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JAMES SHANAHAN

PROFESSIONAL APPOINTMENTS

Columbia University New York, NY
Postdoctoral Research Scientist (September 2020-present)
Advisor: Professor Jonathan Owen

EDUCATION

University of Michigan Ann Arbor, MI
Chemistry PhD, August 2020
Advisor: Professor Nathaniel K. Szymczak

University of Rochester Rochester, NY
Bachelor of Science, Chemistry, May 2014.
Magna Cum Laude, Highest Distinction

RESEARCH

University of Michigan, Ann Arbor Ann Arbor, MI
PhD Advisor: Nathaniel K. Szymczak (May 2014-August 2020)
Dissertation: Assessing Effects of Unconventional Acid/Base Interactions Within Transition Metal Complexes
Research: Investigated H-bond and Lewis acid interactions to non-polar small molecules (N_2, H_2) at metals with inter- and intramolecular Lewis acids and hydrogen bond donors.

University of Rochester Rochester, NY
Advisor: William D. Jones (June 2012-May 2014)
Research: Mechanistic study of nickel terminal-sulfido formation and subsequent reactivity

University of California Berkeley Berkeley, CA
Advisor: John F. Hartwig (Summer 2013)
NSF CCI, Center for Enabling New Technologies Through Catalysis (CENTC)
Research: Developing an oxidative Heck reaction for neutral, non-chelating olefins with arylboron reagents for the one-pot synthesis of styrenes

TEACHING EXPERIENCE

University of Michigan, Ann Arbor Ann Arbor, MI
Graduate Student Instructor
CHEM 482: Advanced Synthesis Laboratory (Fall 2019, 2018, 2016)
CHEM 402: Intermediate Inorganic Chemistry (Fall 2015)
CHEM 210: Organic Laboratory (2014, 2015)

University of Rochester Rochester, NY
Teaching Assistant
Inorganic Chemistry (Fall 2013, 2012)
Chemical Instrumentation (Fall 2013)
Organic Chemistry Laboratory (Fall 2011)

PUBLICATIONS

Listed in reverse chronological order

7) Shanahan, J. P.; Szymczak, N. K. "Lewis acid effects on calculated ligand electronic parameters" Accepted for publication *Organometallics,* **2020**

6) Shanahan, J. P.; Mullis, D. M.; Zeller, M.; Szymczak, N. K. "Reductively Stable Hydrogen-Bonding Ligands Featuring Appended CF_2-H Units" *J. Am. Chem. Soc.* **2020**, 142, 8809-8817.

5) Shanahan, J. P.; Szymczak, N. K. "Hydrogen Bonding to a Dinitrogen Complex at Room Temperature: Impacts on N_2 Activation" *J. Am. Chem. Soc.,* **2019**, 141, 8550-8556.

4) Kiernicki, J. B.; Shanahan, J. P.; Szymczak, N. K. "Tuning Ligand Field Strength with Pendent Lewis Acids: Access to High Spin Iron Hydrides" *Chem. Sci.,* **2019**, *10*, 5539-5545.

3) White, C. J.; Speelman, A. L.; Kupper, C.; Demeshko, S.; Meyer, F.; Shanahan, J. P.; Alp, E. E.; Hu, M.; Zhao, J.; Lehnert, N.; "The Semireduced Mechanism for Nitric Oxide Reduction by Non-Heme Diiron Complexes that Model Flavodiiron NO Reductases" *J. Am. Chem. Soc.* **2018**, *140,* 2562–2574.

2) Geri, J. B.; Shanahan, J. P.; Szymczak, N. K. "Testing the Push–Pull Hypothesis: Lewis Acid Augmented N_2 Activation at Iron" *J. Am. Chem. Soc.,* **2017**, *139*, 5952–5956.

1) Humes, C. L.; Banker, T. J.; Dorn, S. C. M.; Shanahan, J. P.; Brennessel, W. W.; Weix, D. J. *Acta Cryst. E* **2014**, *70*, o405-o406.

AWARDS

Chemistry Department Winter Fellowship	(2020)
Rackham Graduate Student Research Grant	(2019)
Margaret & Herman Sokol Graduate Summer Research Fellowship.	(2018)
Karle Symposium- Poster Travel Award	(2018, 2016)
NSF Graduate Research Fellowship Program- Honorable Mention	(2016, 2015)
ACS Undergraduate Award in Inorganic Chemistry	(2014)
Carl A. Whiteman, Jr. Teaching Award	(2014)
Chemistry Junior Scholar Award	(2013)
Bausch and Lomb Scholarship	(2010-2014)

MENTORING

University of Michigan, Ann Arbor	Ann Arbor, MI
Danielle M. Mullis	(Fall 2016-2020)
Froylan Omar Fernandez	(Summer 2018)
Michael Wade Wolfe	(Summer 2016)

PRESENTATIONS

Listed in reverse chronological order

"Secondary-sphere -CF_2H hydrogen bond donors" Shanahan, J. P.; Szymczak, N. K. Ohio Inorganic Weekend (University of Toledo) Poster Session, October 2019.

"Augmenting dinitrogen activation with hydrogen bond donors and Lewis acids"

Shanahan, J. P.; Szymczak, N. K. ACS Central Regional Meeting (CERM) (Midland, Michigan) Poster Session, August 2019.

"Modulation of H^+/H^- Exchange of Iridium-hydride 2-Hydroxypyridine Complexes by Remote Lewis Acids" Shanahan, J. P.; Moore, C. M.; Szymczak, N. K. Ohio Inorganic Weekend (University of Akron) Poster Session, November 2016.

"Iridium hydrogen bonded hydrides, metal coordinated H_2 rapid exchange, and remote functionalization" Shanahan, J. P.; Moore, C. M.; Szymczak, N. K ACS National Meeting (Philadelphia) Talk-Secondary Sphere Symposium, August 2016.

"Utility of 2-hydroxypyridine within terpyridines as a secondary coordination sphere design element" Shanahan, J. P.; Moore, C. M.; Szymczak, N. K ACS National Meeting (Philadelphia) Poster Session, August 2016.

"Palladium Catalyzed Oxidative Heck reaction of Arylboron reagents with neutral, non-chelating Olefins" Shanahan, J. P.; Shrestha, R.; Hartwig, J. F. Center for Enabling New Technologies Through Catalysis Annual Meeting Poster Session. October 2013.

"Trapping of a Terminal Sulfido Intermediate." Shanahan, J. P.; Morris, J.; Jones, W. D.; Northeast Regional Meeting of the ACS Conference in Rochester, NY. October, 2012.