

# Jianbing “Jimmy” Jiang, Ph.D.

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## **APPOINTMENTS**

Assistant Professor University of Cincinnati Department of Chemistry	Aug. 2018–present
Associate Research Scientist Yale University Department of Chemistry; Energy Sciences Institute Advisor: Gary W. Brudvig and Robert H. Crabtree	May 2017–Aug. 2018
Postdoctoral Associate Yale University Department of Chemistry; Energy Sciences Institute Advisor: Gary W. Brudvig and Robert H. Crabtree	May 2015–May 2017

## **EDUCATION**

Ph.D. Chemistry North Carolina State University Thesis Title: <i>Light-harvesting architectures with natural protein scaffolds and synthetic chromophores</i> Advisor: Jonathan S. Lindsey	May 2015
M.S. Chemistry East China University of Science and Technology (ECUST) Thesis Title: <i>Properties of chemosensors polymerized by reversible addition-fragmentation chain transfer (RAFT) method</i> Advisor: He Tian	March 2010
B.S. Chemistry Jiangnan University Thesis Title: <i>Synthesis of fluorine-containing ligands for metal-organic frameworks (MOFs)</i> Advisor: Changge Zheng	May 2007

## **HONORS AND AWARDS**

- |   |      |
|---|------|
| • Confluence W Prize from Confluence                          | 2022 |
| • Research Corporation for Science Advancement Scialog Fellow | 2021 |
| • NSF CAREER award  | 2021 |
| • Research Corporation for Science Advancement Scialog Fellow | 2020 |

- University of Cincinnati Pilot award 2020
- Faculty Development Fund from University of Cincinnati 2019
- *Journal of Materials Chemistry A* Emerging Investigator 2019
- Research Launch Award from University of Cincinnati Office of Research 2019
- Faculty Development Fund from University of Cincinnati 2018
- Percy L. Julian Award for Excellence in Research from NC State University 2015
- Photosynthesis Antenna Research Center (a DOE EFRC) Exchange Fellowship, twice 2012–2013
- Outstanding Graduate Student from Shanghai Education Committee 2010
- First Prize for Comprehensive Science and Technology Activity from ECUST 2009
- Fellowships for Excellence from Jiangnan University, ten times 2003–2007

### **Major Grants**

<b>Fund</b>	<b>Period</b>	<b>Amount</b>
NSF CAREER Chemical Catalysis 2041436	04/01/2021 – 03/31/2026	\$685,000
NSF Environmental Engineering 2051260 (sole PI)	08/01/2021 – 07/31/2024	\$402,387
NSF Electrochemical Systems 2112798 (sole PI)	09/01/2021 – 08/31/2024	\$416,184
University of Cincinnati Pilot Research Fund	07/01/2020 – 12/31/2021	\$20,000

### **PUBLICATIONS** (#Equal contributions; \*Corresponding authors)

#### **Published**

- (57) Williams, C. K.; MaCarver, G. A.; Chaturvedi, A.; Sinha S.; Ang, M; Vogiatzis, K. D.;\* **Jiang, J.\*** “Electrocatalytic Hydrogen Evolution Using A Molecular Antimony Complex under Aqueous Conditions: An Experimental and Computational Study on Main-Group Element Catalysis,” *Chem. Eur. J.* **2022**, accepted
- (56) Wang, X.; Chai, J.; Zhang, S.; Chen, B.; Chaturvedi, A.; Cui, G.; Jiang, J. “Insights into Indigo K<sup>+</sup> Association in a Half-Slurry Flow Battery,” **2022**, *ACS Energy Lett.* **2022**, 7, 1178–1186.
- (55) Sinha, S.; Williams, C. K.; Jiang, J.\* “Outer-Coordination Sphere in Multi-H<sup>+</sup>/Multi-e<sup>-</sup> Molecular Electrocatalysis,” *iScience* **2022**, 25, 103628. (invited Perspective)
- (54) Wang, X.;# Lashgari, A.;# Chai, J.; **Jiang, J.\*** “A Membrane-Free, Aqueous/Nonaqueous Hybrid Redox Flow Battery,” *Energy Storage Mater.* **2022**, 45, 1100–1108.
- (53) Wang, X.;# Chai, J.;# Devi, N.; Lashgari, A.; Chaturvedi, A.; **Jiang, J.\*** “Two-Electron-Active Tetracyanoethylene for Application in Nonaqueous Redox Flow Batteries,” *J. Mater. Chem. A* **2022**, 9, 13867–13873. Featured in front cover
- (52) Williams, C. K.; MaCarver, G. A.; Lashgari, A.; Vogiatzis, K. D.;\* **Jiang, J.\*** “Electrocatalytic Dechlorination of Dichloromethane in Water Using a Heterogenized Molecular Copper Complex,” *Inorg. Chem.* **2021**, 60, 4915–4923.
- (51) Devi, N.; Williams, C. K.; Chaturvedi, A.; **Jiang, J.\*** “Homogeneous Electrocatalytic CO<sub>2</sub> Reduction Using a Porphyrin Complex with Flexible Triazole Units in the Second Coordination Sphere,” *ACS Appl. Energy Mater.* **2021**, 4, 3604–3611.

- (50) Chai, J.; Lashgari, A.; Eisenhart, A. E.; Wang, X.; Beck, T. L.;\* **Jiang, J.\*** "Biphasic, Membrane-free Zn/Phenothiazine Battery. Effects of Hydrophobicity of Redox Materials on Cyclability," *ACS Mater. Lett.* **2021**, *3*, 337–343.
- (49) Chaturvedi, A.; Williams, C. K.; Devi, N.; **Jiang, J.\*** "Effects of Appended Poly(ethylene glycol) on Electrochemical CO<sub>2</sub> Reduction by an Iron Porphyrin Complex," *Inorg. Chem.* **2021**, *60*, 3843–3850.
- (48) Wang, X.;# Chai, J.;# Lashgari, A.; **Jiang, J.\*** "Azobenzene-based Low-potential Anolyte for Nonaqueous Organic Redox Flow Battery," *ChemElectroChem* **2021**, *8*, 83–89.
- (47) Wang, X.; Chai, J.; **Jiang, J.\*** "Redox Flow Batteries Based on Insoluble Redox-Active Materials. A Review," *Nano Mater. Sci.* **2021**, *3*, 17–24. (invited review)
- (46) Williams, C. K.; Lashgari, A.; Ang, M.; Dhungana, P.; **Jiang, J.\*** "Dechlorination of Dichloromethane by a Metal-Free Triazole-Porphyrin Electrocatalyst: Demonstration of Main-Group Element Electrocatalysis," *Chem. Eur. J.* **2021**, *27*, 6240–6240. DOI: 10.1002/chem.202005012 (*ChemRxiv* **2020**, DOI: 10.26434/chemrxiv.12762266.v1)
- (45) Chai, J.; Lashgari, A.; **Jiang, J.\*** "Electroactive Materials for Next-Generation Redox Flow Batteries: From Inorganic to Organic," in *Clean Energy Materials*; Lang, Q.; Fan, L.-S. Eds.; American Chemical Society, Washington, DC. **2020**, p1–47.
- (44) Williams, C. K.; Lashgari, A.; Tomb, J. A.; Chai, J.; **Jiang, J.\*** "Atropisomeric Effects of Second Coordination Spheres on Electrocatalytic CO<sub>2</sub> Reduction," *ChemCatChem* **2020**, *12*, 4886–4892.
- (43) Hu, G.;# **Jiang, J.**;\* Kelly, H. R.; Matula, A. J.; Wu, Y.; Romano, N.; Mercado, B. Q.; Wang, H.;\* Batista, V. S.;\* Crabtree, R. H.; Brudvig, G. W.\* "Surprisingly Big Linker-Dependence of Activity and Selectivity in CO<sub>2</sub> Reduction by an Iridium(I) Pincer Complex," *Chem. Commun.* **2020**, *56*, 9126–9129.
- (42) Chai, J.;# Wang, X.;# Lashgari, A.; Williams, C. K.; **Jiang, J.\*** "A pH-Neutral, Non-Corrosive, Aqueous Redox Flow Battery with a 3600-Cycle Lifetime: Micellization-Enabled Ultrastability and Crossover Suppression," *ChemSusChem* **2020**, *13*, 4069–4077.
- (41) Chai, J.;# Lashgari, A.;# Wang, X.; **Jiang, J.\*** "Extending the Redox Potentials of Metal-Free Anolytes: towards High Energy Density Redox Flow Batteries," *J. Electrochem. Soc.* **2020**, *167*, 100556.
- (40) Williams, C. K.; Lashgari, A.; Chai, J.; **Jiang, J.\*** "Enhanced Molecular CO<sub>2</sub> Electroreduction Enabled with a Flexible Hydrophilic Channel for Relay Proton Shuttling," *ChemSusChem* **2020**, *13*, 3412–3417.
- (39) Lashgari, A.;# Williams, C. K.;# Glover, J. L.; Wu, Y.; Chai, J.; **Jiang, J.\*** "Enhanced Electrocatalytic Activity of a Zinc Porphyrin for CO<sub>2</sub> Reduction: Cooperative Effects of Triazole Units in the Second Coordination Sphere," *Chem Eur. J.* **2020**, *26*, 16774–16781
- (38) Chai, J.; Lashgari, A.; Wang, X.; Williams, C. K.; **Jiang, J.\*** "All-PEGylated Redox-Active Metal-Free Organic Molecules in Non-Aqueous Redox Flow Battery," *J. Mater. Chem. A* **2020**, *8*, 15715–15724. Invited contribution in a special Emerging Investigator issue; featured in back cover
- (37) Chai, J.;# Lashgari, A.;# Cao, Z.; Williams, C. K.; Wang, X.; Dong, J.; **Jiang, J.\*** "PEGylation-Enabled Extended Cyclability of a Non-Aqueous Redox Flow Battery," *ACS Appl. Mater. Interfaces* **2020**, *12*, 15262–15270.

#### Prior to UC

- (36) Jing, H.; Liu, S.; Jiang, J.; Tran, V.; Rong, J.; Wang, P.; Lindsey, J. S. "Meso bromination and derivatization of synthetic bacteriochlorins," *New J. Chem.* **2022**, *46*, 5556–5572.

- (35) Jing, H.; Wang, P.; Chen, B.; Jiang, J.; Vairaprakash, P.; Liu, S.; Rong, J.; Chen, C.-Y.; Nalao, P.; Lindsey, J. S. "Synthesis of Bacteriochlorins Bearing Diverse  $\beta$ -Substituents," *New J. Chem.* **2022**, *46*, 5534–5555.
- (34) Fujita, H.; Jing, H.; Krayner, M.; Allu, S.; Veeraraghavaiah, G.; Wu, Z.; **Jiang, J.**; Diers, J. R.; Magdaong, N. C. M.; Mandal, A. K.; Ray, A.; Niedwiedzki, D. M.; Kirmaier, C.; Bocian, D. F.; Holten, D.; Lindsey, J. S. "Annulated Bacteriochlorin for Near-Infrared Photophysical Studies," *New J. Chem.* **2019**, *43*, 7209 – 7232.
- (33) Materna, K. L.; **Jiang, J.**; Crabtree, R. H.; Brudvig, G. W. "Silatrane Anchors for Metal Oxide Surfaces: Optimization for Potential Photocatalytic and Electrocatalytic Applications," *ACS Appl. Mater. Interfaces* **2019**, *11*, 5602–5609.
- (32) **Jiang, J.**; Matula, A.; Swierk, J.; Romano, N.; Wu, Y.; Batista, V.; Crabtree, R. H.; Lindsey, J. S.; Wang, H.; Brudvig, G. W. "Unusual Stability of a Bacteriochlorin Electrocatalyst under Reductive Conditions. A Case Study on CO<sub>2</sub> Conversion to CO," *ACS Catal.* **2018**, *8*, 10131–10136.
- (31) **Jiang, J.**,<sup>#</sup> Spies, J. A.,<sup>#</sup> Swierk, J. R.; Matula, A. J.; Regan, K. P.; Romano, N.; Brennan, B. J.; Crabtree, R. H.; Schmuttenmaer, C. A.; Batista, V. S.; Brudvig, G. W. "Direct Interfacial Electron Transfer from High-Potential Porphyrins into Semiconductor Surfaces: A Comparison of Linkers and Anchoring Groups," *J. Phys. Chem. C* **2018**, *122*, 13529–13539.
- (30) Weng, Z.; Wu, Y.; Wang, M.; **Jiang, J.**; Yang, K.; Huo, S.; Wang, X.-F.; Ma, Q.; Brudvig, G. W.; Batista, V. S.; Liang, Y.; Feng, Z.; Wang, H. "Active Sites of Cu-Complex Catalytic Materials for Electrochemical Carbon Dioxide Reduction," *Nat. Commun.* **2018**, *9*, 415.
- (29) Materna, K. L.; **Jiang, J.**; Regan, K. P.; Schmuttenmaer, C. A.; Brudvig, G. W. "Optimization of Photoanodes for Photocatalytic Water-Oxidation Using a Heterogenized Iridium Catalyst and a High-Potential Porphyrin Photosensitizer," *ChemSusChem* **2017**, *10*, 4526–4534.
- (28) Weng, Z.; Zhang, X.; Wu, Y.; Huo, S.; **Jiang, J.**; Liu, W.; He, G.; Liang, Y.; Wang, H. "Self-Cleaning Catalyst Electrodes for Stabilized CO<sub>2</sub> Reduction to Hydrocarbons," *Angew. Chem. Int. Ed.* **2017**, *56*, 13135–13139.
- (27) Wu, Y.,<sup>#</sup> **Jiang, J.**,<sup>#</sup> Weng, Z.,<sup>#</sup> Wang, M.; Broere, D. L. J.; Zhong, Y.; Brudvig, G. W.; Feng, Z.; Wang, H. "Electroreduction of CO<sub>2</sub> Catalyzed by a Heterogenized Zn-Porphyrin Complex with a Redox-Innocent Metal Center," *ACS Cent. Sci.* **2017**, *3*, 847–852.
- The paper below is designated as a "Hot Paper".*
- (26) **Jiang, J.**,<sup>#</sup> Materna, K. L.,<sup>#</sup> Hedström, S.,<sup>#</sup> Yang, K. R.; Batista, V.; Crabtree, R. H.; Brudvig, G. W. "Molecular Antimony Complexes for Electrocatalysis: Activity of a Main Group Element in Proton Reduction," *Angew. Chem. Int. Ed.* **2017**, *56*, 9111–9115.
- (25) Mi, Y.; Liu, W.; Wang, Q.; **Jiang, J.**; Brudvig, G. W.; Zhou, H.; Wang, H. "Pomegranate-Structured Sulfur Cathode Material with Triple Confinement of Lithium Polysulfides for High-Performance Lithium-Sulfur Batteries," *J. Mater. Chem. A* **2017**, *5*, 11788–11793.
- (24) Liu, W.,<sup>#</sup> **Jiang, J.**,<sup>#</sup> Yang, K. R.,<sup>#</sup> Mi, Y.,<sup>#</sup> Kumaravadivel, P.; Zhong, Y.; Fan, Q.; Weng, Z.; Wu, Z.; Cha, J. J.; Zhou, H.; Batista, V. S.; Brudvig, G. W.; Wang, H. "An Ultrathin Dendrimer-Graphene Oxide Composite Film for Stable Cycling Lithium-Sulfur Batteries," *Proc. Natl. Acad. Sci. U.S.A.* **2017**, *114*, 3578–3583.
- (23) Mancini, J. A.; Kodali, G.; **Jiang, J.**; Reddy, K. R.; Lindsey, J. S.; Bryant, D. A.; Dutton, P. L.; Moser, C. C. "Multi-step Excitation Energy Transfer Engineered in Genetic Fusions of Natural and Synthetic Light-Harvesting Proteins," *J. R. Soc. Interface* **2017**, *14*, 20160896.

- (22) **Jiang, J.**; Swierk, J. R.; Materna, K. L.; Hedström, S.; Lee, S.; Crabtree, R. H.; Schmuttenmaer, C. A.; Batista, V. S.; Brudvig, G. W. "High Potential Porphyrins for Photoelectrochemical Applications Supported on SnO<sub>2</sub>- and TiO<sub>2</sub>- Surfaces," *J. Phys. Chem. C* **2016**, *120*, 28971–28982.
- (21) Mi, Y.; Liu, W.; Yang, K. R.; **Jiang, J.**; Fan, Q.; Weng, Z.; Zhong, Y.; Wu, Z.; Brudvig, G. W.; Batista, V. S.; Zhou, H.; Wang, H. "Ferrocene-Promoted Long-Cycle Lithium-Sulfur Batteries," *Angew. Chem. Int. Ed.* **2016**, *55*, 14818–14822.
- (20) **Jiang, J.**; Crabtree, R. H.; Brudvig, G. W. "One-Step Trimethylstannylation of Benzyl and Alkyl Halides," *J. Org. Chem.* **2016**, *81*, 9483–9488.
- (19) Swierk, J. R.; Regan, K. P.; **Jiang, J.**; Brudvig, G. W.; Schmuttenmaer, C. A. "Rutile TiO<sub>2</sub> as an Anode Material for Water-Splitting Dye-Sensitized Photoelectrochemical Cells," *ACS Energy Lett.* **2016**, *1*, 603–606.
- (18) **Jiang, J.**;<sup>#</sup> Swierk, J. R.;<sup>#</sup> Hedstrom, S.; Matula, A. J.; Crabtree, R. H.; Batista, V. S.; Schmuttenmaer, C. A.; Brudvig, G. W. "Molecular Design of Light-Harvesting Photosensitizers: Effect of Varied Linker Conjugation on Interfacial Electron Transfer," *Phys. Chem. Chem. Phys.* **2016**, *18*, 18678–18682.
- The paper below is highlighted in JACS Spotlights.*
- (17) Weng, Z.;<sup>#</sup> **Jiang, J.**;<sup>#</sup> Wu, Y.; Wu, Z.; Guo, X.; Materna, K. L.; Liu, W.; Batista, V. S.; Brudvig, G. W.; Wang, H. "Electrochemical CO<sub>2</sub> Reduction to Hydrocarbons on a Heterogeneous Molecular Cu Catalyst in Aqueous Solution," *J. Am. Chem. Soc.* **2016**, *138*, 8076–8079.
- (16) Zhang, N.; **Jiang, J.**; Liu, M.; Taniguchi, M.; Mandal, A. K.; Evans-Storms, R. B.; Pitner, J. B.; Bocian, D. F.; Holten, D.; Lindsey, J. S. "Bioconjugatable, PEGylated Hydroporphyrins for Photochemistry and Photomedicine. Narrow-Band, Near-Infrared-Emitting Bacteriochlorins," *New J. Chem.* **2016**, *40*, 7750–7767.
- (15) **Jiang, J.**; Yang, E.; Reddy, K. R.; D. M. Niedzwiedzki; C. Kirmaier; D. F. Bocian; D. Holten; Lindsey, J. S. "Synthetic Bacteriochlorins Bearing Polar Motifs (Carboxylate, Phosphonate, Ammonium and a short PEG). Water-Solubilization, Bioconjugation, and Photophysical Properties," *New J. Chem.* **2015**, *39*, 5694–5714.
- (14) Zhang, N.; Reddy, K. R.; **Jiang, J.**; Taniguchi, M.; Sommer, R. D. Lindsey, J. S. "Elaboration of an Unexplored Substitution Site in Synthetic Bacteriochlorins," *J. Porphyrins Phthalocyanines* **2015**, *19*, 887–902.
- (13) **Jiang, J.**; Taniguchi, M.; Lindsey, J. S. "Near-Infrared Tunable Bacteriochlorins Equipped for Bioorthogonal Labeling," *New J. Chem.* **2015**, *39*, 4534–4550.
- (12) **Jiang, J.**; Chen, C.-Y.; Zhang, N.; Vairaprakash, P.; Lindsey, J. S. "Polarity-Tunable and Wavelength-Tunable Bacteriochlorins Bearing a Single Carboxylic Acid or NHS Ester. Use in a Protein Bioconjugation Model System," *New J. Chem.* **2015**, *39*, 403–419.
- (11) Harris, M. A.; Sahin, T.; **Jiang, J.**; Vairaprakash, P.; Loach, P. A.; Niedzwiedzki, D. M.; Kirmaier, C.; Loach, P. A.; Bocian, D. F.; Holten, D.; Lindsey, J. S. "Enhanced Light-Harvesting Capacity by Micellar Assembly of Free Accessory Chromophores and LH1-like Antennas," *Photochem. Photobiol.* **2014**, *90*, 1264–1276.
- (10) **Jiang, J.**; Reddy, K. R.; Pavan, M. P.; Lubian, E.; Bocian, D. F.; Holten, D.; Parkes-Loach, P. S.; Loach, P. A.; Lindsey, J. S. "Amphiphilic, Hydrophilic, or Hydrophobic Synthetic Bacteriochlorins in Biohybrid Light-Harvesting Architectures. Consideration of Molecular Designs," *Photosynth. Res.* **2014**, *122*, 187–202.

- (9) Harris, M. A.; **Jiang, J.**; Niedzwiedzki, D. M.; Jiao, J.; Taniguchi, M.; Kirmaier, C.; Loach, P. A.; Bocian, D. F.; Lindsey, J. S.; Holten, D.; Parkes-Loach, P. S. "Versatile Design of Biohybrid Light-Harvesting Architectures to Tune Location, Density and Spectral Coverage of Attached Synthetic Chromophores for Enhanced Energy Capture," *Photosynth. Res.* **2014**, *121*, 35–48.
- (8) **Jiang, J.**; Vairaprakash, P.; Reddy, K. R.; Sahin, T.; Pavan, M. P.; Lubian, E.; Lindsey, J. S. "Hydrophilic Tetracarboxy Bacteriochlorins for Photonics Applications," *Org. Biol. Chem.* **2014**, *12*, 86–103.
- (7) Harris, M. A.; Parkes-Loach, P. S.; Springer, J. W.; **Jiang, J.**; Martin, E. C.; Qian, P.; Jiao, J.; Niedzwiedzki, D. M.; Kirmaier, C.; Olsen, J. D.; Bocian, D. F.; Holten, D.; Hunter, C. N.; Lindsey, J. S.; Loach, P. A. "Integration of Multiple Chromophores with Native Photosynthetic Antennas to Enhance Solar Energy Capture and Delivery," *Chem. Sci.* **2013**, *4*, 3924–3933.
- (6) Reddy, K. R.; **Jiang, J.**; Krayner, M.; Harris, M. A.; Springer, J. W.; Yang, E.; Jiao, J.; Niedzwiedzki, D. M.; Pandithavidana, D.; Parkes-Loach, P. S.; Kirmaier, C.; Loach, P. A.; Bocian, D. F.; Holten, D.; Lindsey, J. S. "Palette of Lipophilic Bioconjugatable Bacteriochlorins for Construction of Biohybrid Light-Harvesting Architectures," *Chem. Sci.* **2013**, *4*, 2036–2053.
- (5) Leng, B.; **Jiang, J.**; Tian, H. "A Mesoporous Silica Supported Hg<sup>2+</sup> Chemodosimeter," *AIChE J.* **2010**, *56*, 2957–2964.
- (4) **Jiang, J.**; Xiao, X.; Zhao, P.; Tian, H. "Colorimetric Naked-Eye Recognizable Anion Sensors Synthesized via RAFT Polymerization," *J. Polym. Sci., Part A: Polym. Chem.* **2010**, *48*, 1551–1556.
- (3) Leng, B.; Zou, L.; **Jiang, J.**; Tian, H. "Colorimetric Detection of Mercuric Ion (Hg<sup>2+</sup>) in Aqueous Media Using Chemodosimeter-functionalized Gold Nanoparticles," *Sensor. Actuat. B-chem.* **2009**, *140*, 162–169.
- (2) Zhao, P.;<sup>#</sup> **Jiang, J.**,<sup>#</sup> Leng, B.; Tian, H. "Polymer Fluoride Sensors Synthesized by RAFT Polymerization," *Macromol. Rapid Commun.* **2009**, *30*, 1715–1718.
- (1) **Jiang, J.**; Leng, B.; Xiao, X.; Zhao, P.; Tian, H. "'Off-On-Off' Fluorescent Proton Switch Synthesized by RAFT Polymerization," *Polymer* **2009**, *50*, 5681–5684.

**Submitted and in preparation**

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**ORAL PRESENTATION**

- (1) "Toward Increased Spectral Coverage of Biohybrid Light-Harvesting Antennas," in Photosynthetic Antenna Research Center (PARC) All Hands Meeting 2012. St Louis, MO. Aug. 2012.
- (2) "New Generation of Light-Harvesting Constructs with Natural Protein Scaffolds and Synthetic Pigments," PARC's Graduate Student and Post-Doc (GSPD) Seminar. Raleigh, NC. Jan. 2013.
- (3) "Light-Harvesting Biohybrid Architectures with Natural Protein Scaffolds and Synthetic Chromophores," ACS national meeting, San Francisco, CA. Aug. 2014.
- (4) "Artificial Light-Harvesting Architectures with Natural Protein Scaffolds and Synthetic Chromophores," Yale Energy Sciences Institute, New Haven, CT. Jan. 2015.
- (5) "Artificial Light-Harvesting Architectures with Natural Protein Scaffolds and Synthetic Chromophores," Louisiana State University, Baton Rouge, LA. Nov. 2016.
- (6) "Well-Defined Organic Materials for Renewable Energy Capture, Conversion and Storage," SUNY the College of Environmental Science and Forestry, Syracuse, NY. Feb. 2017.

Updated 05/27/2022

- (7) "Well-defined Synthetic Polymers and Molecules towards Environmental, Biomedical and Energy Applications," University of Houston, Houston, TX. Dec. 2017.
- (8) "Organic and Polymeric Materials for Renewable Energy Capture, Conversion and Storage," University of Central Florida, Orlando, FL. Jan. 2018.
- (9) "Molecular Light-harvesting Architectures and Catalysts towards Renewable Energy Production," University of California–Riverside, Riverside, CA. Jan. 2018.
- (10) "Well-defined Polymeric Materials for Renewable Energy Capture, Conversion and Storage," University of Cincinnati, Cincinnati, OH. Feb. 2018.
- (11) "Well-defined Polymeric Biomaterials for Renewable Energy Capture, Conversion and Storage," Brandeis University, Waltham, MA. Feb. 2018.
- (12) "CO<sub>2</sub> Reduction Using Molecular Electrocatalysts with a Redox-Active Ligand," Eastern Illinois University, Charleston, IL. Oct. 2019.
- (13) "Micellization-Enabled Ultrastability and Crossover Suppression in pH-Neutral, Aqueous Redox Flow Batteries," Indiana University–Purdue University Indianapolis (Virtual), Sep. 2020.
- (14) "Micellization-Enabled Ultrastability and Crossover Suppression in pH-Neutral, Aqueous Redox Flow Batteries," MRS Fall 2020 meeting (Virtual), Nov. 2020.
- (15) "Micellization-Enabled Ultrastability and Crossover Suppression in pH-Neutral, Aqueous Redox Flow Batteries," University of Akron (virtual), Mar. 2021.
- (16) "Higher Coordination Sphere-Enabled Molecular Electrocatalysis," University of Louisville, Oct. 2021.

### **COURSES**

- Chem8081/Chem4081/EVST4081: Sustainable Energy      Fall 2022
- Chem3030: Instrumental Analysis      Fall 2021
- Chem8081/Chem4081/EVST4081: Sustainable Energy      Fall 2021
- Chem3030: Instrumental Analysis      Fall 2020
- Chem8081/Chem4081/EVST4081: Sustainable Energy      Fall 2020
- Chem3030: Instrumental Analysis      Fall 2019
- Chem8081/Chem4081: Sustainable Energy      Fall 2019
- Chem8069: Special Topics in Physical Chemistry      Fall 2018