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Michael T. Green

Address: University of California, Irvine, California, United States (Work)

WORK EXPERIENCE

UNIVERSITY OF CALIFORNIA, IRVINE (UCI) – IRVINE, CALIFORNIA, UNITED STATES

PROFESSOR (FULL) – 2015 – CURRENT

Dual Professorship
Department of Chemistry
Department of Molecular Biology and Biochemistry

UNIVERSITY OF CALIFORNIA, IRVINE – IRVINE, CALIFORNIA, UNITED STATES

VICE CHAIR – 2019 – 2024

Department of Molecular Biology and Biochemistry

PENNSYLVANIA STATE UNIVERSITY – UNIVERSITY PARK, PENNSYLVANIA, UNITED STATES

PROFESSOR (ASSISTANT, ASSOCIATE, FULL) – 2002 – 2015

Department of Chemistry

CALIFORNIA INSTITUTE OF TECHNOLOGY – PASADENA, CALIFORNIA, UNITED STATES

POSTDOCTORAL RESEARCHER – 1998 – 2002

National Institutes of Health Postdoctoral Fellow
Burroughs-Wellcome Postdoctoral Fellow

EDUCATION AND TRAINING

1994 – 1998 Chicago, Illinois, United States
DOCTOR OF PHILOSOPHY (CHEMISTRY) The University of Chicago

1992 – 1994 Chicago, Illinois, United States
MASTER OF SCIENCE (CHEMISTRY) The University of Chicago

1992 College Station, Texas, United States
BACHELOR OF SCIENCE (CHEMISTRY AND PHYSICS) Texas A&M University

PUBLICATIONS

62) Onderko, E.L.; Field, M.J.; Yosca, T.H.; Silakov, A; Green, M.T.* "Importance of the Ferryl Quintet State in Determining the Electronic Properties of P450 Compound I", Journal of the American Chemical Society, 2025, 147, 9147-9158.

61) Lee, H.B.; Ciolkowski, N.; Field, M.J.; Marchiori, D.A.; Britt, R.D.; Green, M.T.; Rittle, J. "In Crystallo O2 Cleavage at a Preorganized Triiron Cluster", Journal of the American Chemical Society, 2025, 147, 770-779.

60) Rutledge, H.L.; Field, M.J.; Rittle, J.; Green, M.T.; Tezcan, F.A.* "Role of Serine Coordination in the Structural and Functional Protection of the Nitrogenase P-Cluster", Journal of the American Chemical Society, 2022, 144, 22101-22112.

59) Field, M.J.; Oyala, P.H.; Green, M.T.* "O-17 Electron Nuclear Double Resonance Analysis of Compound I: Inverse Correlation between Oxygen Spin Population and Electron Donation", Journal of the American Chemical Society, 2022, 144, 19272-19283.

58) Barman, S.K.*; Yang, M.Y.; Parsell, T.H.; Green, M.T.*; Borovik, A.S.* "Semiempirical method for examining asynchronicity in metal-oxido-mediated C-H bond activation", Proceedings of the National Academy of Sciences, 2021, 118, e2108648118.

57) Ledray, A.P.; Mittra, K.; Green, M.T.* "NRVS investigation of ascorbate peroxidase compound II: Observation of Iron(IV)oxo stretching", Journal of Inorganic Biochemistry, 2021, 224, 111548.

56) Peper, J.L.; Gentry, N.E.; Brezny, A.C.; Field, M.J.; Green, M.T.; Mayer, J.M.* "Different Kinetic Reactivities of Electrons in Distinct TiO2 Nanoparticle Trap States", Physical Chemistry C, 2021, 125, 680-690.

55) Ledray, A.L.; Krest, C.M.; Yosca, T.H.; Mittra, K.; Green, M.T.* "Ascorbate Peroxidase Compound II Is an Iron(IV) Oxo Species", Journal of the American Chemical Society, 2020, 142, 20419-20425.

54) Oswald, V.F.; Lee, J.: Biswas, S.; Weitz, A.C.; Mittra, K.; Fan, R.; Li, J.; Zhao, J.; Hu, M.Y.; Alp, E.E.; Bominaar, E.L.; Guo, Y.; Green, M.T.; Hendrich, M.P.*; Borovik, A.S.* "Effects of Non-covalent Interactions on High-spin Fe(IV)–oxido Complexes", Journal of the American Chemical Society, 2020, 142, 11804-11817.

53) Miller, K.R.; Paretsky, J.D; Follmer, A.H.; Heinisch, T.; Mittra, K.; Gul, S.; Kim, I.-S.; Fuller, F.D; Batyuk, A.; Sutherlin, K.D.; Brewster, A.S.; Bhowmick, A.; Sauter, N.K; Yano, J.; Green, M.T.; Ward, T.R.; Borovik., A.S.* "Artificial Iron Proteins: Modelling the Active Sites in Non-Heme Dioxygenases." Inorganic Chemistry, 2020, 59, 6000-6009.

52) Mittra K; Green, M.T.* "Reduction Potentials of P450 Compounds I and II: Insight into the Thermodynamics of C–H Bond Activation", Journal of the American Chemical Society, 2019, 141, 5504-5510.

51) Rittle, J.; Field, M.J.; Green, M.T.; Tezcan, F.A.* "An Efficient, Step Economical Strategy for the Design of Functional Metalloproteins", Nature Chemistry, 2019, 11, 434-441.

50) Thompson, N.B.; Green, M.T.*, Peters, J.C.* "Nitrogen Fixation via a Terminal Fe(IV) Nitride", Journal of the American Chemical Society, 2017, 139, 15312-15315.

49) Zaragoza, J.P.T.; Yosca, T.H.; Siegler, M.A.; Moennne-Loccoz, P.; Green, M.T.; Goldberg, D.P.* "Direct Observation of Oxygen Rebound with an Iron-Hydroxide Complex", Journal of the American Chemical Society, 2017, 139, 13640–13643.

48) Onderko, E.L.; Silakov, A; Yosca, T.H.; Green, M.T.* "Characterization of a selenocysteine-ligated P450 compound I reveals direct link between electron donation and reactivity", Nature Chemistry, 2017, 9, 623–628.

47) Yosca, T.H.: Ledray, A.L; Ngo, J.; Green M.T.*, "A New Look at the Role of Thiolate Ligation in Cytochrome P450", Journal of Biological Inorganic Chemistry, 2017, 22, 209-220.

46) Yosca, T.H.; Langston, M.C.; Krest, C.M.; Onderko, E.L.; Grove, T.L.; Livada, J.; Green M.T.* "Spectroscopic investigations of catalase compound II: Characterization of an iron(IV)hydroxide intermediate in a non-thiolate ligated heme enzyme", Journal of the American Chemical Society, 2016, 138, 16016−16023.

45) Hill, E.A.; Weitz, A.C.; Onderko, E.L.; Romero-Rivera, A.; Guo, Y.; Swart, M.; Bominaar, E.L.; Green, M.T*; Hendrich, M.P.; Lacy, D.C.; Borovik, A.S. "Reactivity of an FeIV–Oxo Complex with Protons and Oxidants", Journal of the American Chemical Society, 2016, 138, 13143−13146.

44) Yosca, T.H.; Green M.T.* "Preparation of Compound I in P450cam: The Prototypical P450", Israel Journal of Chemistry, 2016, 56, 834-840.

43) Krest, C.M.; Silakov, A.; Rittle, J.; Yosca, T.H.; Onderko, E.L.; Calixto, J.C.; Green, M.T.* "Significantly Shorter Fe–S Bond in Cytochrome P450-I Is Consistent with Greater Reactivity Relative to Chloroperoxidase", Nature Chemistry, 2015, 7, 696−702.

42) Martinie, R.J.; Livada, J.; Chang, W.C.; Green, M.T.; Krebs, C.; Bollinger, J.M.; Silakov, A.* "Experimental Correlation of Substrate Position with Reaction Outcome in the Aliphatic Halogenase, SyrB2", Journal of the American Chemical Society, 2015, 137, 6912−6919.

41) Neu, H.M.; Yang, T.; Baglia, R.A.; Yosca, T.H.; Green, M.T.*; Quesne, M.G., de Visser, S.P.; Goldberg, D.P. "Oxygen-Atom Transfer Reactivity of Axially Ligated Mn(V)–Oxo Complexes: Evidence for Enhanced Electrophilic and Nucleophilic Pathways", Journal of the American Chemical Society, 2014, 136, 13845−13852.

40) Yosca, T.H.; Behan, R.K.; Krest, C.M.; Onderko, E.L.; Langston, M.L.; Green, M.T.* "Setting an Upper Limit on the Myoglobin Iron(IV)Hydroxide pKa: Insight into Axial Ligand Tuning in Heme Protein Catalysis", Journal of the American Chemical Society, 2014, 136, 9124−9131.

39) Silakov, A.*; Grove, T.L*; Radle, M.I.; Bauerle, M.R.; Green, M.T.; Rosenzweig, A.C. Boal, A.K.*; Booker, S.J.* "Characterization of a Cross-Linked Protein Nucleic Acid Substrate Radical in the Reaction Catalyzed by RlmN", Journal of the American Chemical Society, 2014, 136, 8221-8228.

38) Yosca, T.H.; Rittle, J.; Krest, C.M.; Onderko, E.L.; Silakov, A.; Calixto, J.C.; Behan, R.K.; Green, M.T.* "Iron(IV)hydroxide pKa and the Role of Thiolate Ligation in C-H Bond Activation by Cytochrome P450", Science, 2013, 342, 825-829.

37) Dassama, L.M.K.; Silakov, A.; Krest, CM.; Calixto, J.C; Krebs, C.*; Bollinger, J.M. Jr.*; and Green, M.T.* "A 2.8 Å Fe-Fe Separation in the Fe2III/IV Intermediate (X) from Escherichia coli Ribonucleotide Reductase", Journal of the American Chemical Society, 2013, 135, 16758-16761.

36) Krest, C.M.; Onderko, E.L.; Yosca, T.H.; Calixto, J.C.; Karp, R.F.; Livada, J.; Rittle, J.; and Green, M.T.* "Reactive Intermediates in Cytochrome P450 Catalysis", Journal of Biological Chemistry, 2013, 288, 17074-17081.

35) Grove, T.L.; Livada, J.; Green, M.T.; Booker, S.J.*; Silakov, A.*, "A Substrate Radical in Catalysis by the Antibiotic Resistance Protein Cfr", Nature Chemical Biology, 2013, 9, 422-427.

34) Dassama, L.M.K.; Yosca, T.H.; Conner, D.; Lee, M.H.; Blanc, B.; Streit, B.R.; Green, M.T.; DuBois, J.L.*; Krebs, C.*; Bollinger, J.M. Jr.* "O2-Evolving Chlorite Dismutase as a Tool for Studying O2-Utilizing Enzymes", Biochemistry, 2012, 51, 1607–1616.

33) Rittle, J.; Green, M.T.* "Cytochrome P450 Compound I: Capture, Characterization, and C-H Bond Activation Kinetics", Science, 2010, 330, 933-937.

32) Stasser, J.; Namuswe, F.; Kasper, G.D.; Jiang, Y.B.; Krest, C.M.; Green, M.T.; Penner-Hahn J.*; Goldberg, D.P.* "X-ray Absorption Spectroscopy and Reactivity of Thiolate-Ligated Fe-III-OOR Complexes", Inorganic Chemistry, 2010, 49, 9178-9190.

31) Ye, S.; Hoffart, L.M.; Price, J.C.; Barr, E.W.; Green, M.T.; Bollinger, J.M.*; Krebs, C.*; Neese, F.* "Cryoreduction of the NO-adduct of Taurine:α-Ketoglutarate Dioxygenase (TauD) Yields an Elusive {FeNO}8 Species" Journal of the American Chemical Society, 2010, 132, 4739-4751.

30) Rittle, J.; Green, M.T.* "Cytochrome P450: The Active Oxidant and Its Spectrum", Inorganic Chemistry, 2010, 49, 3610-3617.

29) Matthews, M.L.; Krest, C.M.; Barr, E.W.; Vaillancourt, F.H.; Walsh, C.T.; Green, M.T.*; Krebs, C.*; Bollinger, J.M., Jr.* "Substrate-Triggered Formation and Remarkable Stability of the C-H-Cleaving Chloroferryl Intermediate in the Aliphatic Halogenase, SyrB2", Biochemistry, 2009, 48, 4331-4343.

28) Green, M.T. "C-H bond activation in heme proteins: the role of thiolate ligation in cytochrome P450", Curr. Opin. Chem. Biol., 2009, 13, 84-88.

27) Bollinger, J. M., Jr.*; Jiang, W.*; Green, M. T.*; Krebs, C.* "The Manganese(IV)/Iron(III) Cofactor of Chlamydia trachomatis Ribonucleotide Reductase: Structure, Assembly, Radical Initiation, and Evolution" Curr. Opin. Struct. Biol., 2008, 18, 650-657.

26) Namuswe, F.; Kasper, G.D.; Narducci Sarjeant, A.A.; Hayashi T.; Krest, C.M.; Green, M.T.; Moenne-Loccoz, P.*; Goldberg, D.P.* "Rational Tuning of the Thiolate Donor in Model Complexes of Superoxide Reductase: Direct Evidence for a trans Influence in FeIII – OOR Complexes", Journal of the American Chemical Society, 2008, 130, 14189-14200.

25) Younker, J.M.; Krest, C.M.; Jiang, W.; Krebs, C.*; Bollinger, J.M., Jr.*; Green, M.T.* "Structural Analysis of the MnIV/FeIII Cofactor of Chlamydia trachomatis Ribonucleotide Reductase by Extended X-ray Absorption Fine Structure Spectroscopy and Density Functional Theory Calculations", Journal of the American Chemical Society, 2008, 130, 15022-15027.

24) Behan R.K.; Hoffart, L.M.; Stone, K.L.; Krebs, C.; Green, M.T.* "Reaction of Cytochrome P450 with Peroxynitrite Yields Nitrosyl Complex", Journal of the American Chemical Society, 2007, 129, 5855-5859.

23) Hendrich, M.T.*, Gunderson, W., Mehn, M.P., Betley, T.A., Lu, C.C., Behan, R.K., Green, M.T.*, Peters, J.C.*, On the Feasibility of N2 Fixation via a Single Site Fe(I)/Fe(IV) Cycle - Spectroscopic Studies of Fe(I)-N2-Fe(I), Fe(IV)≡N, and Related Species, Proceedings of the National Academy of Sciences, 2006, 103, 17107-17112.

22) Behan R.K.; Hoffart, L.M.; Stone, K.L.; Krebs, C.; Green, M.T.* "Evidence for Basic Ferryls in Cytochrome P450", Journal of the American Chemical Society, 2006, 128, 11471-11474.

21) Stone, K.L.; Behan R.K.; Green, M.T.* "Resonance Raman Spectroscopy of Chloroperoxidase Compound II Provides Direct Evidence for the Existence of an Iron(IV)-Hydroxide", Proceedings of the National Academy of Sciences, 2006, 103, 12307-12310.

20) Parsell, T.H.; Behan, R.K.; Green, M.T.; Hendrich, M.P.*; Borovik, A.S.* “Preparation and Properties of a Monomeric MnIV-Oxo Complex” Journal of the American Chemical Society, 2006, 128, 8728-8729.

19) Stone, K.L.; Hoffart, L.M.; Behan R.K.; Krebs, C.; Green, M.T.* “Evidence for Two Ferryl Species in Chloroperoxidase Compound II”, Journal of the American Chemical Society, 2006, 128, 6147-6153.

18) Behan, R.K.; Green, M.T.* “On the Status of Ferryl Protonation”, Journal of Inorganic Biochemistry, 2006, 100, 448-459.

17) Green, M.T.* “Application of Badger’s Rule to Heme and Non-Heme Iron-Oxygen Bonds: An Examination of Ferryl Protonation States”, Journal of the American Chemical Society, 2006, 128, 1902-1906.

16) Stone, K.L.; Behan, R.K.; Green, M.T.* “X-Ray Absorption Spectroscopy of Chloroperoxidase Compound I: Insight into the Reactive Intermediate of P450 Chemistry”, Proceedings of the National Academy of Sciences, 2005, 102, 16563-16565.

15) Krebs, C.*; Price, J.C.; Baldwin, J.; Saleh, S.; Green, M.T.*, Bollinger, J.M., Jr.*, “Rapid Freeze-Quench 57Fe-Mössbauer Spectroscopy: Monitoring Changes of an Iron-Containing Active Site during a Biochemical Reaction”, Inorganic Chemistry, 2005, 44, 742-757.

14) Green, M.T.*; Dawson, J.H.; Gray, H.B., “Oxoiron(IV) in Chloroperoxidase Compound II is Basic: Implications for P450 Chemistry”, Science 2004, 304, 1653-1656.

13) Miller, J.E.; Di Bilio, A.J.; Wehbi, W.A.; Green, M.T.; Winkler, J.R.; Gray, H.B.*, "Electron Tunneling in Rhenium-Modified Pseudomonas aeruginosa Azurins" Biochimica Biophysica Acta - Bioenergetics, 2004, 1655, 59-63.

12) Dmochowski, I.J.; Dunn, A.R.; Wilker, J.J.; Crane, B.R.; Green, M.T.; Dawson, J.H.; Sligar, S.G; Winkler, J.R.; Gray, H.B. "Ruthenium Probes of P450 Structure and Mechanism" Methods in Enzymology, 2002, 357, 120-133.

11) Green, M.T.* "The Structure and Spin Coupling of Catalase Compound I: A Study of Non-Covalent Effects" Journal of the American Chemical Society, 2001, 123, 9218-9219.

10) Southern, J.S.; Green M.T.; Hattan, P.M.; Hillhouse, G.L.*; Guzei, I.A.; Rheingold, A.L.* "Reagent-Specific Protonations of trans-Re(CO)2(NO)(PPH3)2 That Give the Neutral Nitroxyl Complex cis,trans-Re(Cl)(CO)2(NH=O)(PPH3)2 or the Cationic Hydride Complex [trans,trans-Re(H)(CO)2(NO)(PPH3)2+]-[SO3CF3-]" Inorganic Chemistry, 2001, 40, 6039-6046.

9) Green, M.T.* "Imidazole Ligated Compound I Intermediates: The Effects of Hydrogen Bonding" Journal of the American Chemical Society, 2000, 122, 9495-9499.

8) Frank, N.L.; Clerac, R.; Sutter, J.P.; Daro, N.; Kahn, O.;* Coulon, C.; Green, M.T.; Golhen, S.; Ouahab, L. "Synthesis, Crystal Structure, Magnetic, and Electron Paramagnetic Resonance Properties of a Spiroconjugated Biradical. Evidence for Spiroconjugation Exchange Pathway" Journal of the American Chemical Society, 2000, 122, 2053-2061.

7) Green, M.T.* "Evidence for Sulfur-Based Radicals in Thiolate Compound I Intermediates" Journal of the American Chemical Society, 1999, 121, 7939-7924.

6) Kozmin, S.; Green, M.T.;* Rawal, V.* "An Experimental and Theoretical Study of the Kinetics of Diels-Alder Reaction with Aminosiloxydiene" Journal of Organic Chemistry, 1999, 64, 8045-8047.

5) Green, M.T.*; McCormick, T.A. "Controlling the Singlet-Triplet Splitting in Metal Complexes of Bis(verdazyl) Diradicals: A Step Towards Magnetic Polymers" Inorganic Chemistry, 1999, 38, 3061-3065.

4) Green, M.T.* "Role of the Axial Ligand in Determining the Spin State of Resting Cytochrome P450" Journal of the American Chemical Society, 1998, 120, 10772-10773.

3) Green, M.T.; Robert, V.; Burdett, J.K.* "The Temperature-Dependence of Charge Carrier Concentrations in Low-Dimensional Metals: A Breathing Band Gap Model" Journal of Physical Chemistry B, 1997, 101, 10290-10294.

2) Peiris, S.M.; Green, M.T.; Heinz, D.L.;* Burdett, J.K.* "Experimental and Theoretical Studies of ScS under Pressure" Inorganic Chemistry, 1996, 35, 6933-6936.

1) Green, M.T.; Hughbanks, T.* "The Electronic Structure of Nitridometallates; Molecular and Extended Chain Ions" Inorganic Chemistry, 1993, 32, 5611-5615.

HONOURS AND AWARDS

National Institutes of Health, Standing Member of the MSFA Study Section (2020-2024)

International Guest Professor, Heidelberg University, Heidelberg, Germany

The objective of this program was to bring expert knowledge of renowned international academics to Heidelberg University, to increase and complement the research potential in certain fields.

Fellow, American Association for the Advancement of Science

Honored for distinguished contributions to the field of bioinorganic chemistry, particularly in the elucidation of structure function relationships critical to biological C-H bond activation.

Dillon Steele Lecturer, University of Queensland, Brisbane, Australia

Alfred P. Sloan Research Fellow

Beckman Young Investigator Award

National Science Foundation Career Award

INVITED LECTURES AT PROFESSIONAL MEETINGS

72) 9th Georgian Bay International Conference on Bioinorganic Chemistry, The Reduction Potentials of P450 Compounds I and II: Insight into the Thermodynamics of C-H Bond Activation, Parry Sound, Canada, May 2025.

71) International Conference on Porphyrins and Phthalocyanines, Electronic Relaxation Data and the Importance of Excited State Mixing in Determining the Electronic Properties of Compound I, Buffalo, NY, Summer, 2024.

70) 6th Symposium on Advanced Biological Inorganic Chemistry, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Kolkata, India 2024.

69) 23rd International Conference on Cytochrome P450, The Reduction Potentials of P450 Compounds I and II: Insight into the Thermodynamics of C-H Bond Activation, Shizuoka, Japan, September 2023.

68) 20th International Conference of Biological and Inorganic Chemistry, Electronic Relaxation Data and the Importance of Excited State Mixing in Determining the Electronic Properties of Compound I, Adelaide, Australia, July 2023.

67) 8th Georgian Bay International Conference on Bioinorganic Chemistry, The Reduction Potentials of P450 Compounds I and II: Insight into the Thermodynamics of C-H Bond Activation, Parry Sound, Canada, May 2023.

66) 2023 ACS Award for Distinguished Service in the Advancement of Inorganic Chemistry: Symposium in Honor of Alison Butler: American Chemical Society Meeting, The Reduction Potentials of P450 Compounds I and II: Insight into the Thermodynamics of C-H Bond Activation, Indianapolis, Spring 2023.

65) Asian Biological Inorganic Chemistry Conference (Keynote Lecture), Electronic Relaxation Data and the Importance of Excited State Mixing in Determining the Electronic Properties of Compound I, Kobe, Fall, 2022.

64) International Conference on Porphyrins and Phthalocyanines, Electronic Relaxation Data and the Importance of Excited State Mixing in Determining the Electronic Properties of Compound I, Madrid, Spain, Summer, 2022.

63) Seminar given to the Inorganic Biochemistry Discussion Group (IBDG) of the Royal Society of Chemistry (via Zoom), Compound II - Déjà Vu, May 2021.

62) Pacifichem 2020 (Organizer), Compound II - Déjà Vu, Honolulu, Hawaii. – Moved to December, 2021 due to COVID-19. Conference was in an online format.

61) International Conference on Porphyrins and Pthalocyanins, Compound II - Déjà Vu, Buffalo, New York, 2020. – Moved to June, 2021 due to COVID-19. Conference was in an online format. I let a student in my laboratory, Aaron Ledray, give the presentation on his thesis work/publications, since he had been unable to attending any meetings during his graduate career due to the COVID pandemic.

60) 19th International Conference of Biological and Inorganic Chemistry, Interlaken, Switzerland, 2019.

59) International Conference on Porphyrins and Pthalocyanins, Munich Germany, 2018.

58) Penn State Symposium and Summer Workshop in Bioinorganic Chemistry, special 90-minute pedagogical lecture on contributions to cytochrome P450, 2018.

57) 2nd Symposium for Young Chemists on Molecular Activation, Nagoya, 2017.

56) 20th International Conference on Cytochrome P450: Biochemistry, Biophysics and Biotechnology, Düsseldorf, Germany, August 2017.

55) 18th International Conference of Biological Inorganic Chemistry, Brazil, July 2017.

54) International Conference on Hydrogen Atom Transfer, Italy, July 2017.

53) 6th Georgian Bay International Conference on Bioinorganic Chemistry, Canada, 2017.

52) 5th Symposium on Advanced Biological Inorganic Chemistry, Cytochrome P450 Oxidations: A Controlled Burn of Inert Organic Compounds, Kolkata, India 2017.

51) 8th Asian Biological Inorganic Chemistry Conference, Cytochrome P450 Oxidations: A Controlled Burn of Inert Organic Compounds, New Zealand, 2016.

50) Southeastern Regional Meeting of the American Chemical Society, 2016, Columbia, SC.

49) Telluride Conference - Activation of Small Molecules, 2016.

48) Gordon Research Conference: Iron-Sulfur Enzymes, U.S.A., 2016.

47) Pacifichem 2015, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Honolulu, Hawaii.

46) Pacifichem 2015, Significantly Shorter Fe–S Bond in Cytochrome P450-I Is Consistent with Greater Reactivity Relative to Chloroperoxidase, Honolulu, Hawaii.

45) 5th Georgian Bay International Conference on Bioinorganic Chemistry, Understanding C-H Bond Activation in Cytochrome P450, Canada, 2015.

44) ACS Special Symposium in Honor of Jay Groves, Understanding C-H Bond Activation in Cytochrome P450, Denver, 2015.

43) RIKEN Symposium Series: "Metals in Biology", Significantly Shorter Fe–S Bond in Cytochrome P450-I Is Consistent with Greater Reactivity Relative to Chloroperoxidase, Wako, Japan, 2015.

42) 19th International Conference on Cytochrome P450, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Tokyo, 2015.

41) Gordon Research Conference: Inorganic Reaction Mechanisms, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Galveston, 2015.

40) 4th Georgian Bay International Conference on Bioinorganic Chemistry, Understanding C-H Bond Activation in Cytochrome P450, Canada, 2013.

39) The 2013 Bioinorganic Symposium, Understanding C-H Bond Activation in Cytochrome P450, University of Washington, Seattle, WA.

38) 18th International Conference of Cytochrome P450, Understanding C-H Bond Activation in Cytochrome P450, Seattle, 2013.

37) P450 Biodiversity and Biotechnology, 11th International Symposium, Understanding C-H bond activation in cytochrome P450: Determination of the Ferryl pKa and Iron(IV/III) Reduction Potential, Torino, Italy, 2012.

36) 11th European Biological Inorganic Chemistry Conference, Understanding C-H bond activation in cytochrome P450: Determination of the Ferryl pKa and Iron(IV/III) Reduction Potential, Spain, 2012.

35) International Symposium on Activation of Dioxygen and Homogenous Catalytic Oxidation, "Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450", Israel, 2012.

34) 7th International Conference on Porphyrins and Phthalocyanines, Understanding C-H Bond Activation in Heme Proteins: The Electronic Structure of P450 Compound I, South Korea, 2012.

33) 4th Trends in Enzymology, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Germany, 2012.

32) 40th Southeastern Magnetic Resonance Conference, P450 Compound I: Capture, Characterization, and C-H bond Activation, Atlanta, 2011.

31) 15th International Conference of Biological and Inorganic Chemistry, Cytochrome P450 Compound I: Capture, Characterization, and C-H Bond Activation, Vancouver, 2011.

30) 17th International Conference of Cytochrome P450, P450 Compound I: Capture, Characterization, and C-H bond Activation, Manchester, England, June, 2011.

29) 3rd Georgian Bay International Conference on Bioinorganic Chemistry, Cytochrome P450 Compound I: Capture, Characterization, and C-H Bond Activation, Canada, May, 2011.

28) Gordon Research Conference: Metals in Biology, Cytochrome P450 Compound I: Capture and Characterization, Ventura, California, February, 2011.

27) Pacifichem 2010, Cytochrome P450: The Active Oxidant and Its Spectrum, Honolulu, Hawaii, December, 2010. – Molecular Design in Bioinorganic Chemistry Section.

26) Pacifichem 2010, Structural Characterization of the Mn/Fe Cofactor of Ribonucleotide Reductase from Chlamydia trachomatis, Honolulu, Hawaii, December, 2010. Session Organizer/Chair. – Frontiers of Metalloproteins in Biology Section.

25) 6th International Conference on Porphyrins and Phthalocyanines, Cytochrome P450: The Active Oxidant and Its Spectrum, New Mexico, 2010.

24) P450 Biodiversity and Biotechnology, 10th International Symposium, Cytochrome P450 Compound I: Capture, Characterization, and C-H Bond Activation, Woods Hole, 2010.

23) 2nd Georgian Bay International Conference on Bioinorganic Chemistry, Structural Characterization of the Mn/Fe Cofactor of Ribonucleotide Reductase from Chlamydia trachomatis, Canada, May, 2009.

22) 65th Harden Conference, C-H Bond Activation in Heme Proteins, Ambleside, United Kingdom, August, 2008.

21) 38th International Conference on Coordination Chemistry - ICCC, Understanding C-H bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Jerusalem, Israel, July, 2008.

20) Okazaki Conference on Molecular Science and Chemical Biology of Biomolecular Function, Understanding C-H Bond Activation in Heme Proteins, Okazaki, Japan, November, 2007.

19) 15th International Conference of Cytochrome P450, The Role of Thiolate-Ligation in Cytochrome P450, Bled, Slovenia, Summer 2007.

18) 1st Georgian Bay International Conference on Bioinorganic Chemistry, Understanding C-H Bond Activation in Heme Proteins, Parry Sound, Ontario, Spring 2007.

17) Stanford Synchrotron Radiation Laboratory Users Meeting, The Status of Ferryl Protonation in Heme Proteins, Menlo Park, California, Fall 2006.

16) Peroxidases, Chloroperoxidase Compound II Is Protonated: Implications for P450 Chemistry, Aveiro, Portugal, July 2006. (Abstracted selected for talk.)

15) 4th International Conference on Porphyrins and Phthalocyanines, The Role of Thiolate-Ligation in Cytochrome P450, Rome, Italy, July, 2006.

14) Young Researchers Forum, European Conference of Bioinorganic Chemistry, The Role of Thiolate-Ligation in Cytochrome P450, Aveiro, Portugal, June, 2006.

13) Pacifichem 2005, The Role of Thiolate Ligation in P450s, Honolulu, Hawaii, December, 2005.

12) First European Conference on Chemistry for Life Sciences, Session Organizer/Chair, Reactive Intermediates in Cytochromes P450: Theory and Experiment, Rimini, Italy, October, 2005.

11) 14th International Conference on Cytochromes P450, Reactive Intermediates in Cytochromes P450: Theory and Experiment, Dallas, Texas, June, 2005.

10) 45th Sanibel Symposium, Sanibel, Florida, Reactive Intermediates in Cytochromes P450: Theory and Experiment, March, 2005.

9) Gordon Research Conference: Inorganic Reaction Mechanism, The Role of Thiolate-Ligation in Cytochromes P450, Ventura, California, February, 2005.

8) Gordon Research Conference: Metals in Biology, The Role of Thiolate-Ligation in Cytochrome P450, Ventura, California, January, 2005.

7) 7th European Biological Inorganic Chemistry Conference, The Role of Thiolate-Ligation in Cytochrome P450, Garmisch-Partenkirchen, Germany, August, 2004.

6) 3rd International Conference on Porphyrins and Phthalocyanines, The Role of Thiolate-Ligation in Cytochrome P450, New Orleans, July, 2004.

5) CREST International Symposium on Electron Transfer, The Role of Axial Ligands in Heme Protein Catalysis, Osaka, Japan, July, 2002.

4) 2nd International Conference on Porphyrins and Phthalocyanines, Chloroperoxidase Compound II Has a Protonated Ferryl Heme, Kyoto, Japan, July, 2002.

3) 2nd International Conference on Porphyrins and Phthalocyanines, Electronic Structure of Perferryl Intermediates: The Effects of Axial Ligands and Protein Environment, Kyoto, Japan, July, 2002.

2) 12th International Conference on Cytochrome P450, Mutual Trans-Effect in Thiolate-Ligated Ferryl Species, La Grande Motte, France, August, 2001. (Abstract selected for talk.)

1) 1999 Pacific Conference on Chemistry and Spectroscopy and the 35th ACS Western Regional Meeting, Location and Character of Thiolate Compound I Radicals, Ontario, California, October, 1999. (Abstract selected for talk.)

INVITED ACADEMIC LECTURES

71) University of California, Riverside, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Seminar given to the Department of Chemistry, Spring 2025.

70) University of Illinois, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Seminar given to the Department of Chemistry and Biochemistry, Fall 2024.

69) North Dakota State University, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Seminar given to the Department of Chemistry and Biochemistry, Fall 2024.

68) University of Utah, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Seminar given to the Department of Chemistry, 2020.

67) University of California, Davis, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Seminar given to the Department of Chemistry, 2019.

66) University of Chicago, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Seminar given to the Department of Chemistry, 2019.

65) Northwestern University, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Seminar given to the Department of Chemistry, 2018.

64) University of Texas, San Antonio, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Seminar given to the Department of Chemistry, 2018.

63) Heidelberg University, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Seminar organized by Chemische Gesellschaft zu Heidelberg, 2018.

62) Osaka University, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Seminar given to the Department of Chemistry, 2017.

61) Nagoya University, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Seminar given to the Department of Chemistry, 2017.

60) Harvard/MIT Inorganic Chemistry Seminar Series, Characterization of reactive intermediates in Cytochrome P450: Insights into biological C-H bond activation, Seminar given to the Departments of Chemistry, 2017.

59) Indian Institute of Science Research and Education, Kolkata, India, Understanding C-H Bond Activation in Cytochrome P450, Seminar given to the Institute, 2017.

58) University of Delhi, India, Understanding C-H Bond Activation in Cytochrome P450, Seminar given to the Department of Chemistry, 2017.

57) University of Kansas, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Seminar given to the Department of Chemistry, 2016.

56) University of Minnesota, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Seminar given to the Department of Chemistry, 2016.

55) Stanford University, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Seminar given to the Department of Chemistry, 2016.

54) University of California-Berkeley, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Seminar given to the Department of Chemistry, 2015.

53) University of Pittsburgh, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Seminar given to the Department of Chemistry, 2015.

52) University of Sydney, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Seminar given to the School of Chemistry, 2015.

51) University of Queensland, Brisbane, Australia, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Seminar given to the School of Chemistry and Molecular Biosciences, 2015.

50) Texas A&M University, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Seminar given to the Department of Chemistry, Spring 2015.

49) University of California, Irvine, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Seminar given to the Department of Chemistry, Spring 2015.

48) Pennsylvania State University, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Seminar given to the Department of Chemistry, Fall 2014.

47) University of South Carolina, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Seminar given to the Department of Chemistry, Fall 2014.

46) Cornell University, Capture and Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H Bond Activation, Seminar given to the Department of Chemistry, Fall 2013.

45) Merck and Co., The Role of Thiolate Ligation in Cytochrome P450 Catalysis: Insights into Biological C-H Bond Activation, Research Seminar (Biocatalysis Group), Fall, 2013.

44) Technical University of Kaiserslautern, The Characterization of Reactive Intermediates in P450 Catalysis: Insights into Biological C-H bond Activation, Biophysics Colloquium, Spring, 2013.

43) Princeton University, Understanding C-H Bond Activation in Biological Systems, Seminar given to the Department of Chemistry, Fall 2012.

42) University of Illinois, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry and Biochemistry, Spring 2012.

41) University of California, Irvine, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2012.

40) California Institute of Technology, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to Chemistry and Chemical Engineering, Spring 2012.

39) Yale University, Cytochrome P450 Compound I: Capture, Characterization, and C-H Bond Activation, Seminar given to the Department of Chemistry, Fall 2011.

38) Vanderbilt University, The Role of Thiolate Ligation in Cytochrome P450: Understanding C-H Bond Activation in Heme Proteins, Seminar given to the Department of Biochemistry, Fall 2011.

37) University of Chicago, The Role of Thiolate Ligation in Cytochrome P450: Understanding C-H Bond Activation in Heme Proteins, Seminar given to the Department of Biochemistry, Fall 2011.

36) Indiana University, The Holy Grail of Biological C-H Bond Activation: Captured and Characterized, Seminar given to the Department of Chemistry, Fall 2010.

35) Purdue University, The Holy Grail of Biological C-H Bond Activation: Captured and Characterized, Seminar given to the Department of Chemistry, Fall 2010.

34) Saint Joseph's University, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2010.

33) Marquette University, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2009.

32) Brandeis University, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2009.

31) Harvard/MIT Inorganic Chemistry Seminar Series, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Spring 2009.

30) University of Montana, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2008.

29) University of South Carolina, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Fall 2007.

28) Emory University, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2007.

27) Ohio University, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2007.

26) University of Washington, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2007.

25) University of Wisconsin, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2007.

24) Cornell University, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2007.

23) Stanford University, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2007.

22) University of California, Berkeley, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2007.

21) University of California, San Diego, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Fall 2006.

20) University of California, Irvine, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Fall 2006.

19) Johns Hopkins University, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2006.

18) University of Rochester, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2006.

17) University of Pennsylvania, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2006.

16) The University of Chicago, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2006.

15) University of Illinois at Chicago, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2006.

14) Hope College, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2006.

13) University of Kansas, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2006.

12) University of Delaware, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Chemistry, Spring 2006.

11) Medical College of Wisconsin, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Department of Biophysics, Fall 2005.

10) Max Planck Institute for Medical Research, Heidelberg, Understanding C-H Bond Activation in Heme Proteins: The Role of Thiolate Ligation in Cytochrome P450, Seminar given to the Institute, Fall 2005.

9) University of Notre Dame, Electronic Structure of Perferryl Intermediates: The Effects of Axial Ligands and Protein Environment, Seminar given to the Department of Chemistry, 2001.

8) Indiana University, Electronic Structure of Perferryl Intermediates: The Effects of Axial Ligands and Protein Environment, Seminar given to the Department of Chemistry, 2001.

7) University of Washington, Electronic Structure of Perferryl Intermediates: The Effects of Axial Ligands and Protein Environment, Seminar given to the Department of Chemistry, 2001.

6) Georgia Institute of Technology, Electronic Structure of Perferryl Intermediates: The Effects of Axial Ligands and Protein Environment, Seminar given to the Department of Chemistry, 2001.

5) University of California, Los Angeles, Electronic Structure of Perferryl Intermediates: The Effects of Axial Ligands and Protein Environment, Seminar given to the Department of Chemistry, 2001.

4) Penn State University, Electronic Structure of Perferryl Intermediates: The Effects of Axial Ligands and Protein Environment, Seminar given to the Department of Chemistry, 2001.

3) Vanderbilt University, Electronic Structure of Perferryl Intermediates: The Effects of Axial Ligands and Protein Environment, Seminar given to the Department of Chemistry, 2001.

2) University of North Carolina, Electronic Structure of Perferryl Intermediates: The Effects of Axial Ligands and Protein Environment, Seminar given to the Department of Chemistry, 2000.

1) University of Michigan, "Understanding Magnetic Band Structures", Seminar given to the Department of Chemistry, 1997.

Updated to 03.07.2025