

EDUCATION

Chemistry PhD Candidate

Fall 2018- Present

University of Illinois at Urbana-Champaign, Champaign, IL

Advisor: Dr. Lisa Olshansky

B.A. in Chemistry (Summa Cum Laude)

May 2018

Rollins College, Winter Park, FL

Thesis: Developing Iron Catalysts for Organic Reactions

Advisor: Dr. Laurel Goj Habgood

RESEARCH EXPERIENCE

Doctoral Research

November 2018-Present

University of Illinois at Urbana-Champaign

Advisor: Dr. Lisa Olshansky

- Synthesize biomimetic bis(μ -hydroxo)dicobalt complexes in which substituents on various ligands are modified to control the intramolecular hydrogen bonding network and subsequent proton and electron transfer capabilities
- Characterize complexes with NMR, FT-IR, EPR, and UV-vis spectroscopies and X-ray Crystallography, mass spectrometry and elemental analysis
- Trained in variable temperature and NOSEY NMR, EPR and Stopped-flow UV-vis spectroscopies, and electrochemical methods
- As a founding member, mentored fellow graduate students, aided in creation of laboratory policies, and crafted guidelines for manuscripts and general operating protocols

Research and Development Intern

Summer 2022

Corporate Research Analytical Lab at 3M

- Elucidating the reaction mechanism of a redox mediated polymerization process found in numerous 3M structural adhesives primarily using advanced NMR techniques

Undergraduate Research

Fall 2016-Spring 2018

Rollins College

Advisor: Dr. Laurel Goj Habgood

- Synthesized and characterized iron-NHC complexes utilizing air-free (Schlenk and glove-box) techniques and FT-IR and ^1H -NMR for structural confirmation
- Screened the complexes for catalytic ability on Kumada, Aza-Michael, and Michael additions
- Analyzed catalytic activity of iron complexes in cross-coupling reactions utilizing gas chromatography and ^1H -NMR for a pedological experiment

Georgia Tech Research Experience for Undergraduates

Summer 2017

Georgia Institute of Technology

Advisor: Dr. Joseph Sadighi Mentor: Kevin Omolo

- Synthesized PNP pincer ligands and formation of complexes with palladium and cobalt utilizing air-free techniques and ^1H -NMR, ^{31}P -NMR and FT-IR spectroscopies for characterization

Summer Program for the Advancement of Research Knowledge

Summer 2016

Moffitt Cancer Center

Advisor: Dr. Jin Q. Cheng Mentor: Dr. Yajuan Li

- Screened modified small molecule inhibitors on lung cancer cell lines using MTT assays, western blots, luciferase assays, and cell migration assays

PUBLICATIONS

Alyssa A. DeLucia^{††}, Kimberly A. Kelly^{††}, Kevin A. Herrera, Danielle L. Gray, and Lisa Olshansky. These ^{††} authors contributed equally to the work. Intramolecular Hydrogen-Bond Interactions Tune Reactivity in Biomimetic Bis(μ -hydroxo)dicobalt Complexes. *Inorganic Chemistry*. **2021**, 60, 15599–15609.

Alyssa DeLucia
Chemistry PhD Candidate
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Verónica A. Segarra, Alexandra A. DeLucia^{††}, **Alyssa A. DeLucia^{††}**, Renee Fonseca^{††}, Michael P. Penfold^{††}, Katlyn M. Sawyer^{††} et al. These ^{††} authors contributed equally to the work. Self-Driven Service Learning: Community-Student-Faculty Collaboratives Outside of the Classroom. *Journal of Microbiology & Biology Education*. **2015**, 16, 260-262.

POSTERS AND PRESENTATIONS

A. DeLucia, K. Kelly, K.C. Khanadand, L. Olshansky. "Modeling Oxidase Metalloenzymes with dicobalt bis(μ -hydroxo) complexes" *Gordon Research Conference Bioinorganic Active Sites that Drive Challenging Chemical Conversions*, Newport, RI, 2022. Poster.

A. DeLucia, K. Omolo, J. Sadighi, L. Habgood. "Synthesis of Transition-Metal Catalysts with Diverse Potential Reactivity" *American Chemical Society National Meeting and Exposition*, New Orleans, LA, 2018. ABS # 2867652. Poster.

A. DeLucia, K. Omolo, J. Sadighi. "Synthesis of Unconstrained PNP Pincer Complexes for Potential use in Nitrogen Fixation" *Georgia Tech Research Experience for Undergraduates Symposium*, Atlanta, GA, 2017. Poster and Presentation.

A. DeLucia, Y. Li., J. Q. Cheng. "Analysis of Small Molecule Inhibitor of MicroRNA-155" *Moffitt Cancer Center Research Day*, Tampa, FL, 2016. Presentation.

SCIENCE EDUCATION OUTREACH AND LEADERSHIP

Women in Chemistry Conference Planning Committee

Summer 2021

University of Illinois at Urbana-Champaign

Science Education Outreach

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| • St. Elmo Brady Academy Leader at Booker T. Washington STEM Academy | <i>Fall 2021</i> |
| • Encouraging Tomorrow's Chemists demonstrations at Urbana Middle School | <i>Spring 2019/Fall 2020</i> |
| • Women's Chemist Committee Day Camp for Girls Station Leader | <i>Dec 2020/June 2021</i> |
| • Orlando Science Center Cell Day Station Leader | <i>Spring 2015</i> |

Mentorship

Certified mentor by University of Illinois at Urbana-Champaign Graduate College

Summer 2022-Present

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| • Goldwater Ambassador Mentor | <i>Fall 2021</i> |
| • University of Illinois at Urbana-Champaign ADJUST mentoring program | <i>Fall 2020-Present</i> |
| • Research mentor for undergraduate in Olshansky Lab | <i>Fall 2019</i> |
| • Women's Chemist Committee Mentor | |

Student Affiliates of American Chemical Society Chapter (SAACS)

Fall 2016 – Spring 2018

President

Rollins College

TEACHING EXPERIENCE

Teaching Assistant

University of Illinois at Urbana-Champaign

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| • Inorganic Laboratory | <i>Spring 2019 / 2020</i> |
| • Inorganic Lecture | <i>Fall 2019</i> |
| • General Chemistry, Ranked as Excellent by Students | <i>Fall 2018</i> |

Tutor at Tutoring and Writing Center

Spring 2015-2018

Rollins College

SELECTED AWARDS

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| Phillip W. Rhymer Graduate Fellowship for Outstanding Inorganic Preliminary Exam and Research | <i>2021</i> |
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| NSF GRFP Honorable Mention | 2020 |
| American Institute of Chemists Outstanding Senior Chemistry Major Award, <i>Rollins College</i> | 2018 |
| Goldwater Scholar | 2017 |
| George Allen Award for Outstanding Undergraduate Research, <i>Rollins College</i> | 2017 |
| Thomas R. Baker Memorial Prize for Most Promising Junior in Chemistry, <i>Rollins College</i> | 2017 |