

Curriculum Vitae of
Kyle M. Lancaster, Ph.D.

Date of Birth: November 9, 1983; Place of Birth: Fullerton, CA
Cornell University Department of Chemistry and Chemical Biology
Baker Laboratory, Ithaca, NY 14853

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Appointments

Cornell University, Department of Chemistry and Chemical Biology
Assistant Professor of Inorganic Chemistry
Postdoctoral Associate and Visiting Lecturer

Ithaca, NY
July 1, 2012–Present
2010–2012

Education

California Institute of Technology
Ph.D., Chemistry
“*Outer-Sphere Effects on the Copper Sites of Pseudomonas aeruginosa Azurins.*”

Pasadena, CA
October 1, 2010

Pomona College
B.A., Molecular Biology with Distinction, *magna cum laude*
“*Mechanistic Swing*”

Claremont, CA
May 15, 2005

Honors and Awards

Alfred P. Sloan Research Fellowship 2017
National Science Foundation CAREER Award 2015
Department of Energy Office of Science Early Career Award 2015
Forbes 30 Under 30: Science and Health 2013
John Stauffer Scholarship for Academic Merit (Pomona College) 2005
Walter Bertsch Prize in Molecular Biology (Pomona College) 2005
NSF Graduate Research Fellowship 2005–2008
Phi Beta Kappa 2005
Barry Goldwater Scholarship 2004
Pfizer Summer Undergraduate Research Fellowship 2004

Professional Memberships

Society of Biological Inorganic Chemistry 2011–Present
Danish Chemical Society 2010–Present
American Chemical Society 2006–Present
Sigma Xi 2004–Present

Professional Activities

DOE Nitrogen Activation Workshop October 2016
NSF INFEWS Nitrogen Cycle Workshop November 2015
Cornell High Energy Synchrotron Source User Executive Committee June 2015–Present
Cottrell Scholars Collaborative New Faculty Workshop August 2012
Cottrell Scholars Collaborative Teaching Study August 2012–August 2013
Panelist for Cornell AXΣ “Careers Beyond Chemistry: Life After Your B.A.” October 2012
Cornell Chemistry Biology Interface Training Grant – Mentor June 2012–Present
Cornell University Protein Facility Principal Investigator July 2013–Present
Reviewer for *PNAS*, *JACS*, *Nature Chem.*, *Chem. Sci.*, *Inorg. Chem.*, *Sci. Rep.* and *Dalton Trans.*
Reviewer for the ACS Petroleum Research Fund, NSF, DOE BES, SSRL

Independent Publications (*Undergraduate Authors)

- 19) MacMillan, S. N.; Lancaster, K. M. X-ray Spectroscopic Interrogation of Transition Metal-Mediated Homogeneous Catalysis: Primer and Case Studies. *ACS Catalysis*, **2017**, *7*, 1776–1791.
- 18) Caranto, J. D.; Vilbert, A. C.; Lancaster, K. M. *Nitrosomonas europaea* Cytochrome P460 Is a Direct Link between Nitrification and Nitrous Oxide Emission. *Proc. Natl. Acad. Sci. U.S.A.*, **2016**, *113*, 14704–14709.
- 17) Ferrando-Soria, J.; Magee, S. A.; Chiesa, A.; Carretta, S.; Santini, P.; Vitorica-Yrezabal, I. J.; Tuna, F.; Whitehead, G. F. S.; Sproules, S.; Lancaster, K. M.; Barra, A.-L.; Timco, G. A.; McInnes, E. J. L.; Winpenny, R. E. P. Switchable Interaction in Molecular Double Qubits. *Chem. 1*, 727–752.
- 16) Varela-Álvarez, A.; Yang, T.; Jennings, H.; Kornecki, K. P.; MacMillan, S. N.; Lancaster, K. M.; Mack, J. B. C.; DuBois, J.; Berry, J. F.; Musaev, D. G. Rh₂(II,III) Catalysts with Chelating Carboxylate and Carboxamidate Supports: Electronic Structure and Nitrene Transfer Reactivity. *J. Am. Chem. Soc.* **2016**, *138*, 2327–2341.
- 15) Walroth, R. C.; Lukens, J. T.; MacMillan, S. N.; Finkelstein, K. D.; Lancaster, K. M. Spectroscopic Evidence for a 3d¹⁰ Ground State Electronic Configuration and Ligand Field Inversion in [Cu(CF₃)₄]¹⁻. *J. Am. Chem. Soc.* **2016**, *138*, 1922–1931.
- 14) Corcos, A. R.; Villanueva, O.; Walroth, R. C.; Sharma, S. K.; Lancaster, K. M.; MacBeth, C. E.; Berry, J. F. Oxygen Activation by Co(II) and a Redox Non-Innocent Ligand: Spectroscopic Characterization of a Radical–Co(II)–Superoxide Complex with Divergent Catalytic Reactivity. *J. Am. Chem. Soc.* **2016**, *138*, 1796–1799.
- 13) Hulley, E. B.; Williams, V. A.; Hirsekorn, K. F.; Wolczanski, P. T.; Lancaster, K. M.; Lobkovsky, E. B. Application of ⁹³Nb NMR Spectroscopy to (silox)₃Nb(X_n/L_m) Complexes (silox = ^tBu₃SiO): Where Does (silox)₃Nb(NN)Nb(silox)₃ Appear? *Polyhedron*, **2016**, *103*, 105–114.
- 12) Zeng, T.; Lancaster, K. M.; Ananth, N.; Hoffmann, R. Anomalous Orbital Admixture in Ammine Complexes. *J. Organomet. Chem.* **2015**, *792*, 6–12.
- 11) Walroth, R. C.; Uebler, J. W. H.; Lancaster, K. M. High Energy Resolution Fluorescence Detection of Metal-to-Ligand Charge Transfer Pre-edge Transitions in Cu^I K-edge X-ray Absorption Spectra. *Chem. Commun.* **2015**, *51*, 9864–9867.
- 10) Yao, S.; Martin-Diaconescu, V.; Infante, I.; Lancaster, K. M.; Götz, A. W.; DeBeer, S.; Berry, J. F. Electronic Structure of Ni₂E₂ Complexes (E = S, Se, Te) and a Global Analysis of M₂E₂ Compounds: A Case for Quantized E₂ⁿ⁻ Oxidation Levels with n = 2, 3, or 4. *J. Am. Chem. Soc.* **2015**, *137*, 4993–5011.
- 9) Morsing, T. J.; MacMillan, S. N.; Uebler, J. W. H.; Brock-Nannestad, T.; Bendix, J.; Lancaster, K. M. Stabilizing Coordinated Radicals via Metal–Ligand Covalency: A Structural, Spectroscopic, and Theoretical Investigation of Group 9 Tris(Dithiolene) Complexes. *Inorg. Chem.* **2015**, *54*, 3660–3669.
- 8) MacMillan, S. N.; Walroth, R. C.; Perry, D. M.; Morsing, T. J.; Lancaster, K. M. Ligand-Sensitive but Not -Diagnostic: Evaluating Cr Valence-to-Core X-ray Emission Spectroscopy as a Probe of Inner-Sphere Coordination. *Inorg. Chem.* **2015**, *54*, 205–214.
- 7) Jayarathne, U.; Chandrasekharan, P.; Green, A. F.; Mague, J. T.; DeBeer, S.; Lancaster, K. M.; Sproules, S.; Donahue, J. P. X-ray Absorption Spectroscopy Systematics at the Tungsten L-Edge. *Inorg. Chem.* **2014**, *53*, 8230–8241.
- 6) Lancaster, K. M.; Gray H. B. Monocopper Blue Proteins In *Encyclopedia of Metalloproteins*, Springer, New York, 2013.
- 5) Kornecki, K. P.; Briones, J. F.; Boyarskiikh, V.; Fullilove, F.; Autschbach, J.; Schrote, K. E.; Lancaster, K. M.; Davies, H. M. L.; Berry, J. F. Direct Spectroscopic Characterization of a Transitory Dirhodium Donor/Acceptor Carbene Complex. *Science* **2013**, *342*, 351–354.

- 4) Williams, V. A.; Hulley, E. B.; Wolczanski, P. T.; Lancaster, K. M.; Lobkovsky, E. B. Exploring the Limits of Redox Non-Innocence: Pseudo Square Planar [$\{\kappa^4\text{-Me}_2\text{C}(\text{CH}_2\text{N}=\text{CHpy})_2\}\text{Ni}\}^n$ ($n = 2+, 1+, 0, -1, -2$) Favor Ni(II). *Chem. Sci.* **2013**, *4*, 3636–3648.
- 3) Palmer, J. H.; Lancaster, K. M. Molecular Redox: Revisiting the Electronic Structures of the Group 9 Metallocorrols. *Inorg. Chem.* **2012**, *51*, 12473–12482.
- 2) Warren, J. J.; Lancaster, K. M.; Richards, J. H.; Gray, H. B. Inner- and Outer-Sphere Metal Coordination in Blue Copper Proteins. *J. Inorg. Biochem.* **2012**, *115*, 119–126.
- 1) Lancaster, K. M. Biological Outer Sphere Coordination. *Struct. Bond.* **2012**, *142*, 119–153.

Prior Publications (*Publication/Submission after Faculty Appointment)

- 22) Neu, H. M.; Quesne, M. G.; Yang, T.; Prokop-Prigge, K. A.; Lancaster, K. M.; Donohoe, J.; DeBeer, S.; de Visser, S. P.; Goldberg, D. P. Dramatic Influence of an Anionic Donor on the Oxygen-Atom-Transfer Reactivity of an Mn(V)–Oxo Complex. *Chem. Eur. J.* **2014**, *20*, 14584–14588.*
- 21) Pollock, C. J.; Lancaster, K. M.; Finkelstein, K. D.; DeBeer, S. Study of Iron Dimers Reveals Angular Dependence of Valence-to-Core X-ray Emission Spectra. *Inorg. Chem.* **2014**, *53*, 10378–10385.*
- 20) Pollock, C. J.; Tan, L. L.; Zhang, W.; Lancaster, K. M.; DeBeer, S. Light Atom Influences on the Electronic Structures of Iron-Sulfur Clusters. *Inorg. Chem.* **2014**, *53*, 2591–2597.*
- 19) Yan, Y.; Keating, C.; Chandrasekharan, P.; Jayarathne, U.; Mague, J. T.; DeBeer, S.; Lancaster, K. M.; Sproules, S.; Rubtsov, I. G.; Donahue, J. P. Ancillary Ligand Effects upon Dithiolene Redox Noninnocence in Tungsten Bis(dithiolene) Complexes. *Inorg. Chem.* **2013**, *52*, 6743–6751.*
- 18) Lancaster, K. M.; Hu, Y.; Bergmann, U.; Ribbe, M. W.; DeBeer, S. X-ray Spectroscopic Observation of an Interstitial Carbide in NiFeN-Bound FeMoco Precursor. *J. Am. Chem. Soc.* **2013**, *135*, 610–612.*
- 17) Kropp, H.; King, A. E.; Khusniyarov, M. M.; Heinemann, F. W.; Lancaster, K. M.; DeBeer, S.; Bill, E.; Meyer, K. Manganese Nitride Complexes in Oxidation States III, IV, and V: Synthesis and Electronic Structure. *J. Am. Chem. Soc.* **2012**, *134*, 15538–15544.
- 16) Lancaster, K. M.; Zaballa, M. E.; Sproules, S.; Sundararajan, M.; DeBeer, S.; Richards, J. H.; Vila, A. J.; Neese, F. N.; Gray, H. B. Outer-Sphere Contributions to the Electronic Structure of Type Zero Copper Proteins. *J. Am. Chem. Soc.* **2012**, *134*, 8241–8253.
- 15) Yao, S. A.; Lancaster, K. M.; DeBeer, S.; Berry, J. F. Characterization and Reactivity of a Selenium-Selenium Half Bond: A New Chemical Paradigm for the Chalcogens. *Chem. Eur. J.* **2012**, *18*, 9179–9183.
- 14) Potapov, A.; Lancaster, K. M.; Richards, J. H.; Gray, H. B.; Goldfarb, D. Spin Delocalization over the Type Zero Copper Site. *Inorg. Chem.* **2012**, *51*, 4066–4075.
- 13) Scarborough, C. C.; Lancaster, K. M.; DeBeer, S.; Weyhermüller, T.; Sproules, S.; Wieghardt, K. Experimental Fingerprints for Redox-Active Terpyridine in $[\text{Cr}(\text{tpy})_2](\text{PF}_6)_n$ ($n = 3-0$), and the Remarkable Electronic Structure of $[\text{Cr}(\text{tpy})_2]^{1-}$. *Inorg. Chem.* **2012**, *51*, 3718–3732.
- 12) Lancaster, K. M.; Roemelt, M.; Ettenhuber, P.; Hu, Y.; Ribbe, M. W.; Neese, F.; Bergmann, U.; DeBeer, S. X-ray Emission Spectroscopy Evidences Interstitial Carbide in Nitrogenase Iron-Molybdenum Cofactor. *Science* **2011**, *334*, 974–977.
- 11) Lancaster, K. M.; Finkelstein, K. D.; DeBeer, S. K β X-ray Emission Spectroscopy Offers Unique Chemical Bonding Insights: Revisiting the Electronic Structure of Ferrocene. *Inorg. Chem.* **2011**, *50*, 6767–6774.
- 10) El Nahhas, A.; Consani, C.; Blanco-Rodríguez, A. M.; Lancaster, K. M.; Braem, O.; Cannizzo, A.; Towrie, M.; Clark, I. P.; Zális, S.; Chergui, M.; Vlcek, A., Jr. Ultrafast Excited-State Dynamics

of Rhenium(I) Photosensitizers $[\text{Re}(\text{Cl})(\text{CO})_3(\text{N},\text{N})]$ and $[\text{Re}(\text{imidazole})(\text{CO})_3(\text{N},\text{N})]^+$: Diimine Effects. *Inorg. Chem.* **2011**, *50*, 2932–2943.

- 9) Lancaster, K. M.; Farver, O.; Wherland, S.; Crane, E. J., III; Pecht, I.; Richards, J. H.; Gray, H. B. Electron Transfer Reactivity of Type Zero *Pseudomonas aeruginosa* Azurin. *J. Am. Chem. Soc.* **2011**, *133*, 4865–4873.
- 8) Lancaster, K. M.; Sproules, S.; Palmer, J. H.; Richards, J. H.; Gray, H. B. Outer-Sphere Effects on Reduction Potentials of Copper Sites in Proteins: The Curious Case of High Potential Type 2 C112D/M121E *Pseudomonas aeruginosa* Azurin. *J. Am. Chem. Soc.* **2010**, *132*, 14590–14595.
- 7) Lancaster, K. M.; Gerken, J. B.; Durrell, A. C.; Palmer, J. H.; Gray, H. B. Electronic Structures, Photophysical Properties, and Electrochemistry of Ruthenium(II)(bpy)₂ Pyridylimidazole Complexes. *Coord. Chem. Rev.* **2010**, *254*, 1803–1811.
- 6) Lancaster, K. M.; DeBeer S.; Yokoyama, K.; Richards, J. H.; Gray, H. B. Type Zero Copper Proteins. *Nature Chem.* **2009**, *1*, 711–715.
- 5) Palmer, J. H.; Mahammed, A.; Lancaster, K. M.; Gross, Z.; Gray, H. B. Structures and Reactivity Patterns of Group 9 Metalloporphyrins. *Inorg. Chem.* **2009**, *48*, 9308–9315.
- 4) Lancaster, K. M.; Yokoyama, K.; Richards, J. H.; Winkler, J. R.; Gray, H. B. High Potential C112D/M121X (X = M, E, H, L) *Pseudomonas aeruginosa* Azurins. *Inorg. Chem.* **2009**, *48*, 1278–1280.
- 3) Davis, C.; Murphy R.; Lancaster, K. M.; Devendra G.; Crane, E. J., III. A Mechanistic Comparison of the Pyrococcal NADH Oxidase and Coenzyme A Disulfide Reductase: Two Hyperthermophilic Enzymes That Are Similar but Different. In *Flavins and Flavoproteins*; Nishino, T., Miura, R., Tanokura, M., Eds.; ArchiTECT Inc.: Tokyo, 2005.
- 2) Hummel, C.S.; Lancaster, K.M.; Crane, E. J., III Determination of Coenzyme A Levels in *Pyrococcus furiosus* and Other Archaea: Implications for a General Role of Coenzyme A in Thermophiles. *FEMS Microbiol. Lett.* **2005**, *252*, 229–234.
- 1) Harris, D. R.; Ward, D. E.; Feasel, J. T.; Lancaster, K. M.; Murphy, R. D.; Mallet, T. C.; Crane, E. J., III. Discovery and Characterization of a Coenzyme A Disulfide Reductase from *Pyrococcus horikoshii*: Implications for the Disulfide Metabolism of Anaerobic Hyperthermophiles. *FEBS J.* **2005**, *272*, 1189–1200.

Active Collaborations

Prof. Jesper Bendix – Department of Chemistry, University of Copenhagen, Denmark

Prof. John F. Berry – Department of Chemistry, University of Wisconsin – Madison

Prof. Theodore A. Betley – Department of Chemistry and Chemical Biology, Harvard University

Dr. Kenneth D. Finkelstein – Cornell High Energy Synchrotron Source, Cornell University

Prof. Jack H. Freed – Department of Chemistry and Chemical Biology, Cornell University

Prof. Roald Hoffmann – Department of Chemistry and Chemical Biology, Cornell University

Prof. Patrick L. Holland – Department of Chemistry, Yale University

Prof. Donald M. Kurtz, Jr. – Department of Chemistry, University of Texas at San Antonio

Prof. Hening Lin – Department of Chemistry and Chemical Biology, Cornell University

Prof. Shannon S. Stahl – Department of Chemistry, University of Wisconsin – Madison

Prof. Peter T. Wolczanski – Department of Chemistry and Chemical Biology, Cornell University

Prof. Alejandro J. Vila – IBR-CONICET, University of Rosario, Argentina

Funding

Current/Pending

- 1) **ACS Petroleum Research Fund Doctoral New Investigator (Awarded)**

“Chemically Targeted X-ray Spectroscopic Studies of Chromium-Catalyzed Ethylene Trimerization Reactions”

Support: \$110,000 (total, direct)
Support Period: 09/01/15–08/31/17

- 2) **National Science Foundation CAREER (Awarded)**
“SusChEM: CAREER: High-Resolution X-ray Spectroscopic Studies of Base Metal Catalysis”
Support: \$561,000 (total), \$359,260 (direct)
Support Period: 09/01/2015–08/31/2020
- 3) **Department of Energy Early Career Award (Awarded)**
“Elucidating Biological Energy Transduction from Ammonia”
Support: \$823,922 (total), \$572,322 (direct)
Support Period: 07/15/2015–07/14/2020
- 4) **Alfred P. Sloan Foundation Research Fellowship (Awarded)**
“Understanding Reactivity via Electronic Structure: Spectroscopic Studies of Transition Metal Mediated Synthetic and Enzymatic Catalysis”
Support: \$60,000 (total, direct)
Support Period: 09/15/2017–09/14/2019

Completed

- 1) **Cornell University Startup Grant**
Support: \$650,000 (total)
Support Period: 07/01/2012–06/30/2015

Teaching

Instructor, Cornell University

2012–Present

Chem 4100 – Inorganic Chemistry (Undergraduate)

FA 2012 – Enrollment: 55; Instructor Rating: 3.85/5.00; Course Rating: 3.90/5.00
SP 2014 – Enrollment 94; Instructor Rating: 3.87/5.00; Course Rating: 3.97/5.00
SP 2015 – Enrollment: 56; Instructor Rating: 4.13/5.00; Course Rating: 4.02/5.00

Chem 6050 – Advanced Inorganic Chemistry I (Graduate)

FA 2013 – Enrollment: 14, Instructor Rating: 4.50/5.00; Course Rating: 4.70/5.00
FA 2014 – Enrollment: 15, Instructor Rating: 4.17/5.00; Course Rating: 4.25/5.00
FA 2015 – Enrollment: 27, Instructor Rating: 4.55/5.00; Course Rating: 4.59/5.00

Chem 4400 – Bioinorganic Chemistry (Undergraduate/Graduate)

SP 2016 – Enrollment 13, Instructor Rating: 4.40/5.00; Course Rating: 4.60/5.00

Chem 2070 – General Chemistry I (Undergraduate)

FA 2016 – Enrollment 808, Instructor Rating: 3.47/5.00; Course Rating: 3.13/5.00

Mentoring

Current Postdoctoral Scholars

Jonathan D. Caranto (Ph.D. University of Texas at San Antonio 2013) October 2013–Present
Sudipta Chatterjee (Ph.D. IACS – Kolkata 2016) February 2017–Present

Current Graduate Students

Richard C. Walrorth (B.S. Chemistry, U. Florida; *NIH CBI Trainee*) November 2012–Present
James T. Lukens (B.S. Chemistry, Cal Poly San Luis Obispo) November 2013–Present
Meghan A. Smith (B.S. Chemistry, Creighton U.) November 2013–Present
Avery C. Vilbert (B.S. Chemical Biology, St. Joseph’s U.) November 2013–Present
Ida M. DiMucci (B.S. Chemistry, Gettysburg College) November 2015–Present
Sean H. Majer (A.B. Chemistry, Vassar College) November 2015–Present
Rachael E. Coleman (B.S. Chemistry and Mol. Biology, U. Wyoming) November 2016–Present

Current Undergraduate Students

Thomas Vecca (Cornell Chemistry 2017) May 2015–Present
Ashley Vincent (Cornell Chemistry 2017) May 2015–Present
Douglas Fellowship for Underrepresented Minority Undergraduate Summer Research, 2015
Rebecca E. Nicholson (Cornell Chemistry 2018) May 2016–Present
 Former Postdoctoral Scholars
Samantha N. MacMillan (Ph.D. MIT 2013) July 2013–July 2015
 • Currently director of the Cornell CCB X-ray Diffraction Facility.
Katharine E. Silberstein (Ph. D. Cornell University 2015) August 2015–Sept 2016
 • Currently employed at Arkema, King of Prussia PA.
 Former Graduate Students
Jacob W. H. Uebler (*NSF Graduate Research Fellow*) (M.S.) November 2013–August 2016
 • Graduated with terminal M.S.
Kaitlin E. Schrote (M.S.) May 2012–August 2015
 • Expelled for academic integrity violation.
Shannon Oseback Sitler (M.S.) March 2012–May 2013
 • Graduated with terminal M.S. Currently employed at General Electric, Saratoga Springs NY.
Thorbjørn J. Morsing (Visitor from U. Copenhagen) May 2013–August 2013
 • Currently employed at Haldor-Topsøe, Copenhagen DK.
 Former Undergraduate Students
Demetra M. Perry (B.S. *Magna Cum Laude*, Cornell Chemistry 2013) January 2013–May 2013
 • Received M.S. from Pennsylvania State University in Food Science. Presently a laboratory technician at Cornell University.
Myung K. (Mike) Jeon (B.S. *Magna Cum Laude*, Cornell Chemistry 2013) January 2013–May 2013
 • In University of Washington Ph.D. program – Materials Science.
Corey J. Kaminsky May 2013–May 2015
 (B.S. *Magna Cum Laude*, Chemistry 2015, *Hill Fellowship for Summer Undergraduate Research*)
 • In MIT Ph.D. program – Chemistry.
Haley L. Knox May 2013–May 2015
 (B.S. *Cum Laude*, Cornell Chemistry 2015, *Einborn Discovery Grant*)
 • In Pennsylvania State University Ph.D. program – Bioinorganic Chemistry.
Mackenzie Sennett (B.S., Cornell Biology 2015) July 2013–May 2015
 • Research assistant at University of Pennsylvania.
Conor Jones (B.S., Cornell Chemistry 2017) July 2015–May 2016
 • Applying to medical school.
Sean Waterton
 Cornell Chemistry 2017, *Douglas Fellowship for Underrepresented Minority Undergraduate Summer Research, 2015*
 • Currently a researcher in Schroeder Lab, Cornell.

Institutional and Outside Service

NSF Grant Review Panel February 2015
 CHESS User Executive Committee (Chair) 2015–Present
 CCB Seminar Committee 2012–Present
 • Initiated the CCB Graduate and Postdoc Seminar (GPS), organized 2014 Baker Symposium
 CCB Graduate Advising Committee 2012–Present
 CCB Graduate Admissions Committee 2012–Present
 CCB Student Awards Committee 2012–Present

Director of Cornell University Protein Facility
CCB M. Chem. Planning Committee

2013–Present
2014–Present

Oral Presentations

- 51) Invited lecture, CANBIC 6, Parry Sound, Ontario, Canada, to be presented May 2017.
- 50) Invited lecture, 254th National Meeting of the American Chemical Society, Washington DC, declined invitation.
- 49) Invited lecture, Telluride Workshop "Control of Proton and Electron Transfers in Redox Catalysis," to be presented August 2017.
- 48) Invited lecture, 5th International Conference on Nitrification, Vienna, Austria, to be presented July 2017.
- 47) Invited lecture, University of California, Davis, to be presented May 2017.
- 46) Invited lecture, University of California, Los Angeles, to be presented May 2017.
- 45) Invited lecture, University of California, Santa Barbara, to be presented May 2017.
- 44) Invited lecture, Stanford University, to be presented May 2017.
- 43) Invited lecture, California Institute of Technology, to be presented May 2017.
- 42) Invited lecture, University of California, San Diego, to be presented April 2017.
- 41) Invited lecture, University of California, Irvine, to be presented April 2017.
- 40) Invited lecture, University of Washington, to be presented April 2017.
- 39) Invited lecture, Northwestern University, to be presented April 2017.
- 38) Invited lecture, University of Minnesota, to be presented April 2017.
- 37) Invited lecture, University of Wisconsin – Madison, to be presented March 2017.
- 36) Invited lecture, University of Illinois at Urbana-Champaign, to be presented March 2017.
- 35) Invited lecture, Reed College, to be presented March 2017.
- 34) Invited lecture, Johns Hopkins University, to be presented March 2017.
- 33) Invited lecture, University of Pennsylvania, to be presented February 2017.
- 32) Invited lecture, Florida State University, February 2017.
- 31) Invited lecture, University of Florida, February 2017.
- 30) Invited lecture, Michigan State University, February 2017.
- 29) Invited lecture, University of Michigan at Ann Arbor, February 2017.
- 28) Invited lecture, Dartmouth College, February 2017.
- 27) Selected oral presentation, Metals in Biology Gordon Research Conference, January 2017.
- 26) Invited lecture, University of California, Berkeley, January 2017.
- 25) Invited lecture, *Inorganic Chemistry* "Young, Outstanding, and Upcoming" Symposium during SABIC 17, Kolkata, India, January 2017.
- 24) Invited lecture, Department of Energy Nitrogen Activation Workshop, October 2016.
- 23) Invited lecture, Department of Energy Physical Biosciences Principal Investigators Meeting, October 2016.
- 22) Silliman Lecture, Yale University, October 2016.
- 21) Invited lecture, Swarthmore College, October 2016.
- 20) Invited lecture, University of Rochester, October 2016.
- 19) Invited lecture, Columbia University, September 2016.
- 18) Invited lecture, 252nd National Meeting of the American Chemical Society, Philadelphia, August 2016.
- 18) Selected oral presentation, Metallocofactors Gordon Research Conference, June 2016.
- 17) Invited lecture, Tulane University, April 2016.
- 16) Invited lecture, University of Nevada – Reno, April 2016.

- 15) Invited lecture, 251st National Meeting of the American Chemical Society, San Diego, March 2016.
- 14) Contributed lecture, PACIFICHEM 2015, Honolulu, December 2015.
- 13) Invited lecture, Department of Chemistry, University of Copenhagen. October 2015.
- 12) Contributed lecture, 250th National Meeting of the American Chemical Society, Boston, August 2015.
- 11) Invited lecture, CANBIC 5, Parry Sound, Ontario, Canada, May 2015.
- 10) Invited lecture (2), 248th National Meeting of the American Chemical Society, San Francisco, August 2014.
- 9) Invited lecture (1), 248th National Meeting of the American Chemical Society, August 2014.
- 8) Invited tutorial, International Symposium on Advanced Spectroscopy and Theoretical Modeling of Bioinorganic Systems, Copenhagen, Denmark, June 2014.
- 7) Invited lecture, International Symposium on Advanced Spectroscopy and Theoretical Modeling of Bioinorganic Systems, Copenhagen, Denmark, June 2014.
- 6) Invited lecture, CBI Retreat, Ithaca, NY, April 2014.
- 5) Contributed lecture, 245th National Meeting of the American Chemical Society, New Orleans, April 2013.
- 4) Invited lecture, Center for Theoretical and Computational Chemistry, University of Tromsø, Tromsø, Norway, May 2012.
- 3) Invited seminar, IBR-CONICET, University of Rosario, Rosario, Argentina, April 2012
- 2) Contributed lecture, 243rd National Meeting of the American Chemical Society, San Diego, March 2012.
- 1) Invited lecture, ICBIC 15, Vancouver, British Columbia, Canada, August 2011.