Julia A. Kovacs

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Present Rank: Professor

Educational Background:

Institution	Degree	Dates
Michigan State University	BS	9/77-6/81
Harvard University	Ph.D.	9/81-8/86

Employment Record:

University of Washington	Professor	9/01–present
University of Washington	Associate Professor	9/94–9/01
University of Washington	Assistant Professor	9/88-9/94
University of California, Berkeley	Postdoctoral Research Associate (Robert Bergman)	9/86-8/88
Harvard University	Teaching Asst./Research Asst. (Richard H. Holm)	9/81-8/86
Ball Corporation	Summer Intern, Chemist	6/80-8/80
Michigan State University	Research Assistant (Bruce Averill)	6/78-5/80, 9/80-8/81

Professional or Governmental Service Activities

Chair of the "Metals in Biology" Gordon Research Conference (2008)
Chair of the Bioinorganic subdivision of the ACS Division of Inorganic Chemistry (2007)
Vice-Chair of the "Metals in Biology" Gordon Research Conference (2007)
Member of the organizing committee for the 15th International Conference on Biological Inorganic Chemistry (ICBIC), Vancouver, B. C. (August, 2011)
Vice-Chair–Elect for the "Metals in Biology" Gordon Research Conference (2006)
Ad Hoc Member of NIH Macromolecular Structure and Function (MSF-A) Study Section (Feb, 2005)
Organizer and Chair of the "Non–heme Iron Chemistry in Biology" symposium at the 227th ACS Meeting in Anaheim, March 2004.
Editorial Advisory Board of "Journal of Biological Inorganic Chemistry" (1/1/04–12/31/07)
Session Chair for "Nitrogenase Mimetic Chemistry" session at the "Metal Ions in Biology" Gordon Conference, Ventura, CA (Jan, 2004)
Ad Hoc Member of NIH Metallobiochemistry (BMT) Study Section (Oct, 2003)
Organizer of the first Ronald Breslow Award Symposium, held at the 225th ACS meeting in New Orleans, March 2003
Ad Hoc Member of NIH Metallobiochemistry (BMT) Study Section (Oct, 2002)

Professional or Governmental Service Activities (cont.)

Elected Councilor of the American Chemical Society's Division of Inorganic Chemistry (02–04)
Discussion Leader for the "Model Compounds and Metalloenzyme Mimics" Session at the Gordon Research Conference, Graduate Research Seminar in Bioinorganic Chemistry, January, 2000
Member of the Board of "Expert Analysts" for *ChemTracts–Inorganic Chemistry* (98– 01).
Member of the Board of Editors for *Inorganic Chemistry* (1/97- 1/00).
Member of NIH Metallobiochemistry (BMT) Study Section (10/96–9/99)
Ad Hoc Member of NIH Metallobiochemistry (BMT) Study Section (Oct, 1995).
Alternate member of Hanford Advisory Board (6/94–12/94).
American Chemical Society, Divisions of Inorganic Chemistry and Bioinorganic Chemistry.
Reviewer for ACS Journals (JACS, Science, Nature, Inorganic Chemistry, Polyhedron, Chem. Rev., J. Inorg. Biochem.)
Organizer/Moderator of 1990 Pauling Award Symposium
Member of the ACS, Inorganic Division, Nominations and Symposia Planning Committee (1991/1992)
Chairman of Inorganic Chemistry for the 47th Northwest Regional ACS Meeting in Missoula, Montana, June 17-19, 1992.

<u>Research Grants or Contracts</u>:

Present:

National Institutes of Health (4/1/06- 3/31/10) $1,297,875/4 years
(# RO1 GM45881-16)
"Structure's Influence on Reactivity in Metalloenzymes"

NIH High End Instrumentation Grant Program (4/1/07- 3/31/08) $1,040,735/1 year
(#S10 RR023065-01) Co-PI with Robinson (PI)
"Electron Paramagnetic Resonance (EPR)/Q-Band ENDOR Spectrometer"

Past:

National Institutes of Health (4/1/06- 3/31/07) $51,221/1 year
(# RO1 GM45881-15–S2)
supplement to"Structure's Influence on Reactivity in Metalloenzymes;" minority student Alokolaro

National Institutes of Health (10/1/04- 9/30/06) $63,666/2 years
(# F31 GM73583-01) (direct)
Fellowship for Priscilla Lugo-Mas "Synthetic Analogues of Cysteinate-Ligated Metalloenzymes"

National Institutes of Health (4/1/04- 3/31/06) $102,442/2 years
(# RO1 GM45881-14–S2)
supplement to"Structure's Influence on Reactivity in Metalloenzymes;" minority student Alokolaro

National Institutes of Health (10/1/03- 3/31/04) $20,813
(# RO1 GM45881-12–S1)
supplement to"Structure's Influence on Reactivity in Metalloenzymes;" minority student Lugo-Mas

National Institutes of Health (4/1/02- 3/31/06) $1,183,037/4 years
(# RO1 GM45881-14)
"Structure's Influence on Reactivity in Metalloenzymes"

National Institutes of Health (4/1/98- 3/31/02) $921,472/4 years
(# RO1 GM45881-11)
"Structure's Influence on Reactivity in Metalloenzymes"

Environmental Protection Agency
fellowship for grad student Jason Shearer (1/1/01-6/30/02) $17,000

Research Grants or Contracts (cont):

National Institutes of Health (#1 RO1 GM45881-05) "H^+ Transfer and CH_4 Formation in Metalloenzyme Models"	(6/95–6/98)	$447,044/3 years
National Institutes of Health (#1 RO1 GM45881-01A1) "Modeling the Structure and Reactivity of Ni-Hydrogenases"	(2/92–2/95)	$305,799/3 years
University of Washington GSRF	(3/89)	$10,596/1 year
Petroleum Research Fund (#22562-G5)	(3/90)	$18,000/2 years

Research publications:

53. Brines, L. M.; Villar-Acevedo, G.; Kitagawa, T.; Swartz, R. D.; Lugo-Mas, P.; Kaminsky, W.; Benedict, J. B.; and *Kovacs, J. A. "Comparison of Structurally–Related Alkoxide, Amine, and Thiolate–Ligated M^{II} (M= Fe, Co) Complexes: the Influence of Thiolates on the Properties of Biologically Relevant Metal Complexes," *Inorg. Chim. Acta*. **2008** 361, 1070-1078. (*special issue in honor of Ed Solomon*).

52. Brines, L. M.; Shearer, J.; Fender, J. K.; Schweitzer, D.; Shoner, S. C.; Barnhart, D.; Kaminsky, W.; Lovell, S.; *Kovacs, J. A. "Periodic Trends within a Series of Five Coordinate, Thiolate–Ligated $[M^{II}(S^{Me2}N_4(tren))]^+$ (M = Mn, Fe, Co, Ni, Cu, Zn) Complexes, Including a Rare Example of a Cu(II)-Thiolate" *Inorg. Chem*. **2007**, *46*, 9267-9277.

51. *Kovacs, J. A.; Brines, L. M. "Understanding How the Cysteinate Contributes to the Function of the Non–Heme Iron Enzyme Superoxide Reductase," *Acc. Chem. Res*. **2007**, *40*, 501-509.

50. Brines, L. M.; *Kovacs, J. A. "Understanding the Mechanism of Superoxide Reductase (SOR)," *Eur. J. Inorg. Chem*. **2007**, 29-38. (*invited "Microreview"*).

49. Brines, L. M.; Kaminsky, W.; Kirk, M. L.; *Kovacs, J. A. "Synthesis and Characterization of Unsupported μ-O(H) Non-Heme Ferric Dimers Isolated from Oxidation of a Water-Bound Lipoxygenase Model," manuscript in preparation.

48. Kitagawa, T.; Dey, A.; Lugo-Mas, P.; *Solomon, E. I.; *Kovacs, J. A. "A Functional Model for the Cysteinate–Ligated Non-Heme Iron Enzyme Superoxide Reductase (SOR)," *J. Am. Chem. Soc*. **2006**, *128*, 14448-14449.

47. Lugo-Mas, P.; Dey, A.; Xu, L.; Davin, S. D.; Benedict, J.; Kaminsky, W.; *Hodgson, K. O.; *Hedman, B.; *Solomon, E. I.; *Kovacs, J. A. "How Does Single Oxygen Atom Addition Affect the Properties of an Fe-Nitrile Hydratase Analogue? The Compensatory Role of the Unmodified Thiolate," *J. Am. Chem. Soc*. **2006**, *128*, 11211-11221.

46. Dey, A.; Chow, M.; Taniguchi, K.; Lugo-Mas, P.; Davin, S. D.; Maeda, M.; *Kovacs, J. A.; *Odaka, M.; *Hedman, B.; *Hodgson, K. O.; *Solomon, E. I. "S K-edge XAS and DFT Calculations on Nitrile Hydratase: Geometric and Electronic Structure of the Non-Heme Iron Active Site," *J. Am. Chem. Soc*. **2006**, *128,* 533-541.

45. Kennepohl, P.; Neese, F.; Schweitzer, D.; Jackson, H. L.; *Kovacs, J. A; *Solomon, E. I. "Spectroscopy of Non-Heme Iron Thiolate Complexes: Insight into the Electronic Structure of the Low-Spin Active Site of Nitrile Hydratase " *Inorg. Chem*. **2005**, *44*, 1826-1836.

44. Theisen, R. M.; *Kovacs, J. A. "The Role of Protons in Superoxide Reduction by a Superoxide Reductase Analogue. " *Inorg. Chem*. **2005**, *44*, 1169-1171.

Research publications: (cont.)

43. Theisen, R. M. ; Shearer, J.; Kaminsky W.; *Kovacs, J. A. "Steric and Electronic Control Over the Reactivity of a Thiolate–Ligated Fe(II) Complex with Dioxygen and Superoxide. Reversible μ-oxo Dimer Formation " *Inorg. Chem.* **2004**, *43*, 7682–7690.

42. Chohan, B. S.; Shoner, S. C.; Kovacs, J. A.; Day, R. O.; *Maroney, M. J. "Ligand Oxidations in High–Spin Nickel Thiolate Complexes and Zinc Analogues," *Inorg. Chem.* **2004**, *43*, 7726–7734.

41. Kovacs*, J. A "Synthetic Analogues of Cysteinate–Ligated Non–Heme Iron, and Non–Corrinoid Cobalt Enzymes" *Chem. Rev.* **2004**, *104*, 825-848. (*special thematic issue on Biomimetic Inorganic Chemistry*)

40. Sarah Fitch, Rose Theisen, Jason Shearer, Terry Kitagawa, *Robert Scarrow, and *Julie A. Kovacs "Understanding the Mechanism of Superoxide Reduction by the Non–Heme Iron Enzyme Superoxide Reductase (SOR) using a Synthetic Analogue Approach" *J. Inorg. Biochem*, **2003**, *96*, 23 (*Proceedings of the 11th International Conf. on Bioinorganic Chemistry*).

39. Shearer, J.; Kaminsky, W.; Kovacs,* J. A. "Chloride Contained in a Cobalt "Claw": $[Co_3^{II}(DADIT)_3](Cl)(PF_6)_2$," *Acta. Cryst., C59*, **2003**, m379-m380.

38. *Kovacs, J. A. "Dioxygen Activation by Non–Heme Fe–Enzymes"; *Science*, **2003**, *299*, 1024–1025 (invited "Perspective").

37. Shearer, J.; Fitch, S. B.; Kaminsky, W.; Scarrow, R. C.; *Kovacs, J. A. "How Does Cyanide Inhibit Superoxide Reductase? Insight from Synthetic $Fe^{III}N_4S$ Model Complexes"; *Proc. Natl. Acad. of Sci. U.S.A.*, **2003**, *100*, 3671–3676 (special feature issue on Bioinorganic Chemistry).

36. Shearer, J.; *Kovacs, J. A. "Nitrile Hydratase: An Unusual Fe–Containing Hydrolytic Enzyme," in Encyclopedia of Catalysis; I. T. Horvath, Ed.; Wiley Interscience: NY, NY, **2003**; Vol. 5; pp 289-297.

35. Shearer, J.; Scarrow, R. C.; and Kovacs*, J. A. "Models For The Non-Heme Cysteinate-Ligated Iron Enzyme Superoxide Reductase: Observation and Structural Characterization By XAS of an Fe^{III}-OOH Intermediate" " *J. Am. Chem. Soc.* **2002**, *124*, 11709–11717.

34. Shearer, S.; Lai, J.; Jacobs, D. L.; and Kovacs*, J. A. "Preparation and Properties of $[Ni^{II}(BEES)(Cl)](BPh_4)$: A Ni^{II} Complex in a Mixed Nitrogen/Thioether Coordination Environment" *Inorg. Chim. Acta.* **2002**, 336, 61-64.

33. Shearer, J.; Jackson, H. L.; Rittenberg, D.; Leavy, T.; *Scarrow, R. C.; *Kovacs, J. A. " The First Example of a Nitrile Hydratase Model Complex that Reversibly Binds Nitriles." *J. Am. Chem. Soc.* **2002**, *124*, 11417-11428.

32. Schweitzer, D.; Shearer, J.; Rittenberg, D.; Ellison, J. J.; Shoner, S. C.; Loloee, R.; Lovell, S. C.; Barnhart, D. *Kovacs, J. A. "Enhancing Reactivity via Structural Distortion," *Inorg. Chem.* **2002**, *41,* 3128–3136.

31. Shearer, J.; Jackson, H. L.; Schweitzer, D.; Leavy, T. M.; Kaminsky, W.; Scarrow, R. and *Kovacs, J. A. "Examining the Influence of Thiolate Sulfurs on the Reactvity Properties of Cysteinate-Ligated Non-Heme Iron Active Sites" *J. Inorg. Biochem*, **2001**, *86*, 64 (*Proceedings of the 10th International Conf. on Bioinorganic Chemistry*).

30. Shearer, J.; Nehring, J.; Kaminsky, W.; *Kovacs, J. A "Modeling the Reactivity Properties of Superoxide Reducing Metalloenzymes With a Nitrogen and Sulfur Coordinated Iron Complex." *Inorg. Chem.* **2001**, *40*, 5483-5484.

29. Jackson, H. L.; Shoner, S. L.; Cowen, J. A.; Lovell, S.; Barnhart, D.; *Kovacs, J. A. "Probing the Influence of Local Coordination Environment on the Properties of Fe–Type Nitrile Hydratase Model Complexes," *Inorg. Chem.*, **2001**, *40*, 1646–1653.

Research publications: (cont.)

28. Shearer, J.; Kung, I. Y.; Lovell, S.; *Kovacs, J. A. "Why is There an "Inert" Metal Center in the Active–Site of Nitrile Hydratase? Reactivity and Ligand Dissociation From a Five Coordinate Co(III) Nitrile Hydratase Model." *J. Am. Chem. Soc.* **2001**, *123,* 463–468.

27. Wang, H.; Ralston, C. Y.; Patil, D. S.; Jones, R. M.; Gu, W.; Verhagen, M.; Adams, M.; Ge, P.; Riordan, C.; Marganian, C. A.; Mascharak, P.; Kovacs, J.; Miller, C. G.; Collins, T. J.; Brooker, S.; Croucher, P. D.; Wang, K.; Stiefel, E. I.; and Cramer*, S. P. "Nickel L-Edge Soft X-ray Spectroscopy of Nickel-Iron Hydrogenases and Model Compounds-Evidence for High-Spin Nickel(II) in the Active Enzyme." *J. Am. Chem. Soc.* **2000**, *122*, 10544 - 10552.

26. Shearer, J.; Kung, I. Y.; Lovell, S.; *Kovacs, J. A. "A Co(III) Complex in a Mixed Sulfur/Nitrogen Ligand Environment: Modeling the Substrate– and Product–Bound Forms of the Metalloenzyme Thiocyanate Hydrolase." *Inorg. Chem.*, **2000**, *39*, 4998–4999.

25. Kung, I.; Schweitzer, D.; Shearer, J.; Taylor, W. D.; Jackson, H. L.; Lovell, S.; *Kovacs, J. A. "How Do Oxidized Thiolate Ligands Affect the Electronic and Reactivity Properties of a Nitrile Hydratase Model Compound?" *J. Am. Chem. Soc.* **2000**, *122*, 8299–8300.

24. Schweitzer, D.; Taylor, W.; and *Kovacs, J. A. "Synthetic Models of the Active Site of Nitrile Hydratase," *J. Inorganic Biochemistry* **1999**, *74*, 291.

23. Shoner, S. C.; Nienstedt, A.; Ellison, J. J.; Kung, I.; Barnhart, D.; *Kovacs, J. A. "Structural Comparison of Thiolate–Ligated M^{II}= Fe^{II}, Co^{II}, Ni^{II}, and Zn^{II} Ions Wrapped in a Chiral Helical Ligand," *Inorg. Chem.*, **1998**, *37*, 5721–5726.

22. *Scarrow, R. C.; Strickler, B.; Ellison, J. J.; Shoner, S. C.; *Kovacs, J. A.; Cummings, J. G.; *Nelson, M. J., "X-ray Spectroscopy of Nitric Oxide Binding to Iron in Inactive Nitrile Hydratase and a Synthetic Model Compound." *J. Am. Chem. Soc.* **1998**, *120*, 9237–9245.

21. Schweitzer, D.; Ellison, J. J.; Shoner, S. C. ; Lovell, S. ; and *Kovacs, J. A. "A Synthetic Model for the NO–Inactivated Form of Nitrile Hydratase," *J. Am. Chem. Soc.* **1998**, 120, 10996–10997**.**

20. Ellison, J. J; Nienstedt, A.; Shoner, S. C.; Barnhart, D.; Cowen, J. A.; *Kovacs, J. A. "Reactivity of Five–Coordinate Models for the Thiolate-Ligated Fe Site of Nitrile Hydratase," *J. Am. Chem. Soc* **1998**, *120*, 5691–5700.

19. Cha, M.; Sletten, J.; Critchlow, S.C.; *Kovacs, J.A., "Synthesis and Structure of a Thiolate-Ligated Ni Cluster Which Contains an Unusual Thiolate Bridging Mode and an Exposed Ni Site." *Inorg. Chim. Acta.*, **1997**, *263*, 153–159.

18. Shoner, S.; Humphreys, K. J.; Barnhart, D.; *Kovacs, J.A., "A Model for the Interaction of Alcohol with the Zinc Thiolate Site of Alcohol Dehydrogenase," *Inorg. Chem.* **1995**, *34*, 5933-5934.

17. *Kovacs, J. A.; Shoner, S. C.; Ellison, J. J., "Metal-Carbon Bonds in Nature," *Science* **1995**, *270*, 587-588.

16. Shoner, S.; Barnhart, D.; *Kovacs, J.A., "A Model for the Low-Spin, Non-Heme, Thiolate-Ligated Fe Site of Nitrile Hydratase," *Inorg. Chem.* **1995**, *34*, 4517-4518.

15. Sletten, J.; Kovacs, J.A., "The Structure of a Toroidal, Neutral, Homoleptic Ni(II)-Complex with a Chelate Dithiolate Ligand, $Ni_6(SCH_2CH_2CH_2S)_6$" *Acta. Chem. Scand.* **1994**, *48*, 929-932.

14. Shoner, S. C.; Olmstead, M.; Kovacs, J.A. "Synthesis and Structure of a Water Soluble Five-Coordinate Nickel Alkyl Thiolate Complex," *Inorg. Chem.*, **1994,** *33*, 7-8.

Research publications: (cont.)

13. "Understanding the Role of Ni in Ni-containing Enzymes," J. A. Kovacs Advances in Inorganic Biochem; G.L. Eichhorn and L.G. Marzilli, Eds.; Prentice-Hall: Englewood Cliffs, NJ, **1993**; vol. 9; Chapter 5, pp. 173-201.
12. Cha, M.; Critchlow, S.C.; Gatlin, C.L.; Kovacs, J.A., "Probing the Influence of Local Coordination Environment on Ligand Binding in Ni Hydrogenase Model Complexes" *Inorg. Chem.,* **1993**, *32*, 5868-5877.
11. Cha, M.; Shoner, S. C.; Kovacs, J.A., "Nickel-Promoted Reductive C-S Bond Cleavage: A Reactivity Model for the First Step in the Reaction Promoted by Methyl Coenzyme M Reductase," *Inorg. Chem.*, **1993**, *32*, 1860-1863.
10. Sletten, J.; Kovacs, J.A. "Structure of trans-[dichloro bis(triphenylphosphine)Nickel(II)]. $2CH_2Cl_2$," *J. Crystallographic and Spectroscopic Research*, **1993**, *23*, 239-241.
9. Lindahl, P.A.; Kovacs, J.A. "Reactivities and Biological Functions of Iron-Sulfur Clusters," *J. Cluster Sci.*, **1990**, *1*, 29-73.
8. Kovacs, J. A.; Bergman, R. G., "Synthesis and Reactivity of the First Structurally Characterized Heterobimetallic Complex Containing an Unsupported Sulfur Atom Bridge," *J. Am. Chem. Soc.* **1989**, 111, 1131-1133.
7. Kovacs, J. A.; Bashkin, J. K.; Holm, R. H. "$[Fe_2S_2(CO)_6]^{2-}$ as a Cluster Precursor: Synthesis and Structure of $[MoFe_3S_6(CO)_6]^{2-}$ and Oxidative Decarbonylation to a Persulfide-Bridged $MoFe_3S_4$ Double Cubane," *Polyhedron* **1987**, *6*, 1145-1156.
6. Carney, M. J.; Kovacs, J. A.; Zhang, Y.-P.; Papaefthymiou, G. C.; Spartalian, K.; Frankel, R. B.; Holm, R. H., "Comparative Electronic Properties of Vanadium-Iron-Sulfur and Molybdenum Iron-Sulfur Clusters Containing Isoelectronic Cubane Type $[VFe_3S_4]^{2+}$ and $[MoFe_3S_4]^{3+}$ Cores," *Inorg. Chem.* **1987**, *26*, 719-724.
5. Kovacs, J. A., Holm, R. H., "Structural Chemistry of Vanadium-Iron-Sulfur Clusters Containing the Cubane-Type $[VFe_3S_4]^{2+}$ Core," *Inorg. Chem.* **1987**, 26, 711-718.
4. Kovacs, J. A.; Holm, R. H., "Heterometallic Clusters: Synthesis and Reactions of Vanadium-Iron-Sulfur Single- and Double-Cubane Clusters, and the Structure of $[V_2Fe_6S_8Cl_4(C_2H_4S_2)_2]^{4-}$," *Inorg. Chem.* **1987**, *26*, 702-711.
3. Kovacs, J. A.; Holm, R. H., "Assembly of Vanadium-Iron-Sulfur Cubane Clusters from Mononuclear and Linear Trinuclear Reactants," *J. Am. Chem. Soc.* **1986**, *108*, 340-341.
2. Bose, K. S.; Lamberty, P. E.; Kovacs, J. A.; Sinn, E.; Averill, B. A., "Synthesis of a New Class of Mo-Fe-S Clusters Containing the MoS_2Fe_2 Unit," Polyhedron **1986**, *5*, 393-398.
1. Kovacs, J. A.; Bashkin, J. K.; Holm, R. H., "Persulfide-Bridged Iron- Molybdenum-Sulfur Clusters of Biological Relevance: Two Synthetic Routes and the Structures of Intermediate and Product Clusters," *J. Am. Chem. Soc.* **1985**, *107*, 1784-1786.

Invited Lectures:

"International Symposium on Advanced Science and Biotechnology 2008", Osaka, Japan, March 22-23, 2008
"Dioxygen Activation by Metalloenzymes and Models" symposium in Nagoya, Japan, March 19-21, 2008
Tohoku University, Sendai, Japan, March 18, 2008
University of Oregon, February 22, 2008
National Taiwan University, December 17, 2007
International Chemical Conference in Taipei, Dec. 14-16, 2007
UC San Diego, November 9, 2007
Johns Hopkins, October 16, 2007
UC Santa Barbara, May 23, 2007

Invited Lectures: (cont.)

Texas A & M, April 11, 2007
University of New Mexico, Dec. 1, 2006
University of Nevada, November 17, 2006
University of Michigan, November 14, 2006
Michigan State U., Dean George Leroi symposium, Oct. 6, 2006
University of Rochester, September 18, 2006
University of Minnesota, March 2, 2006
University of Arkansas, February 13, 2006
University of Nebraska, January 17, 2006
"Dioxygen Activation Chemistry of Metalloenzymes and Models" symposium at the International Chemical Congress of Pacific Basin Societies meeting, Hawaii, (December, 2005).
UC Berkeley, November 4, 2005
Columbia University, October 20, 2005
Wayne State University, September 22, 2005
12th International Conference on Biological Inorganic Chemistry (ICBIC), Ann Arbor, Michigan (August, 2005)
Western Washington University, May 6 2005
Metal Ions in Biology Gordon Research Conference, January 2005
Purdue University, November 9, 2004
University of California at Davis, October 21, 2004
Inorganic Gordon Conference, July 18, 2004
"Metalloenzymes" symposium at the Joint Regional Meeting of the Northwest and Rocky Mountain Sections of the American Chemical Society, Logan, Utah (June 7, 2004)
"Non–heme Iron Chemistry in Biology" symposium at the 227th American Chemical Society Meeting in Anaheim, March 2004.
Stanford, February 10, 2004
Cal Tech, February 9, 2004
Montana State, November 7, 2003
MIT/Harvard, September 24, 2003
Brandeis, September 23, 2003
11th International Conference on Biological Inorganic Chemistry (ICBIC), Cairns, Australia (July, 2003)
University of Kansas, May 2, 2003
Michigan State University, March 13, 2003
"Women in Inorganic Chemistry" Symposium at the 223rd National Meeting of the American Chemical Society, Orlando (April, 2002)
10th International Conferenence on Bioinorganic Chemistry (ICBIC), Florence, Italy (August, 2001)
University of Wisconsin, March 2001
Metal Ions in Biology Gordon Conference, January, 2001
"Bioinspired Catalysis" Symposium at the 218th American Chemical Society Meeting, New Orleans, August, 1999.
University of California, Santa Cruz, March, 1998
University of Illinois, Sept 18, 1997
"International Conference on the Molecular Biology of Hydrogenases," France (July 1997; declined due to childcare)
Inorganic Gordon Conference, July 21, 1996
Metal Ions in Medicine Symposium at the International Chemical Congress of Pacific Basin Societies, Hawaii, December, 1995
University of California, Berkeley, September, 1995
Nexstar Corporation, Boulder, Colorado, June, 1995
Reed College, March 9, 1995
University of British Columbia, October, 1993

Invited Lectures: (cont.)
University of Minnesota, May 11, 1993
Indiana University, May 6, 1993
Michigan State University, May 4, 1993
University of Michigan, May 3, 1993
University of South Carolina, April 16, 1993
Emory University, April 15, 1993
University of Georgia, April 14, 1993
Georgia Tech, April 13, 1993
University of Massachusetts, Amherst, February 22, 1993
Johns Hopkins University, February 19, 1993
Harvard, February 18, 1993
Yale University, February 16, 1993
Washington State University, September 21, 1992
Inorganic Gordon Conference, July 27, 1992
Oregon Graduate Center, March 13, 1992
Los Alamos National Laboratory, Los Alamos, New Mexico, June 1991.
Third International Conference on Molecular Biology of Hydrogenases, Portugal, July, 1991
Pacific Conference on Chemistry and Spectroscopy; Bioinorganic Symposium, October, 1988.