs, and synthesis of Palladium and Platinum sandwich complex analogs.

NSF REU Internship at Harvey Mudd College under Professor Gerald Van Hecke

May-July 2012

- **Research Area:** Thermodynamic and electronic properties of inorganic liquid crystalline materials, specifically purple cobalt stearate.
- **Research Objectives:** 1) To determine a binary phase diagram of cobalt stearate in order to characterize lyotropic, liquid crystalline, and meta-crystalline phases, 2) Use polarized microscopy to visualize liquid crystalline phases, 3) Use polarized UV-Visible spectroscopy to characterize the electronic transitions of the cobalt atom and determine the geometry of the stearate molecules about the cobalt atom in the liquid crystal phase using molecular symmetry and group theory.

Teaching Experience**General Chemistry Graduate Teaching Assistant, Colorado State University***Fall 2013-Present*

- Independently taught multiple instructional laboratories, including theory, calculations and proper laboratory techniques; class sizes of 24 students.
- Graded all laboratory work.
- Hosted office hours to aid students in comprehension of laboratory and lecture material.
- Voluntarily hosted review sessions for the laboratory practical.

General Chemistry Laboratory Teaching Assistant, Northern Arizona University*Fall 2011*

- Independently taught multiple instructional laboratories, including theory, calculations and proper laboratory techniques; class sizes of 24 students.
- Prepared and graded pre-lab quizzes and managed a spreadsheet of grades.

Organic Chemistry Laboratory Teaching Assistant, Northern Arizona University*Spring 2012-Present*

- Prepared and delivered weekly lectures about proper organic chemistry laboratory techniques, instrumentation, proper waste disposal and safety to laboratory sections of 20 students.
- Prepared pre-lab quizzes, graded student laboratory notebooks, graded student reports, and managed a spreadsheet of grades.

Advanced Inorganic Chemistry Laboratory Teaching Assistant, Northern Arizona University*Spring 2013*

- First undergraduate hired to teach this laboratory at Northern Arizona University.
- Assisted in giving pre-lab lectures outlining advanced inorganic chemistry theory, laboratory techniques, calculations, instrumentation, and safety.
- Organized and prepared chemicals, equipment and instrumentation for laboratory each week.
- Graded student reports and written assignments.

Awards and Honors**General Chemistry Teaching Assistant Award, Colorado State University***Spring 2014*

- Awarded for excellence in teaching at Colorado State University.

Senior Research Award, Northern Arizona University*Spring 2014*

- Awarded for excellence in research activities in synthetic inorganic research.

Scott Savage Award, Northern Arizona University*Spring 2012*

- Awarded \$1,000 for academic and extra-curricular excellence.

Dean's List, Northern Arizona University*Fall 2009-Spring 2013***Northern Arizona University School of Music Scholarship***Fall 2009-Spring 2010*

- Awarded \$700 scholarship to perform in the Northern Arizona University Symphony.

AIMS 4-Year Scholarship*Fall 2009-Spring 2013*

- Awarded \$15,000 academic scholarship to attend Northern Arizona University.

Viola Solo Competition Winner*Spring 2009*

- Solo competition award winner on viola playing Ernest Bloch's *Suite Hebraique I*.
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Music	Northern Arizona University Symphony Orchestra <i>Fall 2009-Spring 2010</i>
	<ul style="list-style-type: none"> Performed in the Northern Arizona Symphony Orchestra as 9th viola.
	Southwest Arizona Regional Orchestra <i>Fall 2007</i>
	<ul style="list-style-type: none"> Placed top viola in the entire Southwest Arizona region.
	Arizona All-State Orchestra <i>Spring 2008</i>
<ul style="list-style-type: none"> Placed 9th viola in the state of Arizona, and performed Prokofiev's <i>Romeo and Juliet</i> with the top high school musicians in the state. 	
Tucson Philharmonic Youth Orchestra <i>Fall 2007-Spring 2009</i>	
<ul style="list-style-type: none"> Performed as one of the top viola players (2nd chair) in a highly competitive youth orchestra. 	
Professional String Quartet Member <i>Fall 2007-Fall 2010</i>	
<ul style="list-style-type: none"> Performed in a professional string quartet at various events, including weddings, funerals, and corporate events. 	

Presentations	Literature Seminar , Colorado State University <i>Fall 2014</i>
	<ul style="list-style-type: none"> "The Effect of Eu²⁺ Local Structure on the Photoluminescent properties of Eu²⁺-doped Sr_{1-x}Ba_xSi₂O₂N₂ for Applications in White Light-Emitting Diodes: Why you <i>should</i> sweat the small stuff".
	REU Presentation , Harvey Mudd College <i>Summer 2012</i>
<ul style="list-style-type: none"> "Deriving the Phase Diagram of Cobalt Stearate using Differential Scanning Calorimetry". 	
Undergraduate Research and Design Symposium , Northern Arizona University <i>Spring 2012</i>	
<ul style="list-style-type: none"> "Creating a Three-Dimensional World from your Desktop: 3D Printing". 	

Other Experience	Computer Skills
	<ul style="list-style-type: none"> Proficient at Windows, MacOS, and Linux operating systems.
	Chemistry Stockroom Assistant <i>Fall 2010-Present</i>
	<ul style="list-style-type: none"> Prepared and standardized solutions for all undergraduate laboratories. Prepared 2000+ unknowns every year for use in undergraduate instructional laboratories. Regularly performed equipment and instrument maintenance. Tutored students in multiple instructional laboratories and trained fellow employees. Monitored and enforced safety regulations. Wrote Standard Operating Procedures for laboratory techniques, solution preparation, hazardous waste disposal, and employee responsibilities.
