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Education

2011	Ph.D. in Chemistry	California Institute of Technology, Pasadena, CA Advisors: John E. Bercaw and Jay A. Labinger
2005	B.S. in Chemistry	University of Chicago, Chicago, IL Advisor: Gregory L. Hillhouse

Professional Experience

7/2022–present	Professor, Department of Chemistry University of North Carolina at Chapel Hill, Chapel Hill, NC
1/2023-present	Director, Solar Energy Research Center University of North Carolina at Chapel Hill, Chapel Hill, NC
7/2021-present	Director of Graduate Studies, Department of Chemistry University of North Carolina at Chapel Hill, Chapel Hill, NC
7/2018–6/2022	Associate Professor, Department of Chemistry University of North Carolina at Chapel Hill, Chapel Hill, NC
8/2018–7/2021	Deputy Director, Department of Energy AMPED Energy Frontier Research Center University of North Carolina at Chapel Hill, Chapel Hill, NC
7/2012–6/2018	Assistant Professor, Department of Chemistry University of North Carolina at Chapel Hill, Chapel Hill, NC
1/2011–6/2012	Dreyfus Environmental Chemistry Postdoctoral Fellow Advisors: Karen I. Goldberg and James M. Mayer University of Washington, Seattle, WA

Honors

2021	Distinguished Speaker of the Year award, NC Section of the American Chemical Society
2019	J. Carlyle Sitterson Award for Teaching First-Year Students, UNC
2018	*Chemical Communications* Emerging Investigator Lectureship
2017	*Organometallics* Distinguished Author Award
2016	Sloan Research Fellowship
2016	National Science Foundation CAREER Award
2016	Early Excellence Profile in *Journal of Physical Organic Chemistry*
2014	University Research Council James Moeser Award for Distinguished Research, UNC
2013	Junior Faculty Development Award, UNC
2013	Named to Forbes "30 Under 30: Energy" list
2011	Camille and Henry Dreyfus Environmental Chemistry Postdoctoral Fellow
2011	Herbert Newby McCoy Award for Outstanding Graduate Research, Caltech

Bibliography and Products of Scholarship

Book Chapters – University of North Carolina at Chapel Hill

2. Bruch, Q. J.; Butler, S. K.; Tonks, I. A.; **Miller, A. J. M.**
"Resources for Improving Safety Culture, Training, and Awareness in the Academic Laboratory"
Comprehensive Coordination Chemistry III, 3rd Edition, Elsevier, 2021, pages 1125–1143.
https://doi.org/10.1016/B978-0-08-102688-5.00092-1

1. Gonell, S.; **Miller, A. J. M.**
"Carbon Dioxide Electroreduction Catalyzed by Organometallic Complexes."
Advances in Organometallic Chemistry **2018**, *70*, 1–69
https://doi.org/10.1016/bs.adomc.2018.07.001

Refereed Articles – University of North Carolina at Chapel Hill (* = corresponding author)

87. Hasanayn, F.*; Holland, P.L.; Goldman, A.S.; **Miller, A.J.M.***
"Lewis Structures and the Bonding Classification of End-on Bridging Dinitrogen Transition Metal Complexes."
J. Am. Chem. Soc. **2023**, *Accepted.*
preprint

86. Bruch, Q.J.*; McMillion, N.D.; Chen, C.-H.; **Miller, A.J.M.***
"Oxidative Addition of a Phosphinite P–O Bond at Nickel."
Inorg. Chem. **2023**, 62, 2389–2393.
https://doi.org/10.1021/acs.inorgchem.2c04188

85. Hegg, A.S.; Mercado, B.Q.; **Miller, A.J.M.;** Holland, P.S.* "Catalytic Reduction of Dinitrogen to Ammonia using Porphyrin-Molybdenum Catalysts." *Faraday Discussions*, *Accepted.*

84. Farquhar, A.; Gardner, K.; Acosta-Calle, S.; Camp, A.; Chen, C.; **Miller, A.J.M.***
"Cation-Controlled Olefin Isomerization Catalysis with Palladium Pincer Complexes."
Organometallics **2022,** *41*, 3366-3372.

83. Assaf, E.A.; Gonell, S.; Chen, C.; **Miller, A.J.M.***
"Accessing and Photo-Accelerating Low-Overpotential Pathways for CO2 Reduction: A Bis-Carbene Ruthenium Terpyridine Catalyst."
ACS Catal. **2022,** *12*, 12596-12606.
http://doi.org/10.1021/acscatal.2c03651

82. Espinosa, M.R.; Ertem, M.Z.;* Barakat, M.; Bruch, Q.J.; Deziel, A.P.; Elsby, M.R.; Hasanayn, F.; Hazari, N.;* **Miller, A.J.M.;*** Pecoraro, M.V.; Smith, A.M.; Smith, N.E.
"Correlating Thermodynamic and Kinetic Hydricities of Rhenium Hydrides."
J. Am. Chem. Soc. **2022**, *144*, 17939–17954.
http://doi.org/10.1021/jacs.2c07192

81. Bruch, Q.J.; Malakar, S.; Goldman, A.S.; **Miller, A.J.M.***
"Mechanisms of Electrochemical N_2 Splitting by a Molybdenum Pincer Complex."
Inorg. Chem. **2022**, *61*, 2307–2318.
http://doi.org/10.1021/acs.inorgchem.1c03698

80. Gonell, S.; Assaf, E.A.; Lloret-Fillol, J.; Miller, A.J.M. "An Iron Bis(carbene) Catalyst for Low Overpotential CO2 Electroreduction to CO: Mechanistic Insights from Kinetic Zone Diagrams, Spectroscopy, and Theory." *ACS Catal.* **2021**, 11, 24, 15212–15222.
http://doi.org/10.1021/acscatal.1c04414

79. Stratakes, B.M.; Wells, K.A.; Kurtz, D.A.; Castellano, F.N.; **Miller, A.J.M.***
"Photochemical H_2 Evolution from Bis(diphosphine) Nickel Hydrides Enables Low-Overpotential Electrocatalysis."
J. Am. Chem. Soc. **2021**, 143, 50, 21388–21401.
http://doi.org/10.1021/jacs.1c10628

78. Stratakes, B. M.; Dempsey, J. L.*; **Miller, A.J.M.***
"Determining the Overpotential of Electrochemical Fuel Synthesis Mediated by Molecular Catalysts: Recommended Practices, Standard Reduction Potentials, and Challenges."
ChemElectroChem **2021**, 10.1002/celc.202100576R2.
http://doi.org/10.1002/celc.202100576R2

77. Yoo, C.; **Miller, A.J.M.***
"Stepwise Iodide-Free Methanol Carbonylation via Methyl Acetate Activation by Pincer Iridium Complexes."
J. Am. Chem. Soc. **2021**, *143*, 12633–12643.
https://doi.org/10.1021/jacs.1c05185

76. Yamout, L.S.; Ataya, M.; Hasanayn, F.*; Holland, P.L.*; **Miller, A.J.M.***; Goldman, A.S.*
"Understanding Terminal versus Bridging End-on N_2 Coordination in Transition Metal Complexes"
J. Am. Chem. Soc. **2021**, *143*, 9744–9757.
http://doi.org/10.1021/jacs.1c01146

75. Kaphan, D.M.*; Brereton, K.R.; Klet, R.C.; Witzke, R.J.; **Miller, A.J.M.***; Mulfort, K.L.*; Delferro, M.*; Tiede, D.M.*
"Photocatalytic Transfer Hydrogenation in Water: Insight into Mechanism and Catalyst Speciation"
Organometallics **2021**, *40*, 1482–1491.
https://doi.org/10.1021/acs.organomet.1c00133

74. Shada, A.D.R.; **Miller, A.J.M.**; Emge, T.J.; Goldman, A.S.*
"Catalytic Dehydrogenation of Alkanes by PCP–Pincer Iridium Complexes Using Proton and Electron Acceptors."
ACS Catal. **2021**, *11*, 3009–3016.
http://doi.org/10.1021/acscatal.0c05160

73. Camp, A.M.; Kita, M.R.; Blackburn, P.T.; Dodge, H.M.; Chen, C.-H.; **Miller, A.J.M.***
"Selecting Double Bond Positions with a Single Cation-Responsive Iridium Olefin Isomerization Catalyst."
J. Am. Chem. Soc. **2021**, *143*, 2792–2800.
https://doi.org/10.1021/jacs.0c11601

72. Hu, J.; Bruch, Q.J.; **Miller, A.J.M.***
"Temperature and Solvent Effects on H_2 Splitting and Hydricity: Ramifications on CO_2 Hydrogenation by a Rhenium Pincer Catalyst."
J. Am. Chem. Soc. **2021**, *143*, 945–954.
https://doi.org/10.1021/jacs.0c11110

71. Gonell, S.*; Lloret-Fillol, J.*; **Miller, A.J.M.***
"An Iron Pyridyl-Carbene Electrocatalyst for Low Overpotential CO_2 Reduction to CO."
ACS Catal. **2021**, 11, 2, 615-626.
https://doi.org/10.1021/acscatal.0c03798

70. Dodge, H. M.; Kita, M. R.; Chen, C.-H.; **Miller, A.J.M.***
"Identifying and Evading Olefin Isomerization Deactivation Pathways Resulting from Ion-Tunable Hemilability."
ACS Catal. **2020**, *10*, 13019–13030.
http://doi.org/10.1021/acscatal.0c03784

69. Yoo, C.; Dodge, H. M.; Farquhar, A. H.; Gardner, K. E.; **Miller, A.J.M.***
"Decarbonylative ether dissection by iridium pincer complexes."
Chem. Sci. **2020**, *11*, 12130–12138.
https://doi.org/10.1039/D0SC03736B
- Highlighted in *Chemistry World*

68. Bruch, Q.J.[‡]; Connor, G.P.[‡]; McMillion, N.D.[‡]; Goldman, A.S.; Hasanayn, F.*; Holland, P.*; **Miller, A.J.M.***

"Considering Electrocatalytic Ammonia Synthesis via Bimetallic Dinitrogen Cleavage."
ACS Catal. **2020**, *19*, 10826–10846.
http://doi.org/10.1021/acscatal.0c02606
‡ These co-authors contributed equally

67. Brereton, K. R.; Smith, N. E.; Hazari, N.*; **Miller, A. J. M.***
"Thermodynamic and Kinetic Hydricity of Transition Metal Hydrides"
Chem. Soc. Rev. **2020**, *49*, 7929–7948.
https://doi.org/10.1039/D0CS00405G

66. Stratakes, B.M.; **Miller, A.J.M.***
"H_2 Evolution at an Electrochemical "Underpotential" with an Iridium-Based Molecular Photoelectrocatalyst"
ACS Catal. **2020**, *10*, 9006–9018.
https://doi.org/10.1021/acscatal.0c02265

65. Hochman, G.*; Goldman, A.*; Felder, F. A.; Mayer, J.; **Miller, A. J. M.**; Holland, P. L.; Goldman, L.; Manocha, P.; Song, Z.; Aleti, S.
"The Potential Economic Feasibility of Direct Electrochemical Nitrogen Reduction as a Route to Ammonia."
ACS Sustainable Chem. Eng. **2020**, *8*, 8938–8948.
https://doi.org/10.1021/acssuschemeng.0c01206

64. Gonell, S.; Assaf, E. A.; Duffee, K.; Schauer, C.K.; **Miller, A. J. M.***
"Kinetics of the Trans Effect in Ruthenium Complexes Provide Insight into the Factors that Control Activity and Stability in CO_2 Electroreduction."
J. Am. Chem. Soc. **2020**, *142*, 8980–8999.
https://doi.org/10.1021/jacs.0c02912

63. Farquhar, A. H.; Brookhart, M.*; **Miller, A. J. M.***
"Oligomerization and Polymerization of 5-ethylidene-2-norbornene by Cationic Palladium and Nickel Catalysts."
Polym. Chem. **2020**, *11*, 2576–2584.
https://doi.org/10.1039/D0PY00216J

62. Barrett, S. M.; Stratakes, B. M.; Chambers, M.; Kurtz, D. A.; Pitman, C. L.; Dempsey, J. L.; **Miller, A. J. M.***
"Mechanistic Basis for Tuning Iridium Hydride Photochemistry from H_2 Evolution to Hydride Transfer Hydrodechlorination."
Chem. Sci. **2020**, *11*, 6442-6449.
https://doi.org/10.1039/D0SC00422G

61. Bruch, Q. J.; **Miller, A. J. M.***
"A Bis(arylphosphinito)amide Pincer Ligand that Binds Nickel Forming Six-Membered Metallacycles."
Polyhedron **2020**, *179*, 114380.
https://doi.org/10.1016/j.poly.2020.114380
• Invited contribution to John Bercaw 75th Birthday Special Issue.

60. van Alten, R. S.; Wätjen, F.; Demeshko, S.; **Miller, A.J.M.**; Würtele, C.; Siewert, I.*; Schneider, S.*
"(Electro-)chemical Splitting of Dinitrogen with a Rhenium Pincer Complex."
Eur. J. Inorg. Chem. **2020**, *2020*, 1402–1410.
https://doi.org/10.1002/ejic.201901278

59. Bruch, Q. J.; Connor G.P.; Chen, C.-H.; Holland, P. L.; Mayer, J. M.; Hasanayn, F.*; **Miller, A.J.M.***
"Dinitrogen Reduction to Ammonium at Rhenium Utilizing Light and Proton-Coupled Electron Transfer."

J. Am. Chem. Soc. **2019**, *141*, 20198–20208.
https://doi.org/10.1021/jacs.9b10031

58. Smith, J. B.[‡]; Camp, A. M.[‡]; Farquhar, A. H.[‡]; Kerr, S. H.; Chen, C.-H.; **Miller, A. J. M.***
"Organometallic Elaboration as a Strategy for Tuning the Supramolecular Characteristics of Aza-Crown Ethers."
Organometallics **2019**, *38*, 4392–4398.
https://doi.org/10.1021/acs.organomet.9b00462
[‡] These co-authors contributed equally

57. Lindley, B. M.[‡]; Walden, A. G.[‡]; Brasacchio, A. M.; Casuras, A.; Lease, N.; Chen, C.-H.; Goldman, A. S.; **Miller, A. J. M.***
"Electrochemical C–H Bond Activation via Cationic Iridium Hydride Pincer Complexes."
Chem. Sci. **2019**, *10*, 9326–9330.
https://doi.org/10.1039/C9SC03076J
[‡] These co-authors contributed equally

56. Brereton, K. R.; Jadrich, C. N.; Stratakes, B. M.; **Miller, A. J. M.***
"Thermodynamic Hydricity across Solvents: Subtle Electronic Effects and Striking Ligation Effects in Iridium Hydrides."
Organometallics **2019**, *38*, 3104–3110.
https://doi.org/10.1021/acs.organomet.9b00278

55. Gonell, S.; Massey, M.; Moseley, I.; Schauer, C.; Muckerman, J.; **Miller, A. J. M.***
"The *Trans* Effect in Electrocatalytic CO_2 Reduction: Mechanistic Studies of Asymmetric Ruthenium Pyridyl-Carbene Catalysts."
J. Am. Chem. Soc. **2019**, *141*, 6658–6671
https://pubs.acs.org/doi/10.1021/jacs.9b01735

54. Yoo, C.; Dodge, H.; **Miller, A. J. M.***
"Cation-Controlled Catalysis with Crown Ether-Containing Transition Metal Complexes."
Chem. Commun. **2019**, *55*, 5047 – 5059
http://doi.org/10.1039/C9CC00803A

53. Wu, L. Brennaman, M. K.; Nayak, A.; Eberhart, M.; **Miller, A. J. M.**; Meyer, T. J.*
"Stabilization of Ruthenium(II) Polypyridyl Chromophores on Mesoporous TiO_2 Electrodes: Surface Reductive Electropolymerization and Silane Chemistry."
ACS Cent. Sci. **2019**, *5*, 506–514
http://doi.org/10.1021/acscentsci.8b00914

52. Wu, L.; Eberhart, M.; Shan, B.; Nayak, A.; Brennaman, M. K.; **Miller, A. J. M.***; Shao, J.*; Meyer, T. J.*
"Stable Molecular Surface Modification of Nanostructured, Mesoporous Metal Oxide Photoanodes by Silane and Click chemistry."
ACS Appl. Mater. Interfaces. **2019**, *11*, 4560–4567
http://doi.org/10.1021/acsami.8b17824

51. Deaton, J.*; Taliaferro, C.; Pitman, C.L.; Czerwieniec, R.; Jakubikova, E.; **Miller, A. J. M.***; Castellano, F.*
"Excited-State Switching between Ligand-Centered and Charge Transfer Modulated by Metal–Carbon Bonds in Cyclopentadienyl Iridium Complexes."
Inorg. Chem. **2018**, 57, 15445–15461.
http://doi.org/10.1021/acs.inorgchem.8b02753

50. Wang, Y.; Gonell, S.; Mathiyazhagan, U. R.; Liu, Y.; Wang, D.; **Miller, A. J. M.**; Meyer, T. J.*
"Simultaneous Electrosynthesis of Syngas and an Aldehyde from CO_2 and an Alcohol by Molecular Electrocalysis."

ACS Appl. Energy Mater. **2018**, *2*, 97–101.
http://doi.org/10.1021/acsaem.8b01616

49. Lindley, B. M.; van Alten, R. S.; Finger, M.; Schendzielorz, F.; Würtele, C.; **Miller, A. J. M.***; Siewert, I.*; Schneider, S.*
"Mechanism of Chemical and Electrochemical N_2 Splitting by a Rhenium Pincer Complex."
J. Am. Chem. Soc. **2018**, *140*, 7922–7935.
http://doi.org/10.1021/jacs.8b03755

48. Gregor, L. G.; Grajeda, J.; White, P. S.; Vetter, A. J.; **Miller, A. J. M.***
"Salt-Promoted Catalytic Methanol Carbonylation Using Iridium Pincer-Crown Ether Complexes."
Catal. Sci. Technol. **2018**, *8*, 3133–3143.
http://doi.org/10.1039/c8cy00328a

47. Brereton, K.; Bonn, A. G.; **Miller, A. J. M.***
"Molecular Photoelectrocatalysts for Light-Driven Hydrogen Production."
ACS Energy Lett. **2018**, *3*, 1128–1136.
http://doi.org/10.1021/acsenergylett.8b00255

46. Kurtz, D.; Brereton, K.; Ruoff, K.; Tang, H. M.; Felton, G.; **Miller, A. J. M.***; Dempsey, J. L.*
"Bathochromic Shifts in Rhenium Carbonyl Dyes Induced Through Destabilitzation of Occupied Orbitals."
Inorg. Chem. **2018**, *57*, 5389–5399.
http://doi.org/10.1021/acs.inorgchem.8b00360

45. Grajeda, J.; Nova, A.; Balcells, D.; Bruch, Q. J.; Wragg, D. S.; Heyn, R. H.; **Miller, A. J. M.***; Tilset, M.*
"Synthesis and Characterization of Stable Gold(III) Pincer Complexes."
Eur. J. Inorg. Chem. **2018**, *2018*, 3113–3117.
https://doi.org/10.1002/ejic.201800019

44. Bruch, Q. J.; Lindley, B. M.; Askevold, B.; Schneider, S.; **Miller, A. J. M.***
"A Ruthenium Hydrido Dinitrogen Core Conserved Across Multielectron/Multiproton Changes to the Pincer Ligand Backbone."
Inorg. Chem. **2018**, *57*, 1964–1975.
http://dx.doi.org/10.1021/acs.inorgchem.7b02889

43. Camp, A. M.; Kita, M. R.; Grajeda, J.; Dickie, D. A.; White, P. S.; **Miller, A. J. M.***
"Mapping the Binding Modes of Hemilabile Pincer-Crown Ether Ligands in Solution Using Diamagnetic Anisotropic Effects on NMR Chemical Shift."
Inorg. Chem. **2017**, *56*, 11141–11150.
http://dx.doi.org/10.1021/acs.inorgchem.7b01485

42. Smith, J. B.; Kerr, S. H.; White, P. S.; **Miller, A. J. M.***
"Thermodynamic Studies of Cation-Macrocycle Interactions in Nickel Pincer-Crown Ether Complexes Enable Switchable Ligation."
Organometallics **2017**, *36,* 3094–3103.
http://dx.doi.org/10.1021/acs.organomet.7b00431

41. **Miller, A. J. M.***
"Controlling Ligand Binding for Tunable and Switchable Catalysis: Cation-Modulated Hemilability in Pincer-Crown Ether Ligands."
Dalton Trans. **2017**, *46*, 11987–12000.
http://dx.doi.org/ 10.1039/c7dt02156a

40. Pitman, C. L.; **Miller, A. J. M.***
"Photochemical Production of Ethane from an Iridium Methyl Complex."
Organometallics **2017**, *36*, 1906–1914.
http://dx.doi.org/10.1021/acs.organomet.7b00175

39. Lindley, B. M.; Bruch, Q. J.; White, P. S.; Hasanayn, F.*; **Miller, A. J. M.***
"Ammonia Synthesis from a Pincer Ruthenium Nitride via Metal–Ligand Cooperative Proton-Coupled Electron Transfer."
J. Am. Chem. Soc. **2017**, *139*, 5305–5308.
http://dx.doi.org/10.1021/jacs.7b01323

38. Kita, M. R.; **Miller, A. J. M.***
"An Ion-Responsive Pincer-Crown Ether Catalyst System for Rapid and Switchable Olefin Isomerization."
Angew. Chem. Int. Ed. **2017**, *56*, 5498–5502.
http://dx.doi.org/10.1002/anie.201701006

37. Brereton, K. R.; Bellows, S. M.; Fallah, H.; Lopez, A. A.; Adams, R. M.; **Miller, A. J. M.***; Jones, W. D.;* Cundari, T. R.*
"Aqueous Hydricity From Calculations of Reduction Potential and Acidity in Water."
J. Phys. Chem. B **2016**, *120*, 12911–12919.
http://dx.doi.org/10.1021/acs.jpcb.6b09864
• Invited contribution to "Mark S. Gordon Festschrift" special issue.

36. Brereton, K. R.; Pitman, C. L.; Cundari, T. R.; **Miller, A. J. M.***
"Solvent-Dependent Thermochemistry of an Iridium/Ruthenium H_2 Evolution Catalyst."
Inorg. Chem. **2016**, *55*, 12042–12051.
http://dx.doi.org/10.1021/acs.inorgchem.6b02223

35. Chambers, M. B.; Kurtz, D. A.; Pitman, C. L.; Brennaman, M. K.; **Miller, A. J. M.***
"Efficient Photochemical Dihydrogen Generation Initiated by a Bimetallic Self-Quenching Mechanism."
J. Am. Chem. Soc. **2016**, *138*, 13509–13512.
http://dx.doi.org/10.1021/jacs.6b08701

34. Lindley, B. M.; Appel, A. M.; Krogh-Jespersen, K.; Mayer, J. M.; **Miller, A. J. M.***
"Evaluating the Thermodynamics of Electrocatalytic N_2 Reduction in Acetonitrile."
ACS Energy Letters, **2016**, *1*, 698–704.
http://dx.doi.org/10.1021/acsenergylett.6b00319

33. Gregor, L. C.; Grajeda, J.; Kita, M. R.; White, P. S.; Vetter, A. J.; **Miller, A. J. M.***
"Modulating the Elementary Steps of Methanol Carbonylation by Bridging the Primary and Secondary Coordination Spheres."
Organometallics **2016**, *35*, 3074–3086.
http://dx.doi.org/10.1021/acs.organomet.6b00607

32. Wiedner, E. S.; Chambers, M. B.; Pitman, C. L.; Bullock, R. M.; **Miller, A. J. M.***; Appel, A. M.*
"Thermodynamic Hydricity of Transition Metal Hydrides."
Chem. Rev. **2016**, *116*, 8655–8692.
http://pubs.acs.org/doi/abs/10.1021/acs.chemrev.6b00168

31. Walden, A. G.; Kumar, A.; Lease, N.; Goldman, A. S.; **Miller, A. J. M.***
"Electrochemical and Chemical Routes to Hydride Loss from an Iridium Dihydride."
Dalton Trans. **2016**, *45*, 9766–9769.
http://dx.doi.org/10.1039/C6DT00522E
• Invited contribution to the *New Talent: Americas* special issue.

30. Pitman, C. L.; Finster, O. N. L.; **Miller, A. J. M.***
"Cyclopentadiene-Mediated Hydride Transfer from Rhodium Complexes."
Chem. Commun. **2016**, *52*, 9105–9108.
http://dx.doi.org/10.1039/C6CC00575F
• For a highlight, see: Ritter, S. K. *Chemical & Engineering News*, **2016**, vol. 94, iss. 6.
• Invited contribution to the 2016 *Emerging Investigators* special issue.

29. Pitman, C. L.; Brereton, K. R.; **Miller, A. J. M.***
"Aqueous Hydricity of Late Metal Catalysts as a Continuum Tuned by Ligands and the Medium."
J. Am. Chem. Soc. **2016**, *138,* 2252–2260.
http://dx.doi.org/10.1021/jacs.5b12363

28. Meek, S. J.; Pitman, C. L.; **Miller, A. J. M.***
"Deducing Reaction Mechanism: A Guide for Students, Researchers, and Instructors."
J. Chem. Educ. **2016**, *93,* 275–286.
http://pubs.acs.org/doi/10.1021/acs.jchemed.5b00160

27. Grajeda, J.; Kita, M. R.; Gregor, L. C.; White, P. S.; **Miller, A. J. M.***
"Diverse Cation-Promoted Reactivity of Iridium Carbonyl Pincer-Crown Ether Complexes."
Organometallics **2016**, *35*, 306–316.
http://dx.doi.org/10.1021/acs.organomet.5b00786

26. Barrett, S. M.; Slattery, S. A.; **Miller, A. J. M.***
"Photochemical Formic Acid Dehydrogenation by Iridium Complexes: Understanding Mechanism and Overcoming Deactivation."
ACS Catalysis **2015**, *5*, 6320–6327.
http://dx.doi.org/10.1021/acscatal.5b01995

25. Smith, J. B.; **Miller, A. J. M.***
"Connecting Neutral and Cationic Pathways in Nickel-Catalyzed Insertion of Benzaldehyde into a C–H bond of Acetonitrile."
Organometallics **2015**, *34,* 4669–4677.
http://pubs.acs.org/doi/abs/10.1021/acs.organomet.5b00405
    - Invited contribution to special issue in honor of the late Gregory L. Hillhouse.

24. Walden, A. G.; **Miller, A. J. M.***
"Rapid Water Oxidation Electrocatalysis by a Ruthenium Complex of the Tripodal Ligand Tris(2-pyridyl)phosphine Oxide."
Chem. Sci. **2015**, *6*, 2405–2410.
http://dx.doi.org/10.1039/C5SC00032G

23. Barrett, S. M.; Pitman, C. L.; Walden, A. G.; **Miller, A. J. M.***
"Photoswitchable Hydride Transfer from Iridium to 1-Methylnicotinamide Rationalized by Thermochemical Cycles."
J. Am. Chem. Soc. **2014**, *136*, 14718–14721.
http://dx.doi.org/10.1021/ja508762g

22. Kita, M. R.; **Miller, A. J. M.***
"Cation-Modulated Reactivity of Iridium Hydride Pincer-Crown Ether Complexes."
J. Am. Chem. Soc. **2014**, *136*, 14519–14529.
http://dx.doi.org/10.1021/ja507324s

21. Pitman, C. L.; **Miller, A. J. M.***
"Molecular Photoelectrocatalysts for Visible Light-Driven Hydrogen Evolution from Neutral Water."
ACS Catal. **2014**, *4*, 2727–2733.
http://dx.doi.org/10.1021/cs500441f

Refereed Articles – Undergraduate, Graduate, and Postdoctoral Research (* = corresponding author)

20. **Miller, A. J. M.***; Kaminsky, W.; Goldberg, K. I.*
"Arene Activation at Iridium Facilitates C–O Bond Cleavage of Aryl Ethers."
Organometallics **2014**, 33, 1245–1252.

19. Brewster, T. P.; **Miller, A. J. M.***; Heinekey, D. M.; Goldberg, K. I.*
"Hydrogenation of Carboxylic Acids Catalyzed by Half-Sandwich Complexes of Iridium and Rhodium."
J. Am. Chem. Soc. **2013**, *135*, 16022–16025.

18. **Miller, A. J. M.***; Heinekey, D. M.; Mayer, J. M.; Goldberg, K. I.*
"Catalytic Disproportionation of Formic Acid to Generate Methanol."
Angew. Chem. Int. Ed. **2013**, *52*, 3981–3984.

17. Smieja, J. M.; Benson, E. E.; Kumar, B.; Grice, K. A.; Seu, C. S.; **Miller, A. J. M.;** Mayer, J. M.; Kubiak, C. P.*
"Kinetic and Structural Studies, Origins of Selectivity, and Interfacial Charge Transfer in the Artificial Photosynthesis of CO."
Proc. Natl. Acad. Sci. USA **2012**, *109*, 15646–15650.

16. Waidmann, C. R.*; **Miller, A. J. M.***; Ng, C.-W. A.; Scheuermann, M. L.; Porter, T. R.; Tronic, T. A.; Mayer, J. M.*
"Using Combinations of Oxidants and Bases as PCET Reactants: Thermochemical and Practical Considerations."
Energy Environ. Sci. **2012**, *5*, 7771–7780.

15. Iluc, V. M.; **Miller, A. J. M.**; Anderson, J. S.; Monreal, M. J.; Mehn, M. P.; Hillhouse, G. L.*
"Synthesis and Characterization of Three-Coordinate Ni(III)-Imide Complexes."
J. Am. Chem. Soc. **2011**, *133*, 13055–13063.

14. **Miller, A. J. M.;** Labinger, J. A.*; Bercaw, J. E.*
"Trialkylborane-Assisted CO_2 Reduction by Late Transition Metal Hydrides."
Organometallics **2011**, *30*, 4308–4314.

13. Laskowski, C. A.; **Miller, A. J. M.**; Hillhouse, G. L.*; Cundari, T. R.*
"A Two-Coordinate Ni Imido Complex that Effects C–H Amination."
J. Am. Chem. Soc. **2011**, *133*, 771–773.
    - For a highlight, see: Ritter, S. K. *Chemical & Engineering News*, **2011**, vol. 89, iss. 4.

12. West, N. M.; **Miller, A. J. M.;** Labinger, J. A.*; Bercaw, J. E.*
"Homogeneous Syngas Conversion."
Coord. Chem. Rev. **2011**, *255*, 881–898.

11. **Miller, A. J. M.;** Labinger, J. A.*; Bercaw, J. E.*
"Homogeneous CO Hydrogenation: Ligand Effects on the Lewis Acid-Assisted Reductive Coupling of Carbon Monoxide."
Organometallics **2010**, *29*, 4499–4516.

10. Deaton, J. C.*; Switalski, S. C.; Kondakov, D. Y.; Young, R. H.; Pawlik, T. D.; Giesen, D. J.; Harkins, S. B.; **Miller, A. J. M.**; Mickenberg, S. F.; Peters, J. C.*
"E-Type Delayed Fluorescence of a Phosphine-Supported $Cu_2(\mu\text{-}NAr_2)_2$ Diamond Core: Harvesting Singlet and Triplet Excitons in OLEDs."
J. Am Chem. Soc. **2010***, 132*, 9499–9508.

9. Fulmer, G. R.*; **Miller, A. J. M.**; Sherden, N. H.; Gottlieb, H. E.; Nudelman, A.; Bercaw, J. E.; Stoltz, B. M.; Goldberg, K. I.
"NMR Chemical Shifts of Trace Impurities: Common Laboratory Solvents, Organics, and Gases in Deuterated Solvents Relevant to the Organometallic Chemist."
Organometallics **2010***, 29*, 2176–2179.

8. Velian, A.; Lin, S.; **Miller, A. J. M.;** Day, M. W.; Agapie, T. A.*
"Synthesis and C–C Coupling Reactivity of a Dinuclear Ni^{I}–Ni^{I} Complex Supported by a Terphenyl Diphosphine."
J. Am. Chem. Soc. **2010**, *132*, 6296–6297.

7. Wilson, A. D.; **Miller, A. J. M.;** DuBois, D. L.*; Labinger, J. A.*; Bercaw, J. E.*
"Thermodynamic Studies of $[H_2Rh(diphosphine)_2]^+$ and $[HRh(diphosphine)_2(CH_3CN)]^{2+}$ Complexes in Acetonitrile."
Inorg. Chem. **2010**, *49*, 3918–3926.

6. **Miller, A. J. M.**; Labinger, J. A.*; Bercaw, J. E.*
"Homogeneous CO Hydrogenation: Dihydrogen Activation Involves a Frustrated Lewis Pair Instead of a Platinum Complex."
J. Am. Chem. Soc. **2010**, *132*, 3301–3303.

5. **Miller, A. J. M.***; Bercaw, J. E.
"Dehydrogenation of Amine-boranes with a Frustrated Lewis Pair."
Chem. Commun. **2010**, *46*, 1709–1711.

4. **Miller, A. J. M.**; Labinger, J. A.*; Bercaw, J. E.*
"Reductive Coupling of Carbon Monoxide in a Rhenium Carbonyl Complex with Pendant Lewis Acids."
J. Am. Chem. Soc. **2008**, *130*, 11874–11875.

3. Harkins, S. B.; Mankad, N. P.; **Miller, A. J. M.**; Szilagyi, R. K.*; Peters, J. C.*
"Probing the Electronic Structures of $[Cu_2(\mu\text{-}XR_2)]^{n+}$ Diamond Cores as a Function of the Bridging X atom (X = N or P) and Charge (n = 0, 1, 2)."
J. Am. Chem. Soc. **2008**, *130*, 3478–3485.

2. **Miller, A. J. M.**; Dempsey, J. L.; Peters, J. C.*
"Long-Lived and Efficient Emission from Mononuclear Amidophosphine Complexes of Copper."
Inorg. Chem. **2007**, *46*, 7244–7246.

1. Iluc, V. M.; **Miller, A. J. M.**; Hillhouse, G. L.*
"Synthesis and Characterization of Side-bound Aryldiazo and End-bound Nitrosyl Complexes of Nickel."
Chem. Commun. **2005**, 5091–5093.

Non-Peer-Reviewed Publications – University of North Carolina at Chapel Hill

1. **Miller, A. J. M.***; Tonks, I. A.*
"Let's Talk About Safety: Open Communication for Safer Labs"
Organometallics **2018**, *37*, 3225–3227
http://doi.org/10.1021/acs.organomet.8b00627

Patents – University of North Carolina at Chapel Hill

1. Pitman, C. L; **Miller, A. J. M.**
"Electrocatalytic Hydrogen Production Promoted by Visible Light."
U.S. Patent Application PCT/US14/520,930, **2014**.

Patents – Undergraduate, Graduate, and Postdoctoral Research

2. **Miller, A. J. M.;** Brewster, T. P.; Goldberg, K. I.; Heinekey, D. M.; Mayer, J. M.
"Hydrogenation and Disproportionation Catalysis."
U.S. Patent Application PCT/US14/17465, **2014**.

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

Invited Seminars

45. Princeton University, Princeton, NJ (April 2022)
44. Göttingen University, Germany (Virtual, January 2022)
43. University of California, Berkeley, Berkeley, CA (Virtual, October 2021)
42. Mississippi State University, Mississippi State, MS (Virtual, September 2021)
41. California Institute of Technology Safety Day Presentation, Pasadena, CA (Virtual, November 2020)
40. Uppsala University, Uppsala, Sweden (Virtual, May 2020)
39. Indiana University, Bloomington, IN (February 2020)
38. University of Alabama, Tuscaloosa, AL (November 2019)
37. Tulane University, New Orleans, LA (October 2019)
36. University of Wisconsin, Madison, Madison, WI (September 2019)
35. University of Richmond, Richmond, VA (February 2019)
34. Columbia University, New York, NY (October 2018)
33. Rutgers University, New Brunswick, NJ (May 2018)
32. University of Memphis, Memphis, TN (March 2018)
31. Brown University, Providence, RI (December 2017)
30. Washington State University, Pullman, WA (November 2017)
29. University of California, Irvine, Irvine, CA (October 2017)
28. University of California, Los Angeles, Los Angeles, CA (October 2017)
27. University of North Carolina at Charlotte, Charlotte, NC (September 2017)
26. Northwestern University, Evanston, IL (September 2017)
25. Argonne National Laboratory, Argonne, IL (September 2017)
24. California Institute of Technology, Pasadena, CA (June 2017)
23. University of Chicago, Chicago, IL (May 2017)
22. Princeton University, Princeton, NJ (February 2017)
21. Virginia Polytechnic Institute and State University, Blacksburg, VA (February 2017)
20. University of Illinois at Urbana-Champaign, Urbana, IL (January 2017)
19. California Institute of Technology, Pasadena, CA (November 2016)
18. University of California, San Diego, San Diego, CA (November 2016)
17. University of California, Riverside, Riverside, CA (November 2016)
16. Carleton College, Northfield, MN (November 2016)
15. University of Minnesota – Twin Cities, Minneapolis, MN (November 2016)
14. Yale University, New Haven, CT (October 2016)
13. University of Cincinnati, Cincinnati OH (October 2016)
12. Michigan State University, East Lansing, MI (October 2016)
11. University of Michigan, Ann Arbor, MI (October 2016)
10. University of Pennsylvania, Philadelphia, PA (October 2016)
9. University of Delaware, Newark, DE (October 2016)
8. University of British Columbia, Vancouver, Canada (September 2016)
7. ExxonMobil Chemical Co., Baytown, TX (May 2016)
6. Weizmann Institute of Science, Rehovot, Israel (December 2015)
5. University of Southern California, Los Angeles, CA (November 2015)
4. Pacific Northwest National Laboratory, Richland, WA (October 2015)
3. North Carolina State University, Raleigh, NC (September 2015)
2. North Carolina Agricultural & Technical State University, Greensboro, NC (March 2015)
1. CNRS Laboratoire Hétérochimie Fondamentale et Appliquée, Toulouse, France (October 2011)

Invited Conference Presentations

35. NAM27 Conference of the North American Catalysis Society, New York, NY (May 2022)
34. NC-ACS Local Chapter Meeting (Virtual, Nov 2021)
33. NanoGe Conference on Recent Advances on Nitrogen Activation and Conversion (March 2021)

32. 257th ACS National Meeting, Organometallic Chemistry ACS Award Symposium in Honor of Alan Goldman, Orlando, FL (March 2019)
31. 256th ACS National Meeting, The Halpern Legacy: Mechanism, Catalysis, and Organotransition Metal Chemistry, Boston, MA (August 2018)
30. International Conference on Coordination Chemistry, Sendai, Japan (July 2018)
29. University of Göttingen Proton-Coupled Electron Transfer Workshop, Göttingen, Germany (May 2018)
28. 255th ACS National Meeting, Organometallic Chemistry ACS Award Symposium in Honor of Clifford Kubiak, New Orleans, LA (March 2018)
27. 255th ACS National Meeting, Inorganic Chemistry ACS Award Symposium in Honor of James Mayer, New Orleans, LA (March 2018)
26. 255th ACS National Meeting, PCET PhotoCatalysis with Inorganic Molecules and Materials, New Orleans, LA (March 2018)
25. 254th ACS National Meeting, *Organometallics* Distinguished Author Award Symposium Honoring Alexander Miller, Washington, D.C. (August 2017)
24. 254th ACS National Meeting, The Triplet Excited State in Inorganic Chemistry Symposium, Washington, D.C. (August 2017)
23. 254th ACS National Meeting, Center for Enabling New Technologies through Catalysis: Transforming Catalysis through Collaboration, Washington, D.C. (August 2017)
22. XXXVI Biennial of the Spanish Royal Society of Chemistry, Barcelona, Spain (June 2017)
21. Southeast Regional Meeting of the American Chemical Society (SERMACS), Electrocatalysis Symposium, Columbia, SC (October 2016)
20. COST Action PERSPECT-H_2O Final Meeting "Supramolecular Photocatalytic Water Splitting", Milazzo, Italy (September 2016)
19. 252nd ACS National Meeting, Manipulation of Energy & Electron Transfer in Molecules & Devices Symposium, Philadelphia, PA (August 2016)
18. 252nd ACS National Meeting, Secondary Coordination Sphere Influences: Stability, Reactivity, and Everything in Between, Philadelphia, PA (August 2016)
17. Organometallic Chemistry Gordon Research Conference, Newport, RI (July 2016)
16. Inorganic Chemistry Gordon Research Conference, Biddeford, ME (June 2016)
15. 251st ACS National Meeting, Organometallic Chemistry Award Symposium Honoring Karen Goldberg, San Diego, CA (March 2016)
14. UNC Solar Energy Research Consortium Symposium, Chapel Hill, NC (October 2015)
13. North Carolina Photochemistry Symposium, Charlotte, NC (October 2015)
12. 250th ACS National Meeting, High-Energy Organometallic Complexes Symposium, Boston, MA (August 2015)
11. Center for Enabling New Technologies through Catalysis Summer School, Seattle, WA (July 2015)
10. 249th ACS National Meeting, Creative Research in Catalysis Award Symposium Honoring Maurice Brookhart, Denver, CO (March 2015)
9. 249th ACS National Meeting, Award in Industrial & Engineering Chemistry Symposium Honoring Joseph Zoeller, Denver, CO (March 2015)
8. 249th ACS National Meeting, New Catalysis Through Ligand Design Symposium, Denver, CO (March 2015)
7. Organometallic Chemistry Gordon Research Conference, Newport, RI (July 2014)
6. 2nd International Conference on Proton-Coupled Electron Transfer, Skokloster, Sweden (June 2014)
5. Eastman Chemical Company, Kingsport, TN (September 2013)
4. Center for Enabling New Technologies through Catalysis Summer School, Seattle, WA (July 2013)
3. 245th ACS National Meeting, Pure Chemistry Award Symposium Honoring Theodor Agapie, New Orleans, LA (April 2013)
2. 245th ACS National Meeting, Organometallic Chemistry Award Symposium Honoring Gregory Hillhouse, New Orleans, LA (April 2013)
1. VIPEr Chemistry Collaborations, Workshops & Communities of Scholars Workshop, Chapel Hill, NC (July 2012)

Contributed Oral and Poster Presentations

10. Organometallic Chemistry Gordon Research Conference, Newport, RI (Poster, July 2019)
9. Inorganic Reaction Mechanisms Gordon Research Conference, Galveston, TX (Poster, March 2019)
8. Organometallic Chemistry Gordon Research Conference, Newport, RI (Poster, July 2018)
7. Solar Fuels Gordon Research Conference, Ventura, CA (Poster, February 2018)
6. International Chemical Congress of Pacific Basin Societies (Pacifichem), Honolulu, HI (Oral Presentation, December 2015)
5. Organometallic Chemistry Gordon Research Conference, Newport, RI (Poster, July 2015)
4. 24th Inter-American Photochemical Society Meeting, Sarasota, FL (Poster, January 2015)
3. 248th ACS National Meeting, San Francisco, CA (Oral Presentation, August 2014)
2. Renewable Energy: Solar Fuels Gordon Research Conference, Ventura, CA (Poster, January 2014)
1. Organometallic Chemistry Gordon Research Conference, Newport, RI (Poster, July 2013)

Professional Service

Department of Chemistry

- Committee Chair
  - Director of Graduate Studies (2021–present)
  - Student and Postdoc Wellness (SWELL) Committee (2019–2021)
  - X-ray Core Laboratory Committee (2018–2021)
- Leadership Positions
  - Executive Committee, Center for Hybrid Approaches in Solar Energy to Liquid Fuels (2020–present)
  - Thrust Leader, Center for Hybrid Approaches in Solar Energy to Liquid Fuels (2020–present)
  - Deputy Director, Alliance for Molecular PhotoElectrode Design EFRC (2018–2021)
  - Faculty lead, High-Throughput Catalysis Center (2014–present)
  - Executive Committee of UNC Solar Fuels Energy Frontier Research Center (EFRC) (2014–2021)
  - Team Leader, Catalysis Team in the UNC Solar Fuels EFRC (2013–2021)
- Committee Member
  - Chair's Advisory Committee (2021–present)
  - Safety Committee (2019–present)
  - Morehead Laboratory Planning Committee (2017–2021)
  - Facilities Committee (2017-2018)
  - Graduate Studies Committee (2013–2019)
  - Diversity Committee (2012–2021)

University of North Carolina at Chapel Hill

- Committees
  - Member, College of Arts & Sciences Collaborative to Address Structural Racism in Graduate Education (2021)
  - Subcommittee Vice Chair, University Teaching Awards Committee (2020)
  - Member, University Teaching Awards Committee (2019)
  - Member, College of Arts & Sciences Task Force for Improving Large Lecture Courses (2012)
- Center for Faculty Excellence
  - Mentor, Future Faculty Fellow Andrew Walden (2015-2016)
  - Mentor, Future Faculty Fellow Seth Barrett (2015-2016)
  - Mentor, Future Faculty Fellow Marsha Massey (2014-2015)
- Panelist Activities
  - Panelist, "Carolina and Beyond" undergraduate recruitment event (2015)
  - Panelist, UNC elevator pitch seminar (2013)
  - Panelist, UNC Center for Faculty Excellence Future Faculty Fellows (2013)
- Faculty Representative

- Faculty Advisor, Science in the Stacks (2019–present)
- Host, Laboratory Safety course (CHEM 701) "field trip" on safe practices (2016-present)
- Poster judge, Women in Science Symposium (2016–present)
- Keynote speaker, AXS Chemistry fraternity regional conclave (2016)
- Participant, Diversity THINKposium: Intersectionality (2015)
- Interviewer, Chancellor's Science Scholar Program (2014-2015)
- Participant, Department of Chemistry Commencement (2014–2017)
- Faculty Advisor, Science Education and Policy Society (2014–2016)
- Participant, Diversity Liaison Visioning Breakfast (2013)
- Faculty Liaison, Morehead Planetarium & Science Center's Morehead Ambassadors Program (2013–2015)

Inorganic and Organometallic Chemistry Community

- Advisory Boards
  - Editorial Advisory Board Member, *Chemical Communications* (2020–present)
  - Editorial Advisory Board Member, *Organometallics* (2019–2025)
- Symposium Organization
  - Lead Organizer, 8th Annual North Carolina Photochemistry Symposium, Chapel Hill, NC, October 2021
  - Co-Organizer, 7th Annual North Carolina Photochemistry Symposium, Virtual Event, October 2020
  - Co-Organizer, Harry Gray Award for Creative Work in Inorganic Chemistry by a Young Investigator Symposium in Honor of Jillian L. Dempsey, Spring 2019 ACS National Meeting, Orlando, FL, March 2019
  - Co-Organizer, 6th Annual North Carolina Photochemistry Symposium, Boone, NC, October 2019
  - Co-Organizer, 3rd International Conference on Proton-Coupled Electron Transfer (2018)
  - Co-Organizer, From Photons, Protons, and Electrons to Fuel: The Solar Energy Research Center Symposium at the Southeast Regional Meeting of the American Chemical Society (SERMACS) (2017)
- Scientific Meeting Session Chair
  - Session Chair, UNC Solar Energy Research Center Meeting (2017)
  - Session Chair, 251st ACS National Meeting "Organometallic Chemistry Award Symposium Honoring Karen Goldberg" (2016)
  - Session Chair, NC PhotoChem 2014, NC State University, Raleigh, NC (2014)
  - Session Chair, 248th ACS National Meeting Symposium "Organometallic Chemistry: The New Frontiers" (2014)
- Education and Outreach Activities
  - Presented to NC Energy Literacy Fellows through UNC Institute for Environment's Center for Public Engagement with Science (May 2022)
  - North Carolina ACS Young Chemists Committee Digital Media Roundtable (June 2021)
  - Center for Integrated Catalysis Webinar on Surface Attachment (February 2021)
  - Led creation of remote high school outreach activity on batteries and electrochemistry, presented to Robeson Country American Indian STEM Summer Camp (June 2021)
  - Network of Academic Corporate Relations Officers (NACRO) Webinar (June 2020)
  - Created and maintained "The Safety Net" (http://safetynet.web.unc.edu) as a web resource for safe practices in academic synthetic labs (2017—present)
  - Faculty advisor, North Carolina State University engineering senior project on CO_2 reduction (2016)
  - Published "Deducing Reaction Mechanism: A Guide for Students, Researchers, and Instructors" in *J. Chem. Ed.* (DOI: 10.1021/acs.jchemed.5b00160), providing a resource for researchers interested in learning about mechanistic analysis and teachers interested in building courses on mechanism (2016)
  - Hosted chemistry outreach booth at North Carolina Science Expo (2015–present)
  - Volunteer in Agriculture Today booth at North Carolina State Fair (2015)

  - Panelist, CENTC summer program videoconference jobs round table (2014)
  - Supported participation of nine graduate students in the Morehead Science Communication Ambassadors and Inspiring Meaningful Programs and Communication Through Science (IMPACTS) programs (2013–present)
  - Presenter, NSF Center for Enabling New Technologies through Catalysis Summer School "Enabling Sustainability and Innovation Through Catalysis" (2013)
  - Presenter, cCWCS Virtual Inorganic Pedagogical Electronic Resource (VIPEr) Workshop on bringing new research results into the classroom (2012)
- Workshop and Study Participation
  - Participant, Cottrell Scholars Collaborative New Faculty Workshop (2012)
  - Participant, US Academic Workshop of Energy, Sustainability, and Environmental Centers (2012)
  - Participant, pedagogical study (PI Marilyne Stains, University of Nebraska-Lincoln) assessing the effectiveness of the Cottrell Scholars Collaborative workshop on new faculty teaching at research universities (2012–2014)
- Reviewing Activities
  - Journals: *Nature, Proceedings of the National Academy of Sciences, Journal of the American Chemical Society*, *Angewandte Chemie International Edition, Chemical Science, Organometallics, Inorganic Chemistry, Chemical Communications, Dalton Transactions, ACS Catalysis, Chemistry — A European Journal, Journal of Physical Chemistry, Journal of Physical Chemistry Letters, Synthesis Letters, ChemSusChem, ChemPlusChem, ChemElectroChem, Organic Process Research & Development, RSC Advances, Chemical Society Reviews, Chemical Reviews*.
  - Funding agencies: National Science Foundation, Army Research Office, ACS Petroleum Research Fund, Iowa Energy Center, Nazarbayev University (Kazakhstan), Department of Energy.
  - Book publishers: Wiley.
- Professional Society Membership:
  - American Association for the Advancement of Science (2015–present)
  - Inter-American Photochemical Society (2014–present)
  - American Chemical Society (2006–present)