University of Utah
315 South 1400 East
Salt Lake City, UT 84112-0850

Fax No. 801 581 8433
Telephone No. 801 585 0774
E-mail: sigman@chem.utah.edu

CURRICULUM VITAE

MATTHEW S. SIGMAN

EDUCATION:

1992	**B.S.**, Chemistry, Sonoma State University, California
1996	**Ph.D.**, Organometallic Chemistry, Washington State University **Thesis Advisor:** Professor Bruce E. Eaton **Title:** "Catalytic iron mediated [4 + 1] cycloadditions of allenyl substrates with carbon monoxide. Mechanism and scope of catalytic cobalt mediated cyclotrimerization of alkynes in aqueous media."

PROFESSIONAL EXPERIENCE:

2008-present	Professor of Chemistry, University of Utah
2004 – 2008	Associate Professor of Chemistry, University of Utah
1999 – 2004	Assistant Professor of Chemistry, University of Utah
1996 – 1999	Postdoctoral Research Associate, Harvard University **Mentor:** Professor Eric N. Jacobsen **Research Area:** Enantioselective Strecker reactions.
1994 – 1995	NeXstar Predoctoral Fellow, NeXstar Pharmaceuticals, Boulder, CO
1992 – 1996	Graduate Student, Washington State University
1991	Undergraduate Research Fellow, Utah State University **Mentor**: Professor Michael E. Wright **Research Area:** Synthesis of ferrocene derived NLO-polymers.

HONORS AND AWARDS:

2010	Arthur C. Cope Scholar Award
2009	Robert W. Parry Teaching Award
2009-present	Member, Editorial Board, *Journal of Organic Chemistry*
2008	University of Utah Distinguished Honors Professor
2004	Pfizer Award for Creativity in Organic Chemistry
2004	Camille and Henry Dreyfus Teacher Scholar Award
2002	National Science Foundation CAREER Award
2000	Research Innovation Award (Research Corporation)
1997 – 1999	National Institutes of Health Postdoctoral Fellowship

PUBLICATIONS (**indicates corresponding author*, *[§]undergraduate coworker*):

62. Urkalan, K. B.; Sigman, M. S.* "Palladium-Catalyzed Hydroalkylation of Styrenes with Organozinc Reagents to Form Carbon-Carbon sp^3-sp^3 Bonds under Oxidative Conditions," *submitted*.
61. Jensen, K. H.; Pathak, T. P.; Zhang, Y.; Sigman, M. S.* "Palladium-Catalyzed Enantioselective Addition of Two Distinct Nucleophiles across Alkenes Capable of Quinone Methide Formation," *submitted*.
60. Anderson, B. J.; Sigman, M. S.* "Mechanistic Study of a Direct O_2-Coupled Wacker Oxidation: the Role of Water in the Absence of Cu Salts," *submitted*.
59. Sigman, M. S.*; Miller, J. J. "Examination of the Role of Taft-Type Steric Parameters in Asymmetric Catalysis," *J. Org. Chem. (featured article)*, **2009**, *74*, 7633-7643.
58. Gligorich, K. M.; Sigman, M. S.* "Recent advancements and challenges of palladium(II)-catalyzed oxidation reactions with molecular oxygen as the sole oxidant," *Chem. Comm.(featured article),* **2009**, 3854-3867.
57. Gligorich, K. M.; Iwai, Y.; Cummings, S. A.; Sigman, M. S.* "A new approach to carbon-carbon bond formation: Development of aerobic Pd-catalyzed reductive coupling reactions of organometallic reagents and styrenes," *Tetrahedron* **2009**, *65*, 5074-5083.

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Salt Lake City, UT 84112-0850

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Telephone No. 801 585 0774
E-mail: sigman@chem.utah.edu

56. Michel, B. M.; Camelio, A. M. [§]; Cornell, C. N.; Sigman, M. S.* "A General and Efficient Catalyst System for a Wacker-Type Oxidation Using TBHP as the Terminal Oxidant: Application to Classically Challenging Substrates," *J. Am. Chem. Soc.***2009**, *1311*, 6076-6077.
55. Urkalan, K. B.; Sigman, M. S.* "Palladium-Catalyzed Oxidative Intermolecular Difunctionalization of Terminal Alkenes using Organostannanes and Molecular Oxygen," *Angew. Chem. Int. Ed.* **2009**, *48*,3146-3149.
54. Miller, J. J.; Rajaram, S.; Pfaffenroth, C.[§]; Sigman, M. S.* "Synthesis of Amine Functionalized Oxazolines with Applications in Asymmetric Catalysis," *Tetrahedron.* **2009**, *65*, 3110-3119.
53. Jensen, K. H.; Sigman, M. S.* "Mechanistic Approaches to Palladium-Catalyzed Alkene Difunctionalization Reactions," *Org. Biomol. Chem.* **2008**, *8*, 4083-4088.
52. Iwai, Y.; Gligorich, K. M.; Sigman, M. S.* "Aerobic Alcohol Oxidation Coupled Palladium-Catalyzed Alkene Hydroarylation with Boronic Esters," *Angew. Chem. Int. Ed.* **2008**, *47*, 3219-3222.
51. Miller, J. J.; Sigman, M. S.* "Quantitatively Correlating the Effect of Sterics in Asymmetric Catalysis using Linear Free Energy Relationships," *Angew. Chem. Int. Ed.* **2008**, *47*, 771-774.
50. Gligorich, K. M.; Cummings, S. A.; Sigman, M. S.* "Palladium-Catalyzed Reductive Coupling of Styrenes and Organostannanes under Aerobic Conditions," *J. Am. Chem. Soc.* **2007**, *129*, 14193-14195.
49. Podhajsky, S. M.; Sigman, M. S.* "Coupling a Pd-Catalyzed Alcohol Oxidation to Olefin Functionalization: Hydrohalogenation/Hydroalkoxylation of Styrenes," *Organometallics* **2007**, *26*, 5680-5686.
48. Jensen, K. H.; Sigman, M. S.* "Systematically Probing the Effect of Catalyst Acidity in a Hydrogen Bond Catalyzed Enantioselective Reaction," *Angew. Chem. Int. Ed.* **2007**, *46*, 4748-4750*;* Science & Technology Concentrate in *Chem & Eng. News* **2007**, *85 (21)*, 31; Editors' Choice in *Science* **2007**, *316*, 1257.
47. Zhang, Y.; Sigman, M. S.* "Palladium(II)-Catalyzed Enantioselective Aerobic Dialkoxylation of 2-Propenyl Phenols: A Pronounced Effect of Copper Additives on Enantioselectivity," *J. Am. Chem. Soc.* **2007**, *129*, 3076-3077.
46. Miller, J. J.; Sigman, M. S.* "Design and Synthesis of Modular Oxazoline Ligands for the Enantioselective Chromium-Catalyzed Addition of Allyl Bromide to Ketones," *J. Am. Chem. Soc.* **2007**, *129*, 2752-2753.
45. Cornell, C. N.; Sigman, M. S.* "Recent Progress in Wacker Oxidations: Moving Toward Molecular Oxygen as the Sole Oxidant," *Inorg. Chem.* **2007**, *46*, 1903-1909.
44. Zhang, Y.; Sigman, M. S.* "Development of a General Pd(II)-Catalyzed Intermolecular Hydroalkoxylation Reaction of Vinylphenols by Using a Sacrificial Alcohol as the Hydride Source," *Org. Lett.* **2006**, *8*, 5557-5560.
43. Cornell, C. N.; Sigman, M. S.* "Discovery of a Practical Direct O_2-Coupled Wacker Oxidation using Pd[(-)-Sparteine]Cl_2," *Org. Lett.* **2006**, *8*, 4117-4120.
42. Schultz, M. J.; Sigman, M. S.* "Recent Advances in Homogeneous Transition Metal-Catalyzed Aerobic Alcohol Oxidations," *Tetrahedron* **2006**, *62*, 8227-8241.
41. Gligorich, K. M.; Sigman, M. S.* "Mechanistic Questions about the Reaction of Molecular Oxygen with Palladium in Oxidase Catalysis," *Angew. Chem. Int. Ed.* **2006**, *45*, 6612-6615.
40. Dible, B. R.; Sigman, M. S.* "Steric Effects in the Aerobic Oxidation of π-Allylnickel(II) Complexes with N-Heterocyclic Carbenes," *Inorg. Chem.* **2006**, *45*, 8430-8441.
39. Balija, A. M.; Stowers, K. J. [§]; Schultz, M. J.; Sigman, M. S.* "Pd(II)-Catalyzed Conversion of Styrene Derivatives to Acetals: Impact of (-)-Sparteine on Regioselectivity," *Org. Lett.* **2006**, *8*, 1121-1124.
38. Gligorich, K. M.; Schultz, M. J.; Sigman, M. S.* "Palladium(II)-Catalyzed Aerobic Hydroalkoxylation of Styrenes Containing a Phenol," *J. Am. Chem. Soc.* **2006**, *128*, 2794-2795.
37. Schultz, M. J.; Sigman, M. S.* "Palladium(II)-Catalyzed Aerobic Dialkoxylation of Styrenes: A Profound Influence of an *ortho*-Phenol," *J. Am. Chem. Soc.* **2006**, *128*, 1460-1461.
36. Sigman, M. S.*; Jensen, D. R. "Ligand-Modulated Palladium-Catalyzed Aerobic Alcohol Oxidations," *Acc. Chem. Res.* **2006,** *39*, 221-229.

University of Utah
315 South 1400 East
Salt Lake City, UT 84112-0850

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Telephone No. 801 585 0774
E-mail: sigman@chem.utah.edu

35. Cornell, C. N.; Sigman, M. S.* "O_2 Binding and Activation: Oxidation Catalysis" In *Activation of Small Molecules: Organometallic and Bioinorganic Perspectives*; W. B. Tollman Ed., Wiley-VCH: Weinheim, 2006; pp 159-185 (book chapter).
34. Schultz, M. J.; Sigman, M. S.* "Metal-Mediated and Catalyzed Oxidations Using *N*-Heterocyclic Carbene Ligands" In *N-Heterocyclic Carbene Ligands in Catalysis;* S. P. Nolan Ed., Wiley-VCH: Weinheim, 2006; pp 103-117 (book chapter).
33. Rajaram, S.; Sigman, M. S.* "Design of Hydrogen Bond Catalysts Based on a Modular Oxazoline Template: Application to an Enantioselective Hetero Diels-Alder Reaction," *Org. Lett.* **2005**, *7*, 5473-5475; Editors' Choice in *Science* **2005**, *310*, 1247.
32. Mueller J. A.; Cowell, A.[§]; Chandler, B. D.*; Sigman, M. S.* "On the Origin of Pd[(–)-sparteine]Cl_2 Catalyzed Chiral Alcohol Oxidation: Kinetic Enhancement to Catalyst Enantioselectivity," *J. Am. Chem. Soc.* **2005**, *127*, 14817-14824.
31. Lee, J.-Y.; Miller, J. J.; Hamilton, S. S.[§]; Sigman, M. S.* "Stereochemical Diversity in Chiral Ligand Design: Discovery and Optimization of Catalysts for the Enantioselective Addition of Allylic Halides to Aldehydes," *Org. Lett.* **2005**, *7*, 1837-1839.
30. Schultz, M. J.; Adler, R. S.; Zierkiewicz, W.; Privalov, T.*; Sigman, M. S.* "Using Mechanistic and Computational Studies to Explain Ligand Effects in the Palladium-Catalyzed Aerobic Oxidation of Alcohols," *J. Am. Chem. Soc.* **2005**, *127*, 8499-8507.
29. Dible, B. R.; Sigman, M. S.*; Arif, A. M. "Rapid Aerobic Oxidation of a Planar bis-μ-Chloronickel(I) Dimer Featuring an NHC Ligand," *Inorg. Chem.* **2005**, *44*, 3774-3776.
28. Cornell, C. N.; Sigman, M. S.* "Discovery of and Mechanistic Insight into a Ligand-Modulated Palladium Catalyzed Wacker Oxidation of Styrenes using TBHP," *J. Am. Chem. Soc.* **2005**, *127*, 2796-2797.
27. Mercer, G. J.; Sturdy, M.[§]; Jensen, D. R.; Sigman, M. S.* "Intermolecular Reductive Coupling of Hindered *N*-aryl imines Towards the Modular Synthesis of Chiral N-Heterocyclic Carbenes," *Tetrahedron* **2005**, *61*, 6418-6424.
26. Schultz, M. J.; Hamilton, S. S.[§]; Jensen, D. R.; Sigman, M. S.* "Development and Comparison of Substrate Scope of Pd-Catalysts for the Aerobic Oxidation of Alcohols," *J. Org. Chem.* **2005,** *70*, 3343-3352.
25. Sigman, M. S.*; Schultz, M. J. "The Renaissance of Palladium(II)-Catalyzed Oxidation Chemistry," *Org. Biomol. Chem.* **2004**, *2*, 2551-2554.
24. Mueller, J. A.; Goller, C. P. [§]; Sigman, M. S.* "Elucidating the Significance of β-Hydride Elimination and the Dynamic Role of Acid/Base Chemistry in a Palladium-Catalyzed Aerobic Oxidation of Alcohols," *J. Am. Chem. Soc*. **2004**,*126*, 9724-9734.
23. Jensen, D. R.; Schultz, M. J.; Mueller, J. A.; Sigman, M. S.***** "A Well-Defined Complex for Palladium-Catalyzed Aerobic Oxidation of Alcohols: Design, Synthesis, and Mechanistic Considerations," *Angew. Chem. Int. Ed.* **2003**, *42*, 3810-3813.
22. Mandal, S. K.; Sigman, M. S.* "Palladium-Catalyzed Aerobic Oxidative Kinetic Resolution of Alcohols Using an Achiral Exogenous Base," *J. Org. Chem*, **2003**, *68*, 7535-7537.
21. Mandal, S. K.; Jensen, D. R.; Pugsley, J. S.[§]; Sigman, M. S.***** "Scope of Enantioselective Palladium(II)-Catalyzed Aerobic Alcohol Oxidations Using (-)-Sparteine," *J. Org. Chem.* **2003**, *68*, 4600-4603.
20. Mueller, J. A.; Sigman, M. S.***** "Mechanistic Investigations of the Palladium-Catalyzed Aerobic Oxidative Kinetic Resolution of Secondary Alcohols Using (-)-Sparteine," *J. Am. Chem. Soc.* **2003**, *125*, 7005-7013.
19. Mercer, G. J.; Sigman, M. S.***** "Diastereoselective Synthesis of Piperazines by Manganese-Mediated Reductive Cyclization," *Org. Lett.* **2003**, *5*, 1591-1594.
18. Jensen, D. R.; Sigman, M. S.***** "Palladium-Catalysts for Aerobic Oxidative Kinetic Resolution of Secondary Alcohols Based on Mechanistic Insight," *Org. Lett.* **2003**, *5*, 63-65.
17. Dible, B. R.; Sigman, M. S.***** "Unusual Reactivity of Molecular Oxygen with π-Allylnickel(N-Heterocyclic Carbene) Chloride Complexes," *J. Am. Chem. Soc.* **2003,** *125*, 872-873; Editors' Choice in *Science* **2003**, *299*, 313.

University of Utah
315 South 1400 East
Salt Lake City, UT 84112-0850

Fax No. 801 581 8433
Telephone No. 801 585 0774
E-mail: sigman@chem.utah.edu

16. Schultz, M. J.; Park, C. C.[§]; Sigman, M. S.***** "A Convenient Pd-Catalyzed Aerobic Oxidation of Alcohols at Room Temperature," *Chem. Commun.* **2002**, 3034-3035.
15. Sigman, M. S.[*]; Jensen, D. R.; Rajaram, S. "Enantioselective Oxidations Using Molecular Oxygen," *Curr. Opin. Drug Discovery & Development,* **2002**, *5*, 860-869 (invited contribution).
14. Rajaram, S.; Sigman, M. S.[*] "Modular Synthesis of Amine-Functionalized Oxazolines," *Org. Lett.* **2002**, *4*, 3399-3401.
13. Mueller, J. A.; Jensen, D. R.; Sigman, M. S.***** "Dual Role of (-)-Sparteine in the Palladium-Catalyzed Aerobic Oxidative Kinetic Resolution of Secondary Alcohols," *J. Am. Chem. Soc.* **2002**, *124*, 8202-8203.
12. Jensen, D. R.; Pugsley, J. S.[§]; Sigman, M. S.***** "Palladium-Catalyzed Enantioselective Oxidations of Alcohols Using Molecular Oxygen," *J. Am. Chem. Soc.* **2001**, *123*, 7475-7476; Science Concentrate in *Chem & Eng. News* **2001**, *79 (21)*, 40; Highlighted in Chemtracts by Kenneth M Nicholas *Chemtracts* **2001**, *14*, 654-658.
11. Sigman, M. S.; Vachal, P.; Jacobsen E. N.***** "A General Catalyst for the Asymmetric Strecker Reaction," *Angew. Chem. Int. Ed.* **2000**, *39*, 1279-1281.
10. Sigman, M. S.; Jacobsen, E. N.***** "Enantioselective Addition of Hydrogen Cyanide to Imines Catalyzed by a (salen)-Al Complex," *J. Am. Chem. Soc.* **1998**, *120*, 5315-5316.
9. Sigman, M. S.; Fatland, A. W.; Eaton, B. E.***** "Cobalt-Catalyzed Cyclotrimerization of Alkynes in Aqueous Solution," *J. Am. Chem. Soc.* **1998**, *120*, 5130-5131.
8. Sigman, M. S.; Jacobsen, E. N.***** "Schiff Base Catalysts for the Asymmetric Strecker Reaction Identified and Optimized by Parallel Synthetic Libraries," *J. Am. Chem. Soc.* **1998**, *120*, 4901-4902.
7. Sigman, M. S.; Eaton, B. E.***** "Iron Carbonyl Mediated [4 + 1] Cycloaddition of Diallenes and Carbon Monoxide," *J. Am. Chem. Soc.* **1996**, *118* , 11783-11788.
6. Sigman, M. S.; Eaton, B. E.*****; Heise, J. D.; Kubiak, C. P.***** "Low Temperature Study of the Catalytic Iron Mediated [4 + 1] Cyclization of Allenyl Ketones with Carbon Monoxide," *Organometallics*, **1996**, *15*, 2829-2832.
5. Netzel, T. L.*****; Zhao, M.; Kambiz N. K.; Headrick, J.; Sigman, M. S.; Eaton, B. E.***** "Photophysics of 2'-Deoxyuridine (dU) Nucleosides Covalently Substituted With Either 1-Pyrenyl or 1-Pyrenoyl: Direct Evidence for Pyrene-to-Nucleoside Charge-Transfer Emission in 5-(1-Pyrenyl)-dU,**"** *J. Am. Chem. Soc.* **1995**, *117*, 9119-9128.
4. Sigman, M. S.; Eaton, B. E.***** "The First Iron-Mediated Catalytic Carbon-Nitrogen Bond Formation: [4 + 1] Cycloaddition of Allenyl Imines and Carbon Monoxide," *J. Org. Chem*. **1994**, *59*, 7488-7491.
3. Sigman, M. S.; Eaton, B. E.***** "Addition of Primary Amines to Conjugated Allenyl Aldehydes and Ketones," *Tetrahedron Lett.* **1993**, *34*, 5367-5368.
2. Sigman, M. S.; Kerr, C. E.; Eaton, B. E.***** "Catalytic Iron-Mediated Carbon-Oxygen and Carbon-Carbon Bond Formation in [4 + 1] Assembly of Alkylidenebutenolides," *J. Am. Chem. Soc.* **1993**, *115*, 7545-7546.
1. Wright, M. E.*****; Sigman, M. S. "Organometallic Nonlinear Optical Polymers. 3. Copolymerization of Bridged Bis(ferrocenyl) and Bis(cyanoacetate) Monomers Via the Knoevenagel Condensation," *Macromolecules* **1992**, *25*, 6055-6058.

PATENTS AND PENDING APPLICATIONS:

7. Sigman, M. S. et. al "Diarylmethines and Use Thereof," Provisional Patent Appl. No. SN 61/143,321.
6. Sigman, M. S.; Gligorich, K. M. "Alkene Hydrofunctionalization Reactions," US Patent No 2009069580.
5. Jacobsen, E. N.; Sigman, M. S. "Parallel Combinatorial Approach to the Discovery and Optimization of Catalysts." U. S. Patent No 6,709,824.
4. Jacobsen, E. N.; Sigman, M. S. "Parallel Combinatorial Approach to the Discovery and Optimization of Catalysts." U. S. Patent No 6,316,616.

University of Utah
315 South 1400 East
Salt Lake City, UT 84112-0850

Fax No. 801 581 8433
Telephone No. 801 585 0774
E-mail: sigman@chem.utah.edu

3. Jacobsen, E. N.; Sigman, M. S. "Main-Group Metal Based Asymmetric Catalysis and Applications Thereof." U. S. Patent No. 6,521,561.
2. Eaton, B. E.; Sigman, M. S. "Method for the Cyclotrimerization of Alkynes in Aqueous Solutions." U. S. Patent No. 5,659,069.
1. Eaton, B. E.; Sigman, M. S. "Method for the Cyclotrimerization of Alkynes in Aqueous Solutions." U. S. Patent No. 5,760,266

PROFESSIONAL ACTIVITIES

- ***Invited Research Seminars***

93. Natural Products Gordon Conference, July 2011.
92. Uppsala, Sweden October 2010.
91. Boston ACS, Cope Scholar Presentation, August 2010.
90. Stereochemistry Gordon Conference, August 2010.
89. University of Illinois, Chicago, February 23, 2010.
88. Gonzaga University, November 13th, 2009.
87. Sonoma State University, November 9th, 2009.
86. Queens University, October 30th, 2009.
85. University of Pennsylvania, October 12th, 2009.
84. Matteson Symposium, Washington State University, October 3rd, 2009.
83. Pfizer Global Process Symposium, Groton, CN, "Metal-Catalyzed Oxidations for Organic Synthesis," June 17th, 2009.
82. University of Rochester, "Metal-Catalyzed Oxidations for Organic Synthesis," May 8th, 2009.
81. California State University at Fullerton, "Metal-Catalyzed Oxidations for Organic Synthesis," November 13th, 2008.
80. Pfizer, St. Louis, "Metal-Catalyzed Oxidations for Organic Synthesis," November 3rd, 2008.
79. Yale University, "Metal-Catalyzed Oxidations for Organic Synthesis," October 29th, 2008.
78. BASF Symposium, Germany, "Metal-Catalyzed Oxidations for Organic Synthesis," Oct 4th-8th, 2008.
77. Symposium on C-C bond forming reactions in green chemistry, Austin, TX, July 11-12, 2008.
76. California Institute of Technology, "Metal-Catalyzed Oxidations for Organic Synthesis," March 2008
75. University of California at Irvine, "Metal-Catalyzed Oxidations for Organic Synthesis," March 2007
74. University of Pennsylvania (Student Seminar Series), "Metal-Catalyzed Oxidations for Organic Synthesis," February 2008
73. Indiana University, "Mechanistic Approaches to Catalyst Development," January 2008
72. Vanderbilt University, "Metal-Catalyzed Oxidations for Organic Synthesis," December 2007
71. Indiana University, "Metal-Catalyzed Oxidations for Organic Synthesis," November 2007
70. Symposium on Oxidation Catalysis Using Oxygen, "Metal-Catalyzed Oxidations for Organic Synthesis," Stuttgart, Germany, October 2007
69. Montana State University, "Metal-Catalyzed Oxidations for Organic Synthesis," September 2007
68. Emory University, "Metal-Catalyzed Oxidations for Organic Synthesis," May 2007
67. UC. San Diego, "Metal-Catalyzed Oxidations for Organic Synthesis," May 2007
66. University of Montana, "Metal-Catalyzed Oxidations for Organic Synthesis," April 2007
65. Willamette College, "Metal-Catalyzed Oxidations for Organic Synthesis," March 2007
64. Scripps Research Institute, "Metal-Catalyzed Oxidations for Organic Synthesis," January 2007
63. Gilead Pharmaceuticals, San Francisco, "Metal-Catalyzed Oxidations for Organic Synthesis," September 2006.
62. University of Houston, "Metal-Catalyzed Oxidations for Organic Synthesis," September 2006
61. Transatlantic Trends in Chemistry, New Hampshire, "Metal-Catalyzed Oxidations for Organic Synthesis," August 2006.

University of Utah
315 South 1400 East
Salt Lake City, UT 84112-0850

Fax No. 801 581 8433
Telephone No. 801 585 0774
E-mail: sigman@chem.utah.edu

60. Aldrich Organic Synthesis Symposium, Milwaukee, WI "Metal-Catalyzed Oxidations for Organic Synthesis," June 2006.
59. University of Kansas, Lawrence, "Metal-Catalyzed Oxidations for Organic Synthesis," May 2006.
58. University of Michigan, Ann Arbor, "Metal-Catalyzed Oxidations for Organic Synthesis," April 2006.
57. University of Wisconsin, Madison, "Metal-Catalyzed Oxidations for Organic Synthesis," April 2006
56. Merck Inc., "Metal-Catalyzed Oxidations for Organic Synthesis," January 2006.
55. University of Oregon, "Metal-Catalyzed Oxidations for Organic Synthesis," December 2005.
54. Oregon State University, "Metal-Catalyzed Oxidations for Organic Synthesis," December 2005.
53. Trinity University, "Metal-Catalyzed Oxidations for Organic Synthesis," October 2005.
52. University of Toronto, "Metal-Catalyzed Oxidations for Organic Synthesis," November 2005.
51. University of California at Santa Barbara, "Metal-Catalyzed Oxidations for Organic Synthesis," August 2005.
50. Amgen Pharmaceuticals, "Metal-Catalyzed Oxidations for Organic Synthesis," August 2005.
49. International Symposium Activation of Dioxygen and Homogeneous Catalytic Oxidation, University of Cologne, Germany, July 25-29, 2005.
48. 39th National Organic Chemistry Symposium, "Metal-Catalyzed Oxidations for Organic Synthesis," Salt Lake City, UT. June 2005.
47. Stanford University, "Metal-Catalyzed Oxidation Reactions For Organic Synthesis," May 2005.
46. Santa Clara University, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," May 2005.
45. University of New Orleans, "Palladium-Catalyzed Oxidations for Organic Chemistry," April 2005.
44. Inorganic Reaction Mechanisms Gordon Conference, "Mechanistic Considerations in Palladium-Catalyzed Aerobic Alcohol Oxidation Reactions," February 2005.
43. University of Illinois, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," January 2005.
42. Columbia University, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," October 2004.
41. University of California at Berkeley, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," September 2004.
40. Cornell University, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," September 2004.
39. Abbott Pharmaceuticals, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," September 2004.
38. American Chemical Society Meeting, Philadelphia 2004, Symposium on the Use of N-Heterocyclic Carbene Ligands in Catalysis (Steven Nolan, Organizer).
37. 11th Symposium on the Latest Trends in Organic Synthesis, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," Ontario, Canada, August 11-14, 2004 (Tomas Hudlicky, Organizer).
36. Heterocyclic Chemistry Gordon Research Conference, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," July 2004 (Duane Burnett, Organizer).
35. The University of Texas Southwestern Medical Center at Dallas, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," May 18, 2004.
34. University of Washington, Seattle, Washington, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," May 11, 2004.
33. American Chemical Society Meeting, Anaheim, CA James Flack Norris award symposium honoring Professor Dale Poulter (Robert Coates, Organizer) "Physical Organic Chemistry as a Tool Catalyst Design and Development," March 2004.
32. American Chemical Society Meeting, Anaheim, CA, Symposium on Mechanistic Studies of Asymmetric Catalytic Reactions (Patrick Walsh, Organizer) "Enantioselective Aerobic Oxidations," March 2004.
31. Pfizer Pharmaceuticals, Groton, CN, "Aerobic Oxidations in Organic Synthesis," December 4, 2003.
30. Brigham Young University, Provo, Utah, "Aerobic Oxidations in Organic Synthesis," December 1, 2003.
29. University of Chicago, Chicago, Illinois, "Aerobic Oxidations in Organic Synthesis," November 14, 2003.

University of Utah
315 South 1400 East
Salt Lake City, UT 84112-0850

Fax No. 801 581 8433
Telephone No. 801 585 0774
E-mail: sigman@chem.utah.edu

28. Northwestern University, Chicago, Illinois, "Aerobic Oxidations in Organic Synthesis," November 13, 2003.
27. University of Norte Dame, South Bend, Indiana, "Aerobic Oxidations in Organic Synthesis," November 12, 2003.
26. Colorado State University, Fort Collins, Colorado, "Aerobic Oxidations in Organic Synthesis," November 4, 2003.
25. University of Colorado, Boulder, Colorado, "Aerobic Oxidations in Organic Synthesis," November 3, 2003.
24. Princeton University, "Aerobic Oxidations in Organic Synthesis," October 30, 2003.
23. University of Delaware, "Aerobic Oxidations in Organic Synthesis," October 29, 2003.
22. University of Texas at Austin, "Aerobic Oxidations of Alcohols in Organic Synthesis," October 24, 2003.
21. Texas A&M, College Station, "Aerobic Oxidations of Alcohols in Organic Synthesis," TX, October 23, 2003.
20. Eli Lilly, Indianapolis, "Aerobic Oxidations of Alcohols in Organic Synthesis," IN, August 15, 2003.
19. National Science Foundation Workshop on Natural Product Synthesis, Monterrey, CA, "Aerobic Oxidations of Alcohols in Organic Synthesis," July 10-14, 2003.
18. Pennsylvania State University, State College, PA, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," May 2003.
17. University of Pittsburgh, Pittsburgh, PA, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," May 2003.
16. Ohio State University, Columbus, OH, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," May 2003.
15. Boston College, Boston, MA, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," April 2003.
14. University of Pennsylvania, Philadelphia, PA, "Aerobic Oxidations in Organic Synthesis," April 2003.
13. Bristol-Myers Squibb, Princeton site, NJ, "Enantioselective Aerobic Oxidations of Alcohols," March 2003.
12. University of North Carolina, Chapel Hill, NC, "Aerobic Oxidation in Organic Synthesis," February 2003.
11. North Carolina State University, Raleigh, NC, "Aerobic Oxidation in Organic Synthesis," February 2003.
10. Los Alamos National Labs, New Mexico, "Metal-Catalyzed Aerobic Oxidations in Organic Synthesis," December 2002.
9. Bristol-Myers Squibb, Wallingford site, CN, "Enantioselective Aerobic Oxidations of Alcohols," November 2002.
8. Bristol-Myers Squibb, New Brunswick site, NJ, "Enantioselective Aerobic Oxidations of Alcohols," November 2002.
7. University of Alberta, "Enantioselective Aerobic Oxidations of Alcohols," October 2002.
6. Stereochemistry Gordon Research Conference, Rhode Island, "Catalytic Enantioselective Oxidations using Molecular Oxygen," June 2002.
5. Boise State University, ID "Aerobic Oxidations of Alcohols in Organic Synthesis," December 2001.
4. Boston University, Boston, MA, "Aerobic Oxidations of Alcohols in Organic Synthesis," November 2001.
3. ACS Northwest Regional Meeting, Organometallic Colloquium, Seattle, WA, "Palladium-Catalyzed Enantioselective Oxidations of Alcohols Using Molecular Oxygen," June 2001.
2. ASI Applied Systems 4th International Users Meeting, Annapolis, MD, "Catalytic Asymmetric Strecker Reaction," June 1998.
1. NeXstar Pharmaceuticals, Boulder, CO, "Two Approaches to the Discovery and Optimization of Catalysts for the Asymmetric Hydrocyanation of Imines," November 1997.

University of Utah
315 South 1400 East
Salt Lake City, UT 84112-0850

Fax No. 801 581 8433
Telephone No. 801 585 0774
E-mail: sigman@chem.utah.edu