

Abraham J. Jordan

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EDUCATION

GEORGIA INSTITUTE OF TECHNOLOGY, Atlanta, GA

Doctor of Philosophy, Inorganic Chemistry, June 2019

VIRGINIA MILITARY INSTITUTE (VMI), Lexington, VA

Bachelor of Science in Chemistry, December 2013

RESEARCH EXPERIENCE

School of Chemistry and Biochemistry, Georgia Institute of Technology

Inorganic/Organometallic Synthesis

Advisor: Joseph P. Sadighi, 2015 –Present

-Synthesis, structure, and reactivity of N-heterocyclic carbene supported copper(I), silver(I) and gold(I) hydride, fluoride and sulfide complexes that serve as catalysts or relevant reactive intermediates in catalysis.

School of Chemistry and Biochemistry, Georgia Institute of Technology

High Pressure Catalysis

Advisors: Joseph P. Sadighi, Jake D. Soper and Pamela Pollet, 2014

-Synthesized late first-row transition metal complexes in addition to rhodium systems for use as catalysts or pre-catalysts for high pressure (up to 1000 psi) synthesis gas reactions.

Department of Chemistry, Virginia Military Institute

Organic and Inorganic Materials

Advisor: Daren J. Timmons, 2011 – 2013

-Designed and synthesized substituted flavones and flavanols (natural products) to determine the relationship between their structures and liquid crystal properties.

Department of Chemistry, Syracuse University, REU

Organic Methodology

Advisor: Daniel A. Clark, 2012

-Synthesized substituted imidazole[4,5-*b*]pyridines, utilizing palladium catalyzed Buchwald-Hartwig cross-coupling reactions and S_NAr chemistry.

TEACHING/MENTOR EXPERIENCE

Graduate Teaching Assistant, School of Chemistry and Biochemistry, Georgia Institute of Technology

Organic Synthesis Lab Instructor 2014 – 2019

-Delivered each semester a four-hour undergraduate organic lab (18 - 24 students). The students were introduced to synthesis, purification, analysis, and characterization techniques common to organic synthesis. Responsibilities included: grading, proctoring, and holding office hours.

Inorganic Chemistry Lecture Assistant, 2017 – 2018

-Delivered review lectures during class multiple times during the semester (65 students). Responsibilities included: developing keys, grading, proctoring, and holding office hours.

NMR Lab Assistant, 2017

-Trained new users on solution NMR instruments and assisted in refilling 300-800MHz magnets with liquid helium and nitrogen.

Lab Safety Representative, Sadighi Group, 2015 – 2019

-Responsible for the lab's procedures and equipment to recognize and control laboratory hazards. Liaison between group and the Environmental Health and Safety department on all safety related issues.

Undergraduate Research Mentor, 2018 – 2019

-Research mentor for Georgia Tech undergrad and REU student researching the synthesis and reactivity of sulfide-bridged group 11 complexes. Trained student in air- and moisture-sensitive techniques.

Project ENGAGES Mentor, 2016 – 2018

- Research mentor for high school student researching carbon-fluorine bond formation. Trained student in air- and moisture-sensitive techniques.
- Co-organized and delivered lectures in workshops for groups of 10-15 high school students

Georgia Tech Leadership Fellow, 2015 – 2017

- Coached 1 - 4 undergraduate students each semester to develop or sharpen leadership skills.

PUBLICATIONS

7. *Copper(I)-Mediated Borofluorination of Alkynes* **Jordan, A. J.**, Thompson, P. K., Sadighi, J. P.; *Org. Lett.*, 20, 5242-5246 (2018)
6. *Reduction of the Work Function of Gold by N-Heterocyclic Carbenes* Kim, H. K., Hyla, A. S., Winget, P., Li, H., Wyss, C. W., **Jordan, A. J.**, Larrain, F. A., Sadighi, J. P., Fuentez, -Hernandez, C., Kippelen, B., Bredas, J. L., Barlow, S., Marder, S. R.; *Chem. Mater.* 29, 3403-3411 (2017)
5. *Asymmetric flavone-based liquid crystals: synthesis and properties* Timmons, D. J., **Jordan, A. J.**, Kirchon, A. A., Murthy, N. S., Siemers, T., Slebodnik C., Harrison, D. P.; *Liquid Crystals*, 44, 1436-1449 (2017)
4. *Stable Mono- and Dinuclear Organosilver Complexes* Tate, B. K., **Jordan, A. J.**, Bacsá, J., Sadighi, J. P.; *Organometallics*, 36, 954-964 (2017)
3. *Coinage Metal Hydrides: Synthesis, Characterization and Reactivity* **Jordan, A. J.**, Lalic, G., Sadighi J. P.; *Chem. Rev.*, 116, 8318-8372 (2016)
2. *Synthesis and Reactivity of New Copper(I) Hydride Dimers* **Jordan, A. J.**, Wyss, C. M., Bacsá, J., Sadighi, J. P.; *Organometallics*, 35, 613-616 (2016)
1. *Synthesis of 2-amino-imidazo[4,5-b]pyridines*, Rosenberg, A. J., Williams, T. M., **Jordan, A. J.**, Clark, D.A.; *Org. Biomol. Chem.*, 11, 3064-3072 (2013)

PRESENTATIONS

- Synthesis and Reactivity of NHC Copper(I) Sulfide Complexes; *Fifth Annual Departmental Graduate Research Retreat, Historic Banning Mills, GA September 29-30, 2018* (Poster)
- Copper(I)-Mediated Borofluorination of Alkynes; *BASF Sponsored Chemistry and Biochemistry Graduate Student Research Symposium, Atlanta, GA April 20, 2018* (Talk)
- Fluorination of Copper(I) Vinyls: Synthesis of Fluoroalkenes from Alkynes; *Abstracts, 255th National Meeting of the American Chemical Society, New Orleans, LA March 18-22, 2018* (Talk)
- NMR Spectroscopy of Coinage Metal Organometallic Complexes; *Annual Georgia Tech Magnetic Resonance Workshop, Atlanta, GA December 19, 2017* (Talk)
- Carbon-Fluorine Bond Formation from Copper(I) Vinyls: Synthesis of Fluoroalkenes from Alkynes; *Fourth Annual Departmental Graduate Research Retreat, Historic Banning Mills, GA October 21-22, 2017* (Talk)
- Influence of the Dicopper Core on the Reactivity of Copper(I) Hydrides; *Abstracts, 253rd National Meeting of the American Chemical Society, San Francisco, CA April 2-6, 2017* (Poster)
- Expanding the Versatility of Copper Hydrides with Expanded-Ring NHCs; *Fourth Annual Georgia Area Inorganic Network Symposium, Emory University, Atlanta, GA, August 1, 2015* (Talk)
- Mesogenic Flavones; *Abstracts, 65th Southeast Regional Meeting of the American Chemical Society, Atlanta, GA, November 13-16, 2013* (Poster)
- New Flavones for the preparation of metallomesogens; *Abstracts, 63rd Southeast Regional Meeting of the American Chemical Society, Richmond, VA, October 26-29, 2011* (Poster)

AWARDS and HONORS

- Anita and Gary Schuster Undergraduate Research Mentorship Award, 2019
- First Place Presentation, *BASF Sponsored Chemistry and Biochemistry Graduate Student Research Symposium*, 2018
- Johnson Graduate Student Travel Award, 2018
- Wilbur S. Hinman Jr. Research Award, 2014
- Floyd D. Gottwald, Jr. '43 Award in Chemistry, 2014
- Larry L. Jackson '62 Undergraduate Research in Chemistry Award, 2013
- ACS Undergraduate Award for Inorganic Chemistry, 2013