

## Jillian L. Dempsey

### Personal

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### Education

- 2011                    Ph.D. in Chemistry  
*California Institute of Technology*  
Advisor: Prof. Harry B. Gray  
Thesis: Hydrogen Evolution Catalyzed by Cobaloximes
- 2005                    S.B. in Chemistry  
*Massachusetts Institute of Technology*  
Advisor: Prof. Daniel G. Nocera  
Thesis: Synthesis, Structure, and Spectroscopic Investigations of  
Luminescent Heterobimetallic Au(I)-Rh(I) Species

### Professional Experience

- 2018–present        Associate Professor, Department of Chemistry  
*University of North Carolina at Chapel Hill*
- 2012–2018            Assistant Professor, Department of Chemistry  
*University of North Carolina at Chapel Hill*
- 2011–2012            Postdoctoral Research Fellow  
*University of Washington*  
Advisor: Prof. Daniel R. Gamelin

### Honors

- 2018                    Harry Gray Award for Creative Work in Inorganic Chemistry by a Young Investigator
- 2017                    Dalton Transactions UC Berkeley Lectureship
- 2017                    Inter-American Photochemical Society Young Investigator Award
- 2017                    *Chemical & Engineering News* Talented 12 Scientist
- 2017                    J. Carlyle Sitterson Award for Teaching First-Year Students (UNC)
- 2016                    Phillip and Ruth Hettleman Prize for Artistic and Scholarly Achievement (UNC)
- 2016                    Sloan Research Fellowship
- 2016                    Air Force Office of Scientific Research Young Investigator Award
- 2016                    American Chemical Society Division of Inorganic Chemistry Undergraduate Award in Inorganic Chemistry (*recognizing the collaborative research of an outstanding undergraduate student/preceptor team*)—Honorable Mention

2015	Packard Fellowship for Science and Engineering
2015	National Science Foundation CAREER Award
2013	Junior Faculty Development Award (UNC)
2011	National Science Foundation American Competitiveness in Chemistry Postdoctoral Fellowship
2011	Herbert Newby McCoy Award for Outstanding Achievements in Chemistry (Caltech)
2010	American Chemical Society Division of Inorganic Chemistry Young Investigator Award
2009	U.S. Delegate – 59 <sup>th</sup> Meeting of Nobel Laureates in Lindau
2006	National Science Foundation Graduate Research Fellowship
2005	Division of Chemistry and Chemical Engineering Fellowship (Caltech)
2005	Frederick D. Green Teaching Award (MIT)
2005	Department of Chemistry Research Award (MIT)
2005	Phi Beta Kappa

## Bibliography

\*denotes corresponding author

### Refereed Articles

(As Principal Investigator at UNC)

- Huang, T.; Rountree, E. S.; Traywick, A. P.; Bayoumi, M.; **Dempsey, J. L.\*** *In Revision*. *Switching between Stepwise and Concerted Proton-Coupled Electron Transfer Pathways in Tungsten Hydride Activation*
- Kessler, M. L.; Starr, H. E.; Knauf, R. R.; Rountree, K. J.; **Dempsey, J. L.\*** *Physical Chemistry Chemical Physics* **2018**, *20*, 23649–23655.  
*Exchange equilibria of carboxylate-terminated ligands at PbS nanocrystal surfaces*
- Kurtz, D. A.; Brereton, K. R.; Ruoff, K. P.; Tang, H. M.; Felton, G. A. N.; Miller, A. J. M.\*; **Dempsey, J. L.\*** *Inorganic Chemistry* **2018**, *57*, 5389–5399.  
*Bathochromic Shifts in Rhenium Carbonyl Dyes Induced through Destabilization of Occupied Orbitals*
- Han, Y.; Dillon, R. J.; Flynn, C. J.; Rountree, E. S.; Alibabaei, L.; Cahoon, J. F.; Papanikolas, J. M.; **Dempsey, J. L.\*** *Canadian Journal of Chemistry* **2018**, *96*, 865–874.  
*Interfacial Electron Transfer Yields in Dye-Sensitized NiO Photocathodes Correlated to Excited-State Dipole Orientation of Ruthenium Chromophores*
  - Invited Contribution to the *Electron Donor Acceptor Interactions* Thematic Issue
- Elgrishi, N.; Rountree, K. J.; McCarthy, B. D.; Rountree, E. S.; Eisenhart, T. T.; **Dempsey, J. L.\*** *Journal of Chemical Education* **2018**, *95*, 197–206.  
*A Practical Beginner's Guide to Cyclic Voltammetry*
  - ACS Editors' Choice
  - Most Read Articles in *Journal of Chemical Education* List
- Lennox, J. C.; **Dempsey, J. L.\*** *The Journal of Physical Chemistry B* **2017**, *121*, 10530–10542.

*Influence of Proton Acceptors on the Proton-Coupled Electron Transfer Reaction Kinetics of a Ruthenium–Tyrosine Complex*

7. Lee, K. J.; Elgrishi, N.; Kandemir, B.; **Dempsey, J. L.\*** *Nature Reviews Chemistry* **2017**, *1*, 0039.  
*Electrochemical and Spectroscopic Methods for Evaluating Molecular Electrocatalysts*
  - Invited Review
8. McCarthy, B. D.; **Dempsey, J. L.\*** *Journal of Chemical Education* **2017**, *94*, 696–702.  
*Cultivating Advanced Technical Writing Skills through a Graduate-Level Course on Writing Research Proposals.*
9. Lennox, J. C.; Kurtz, D. A.; Huang, T.; **Dempsey, J. L.\*** *ACS Energy Letters* **2017**, *2*, 1246–1256.  
*Excited-State Proton-Coupled Electron Transfer: Different Avenues for Promoting Proton/Electron Movement with Solar Photons*
  - Invited Review
10. Lee, K. J.; McCarthy, B. D.; Rountree, E. S.; **Dempsey, J. L.\*** *Inorganic Chemistry* **2017**, *56*, 1988–1998.  
*Identification of an Electrode-Adsorbed Intermediate in the Catalytic Hydrogen Evolution Mechanism of a Cobalt Dithiolene Complex*
  - Featured in Synthetic Chemistry Addressing Challenges in Energy and the Environment Virtual Issue
11. McCarthy, B. D.; **Dempsey, J. L.\*** *Inorganic Chemistry* **2017**, *56*, 1225–1231.  
*Decoding Proton-Coupled Electron Transfer with Potential–pK<sub>a</sub> Diagrams*
12. Elgrishi, N.; Kurtz, D. A.; **Dempsey, J. L.\*** *Journal of the American Chemical Society* **2017**, *139*, 239–244.  
*Reaction Parameters Influencing Cobalt Hydride Formation Kinetics: Implications for Benchmarking H<sub>2</sub>-Evolution Catalysts*
13. Eisenhart, T. T.; Howland, W. C.; **Dempsey, J. L.\*** *The Journal of Physical Chemistry B* **2016**, *120*, 7896–7905.  
*Proton-Coupled Electron Transfer Reactions with Photometric Bases Reveal Free Energy Relationships for Proton Transfer*
14. Knauf, R. R.; Lennox, J. C.; **Dempsey, J. L.\*** *Chemistry of Materials* **2016**, *28*, 4762–4770.  
*Quantifying Ligand Exchange Reactions at CdSe Nanocrystal Surfaces*
15. Call, R. W.; Alibabaei, L.; Dillon, R. J.; Knauf, R. R.; Nayak, A.; **Dempsey, J. L.;** Papanikolas, J. M.; Lopez, R.\* *ACS Applied Materials and Interfaces* **2016**, *8*, 12282–12290.  
*Growth and Post-Deposition Treatments of SrTiO<sub>3</sub> Films for Dye-Sensitized Photoelectrosynthesis Cell Application*
16. Elgrishi, N.; McCarthy, B. D.; Rountree, E. S.; **Dempsey, J. L.\*** *ACS Catalysis* **2016**, *6*, 3644–3659.

*Reaction Pathways of Hydrogen-Evolving Electrocatalysts: Electrochemical and Spectroscopic Studies of Proton-Coupled Electron Transfer Processes*

- Invited Perspective

17. Rountree, E. S.; **Dempsey, J. L.\*** *Inorganic Chemistry* **2016**, *55*, 5079–5087.  
*Reactivity of Proton Sources with a Nickel Hydride Complex in Acetonitrile: Implications for the Study of Fuel Forming Catalysts*
  - Featured in Synthetic Chemistry Addressing Challenges in Energy and the Environment Virtual Issue
18. Rountree, E. S.; Martin, D. J.; McCarthy, B. D.; **Dempsey, J. L.\*** *ACS Catalysis* **2016**, *6*, 3326–3335.  
*Linear Free Energy Relationships in the Hydrogen Evolution Reaction: Kinetic Analysis of a Cobaloxime Catalyst*
19. Hara, Y.; Gadisa, A.; Fu, Y.; Garvey, T.; Vrouwenvelder, K. T.; Miller, C. W.; **Dempsey, J. L.;** Lopez, R.\* *The Journal of Physical Chemistry C* **2016**, *120*, 8005–8013.  
*Gains and Losses in PbS Quantum Dot Solar Cells with Submicron Periodic Grating Structures*
20. Martin, D. J.; McCarthy, B. D.; Rountree, E. S.; **Dempsey, J. L.\*** *Dalton Transactions* **2016**, *45*, 9970–9976.  
*Qualitative Extension of the EC' Zone Diagram to a Molecular Catalyst for a Multi-electron, Multi-substrate Electrochemical Reaction*
  - Invited Contribution to the *New Talent: Americas* Thematic Issue
21. Martin, D. J.; McCarthy, B. D.; Piro, N. A.; **Dempsey, J. L.\*** *Polyhedron* **2016**, *114*, 200–204.  
*Synthesis and Electrochemical Characterization of a Tridentate Schiff-base ligated Fe(II) Complex*
  - Invited Contribution to the *Undergraduate Research in Inorganic Chemistry* Special Issue
  - Featured on cover of *Polyhedron* Volume 114, Issue 16
22. Knauf, R. R.; Kalanyan, B.; Parsons, G. N.; **Dempsey, J. L.\*** *The Journal of Physical Chemistry C* **2015**, *119*, 28353–28360.  
*Charge Recombination Dynamics in Sensitized SnO<sub>2</sub>/TiO<sub>2</sub> Core/Shell Photoanodes*
23. Rountree, E. S.; **Dempsey, J. L.\*** *Journal of the American Chemical Society* **2015**, *137*, 13371–13380.  
*Potential-Dependent Electrocatalytic Pathways: Controlling Reactivity with pK<sub>a</sub> for Mechanistic Investigation of a Nickel-Based Hydrogen Evolution Catalyst*
  - Featured in the 2017 JACS Young Investigator Virtual Issue
24. McCarthy, B. D.; Donley, C. L.; **Dempsey, J. L.\*** *Chemical Science* **2015**, *6*, 2827–2834.  
*Electrode Initiated Proton-Coupled Electron Transfer to Promote Degradation of a Nickel(II) Coordination Complex*
25. Gadisa, A.; Hara, Y.; Fu, Y.; Vrouwenvelder, K. T.; **Dempsey, J. L.;** Samulski, E. T.; Lopez, R.\* *The Journal of Physical Chemistry C* **2015**, *119*, 4606–4611.

*Disparity in Optical Charge Generation and Recombination Processes in Upright and Inverted PbS Quantum Dot Solar Cells*

26. Martin, D. J.; McCarthy, B. D.; Donley, C. L.; **Dempsey, J. L.\*** *Chemical Communications* **2015**, *51*, 5290-5293.  
*Electrochemical Hydrogenation of a Homogeneous Nickel Complex to form a Surface Adsorbed Hydrogen-Evolving Species*  
• Invited Contribution to the 2015 *Emerging Investigators* Thematic Issue
27. Rountree, E. S.; McCarthy, B. D.; Eisenhart, T. T.; **Dempsey, J. L.\*** *Inorganic Chemistry* **2014**, *53*, 9983–10002.  
*Evaluation of Homogeneous Electrocatalysts by Cyclic Voltammetry*  
• Viewpoint Article  
• Most Read Articles in *Inorganic Chemistry* List
28. Eisenhart, T. T.; **Dempsey, J. L.\*** *Journal of the American Chemical Society* **2014**, *136*, 12221–12224.  
*Photo-Induced Proton-Coupled Electron Transfer Reactions of Acridine Orange: Comprehensive Spectral and Kinetics Analysis*  
• Featured on the cover of *JACS*, Volume 136, Issue 35  
• Highlighted in *JACS Spotlights*
29. McCarthy, B. D.; Martin, D. J.; Rountree, E. S.; Ullman, A. C.; **Dempsey, J. L.\*** *Inorganic Chemistry* **2014**, *53*, 8350–8361  
*Electrochemical Reduction of Brønsted Acids by Glassy Carbon in Acetonitrile – Implications for Electrocatalytic Hydrogen Evolution*  
• Featured in the *Inorganic Chemistry Driving the Energy Science* Virtual Issue
30. Nayak, A.; Knauf, R. R.; Hanson, K.; Alibabaei, L.; Concepcion, J. J.; Ashford, D. L.; **Dempsey, J. L.\***; Meyer, T. J.\* *Chemical Science* **2014**, *5*, 3115–3119.  
*Synthesis and Photophysical Characterization of Porphyrin and Porphyrin-Ru(II) Polypyridyl Chromophore–Catalyst Assemblies on Mesoporous Metal Oxides*
31. Knauf, R. R.; Brennaman, M. K.; Alibabaei, L.; Norris, M. R.; **Dempsey, J. L.\*** *The Journal of Physical Chemistry C* **2013**, *117*, 25259–25268.  
*Revealing the Relationship Between Semiconductor Electronic Structure and Electron Transfer Dynamics at Metal Oxide-Chromophore Interfaces*

(From Undergraduate, Graduate and Postdoctoral Research)

32. McKone, J. R.; Ardo, S.; Blakemore, J. D.; Bracher, P. D.; **Dempsey, J. L.**; Darnton, T. V.; Hansen, M. C.; Harman, W. H.; Rose, M. R.; Walter, M. G.; Dasgupta, S.; Winkler, J. R.; Gray, H. B.\* *Reviews in Advanced Sciences and Engineering* **2014**, *3*, 288–303.  
*The Solar Army: A Case Study in Outreach Based on Solar Photoelectrochemistry*
33. Bhattacharjee, A.; Chavarot-Kerlidou, M.; **Dempsey, J. L.**; Gray, H. B.; Fujita, E.; Muckerman, J. T.; Fontecave, M.; Artero, V.; Arantes, G. M.; Field, M. J.\* *ChemPhysChem* **2014**, *15*, 2951–2958.  
*Theoretical Modeling of Low-Energy Electronic Absorption Bands in Reduced Cobaloximes*

34. Bradshaw, L. R.; May, J. W.; **Dempsey, J. L.**; Li, X.; Gamelin, D. R.\* *Physical Review B* **2014**, *89*, 115312.  
*Ferromagnetic Excited-State Mn<sup>2+</sup> Dimers in Zn<sub>1-x</sub>Mn<sub>x</sub>Se Quantum Dots Observed by Time-Resolved MagnetoPhotoluminescence*
35. White, M. A.; **Dempsey, J. L.**; Carroll, G. M.; Gallagher, J. D.; Gamelin, D. R.\* *APL Materials* **2013**, *1*, 032107.  
*Photoconductive ZnO Films with Embedded Quantum Dot or Ruthenium Dye Sensitizers*
36. Valdez, C. N.; **Dempsey, J. L.**; Brunschwig, B. S.\*; Winkler, J. R.\*; Gray, H. B.\* *Proceedings of the National Academy of Sciences of the U.S.A.* **2012**, *109*, 15589–15593.  
*Catalytic Hydrogen Evolution from a Covalently Linked Dicobaloxime*
37. **Dempsey, J. L.**; Winkler, J. R.\*; Gray, H. B.\* *Dalton Transactions* **2011**, *40*, 10633–10636.  
*Redox Reactivity of Photogenerated Osmium(II) Complexes*
38. **Dempsey, J. L.**; Winkler, J. R.\*; Gray, H. B.\* *Journal of the American Chemical Society* **2010**, *132*, 16774–16776.  
*Mechanism of H<sub>2</sub> Evolution by a Photogenerated Hydridocobaloxime*
39. **Dempsey, J. L.**; Winkler, J. R.\*; Gray, H. B.\* *Chemical Reviews* **2010**, *110*, 7024–7039.  
*Proton-Coupled Electron Flow in Protein Redox Machines*
40. **Dempsey, J. L.**; Winkler, J. R.\*; Gray, H. B.\* *Journal of the American Chemical Society* **2010**, *132*, 1060–1065.  
*Kinetics of Electron Transfer Reactions of H<sub>2</sub> Evolving Cobalt Diglyoxime Catalysts*
41. **Dempsey, J. L.**; Brunschwig, B. S.; Winkler, J. R.\*; Gray, H. B.\* *Accounts of Chemical Research* **2009**, *42*, 1995–2004.  
*Hydrogen Evolution Catalyzed by Cobaloximes*
42. Miller, A. J. M.; **Dempsey, J. L.**; Peters, J. C.\* *Inorganic Chemistry* **2007**, *46*, 7244–7246.  
*Long-Lived and Efficient Emission from Mononuclear Amidophosphine Complexes of Copper*
43. Esswein, A. J.; **Dempsey, J. L.**; Nocera, D. G.\* *Inorganic Chemistry* **2007**, *46*, 2362–2364.  
*A Rh(II)-Au(II) Bimetallic Core with a Direct Metal-Metal Bond*
44. **Dempsey, J. L.**; Esswein, A. J.; Manke, D. R.; Rosenthal, J.; Soper, J. D.; Nocera, D. G.\* *Inorganic Chemistry* **2005**, *44*, 6879–6892.  
*Molecular Chemistry of Consequence to Renewable Energy*
45. Rosenthal, J.; Bachman, J.; **Dempsey, J. L.**; Esswein, A. J.; Gray, T. G.; Hodgkiss, J. M.; Manke, D. R.; Luckett, T. D.; Pistorio, B. J.; Veige, A. S.; Nocera, D. G.\* *Coordination Chemistry Reviews* **2005**, *249*, 1316–1326.  
*Oxygen and Hydrogen Photocatalysis by Two-Electron Mixed-Valence Coordination Compounds*

46. Wu, N.\*; **Dempsey, J.**; Yehl, P. M.; Dovletoglou, A.; Ellison, D.; Wyvratt, J. *Analytica Chimica Acta* **2004**, 523, 149–156.  
*Practical Aspects of Fast HPLC Separations for Pharmaceutical Process Development using Monolithic Columns*

### **Invited Viewpoints and Commentaries**

1. Lee, K. J.; **Dempsey, J. L.\*** *ACS Energy Letters* **2018**, Article ASAP.  
*PCET2018 Highlights: Proton-Coupled Electron Transfers for Energy Conversion Strategies*
2. Lee, K. J.; **Dempsey, J. L.\*** *ACS Central Science* **2017**, 3, 1137–1139.  
*Rapid Catalyst Oxidation Fuels Methane Functionalization*
3. **Dempsey, J. L.\***; Hartings, M. R.\* *Biochemistry* **2017**, 56, 5623–5624.  
*Hop to It*
4. **Dempsey, J. L.\*** *Proceedings of the National Academy of Sciences of the U.S.A.* **2016**, 113, 478-479.  
*Ligand Steals Spotlight from Metal to Orchestrate Hydrogen Production*
5. **Dempsey, J. L.\*** *Nature Chemistry* **2015**, 7, 101–102.  
*Proton-Coupled Electron Transfer: Metal hydrides find the Sweet Spot*

### **Book Chapters**

1. **Dempsey, J. L.**; Winkler, J. R.; Gray, H. B. Solar Fuels: Approaches to Catalytic Hydrogen Evolution. In *Comprehensive Inorganic Chemistry II, Vol. 8*; Reedijk, J.; Poeppelmeier, K., Eds; Elsevier: Oxford, **2013**, 553–565.

### **Patents**

1. Peters, J. C.; Miller, A. J. M.; **Dempsey, J. L.** Emissive Monomeric Metal Complexes. *U.S. Patent 7,683,183 B2*, **2010**.

### **Invited Oral Presentations at Gordon Research Conferences**

1. Modulating the Reaction Mechanism: Proton-Coupled Electron Transfer of a Tungsten Hydride Complex. *Electron Donor Acceptor Interactions Gordon Research Conference*. Newport, RI. August 8, 2018.
2. Reaction Pathways of Fuel-Producing Molecular Electrocatalysts. *Organometallics Graduate Research Seminar*. Newport, RI. July 2018.
3. Modulating Reaction Pathways of Proton-Coupled Electron Transfer Processes. *Renewable Energy: Solar Fuels Gordon Research Conference*. Ventura, CA. January 29, 2018.
4. Proton-Coupled Electron Transfer Processes in the Electrocatalytic Production of Hydrogen. *Inorganic Reaction Mechanisms Gordon Research Conference*. Galveston, TX. March 6, 2017.
5. Proton-Coupled Electron Transfer Processes Underpinning Solar Fuel Production. *Inorganic Chemistry Gordon Research Conference*. Biddeford, ME. June 22, 2016.

- Investigations of Proton-Coupled Electron Transfer Pathways for the Electrochemical Production of Hydrogen. *Electrochemistry Gordon Research Conference*. Ventura, CA. January 11, 2016.
- Examining Mechanisms of Excited-State Proton-Coupled Electron Transfer Reactions. *Photochemistry Gordon Research Conference*. Easton, MA. July 23, 2015.
- Powering the Planet with Solar Fuels. *Inorganic Chemistry Gordon-Kenan Graduate Research Seminar*. Biddeford, ME. June 19, 2010.
- Mechanistic Studies of Cobalt-Catalyzed Hydrogen Evolution Using Transient Spectroscopy. *Renewable Energy: Solar Fuels Gordon Research Conference*. Ventura, CA. February 5, 2009 (Poster Talk).

### **Invited Oral Presentations at American Chemical Society Meetings**

- Proton-Coupled Electron Transfer Activation of a Tungsten Hydride Complex. *The Halpern Legacy: Mechanism, Catalysis, and Organotransition Metal Chemistry, 256<sup>th</sup> National ACS Meeting* in Boston, MA. August 21, 2018.
- Changes in Nanocrystal Surface Chemistry upon Ligand Exchange and the Addition of Charge Carriers. *Photochemical Water Splitting and Solar Fuels: Progress and Challenges to Widespread Utilization, 256<sup>th</sup> National ACS Meeting* in Boston, MA. August 20, 2018.
- Modulating Proton-Coupled Electron Transfer Mechanisms for the Efficient Production of Fuels, William H. Nichols Medal Award Symposium in Honor of Debra Rolison. *NY section of the ACS*. April 13, 2018.
- Switching the Mechanism: Proton-Coupled Electron Transfer Reactivity of a Tungsten Hydride Complex. *PCET PhotoCatalysis with Inorganic Molecules and Materials, 255<sup>th</sup> National ACS Meeting* in New Orleans, LA. March 21, 2018.
- Identifying Proton-Coupled Electron Transfers that Give Rise to Potential-pKa Relationships in Catalysis. *ACS Award in Inorganic Chemistry: Symposium in honor of James Moers Mayer, 255<sup>th</sup> National ACS Meeting* in New Orleans, LA. March 18, 2018.
- Structural and Thermochemical Parameters Influencing the PCET Formation of a Cobalt(III)-Hydride. *Synthetic Chemistry Addressing Challenges in Energy and the Environment, 255<sup>th</sup> National ACS Meeting* in New Orleans, LA. March 18, 2018.
- Glassy Carbon and Cobaloxime: Investigations of Electrochemical Hydrogen Production. *Undergraduate Research and Teaching at the Frontiers of Inorganic Chemistry, 69<sup>th</sup> Southeast Regional Meeting of the American Chemical Society* in Charlotte, NC. November 10, 2017.
  - Keynote Speaker
- Choreographing Solar Fuel Production. *C&EN's Talented 12 Symposium, 254<sup>th</sup> National ACS Meeting* in Washington, DC. August 21, 2017.
- Quantifying Ligand Exchange Reactions of CdSe and PbS Nanocrystals. *Structure-Property Relationships of Nanoscale Materials, 68<sup>th</sup> Southeast Regional Meeting of the American Chemical Society* in Columbia, SC October 26, 2016.
- Linear Free Energy Relationships in the Elementary Reactions Steps of the Hydrogen Evolution Reaction. *Electrocatalysis, 68<sup>th</sup> Southeast Regional Meeting of the American Chemical Society* in Columbia, SC October 25, 2016.



11. Proton-Coupled Electron Transfer Processes Underpinning the Electrocatalytic Generation of Hydrogen. *Manipulation of Energy & Electron Transfer in Molecules & Devices*, 252<sup>nd</sup> National ACS Meeting in Philadelphia, PA. August 23, 2016.
12. Ligand Exchange Reactions at CdSe Nanocrystal Surfaces. *DIC Young Investigator Awardees: Where are they now?* 252<sup>nd</sup> National ACS Meeting in Philadelphia, PA. August 22, 2016.
13. Reaction Pathways of Nickel-based Hydrogen-Evolving Catalysts. *2015 ACS Catalysis Lectureship for the Advancement of Catalytic Science in Honor of Daniel DuBois and Morris Bullock*, 250<sup>th</sup> National ACS Meeting in Boston, MA. August 17, 2015.
14. Determining Band-edge Potentials of Colloidal Quantum Dots. *Inorganic Chemistry Lectureship Award Symposium in Honor of Daniel Gamelin*, 250<sup>th</sup> National ACS Meeting in Boston, MA. August 17, 2015.
15. Probing Pathways of Excited-State Proton-Coupled Electron Transfer Reactions. *Harry Gray Award for Creative Work in Inorganic Chemistry by a Young Investigator—Symposium in Honor of Emily A. Weiss*, 249<sup>th</sup> National ACS Meeting in Denver, CO. March 22, 2015.
16. New Approaches to Probe Proton-Coupled Electron Transfer Reaction Pathways. *Molecular Inorganic Chemistry at the Frontiers of Energy Research Symposium*, 247<sup>th</sup> National ACS Meeting in Dallas, TX. March 17, 2014.
17. Pathways of Hydrogen Evolution Catalyzed by Cobalt(II) Diglyoxime Complexes. *Young Investigator Symposium*, 240<sup>th</sup> National ACS Meeting in Boston, MA. August 22, 2010.
18. Probing Mechanisms of Cobalt-catalyzed Dihydrogen Production in Homogenous Solutions. *Capturing and Storing Solar: Inorganic Chemistry to the Rescue Symposium*, 237<sup>th</sup> National ACS Meeting in Salt Lake City, UT. March 24, 2009.

### **Invited Oral Presentations at Other Meetings**

1. Potential-pK<sub>a</sub> Relationships in Proton Reduction. *43<sup>rd</sup> Inorganic Coordination Chemistry Colloquium*. Sendai, Japan. July 31, 2018.
  - *Keynote Lecture*
2. Reaction Parameters Influencing the PCET Formation of Metal Hydride Complexes. *Meeting on Proton-Coupled Electron Transfer*. University of Goettingen, Goettingen, Germany. May 15, 2018.
3. Proton-Coupled Electron Transfer Processes Underpinning the Production of Renewable Fuels. *Argonne-Northwestern Solar Energy Research (ANSER) Center Symposium*. Evanston, IL. April 26, 2018.
4. Photo-triggering Proton-Coupled Electron Transfer Reactions to Elucidate Reaction Mechanism. *27<sup>th</sup> Winter Inter-American Photochemical Society Conference*. Sarasota, FL. January 4, 2018.
5. Choreographing Proton-Coupled Electron Transfer Processes for the Production of Solar Fuels. *COST Action PERSPECT-H<sub>2</sub>O Meeting*. Milazzo, Italy. September 4, 2016.
6. Proton-Coupled Electron Transfer Pathways of Molecular Hydrogen-Evolving Electrocatalysts. *CCI-Solar Annual Meeting*. Newport Beach, CA. February 5, 2016.
7. Driving Proton-Coupled Electron Transfer Reactions with Solar Photons. *Schulich Winter School: Frontiers in Inorganic Chemistry*. Haifa, Israel. December 1, 2015.

8. Extending Charge Separation Across Interfaces in Dye-Sensitized Photoelectrosynthesis Cells. *6<sup>th</sup> Annual UNC Solar Energy Research Center Conference*. Chapel Hill, NC. October 15, 2015.
9. Investigating Hydrogen Evolution Catalysis with Cyclic Voltammetry: Homogeneous and Heterogeneous Systems. *2015 IONiC VIPEr Workshop: Heterogeneous Catalysis at the Frontiers of Inorganic Chemistry*. Seattle, WA. July 2, 2015.
10. Optical Detection of Proton Transfer in PCET Reactions. *Second International Conference on Proton-Coupled Electron Transfer*. Skokloster, Sweden. June 16, 2014.
11. Examining Interfacial Dynamics in Dye-Sensitized Photoelectrosynthesis Cells. *2014 NSLS/NSLS-II & CFN Joint Users' Meeting at Brookhaven National Laboratory*. Upton, NY. May 21, 2014.
12. New Methods for the Time-resolved Study of Proton-Coupled Electron Transfer Reaction Pathways. *NC Photochemistry Symposium*. Charlotte, NC. October 26, 2013.
13. Electron Transfer Dynamics at Metal Oxide-Chromophore Interfaces. *International Symposium on the Photophysics and Photochemistry of Coordination Compounds*. Traverse City, MI. July 9, 2013.
14. Electrochemistry and Catalysis: Cobaloxime Catalyzed Hydrogen Evolution. *Chemistry Collaborations, Workshops & Communities of Scholars: Ionic VIPEr Workshop*. Chapel Hill, NC. July 18, 2012.

#### ***Invited Lectures at Universities, Colleges and Research Laboratories***

1. Tufts University. November 5, 2019 (Scheduled).
2. Bowdoin College. October 4, 2019 (Scheduled).
3. University of Wisconsin. April 10, 2019 (Scheduled).
4. Princeton University. February 19, 2019 (Scheduled).
5. Colorado State University. January 17, 2019 (Scheduled).
6. Uppsala Universitet. December 13, 2018 (Scheduled).
7. Lehigh University. November 14, 2019 (Scheduled).
8. University of California, Berkeley. March 16, 2018.
  - *Dalton Lectureship*
9. Massachusetts Institute of Technology. December 12, 2017.
10. University of Minnesota. October 24, 2017.
11. Ohio University. September 18, 2017.
12. Virginia Polytechnic Institute and State University. February 24, 2017.
13. Michigan State University. December 5, 2016.
14. University of Illinois, Urbana-Champaign. November 17, 2016.
15. University of New Hampshire. November 15, 2016.
16. Yale University. November 4, 2016.
17. University of Chicago. October 28, 2016.
18. University of California, Los Angeles. October 5, 2016.
19. University of Southern California. October 4, 2016.
20. California Institute of Technology. October 3, 2016.

21. University of California, San Diego. September 30, 2016.
22. University of California, Irvine. September 29, 2016.
23. University of Pennsylvania. September 20, 2016.
24. University of Utah. July 22, 2016.
25. University of Delaware. April 27, 2016.
26. North Carolina State University. November 19, 2015.
27. University at Buffalo. October 30, 2015.
28. Pacific Northwest National Laboratory. October 5, 2015.
29. Carleton College. September 25, 2015.
30. St. Olaf College. September 24, 2015.
31. Villanova University. June 5, 2015.
32. Dow Chemical (Collegeville, PA). June 4, 2015.
33. Tulane University. March 11, 2015.
34. Hope College. November 14, 2014.
35. Calvin College. November 13, 2014.
36. Appalachian State University. February 21, 2014.
37. The University of Richmond. February 7, 2014.
38. The College of William and Mary. November 1, 2013.
39. Duke University. October 22, 2013.
40. Laboratoire de Chimie de Coordination, Université de Toulouse. October 18, 2011.

### **Student-Invited Lectures**

1. Stanford University. April 22, 2019 (Scheduled).
  - *Distinguished Women in Science Seminar*
2. University of Rochester. March 6, 2019 (Scheduled).
  - *Seymour Rothchild Distinguished Lecture*
3. Colorado School of Mines. January 18, 2019 (Scheduled).
4. University of California, Santa Barbara. May 9, 2018.
  - *Mellichamp Academic Initiative in Sustainability Seminar*
5. University of Texas, El Paso. February 9, 2018.
  - *Student Chapter of the American Chemical Society*

### **Contributed Talks and Poster Presentations**

1. Investigations of Excited-State Proton-Coupled Electron Transfer Reactions. *Electron Donor-Acceptor Interactions Gordon Research Conference*. Newport, RI. August 7–12, 2016 (Poster Presentation).
2. Quantification of Ligand Exchange Reactions at CdSe Nanocrystal Surfaces. *Colloidal Semiconductor Nanocrystals Gordon Research Conference*. West Dover, VT. July 31–August 5, 2016 (Poster Presentation).
3. Driving Proton-Coupled Electron Transfer Reactions with Solar Photons. *The 2015 International Chemical Congress of Pacific Basin Societies (Pacifichem)*. Honolulu, HI. December 18, 2015 (Oral Presentation).

4. Proton-Coupled Electron Transfer Processes for the Electrochemical Production of Hydrogen. *The 2015 International Chemical Congress of Pacific Basin Societies (Pacifichem)*. Honolulu, HI. December 15, 2015 (Oral Presentation).
5. Comprehensive Spectral Monitoring of Proton-Coupled Electron Transfer Reactions. *Electron Donor-Acceptor Interactions Gordon Research Conference*. Newport, RI. August 3–8, 2014 (Poster Presentation).
6. Probing Charge Transfer Pathways in Solar Fuel Devices. *Renewable Energy: Solar Fuels Gordon Research Conference*. Ventura, CA. January 19–24, 2014 (Poster Presentation).

## Professional Service to Discipline

### Advisory Boards

1. Inorganic Chemistry  
*Editorial Advisory Board*, 2018–present
2. Trends in Chemistry  
*Editorial Advisory Board*, 2018–present
3. International Conference on Proton-Coupled Electron Transfer  
*International Committee*, 2018–present
4. ACS Catalysis  
*Early Career Advisory Board*, 2017–2018
5. NSF Center for Chemical Innovation in Solar Fuels  
*Science Advisory Board*, 2013–present

### Chemistry Women Mentorship Network

1. Mentor, 2016–present
2. Co-founder and administrator, 2014–present

### Conference & Symposium Organization

1. Chair Elect: *Renewable Energy: Solar Fuels Gordon Research Conference*, 2022.
2. Conference Chair and Organizer: *The 3<sup>rd</sup> International Conference on Proton-Coupled Electron Transfer* in Blowing Rock, NC. June 10–14, 2018.
3. Symposium Co-organizer: *PCET PhotoCatalysis with Inorganic Molecules and Materials* at the 255<sup>th</sup> National American Chemical Society Meeting in New Orleans, LA. March 18–22, 2017.
4. Symposium Co-organizer: *From Photons, Protons, and Electrons to Fuel: The Solar Energy Research Center Symposium* at the 69<sup>th</sup> Southeast Regional Meeting of the American Chemical Society in Charlotte, NC. November 9–10, 2017.
5. Symposium Co-organizer: *Sustainability in Electrocatalysis and Fuels* at the 253<sup>rd</sup> National American Chemical Society Meeting in San Francisco, CA. April 2–3, 2017.
6. Conference Co-chair: *Renewable Energy: Solar Fuels Gordon Research Seminar* in Ventura, CA. January 31–February 1, 2009

### Discussion Leader

1. GRC Power Hour Leader, 2018 *Renewable Energy: Solar Fuels Gordon Research Conference*

2. Discussion Leader, 2016 *Colloidal Semiconductor Nanocrystals Gordon Research Conference*
3. GRC Power Hour Leader, 2016 *Colloidal Semiconductor Nanocrystals Gordon Research Conference*
4. Discussion Leader, 2016 *Inorganic Chemistry Gordon Research Seminar*
5. Panel Discussion Member, 2015 *Photochemistry Gordon Research Seminar*

#### Reviewer

1. Grant Proposals: Ad Hoc Reviews  
Air Force Office of Scientific Research, American Chemical Society Petroleum Research Fund, Army Research Office, Department of Energy, Deutsche Forschungsgemeinschaft (German Research Foundation), European Cooperation in Science and Technology, Israel Science Foundation, National Science Foundation, NRC Research Associateship Program, M. J. Murdock Charitable Trust, Netherlands Organization for Scientific Research, Research Corporation, Stanford Synchrotron Radiation Lightsource
2. Grant Proposals: Panel Reviews  
National Science Foundation, NRC Research Associateship Program (2016–2018)
3. Journal Submissions  
*Accounts of Chemical Research, ACS Catalysis, ACS Nano, ACS Applied Materials and Interfaces, Analytical Chemistry, Angewandte Chemie, ChemElectroChem, Chemical Communications, Chemical Educator, Chemical Science, Chemical Society Reviews, Chemistry of Materials, Dalton Transactions, Electrochimica Acta, Energy and Environmental Science, European Journal of Organic Chemistry, Inorganic Chemistry, Inorganica Chimica Acta, Journal of the American Chemical Society, Journal of Chemical Education, Journal of Electroanalytical Chemistry, Journal of Materials Chemistry A, Journal of Organic Chemistry, Journal of Physical Chemistry A, B, C & Letters, Nano Letters, Nature Communications, Nature Reviews Chemistry, Nature Chemistry, Organometallics, Polyhedron, Proceedings of the National Academy of Sciences of the U.S.A., Science*

#### Poster Judge

1. Renewable Energy: Solar Fuels Gordon Research Conference, 2018
2. Photochemistry Gordon Research Seminar, 2015
3. 24<sup>th</sup> Inter-American Photochemical Society Meeting, 2015
4. NC-ACS Local Section Meeting, 2014

#### Professional Society Membership

1. Inter-American Photochemical Society, 2014–present
2. American Chemical Society, 2006–present
3. Phi Beta Kappa, 2005–present