

## Sharon J. Nieter Burgmayer

Department of Chemistry  
Bryn Mawr College  
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### Education

Ph.D. in Inorganic Chemistry	University of North Carolina at Chapel Hill	1984
B.S. in Chemistry and French magna cum laude	Heidelberg College, Tiffin, Ohio	1979

### Professional Appointments

Acting Chairman, Department of Chemistry	Bryn Mawr College Bryn Mawr, Pennsylvania	2002-2003
Professor of Chemistry	Bryn Mawr College Bryn Mawr, Pennsylvania	2000-present
Visiting Professor Department of Chemistry	University of Arizona Tucson, Arizona	1999-2000
Chairman, Department of Chemistry	Bryn Mawr College Bryn Mawr, Pennsylvania	1994-1999
Associate Professor of Chemistry	Bryn Mawr College Bryn Mawr, Pennsylvania	1992-present
Assistant Professor of Chemistry	Bryn Mawr College Bryn Mawr, Pennsylvania	1986-1992
Postdoctoral Research Chemist	Exxon Research & Engineering Company Corporate Research Laboratories Clinton, New Jersey	1984-1986

## Research Grant Awards

Mellon Tri-co Program, co-proposer, <i>In support of "Tri-co Bioinorganic Community" (TBIC)</i>	2011-2012	\$2300
	2010-2011	\$1500
	2009-2010	\$1500
ACS Petroleum Research Fund <i>In support of "Frontier in Metal Dithiolenes" symposium</i>	2008	\$3600
National Institutes of Health <i>"Molybdenum Pterin-Dithiolene Complexes for model Studies of the Catalytic Site "</i>	2007-2011 (incl. 1 yr extension)	\$210,867
National Institutes of Health <i>"Study of Improved Model Complexes for Molybdoenzyme Active Sites"</i>	2000-2003	\$98,417
National Science Foundation <i>"Studies of Model Compounds for the Active Site of DMSO Reductase"</i>	1999-2001	\$82,686
Bryn Mawr College Faculty Research Grant <i>"Purchase of a Research Microscope"</i>	1995-1996	\$2350
Research Corporation <i>"Studies of Model Compounds for the Metal Sites in Pterin-Dependent Metalloenzymes"</i>	1992-1994	\$13,000
National Institutes of Health <i>"Models for Metalloenzymes having Pterin Cofactors"</i>	1990-1992	\$120,113
Pew Science Program (with Dr. Lynn Francesconi, U. of Penn.) <i>"Ligand Design Applied to Technecium Radiopharmaceutical Development"</i>	1990-1991	\$10,000
Pew Science Program (with Dr. Thomas Spiro, Princeton University) <i>"Resonance Raman Studies on Molybdenum Dithiolene Model Complexes"</i>	1989-1990	\$8,000
Exxon Education Foundation <i>"Models for Molybdenum Enzymes"</i>	1987-1988	\$15,000
Exxon Research & Engineering Company <i>"Syntheses of Copper(II) Pteridines"</i>	1987	\$2,500
<b>Grant in Support of New Course Development</b>		
Sponsored by the Center for Science in Society and the Center for Visual Culture	2002-2003	\$10,000

**Research Journal Articles** (\* denotes undergraduate researchers).

1. "Pteridine Cleavage Facilitates DNA Cleavage"  
Benjamin Williams, Shannon Dalton, Allison Shatz\*, Susie Kim\*, Meredith Skiba\*, Patrick Carroll, Sharon J. Nieter Burgmayer  
(manuscript to be submitted in May 2011 to *Inorganic Chemistry*)
2. "A Study of Mo(4+)Quinoxalyl-Dithiolenes as Models for the Non-Innocent Pyranopterin in the Molybdenum Cofactor"  
Kelly G. Matz, Rebecca Rothstein\*, Regina P. Mtei, Sharon J. Nieter Burgmayer, Martin L. Kirk  
*Inorganic Chemistry - Invited contribution* (under review)
3. "Pterin Chemistry and its Relationship to the Molybdenum Cofactor"  
Partha Basu and Sharon J. Nieter Burgmayer, *Coordination Chemistry Reviews*  
*Invited contribution* (in press)
4. "Noninnocent Dithiolene Ligands: A New Oxomolybdenum Complex Possessing a Donor-Acceptor Dithiolene Ligand"  
Kelly G. Matz, Belinda Leung\*, Regina P.Mtei, Sharon J. Nieter Burgmayer, Martin L. Kirk  
*Journal of the American Chemical Society* **2010**, 132, 7830-7831.
5. "DNA Binding by Ru(II)-bis(bipyridine)-Pteridinyl Complexes"  
Shannon Dalton, Samantha Glazier, Belinda Leung\*, Sanda Win\*, Sharon J. Nieter Burgmayer  
*Journal of Biological Inorganic Chemistry*, **2008**, 13, 1133-1148.
6. "Synthesis, Characterization, and Spectroscopy of Model Molybdopterin Complexes"  
Sharon J. Nieter Burgmayer, Mary Kim\*, Rebecca Petit\*, Amy Rothkopf\*, Alison Kim\*, Shadia BelHamdounia\*, Ying Hou\*, Arpad Somogyi, Diana Habel-Rodriguez, Antonio Williams, Martin L. Kirk, *Invited paper, Journal of Inorganic Biochemistry*, **2007**, 101, 1601-1616.
7. "Redox Reactions of the Pyranopterin System of the Molybdenum Cofactor"  
Sharon J. Nieter Burgmayer, Dori L. Pearsall, Shannon Blaney\*, Eva Moore\*, Calies Sauk-Schubert\*  
*Journal of Biological Inorganic Chemistry*, **2004**, 9, 59.
8. "Molybdenum-Pterin Chemistry Part 1. The Five Electron Oxidation of an Oxo-Molybdenum-Dithiolate Complex of Reduced Pterin Coupled to DMSO Reduction"  
Heather Layton Kaufmann, Louise Liabile-Sands, Arnold L. Rheingold, Sharon J. Nieter Burgmayer.  
*Inorganic Chemistry* **1999**, 38, 2592.
9. "Molybdenum-Pterin Chemistry Part 2. A Reinvestigation of Molybdenum-Flavin Chemistry"  
Heather Layton Kaufmann, Patrick J. Carroll, Sharon J. Nieter Burgmayer.  
*Inorganic Chemistry* **1999**, 38, 2600.
10. "Molybdenum-Pterin Chemistry Part 3. X-Ray Photoelectron Spectroscopy of Molybdenum-Pterin Complexes. A Solution to the Oxidation State Assignment Problem"  
Sharon J. Nieter Burgmayer, Heather L. Kaufmann, G. Fortunato, Paul Hug, Berthold Fischer.  
*Inorganic Chemistry* **1999**, 38, 2607.

11. "Use of a Titanium Metallocene as a Colorimetric Indicator for Learning Inert Atmosphere Techniques"  
Sharon J. Nieter Burgmayer  
*Journal of Chemical Education* **1998**, 75, 460.
12. "Tetrahydropterin Reactions of Dioxo-Molybdenum(6+) Complexes. Does Redox Occur?"  
Sharon J. Nieter Burgmayer, Michelle R. Arkin\*, Laura Bostick\*, Sara Dempster\*, Kristin Everett\*,  
Heather Layton, Kateri Paul, \* Cory Rogge\*.  
*Journal of the American Chemical Society* **1995**, 117, 5812.
13. "Oxidation of Molybdenum Dithiolene Complexes Yields Thiophene Analogues of Urothione and  
Molybdopterin Form B"  
Cheryl L. Soricelli, Veronika A. Szalai\*, Sharon J. Nieter Burgmayer.  
*Journal of the American Chemical Society* **1991**, 113, 9877.
14. "Preparations and Properties of Transition Metal Pterin Complexes. Models for the Metal Site in  
Phenylalanine Hydroxylase" Joanna Perkinson, \* Sharon Brodie\*, Keum Yoon\*, Karoline Mosny\*,  
Patrick J. Carroll, T. Vance Morgan, Sharon J. Nieter Burgmayer. *Inorganic Chemistry* **1991**, 30, 719.
15. "Resonance Raman Signatures of Oxomolybdenum Thiolate and Dithiolene Models of Molybdenum  
Proteins"  
Prem Subramanian, Sharon J. Nieter Burgmayer, Sarah Richards\*, Veronika Szalai, \*  
Thomas G. Spiro.  
*Inorganic Chemistry* **1990**, 29, 3849.
16. "A Model Reaction for the Mo(VI) Reduction by Molybdopterin"  
Sharon J. Nieter Burgmayer, Amy Baruch\*, Karen Kerr\*, Keum Yoon\*.  
*Journal of the American Chemical Society* **1989**, 111, 4982.
17. "Transition-Metal Pteridines. Preparation and Characterization of Cobalt Pteridines"  
Sharon J. Nieter Burgmayer, Edward I. Stiefel.  
*Inorganic Chemistry* **1988**, 27, 4059.
18. "Reactions of Molybdate with Dithiothreitol. The Structure of [TEA]<sub>2</sub>[Mo<sub>2</sub>O<sub>5</sub>(L-dithiothreitolate)]"  
Sharon J. Nieter Burgmayer, Edward I. Stiefel.  
*Inorganic Chemistry* **1988**, 27, 2518.
19. "Protein Nitrogen Coordination to the FeMo Center of Nitrogenase from *Clostridium Pasteurianum*"  
H. Thomann, T. V. Morgan, H. Jin, S. J. N. Burgmayer, R. E. Bare and E. I. Stiefel.  
*Journal of the American Chemical Society* **1987**, 109, 7913.
20. "Electron Spin Echo Studies on Nitrogenase FeMo Protein and on the Iron Molybdenum Cofactor"  
H. Thomann, T. V. Morgan, H. Jin, S. J. N. Burgmayer, C. L. Coyle and E. I. Stiefel  
*Recueil des Travaux Chimiques des Pays-Bas* **1987**, 106, 311.
21. "Synthesis and Structure of the First Molybdenum-Pterin Complex"  
Sharon J. Nieter Burgmayer, Edward I. Stiefel.  
*Journal of the American Chemical Society* **1986**, 108, 8310.

22. "Molybdenum Enzymes, Cofactors and Model Systems"  
Sharon J. Nieter Burgmayer, Edward I. Stiefel.  
*Journal of Chemical Education* **1985**, 62, 943.
23. "Unusual Ligand Formation in CS<sub>2</sub> Chemistry: Synthesis, Structure and Reactivity of Mo<sub>2</sub>(S<sub>2</sub>CNEt<sub>2</sub>)<sub>3</sub>(μ<sup>2</sup>-CSC(S)S)(μ<sup>2</sup>-S<sub>3</sub>C<sub>2</sub>NEt<sub>2</sub>)"  
Sharon J. Nieter Burgmayer, J. L. Templeton.  
*Inorganic Chemistry* **1985**, 24, 3939.
24. "Synthesis and Structure of a Seven-Coordinate Molybdenum Carbonyl Fluoride Derivative"  
Sharon J. Nieter Burgmayer, J.L. Templeton. *Inorganic Chemistry* **1985**, 24, 2224.
25. "Simple Syntheses of Tungsten Vinylidenes and Carbynes from Terminal Alkyne Reagents"  
K. R. Birdwhistell, S. J. Nieter-Burgmayer, J. L. Templeton.  
*Journal of the American Chemical Society* **1983**, 105, 7789.
26. "Synthesis, Structure and Spectral Properties of Mo(RCCR')L<sub>2</sub>X<sub>2</sub> Complexes"  
P. B. Winston, S.J. Nieter-Burgmayer, J. L. Templeton.  
*Organometallics* **1983**, 2, 167.
27. "Synthesis and Structure of Molybdenum Dimer Illustrating dπ Orbital Participation in Donation, Acceptance and Metal-Metal Bond Formation"  
R. S. Herrick, S. J. Nieter-Burgmayer, J. L. Templeton.  
*Journal of the American Chemical Society* **1983**, 105, 2599.
28. "Chemical, Spectral and Structural Features of Mo(RCCR)<sub>2</sub>(S<sub>2</sub>CNC<sub>4</sub>H<sub>4</sub>)<sub>2</sub> Complexes Containing the Electronically Unique Pyrrole-N-carbodithioate Ligand"  
R. S. Herrick, S. J. Nieter-Burgmayer, J. L. Templeton.  
*Inorganic Chemistry* **1983**, 22, 3275.
29. "Frontier Orbital Control of Ligand Addition to Mo(CO)<sub>2</sub>(S<sub>2</sub>CNEt<sub>2</sub>)<sub>2</sub>"  
J. L. Templeton, S. J. Nieter-Burgmayer.  
*Organometallics* **1982**, 1, 1007.

## Invited Book Chapters and Series Contributions

1. " Dithiolenes in Biology "  
Sharon J. Nieter Burgmayer, in Progress in Inorganic Chemistry, Vol. 52, Stiefel, E. I., Ed.; Wiley, N. Y., **2004**.
2. "Molybdenum Enzymes/Models"  
Sharon J. Nieter Burgmayer in Encyclopedia of Catalysis, Horvath, I. T., Ed.; Wiley & Sons, NY, **2002**.
3. "Models for the Pyranopterin-Containing Molybdenum and Tungsten Cofactors"

Berthold Fischer and Sharon J. Nieter Burgmayer in Metal Ions in Biological Systems, Vol. 39, Sigel, A. and Sigel H., Eds.; Marcel Dekker, N. Y., **2002**, pp 265-305.

4. "Electron Transfer Reactions in Transition Metal Pterin Complexes"  
Sharon J. Nieter Burgmayer, in Bioinorganic Chemistry of the Less Common Transition Metals, Structure and Bonding Vol. 92, Clarke, M. J., Ed., Springer: Heidelberg, **1998**, pp 67-120.
5. "Molybdenum Complexes of Reduced Pterins"  
Sharon J. Nieter Burgmayer, Kristin Everett, Laura Bostick in Molybdenum Enzymes, Cofactors and Models, Stiefel, E. I., Coucouvanis, D., Newton, W., Eds.; American Chemical Society Symposium Series; A.C.S.: Washington D.C., **1993**, 114.

## Invited Book Reviews

1. "Transition Metal Sulfur Chemistry: Biological and Industrial Significance." Eds. Stiefel, E. I.; Matsumoto, K. ACS; Washington, 1996. Reviewed in, *J. Amer. Chem. Soc.* **1998**, 120, 614.

## Presentations with Abstracts

1. "Pterin Dithiolene as Non-Innocent Ligands"  
Sharon J. Nieter Burgmayer, Kelly Ginion Matz, Martin Kirk, Regina Mtei.  
Gordon Research Conference "Metals in Biology", Ventura, CA, January 2011
2. "The Three Ring Circus of Pterins"  
Sharon J. Nieter Burgmayer, Kelly Ginion, Tanya Michelle Corder\*, Rebecca Petit\*, Amy Rothkopf\*  
Gordon Research Conference "Molybdenum and Tungsten Enzymes", Lucca, Italy, July 2009.
3. "Pterin-Dithiolene Complexes of Molybdenum as Models for Moco"  
Sharon J. Nieter Burgmayer, ACS Nat'l Conference Conference, Philadelphia, August 2008
4. "Pterin Dithiolene Chemistry and Hydroxyl Havoc"  
Sharon J. Nieter Burgmayer, Kelly Ginion, Tanya Michelle Corder\*, Rebecca Petit\*, Amy Rothkopf\*  
Gordon Research Conference "Metals in Biology", Ventura, January, 2008
3. "Making Pterin Dithiolene Ligands on Molybdenum"  
Sharon J. Nieter Burgmayer, Kelly Ginion, Tanya Michelle Corder\*, Rebecca Petit\*, Amy Rothkopf\*  
Gordon Research Conference "Molybdenum and Tungsten Enzymes", Salve Regina, N.H. July 2007.
4. "Mulling Over Molybdopterin "  
Sharon J. Nieter Burgmayer, Mica Grantham, Alison Kim, Mary Kim, Eleni Kardaras,  
Shadia BelHamdounia, Sruti Bhaumik, Candi Greeman  
Gordon Research Conference "Metals in Biology", Ventura, January, 2005
5. "Intercalation of DNA by Ruthenium(II) Pteridinyl Complexes"

- Shannon R. Dalton, Samantha Glazier, Alanna Albano, Courtney Megatulski, Sharon J. Nieter Burgmayer  
International Conference on Bioinorganic Chemistry Ann Arbor, Michigan July 2005
6. "Piecing Together the Molybdopterin Puzzle"  
Sharon J. Nieter Burgmayer, Mica Grantham, Alison Kim, Ying Hou, Grace Shin, Ria Sankar  
Gordon Research Conference "Molybdenum and Tungsten Enzymes", Oxford Univ., UK, July 2005.
  7. "Molybdenum Tris-Dithiolene Compounds with Unusual Magnetic Properties"  
Sharon J. Nieter Burgmayer, Laura Rose Snyder, Angelina Lucento  
36<sup>th</sup> international Conference on Coordination Chemistry, Merida Mexico, July 2004.
  8. "Hyper-Paramagnetic Mo-tris-dithiolenes"  
Sharon J. Nieter Burgmayer, Laura Rose Snyder, Angelina Lucento  
NSF Workshop in Inorganic Chemistry, Sedona AZ, June 2004
  9. "Molybdenum Dithiolenes: Mo(+4) Complexes Related to Mo-co?"  
Sharon J. Nieter Burgmayer\*, Laura Snyder, Janet Lee, Laura Picraux, Cheryl Soricelli  
Gordon Research Conference "Molybdenum and Tungsten Enzymes", Salve Regina, N.H. 2003.
  10. "Investigation of DNA Binding Interactions with Ru-pteridinyll Complexes"  
Sharon J. Nieter Burgmayer\*, Lindsay Alaishuski, Samantha Glazier, Courtney Megatulski  
Gordon Research Conference "Metals in Biology", Ventura, January, 2003
  11. "Building the Cofactor Ligand of the Mo and W Enzymes"  
Gordon Research Conference "Environmental Bioinorganic Chemistry", NH, June, 2002
  12. "Molybdenum Dithiolene Model Chemistry", Sharon J. Nieter Burgmayer, *invited speaker*,  
Gordon Research Conference "Molybdenum and Tungsten Enzymes", Oxford Univ., UK, July 2001.
  13. "Embellished Molybdenum Dithiolenes: Spectroscopy, Reactivity, Electrochemistry"  
Sharon J. Nieter Burgmayer\*, Susan Ashton, Lindsay Alaishuski, Wendy Belliston, Anne Braun,  
Whitney Drake, Jennifer Malone, Francine Morris, Jeanne Moody, Ria Sankar, Akino Yamashita  
Gordon Research Conference "Metals in Biology", Ventura, January, 2001
  14. "Reaction Chemistry of Molybdenum Coordinated by Pterin- and Quinoxaline-Dithiolene Ligands"  
Sharon J. Nieter Burgmayer\*, Susan Ashton, Wendy Belliston, Anne Braun, Whitney Drake, Jennifer  
Malone, Francine Morris, Jennifer Pectol  
Gordon Research Conference "Metals in Biology", Ventura, January, 2000
  15. "Redox Reactions of the Pyranopterins System of the Molybdenum Cofactor"  
Sharon J. Nieter Burgmayer\*, Dori L. Pearsall, Eva M. Moore, Shannon M. Blaney, Whitney Drake,  
Calies Sauk-Schubert,  
Gordon Research Conference "Molybdenum and Tungsten Enzymes", Plymouth, NH, July 1999  
*and*  
International Conference on Bioinorganic Chemistry, Minneapolis, July 1999.
  16. "A Double-Pronged Approach to the Molybdenum Cofactor" *with Dori Pearsall*  
Gordon Research Conference "Metals in Biology", Ventura, January, 1998

17. "The Search For Small Molecule Models for the Molybdenum Cofactor" *with Dori Pearsall*  
Molybdenum Enzyme Conference, Univ. Sussex, UK April, 1997
18. "The Search For Small Molecule Models for the Molybdenum Cofactor" *with Dori Pearsall*  
Middle Atlantic Regional Meeting ACS, Villanova, May, 1996
19. "Molybdenum Complexes of Reduced Pterins" *with Kateri Paul, Heather Layton, Cory Rogge*  
National American Chemical Society Meeting, Washington, D. C., August 1994
20. "ESEEM of Molybdenum Dithiolene Models for Mo-co" *with Cheryl Soricelli, Lisa Ziemer*  
National American Chemical Society Meeting, Washington, D. C., August 1994
21. "Molybdenum Complexes of Dihydropterin" *invited symposium speaker*  
National American Chemical Society Meeting, Washington, D. C., August 1992
- 22 "Properties of a Reduced Molybdenum-Pterin Complex" *with Kristin Everett*  
National American Chemical Society Meeting, New York City, August 1991
22. "Reactions of Molybdenum-Dithiolenes Modelling the Reaction Center of Mo-co" *with Cheryl Soricelli*  
National American Chemical Society Meeting, New York City, August 1991
24. "Metal Complex Reduction by Tetrahydropterin" *invited symposium speaker*  
National American Chemical Society Meeting, Washington, D. C., August 1990
25. "Redox Reactions of Reduced Pterins with Copper and Molybdenum Complexes"  
*with Kristin Everett, Michelle Arkin, Karoline Mosny*  
International Conference on Bioinorganic Chemistry, Oxford, August, 1991
26. "Modelling the Molybdenum Cofactor"  
Gordon Research Conference "Metals in Biology", Ventura, January, 1991
27. "Models for Metal-Pterin Cofactors in Metalloenzymes"  
International Conference on Bioinorganic Chemistry, Boston, July, 1989
28. "Investigations of Pteridine Reactions with Transition Metals for Modelling Metalloenzymes  
having Pterin Cofactors" *with Joanna Perkinson, Amy Baruch, Sharon Brodie, Ayesha Jafri, Keum Yoon*  
National American Chemical Society Meeting, Toronto, June 1988
29. "Reactions of Molybdenum Sulfides with Acetylenes having Nitrogen Heterocyclic Substituents"  
*with Veronika Szalai*  
National American Chemical Society Meeting, Toronto, June 1988
30. "Synthesis and Structure of the First Molybdenum-Pterin Complex"  
National American Chemical Society Meeting, Chicago, September 1985
31. "Unusual Ligand Formation in CS<sub>2</sub> Chemistry: Synthesis, Structure Reactivity of  
Mo<sub>2</sub>(S<sub>2</sub>CNEt<sub>2</sub>)<sub>3</sub>(μ<sup>2</sup>-CSC(S)S)(μ<sup>2</sup>-S<sub>3</sub>C<sub>2</sub>NEt<sub>2</sub>)"

National American Chemical Society Meeting, Philadelphia, September 1984

32. "Construction of  $d^4$  Metal Carbonyl Derivatives with Acute OC-M-CO Angles"  
National American Chemical Society Meeting, Washington, D.C., August 1983

## Presentations without Abstracts

- |  |  |                |
|--|--|----------------|
| 1. "A Three Ring Circus of Pterin Dithiolenes"                                 | University of Arizona  | October 2010   |
| 2. "Two Tales from Bioinorganic Chemistry"                                     | U. Richmond  | November 2010  |
| 3. "A Three Ring Circus of Pterin Dithiolenes"                                 | Franklin & Marshall  | October 2010   |
| 4. "Tribute to Edward I. Stiefel"  | GRC Conference on<br>Molybdenum and Tungsten Enzymes Conference, NH, July 2008 |                |
| 5. "Why The Answer is 42"  | University of Arizona,   | November 2005  |
| 6. "The Stuff of Art"  | Center for Visual Culture, Bryn Mawr College,                                  | March 2004.    |
| 7. "Molybdenum Enzymes"  | U. S. Naval Academy  | October 2003   |
| 8. "Model Studies for the Molybdenum Cofactor"                                 | U. S. Naval Academy  | October 2003   |
| 9. "Make Mistakes! Takes Chances! Get Messy!"                                  | Bryn Mawr College<br>Parents' Weekend  | November 2002  |
| 10. "A Molybdenum Enzyme Expedition"   | Bryn Mawr College  | April 2001     |
| 11. "Pterribly Pterrific Pterins"  | Duquesne University  | January 2000   |
| 12. "Pterribly Pterrific Pterins"  | University of Arizona  | October 1999   |
| 13. "Pterribly Pterrific Pterins"  | Yale University  | November 1996  |
| 14. "The Molybdenum-Pterin Cofactor"   | Bryn Mawr College  | April 1995     |
| 15. "Transition Metal Pterin Chemistry"  | University of Maryland,<br>College Park  | October 1994   |
| 16. "Modeling the Molybdenum Cofactor"   | Swarthmore College   | September 1993 |
| 17. "Model Studies of the Molybdenum Cofactor"                                 | Haverford College  | January 1993   |
| 18. "Model Studies of the Molybdenum Cofactor"                                 | SUNY, Buffalo  | April 1992     |
| 19. "Model Studies of the Molybdenum Cofactor"                                 | Hunter College   | May 1992       |
| 20. "Modeling the Molybdenum Cofactor"   | Villanova University   | April 1991     |
| 21. "Modeling the Metal-Pterin Cofactors<br>in Hydroxylase Enzymes"            | Weslylan College   | May 1990       |
| 22. "Modeling the Metal-Pterin Cofactors<br>in Hydroxylase Enzymes"            | University of Virginia   | April 1989     |
| 23. "Modeling the Metal-Pterin Cofactors<br>in Hydroxylase Enzymes"            | University of Georgia  | November 1988  |
| 24. "Recent Advances in Modeling the<br>Molybdenum Cofactor"                   | Exxon Research<br>& Engineering Co.  | September 1988 |
| 25. "Transition Metal Complexes of<br>Pteridines as Models for Metalloenzymes" | University of Pennsylvania   | March 1987     |

## Research in Progress

Total Synthesis of the Molybdenum Cofactor  
Synthesis of Ruthenium Pteridine Complexes

## DNA Photocleavage by Ruthenium Pteridine Complexes

### Current Research Collaborators

Dr. John H. Enemark, Department of Chemistry, University of Arizona  
Dr. Martin Kirk, Department of Chemistry, University of New Mexico  
Dr. Hideki Sugimoto, Department of Chemistry, Osaka University, Osaka, Japan  
Dr. Cassandra Fraser, Department of Chemistry, University of Virginia  
Dr. Patrick J. Carroll, Department of Chemistry, University of Pennsylvania

### Post-Doctoral Associates

Dr. Samantha Glazier, *Keck Teaching Postdoctoral Fellow* January 2002-present  
Dr. Curtis Wahlgren August, 1990-February, 1991

### College Activities

Chair, ad hoc committee to review Arlo Weil	2011-present
Committee on Nominations	2010-2013
Graduate Council	2009-2011
Director of Graduate Studies in Chemistry	2009-present
Chair, Committee on Appointments	2008-2009
Committee on Appointments	2004-2009
including multiple faculty searches in Biology, Geology and Physics	
Co-organizer, Chemistry Colloquium	2008-2009
Speaker, Northern New Jersey BMC Alumni	2008
Contributor, <b><i>Science for College</i> program</b>	2005, 2006, 2007
Speaker, Prospective Students Weekend	2007
Speaker, Parents' Weekend	2006
Chair, Physical Chemist Search	2005
PKAL Leadership Initiative Team	2004-2005
Participant, MSPGP Pedagogy Workshop	2004-2005
Independent Major Advisor	2004-2005
<i>for Annalisa Allegretti, with Elliott Shore</i>	
Organizer and Speaker, <b><i>Symposium on Beauty</i></b>	2004
Chemistry Colloquium Series Organizer	2001-2005
Acting Chairman, Department of Chemistry	2002-2003
Graduate Council & associated sub-committees	2002-2004
Fellow, <i>joint fellow in the Center for Visual Culture</i>	2002-2003
<i>and the Center for Science in Society</i>	
Post-Bac Advisory Committee	2003
Mellon Workshop for Mid-Career Faculty	2003
Steering Committee, Center for Science in Society	2002-present
Speaker, Parents' Weekend	2002
Panel Participant, Campaign Opening	2002
Presenter, McBride Workshop	2002
Freshmen Customs Faculty Participant	2002
Presenter, <b><i>Summer Science Institute</i></b>	2002

Participant, <i>Summer Science Institute Science as Exploration (BMC)</i>	2001
Committee on Appointments	2000-2001
Faculty Mentor	2000-present
Chairman, Department of Chemistry	1994-1999
Coordination of the Sciences Committee	1994-1999
Chairman, Coordination of the Sciences Committee	1996-1999
OWL	1998-1999
Special Committee on Tenure Appeal	1999
Teaching Assistant Workshop	1997
Committee on Laboratories	1988-1997
Chairman, Committee on Laboratories	1991-1993, 1994-1997
Search Committee, Assistant Director of Health Professions Advising	summer 1997
Admissions	1988-1989 (substitute), 1989-1992
1902 Lecture Committee	1992-1996
Chairman, Parents' Day Committee	1994
Alumni Weekend Speaker	1994
Director of Graduate Studies in Chemistry	1992-1993
Computer Mathematics Search Committee	1990
Physics Search Committee	1990
Parents Day Speaker	1989
Representative to the Seven Sisters Conference	1989
Faculty Marshall	1988
Science Alumni Forum Committee	1988
Graduate Council	1987-1988 (substitute)
Minority Summer Program	1987

## Professional Activities

Co-Organizer, Symposium on Frontiers in Metal Dithiolenes, American Chemical Society National Meeting, Philadelphia, August 2008	
Outside Reviewer, Department of Chemistry, Gettysburg College	2003
ACS Division of Education. Inorganic Exam Committee	August 2000-2002, and August 1995-1997
Chair, Cofactor Biosynthesis and Properties Session, Gordon Conference on Molybdenum and Tungsten Enzymes	July 1999
Delaware Valley Science Fair Judge	March 1992, March 2000
NSF review panel "REU Program for Undergraduates"	Nov. 1993
AWIS Mentoring Project	December 1995
Chair, Bioinorganic Session, Middle Atlantic Regional Meeting, American Chemical Society	May 1996

## Master's Theses Supervised

1. Cheryl Soricelli, M.A. 1992 (1989-1997) "A Model For The Structure And Reactivity Of Mo-co"
2. Kristin Everett, M.A. 1992 (1990-1992)  
"Modelling Reactions of *cis*-Dioxo Molybdenum(VI) Complexes with Tetrahydropterins"
3. Yoko Momoyama, M.A. 1993 (1991-1993) "Studies Of Two Applications Of Bioinorganic Chemistry: Rhenium(V)-N<sub>2</sub>S<sub>2</sub> Complexes And Ruthenium And Molybdenum(0) *Tris*-Pterin Complexes"
4. Jonathon Schwartz (incomplete) (1991-1993)
5. Heather Layton, M.A. 1994 (1992-1997) "Reactions Of Molybdenum-Tetrahydropterin Complexes"
6. Sharon Glasgow, M.A. 1995 (1993-1995) "Synthesis of Tethered Pterin Ligands"
7. Lilly Temu (incomplete) (1994-1996)
8. Dori L. Pearsall, M. A. 1998 (1996-1998)  
"An Investigation Of Redox Capabilities Of A Pyranopterin Model For Molybdopterin"
9. Ying Hou, M. A. 2004 (2003-2004)
10. Laura Snyder, M. A. 2004 (2003-2004)  
"Unusual Paramagnetic Molybdenum *Tris*-Dithiolenes"
11. Shannon Dalton, M. A. 2005 (2003-2005)  
"DNA Intercalation by Ru(II)-*bis*(bipyridine)-Pteridinyl Complexes"
12. Mica Grantham (2003)
13. Kelly Ginion (2004-2006)
14. Benjamin Williams (2009-2011), *expected May 2011*

## Ph. D. Dissertations Supervised

1. Cheryl Soricelli, Ph. D. 1997 (1989-1997)  
"Synthesis Of Molybdenum-Dithiolene Complexes: A Route To The Active Site Of Molybdopterin-Containing Enzymes"
2. Heather Layton, Ph. D. 1997 (1992-1997)  
"Molybdenum-Pterin Complexes: Their Characterization, Reactivity And Relationship To The Synthetic Modeling Of The Molybdenum Cofactor"
3. Kelly Ginion (2007 - *present*)  
"Total Synthesis of The Molybdenum Cofactor"
4. Shannon Dalton (2007 - *present*)  
"Ruthenium Complexes Binding DNA"
5. Samantha Klein (2010 – present, jointly supervised with Jonas Goldsmith)

## Undergraduate Research Supervised 1986-2006

	Period supervised ( <i>external support</i> )		
1. Adrienne Howard	1986-1987	3. Amy Baruch	1987-1988
2. Joanna Perkinson	1986-1987, summer 1987 ( <i>Exxon grant</i> )	4. Sharon Brodie	1987-1988
		5. Ayesha Jafri	1987-1988

6. Veronka Szalai	1987-1988, summer 1988 ( <i>Exxon grant</i> )	44. Telandria Boyd	summer 1997, 1997-1998
7. Najma Dalal	1988-1989	45. Rebekah Katz	summer 1997, 1997-1998
8. Karen Kerr	1988-1989, spring 1988 ( <i>Exxon grant</i> )	46. Eva Moore	summer 1997, 1997-1998
9. Sushma Patel	1988-1989	47. Melissa Marchin	1997-1998
10. Sarah Richards	spring - summer 1988, ( <i>Exxon grant</i> ), Marshall Fellow, 1988-1989	48. Laura Picraux	1997-1998
11. Keum Yoon	1988-1989, summer 1988 ( <i>Dana fellowship</i> )	49. Mattie Towle	1997-1998, Sem I 1998
12. Virginia Nez	summer 1989	50. Susan Ashton	Sem. II, 1998, summer 1998, Sem. I 1998, summer 1999, 1999-2000
13. Kristin Everett	1988-1989 ( <i>Dana fellowship</i> ) 1989-1990, summer 1990 ( <i>Pew Science Consortium</i> )	51. Francine Morris	summer 1998, Sem. I 1998, summer
14. Karoline Mosny	1988-1989 ( <i>Dana fellowship</i> ) 1989-1990	52. Deborah Bae	summer 1998, 1998-1999, 1999-2000
15. Holli Horak	1989-1990, summer 1990 ( <i>Pew Science Consortium</i> )	53. Shannon Blaney	summer 1998, 1998-1999
16. Michelle Arkin	1989-1990, summer 1990 ( <i>NIH</i> ) Marshall Fellow, 1989-1990	54. Kristin Gower	summer 1998
17. Yoko Momoyama	summer 1990-1992 ( <i>Pew Science Consortium</i> ) Marshall Fellow, 1991-1992	55. Kristina Muncan	summer 1998, 1998-1999
18. Lavina Barwhani	1990-1992 ( <i>Pew Science Consortium and NIH</i> )	56. Wendy Belliston	1998-1999
19. Aletha Akers	1991 ( <i>NIH</i> ), summer 1991, 1992-1993	57. Deepa Jeyakumar	Sem. I 1998
20. Sarah Dempster	summer 1991 and 1992-1993	58. Rickquel Tripp	1998-1999, ( <i>GE Faculty for the Future</i> )
21. Audrey Ettinger	1991-1992	59. Ria Sankar	1998-1999, 1999-2000, summer 2000-2002 ( <i>GE Faculty for the Future</i> ) 2001-2002
22. Katherine Erkkila	1991-1992	60. Anne Braun	Marshall fellow, summer 1999, 1999-2000
23. Lisa Ziemer	summers 1992, 1993 and 1993-1994	61. Whitney Drake	summer 1999, 1999-2000
24. Laura Bostick	summer 1992 and 1992-1993	62. Jen Malone	summer 1999, 1999-2000
25. Lily Tadayyon	summer 1992 and 1992-1993	63. Jen Pectol	summer 1999, 1999-2000
26. Joy Heising	summer 1992 and 1992-1993	64. Teresa Perez	summer 1999, 1999-2000 ( <i>GE Faculty for the Future</i> )
27. Charolotte Dai	summer 1993 and 1993-1994	65. Calies Sauk-Schubert	summer 1999, 1999-2000
28. Kateri Paul	summer 1993, 1994, Marshall Fellow, 1993-1994	66. Mariah Schumacher	summers 2000 and 2001, 2001-2002
29. Cory Rogge	summers 1993, 1994 and 1993-1994	67. Lindsay Alaishuski	summers 2000 and 2002, 2002-2003
30. Martha Heintzelman	summer 1994, 1994-1995	68. Janet Lee	summers 2000 and 2001, 2001-2002
31. John Murphy (Conestoga High School)	summer 1994	69. Grace Shin	summers 2001 and 2002, 2002-2003
32. Jennifer Peterson	fall 1994	70. Rebecca Soinski	summer 2000
33. Judy Burke	1994-1995, ( <i>Minority Women in Science Program</i> )	71. Akino Yamashita	summer 2000, 2000-2001
34. Sara Tuttle	semester II 1995, summer 1995, 1996-1997	72. Jeanne Moody	2000-2001
35. Stephanie Eisenbarth	1994-1996	73. Erin Dwight	summer 2001, fall 2001
36. Laurie Schubert	summer 1995, 1995-1996	74. Jessica Herzog	summer 2001, 2001-2002
		75. Laura Snyder	summers 2001 and 2002, 2002-2003 ( <i>GE Faculty for the Future</i> ), <i>Marshall Fellow 2003-2004.</i>
	<b>Period supervised (external support)</b>	76. Kia Showell	2001-2002, ( <i>GE Faculty for the Future</i> )
37. Mikalina Efros	summer 1995, 1995-1996	77. Kesel Wilson	summer 2001
38. Zermatt Scutt	1995-1996, ( <i>Minority Women in Science Program</i> )	78. Ying Hou	summers 2001-2002, 2002-2003
39. Jennifer Loch	1996-1997	79. Shanti Mikkilini	summer 2002
40. Catherine Matsen	1996-1997	80. Courtney Megatulski	summers 2002, 2003, 2004, 2004-2005
41. Carrie Tomasallo	summer 1996, 1996-1997	81. Angelina Lucento	summer 2003, 2003-2004
42. Abi Haka	semester II, 1996, 1997-1998	82. Alanna Albano	summer 2004, 2004-2005
43. Carol Carneal	summer 1997, 1997-1998	83. Cara Blankenbicker	summer 2004, 2004-2005
		84. Melissa Leedle	summer 2004, Sem I, 2004
		85. Alison Kim	2004-2005
		86. Eleni Kardaras	2004-2005
		87. Mary Kim	summers 2004 and 2005; 2005-2006
		88. Shadia BelHamdounia	summer 2005, 2005-2006
		89. Candacia Greeman	summer 2005, 2006
		90. Anna Merkle	summer 2005, 2005-2006

89. Sruti Bhaumik	2005-2006	100. Liz Beilinski	2008-2010
90. Sandi Mnuskin	summer 2006, 2006-2007	101. Allison Shatz	summer 2009-2010
91. Rebecca Petit	summer 2006, 2006-2007	102.	summer 2009-2010
92. Amy Rothkopf	summer 2006, 2006-2007	103.	summer 2009-2010
93. Tanya Corder	summer 2007, 2007-2008	104. Jenny Chen	summer 2010-2011
94. Lauren Dillon	summer 2007, 2007-2008	105. Yichun Fu	summer 2010-2011
95. Belinda Leung	summer 2007, 2007-2008	106. Alex Gaudette	summer 2010-2011
96. Sanda Win	summer 2007, 2007-2008	107. Susie Kim	summer 2010-2011
97. Erika Lippolt	summer 2008, 2009-2009	108. Meredith Skiba	summer 2010-2011
98. Rebecca Rothstein	summer 2008, 2008-2009	109. Suyin Lee	spring 2011
99. Alison Panosian	summer 2008, 2009	110. Sri Suresh	spring 2011

## Honors Theses Supervised

1. Amy Baruch (1987-1988) "Reaction of a Molybdenum Model Complex with 6,7-Dimethyl Tetrahydropterin"
2. Veronika Szalai (1987-1988) "Reactions of Molybdenum Sulfides with Nitrogen Heterocyclic Alkynes "
3. Ayesha Jafri (1987-1988) "Synthesis of Iron-Pterin Complexes"
4. Sarah Richards (1988-1989) "Reactions of Molybdenum Sulfides with Nitrogen Heterocyclic Alkynes "
5. Karen Kerr (1988-1989) "Mechanism of Model Complex Reaction Tetrahydropterins"
6. Michelle Arkin (1989-1990) "Investigations of Molybdenum (VI) tetrahydropterin Interactions"
7. Kristin Everett (1989-1990) "Model Systems to Investigate the Molybdenum Cofactor"
8. Karoline Mosny (1989-1990) "Creating Models for the Active Sites in Mammalian and Bacterial Phenylalanine Hydroxylase"
9. Lavina Bharwani (1991-1992) "Modelling the Active Sites of Bacterial Phenylalanine Hydroxylase by Investigating the Blue Intermediate"
10. Aletha Akers (1992-1993) "Study of DNA binding by Ruthenium Tris Pterin Complexes"
11. Laura Bostick (1992-1993) "Investigations of Molybdenum (VI) Tetrahydropterin Interactions"
12. Sara Dempster (1992-1993) "An Investigation of the Oxidation States in Two Molybdenum Complexes of Reduced Pterins Isolated from Mo-co Model Studies"
13. Lily Tadayyon (1992-1993) "Synthesis and Characterization of Transition Metal Pterin Complexes"
14. Charlotte Dai (1993-1994) "Study of DNA binding by Ruthenium Tris Pterin Complexes"
15. Cory Rogge (1993-1994) "Molybdenum Pterin Complexes"
16. Kateri Paul (1993-1994) "Redox Reactions of Reduced Molybdenum-Pterins"
17. Lisa Ziemer (1993-1994) "Novel Pterin Syntheses"
18. Martha Heintzelman (1994-1995) "Synthesis and DNA Binding Studies of Ruthenium-(phenanthroline-pterin) Complexes"
19. Stephanie Eisenbarth (1995-1996) "The Synthesis and Characterization of a bis-Dithiolene Molybdenum Cofactor Model "
20. Sarah Tuttle (1996-1997) "Synthesis and Characterization of a Molybdenum Mono-Oxo bis-Dithiolene Complex"
21. Abi Haka (1997-1998) "Total Synthesis of the Molybdenum Cofactor of DMSO Reductase: The First Seven Steps"
22. Rebekah Katz (1997-1998) "Synthesis, Characterization and Reactivity Studies of a Model of the Molybdenum Cofactor"
23. Laura Picraux (1997-1998) "Investigation of the Unusual Properties of Three Molybdenum Tris-dithiolene Complexes "
24. Wendy Belliston (1998-1999) "Modeling the Molybdenum Cofactor in DMSO Reductase: A Synthetic Approach to Molybdopterin"
25. Susan Ashton (1999-2000) "Modeling the Molybdenum Cofactor in DMSO Reductase"
26. Anne Braun (1999-2000) "Mono-Oxo Bis-Dithiolene Synthesis"
27. Whitney Drake (1999-2000) "Characterization and Study of a Molybdenum Cofactor Model by Cyclic Voltammetry"
28. Francine Morris (1999-2000) "Total Synthesis of Acetyl Ethynyl Pterin, The Closest Known Structural Mimic of Molybdopterin"
29. Calies Sauk-Schubert (1999-2000) "A Stereospecific Pyranopterin Model for Moco: Working towards an Oxo-Molybdenum Bound Complex"
30. Lindsay Alaishuski (2002-2003) "Ruthenium Phen-Pteridine Complexes Binding Interactions with DNA"
31. Laura Snyder (2003-2004) "Unusual Paramagnetic Molybdenum Tris-Dithiolenes"
32. Alanna Albano (2004-2005) "Analyzing the Binding Interactions of Ruthenium Pteridiny Complexes to DNA "
33. Cara Blankenbicker (2004-2005) "Investigation of Unusual Paramagnetic Molybdenum Tris-Dithiolenes Compounds"
34. Alison Kim (2005-2006) "A New Approach to the Synthesis of a Model Compound for the Moco of Sulfite Oxidase"
35. Courtney Megatulski (2005-2006) "Synthesis and Characterization of Phenanthroline-Pteridines Chelated to Ru(II), Fe(II) and Cu(II)"
36. Shadia BelHamdounia(2005-2006) – "Improving the Structural Mimic of Molybdopterin"

37. Mary Kim – “The Molybdenum Cofactor: A Working Model”
38. Anna Merkle (2005-2006) – “Investigations of Unusual Magnetic properties of Molybdenum Tris-dithiolenes”
39. Rebecca Petit (2006-2007) — “Synthesis of Pterinyl Complexes to Model the Redox Behavior and Structure of the Molybdenum Cofactor”
40. Amy Rothkopf (2006-2007) — “Modeling the Molybdenum Cofactor”
41. Lauren Dillon (2007-2008) — “Total Synthesis of Molybdenum Cofactor Models: Synthesis of 2-pivaloyl-6-alkynylpterins”
42. Tanya Michelle Corder (2007-2008) — “Models for the Molybdenum Cofactor”
43. Belinda Leung (2007-2008) — “Synthesis, Characterization and Analysis of Metal Pteridine Complex Derivatives”
44. Sanda Win (2007-2008) — “Investigation of DNA Intercalation by Ruthenium(II)-*bis*(Bipyridine)-Pteridinyl Complexes”
45. Erika Lippoldt (2008-2009)—“Synthesis and Characterization of Cu(II) and Co(III) Complexes of Pteridinyl Ligands and DNA Cleavage and Photocleavage Studies”
46. Rebecca Rothstein (2008-2009)— “The Quinoxaline-dithiolenene System: An Effective Model for the Molybdenum Cofactor”
47. Liz Beilinski (2008-2010) — “Building A Model for the Molybdenum Cofactor”
48. Allison Shatz (2008-2010) — “An Investigation of the Photochemical and Electrochemical Properties of Ru(II)Pteridinyl Complexes”

## Courses Taught

**Intimate Interactions: Chemical Bonding CHEM105	2011
**The Stuff of Art CHEM100/HART100	2004, 2006
**Beauty CSEM / ENG (with Professor Anne Dalke)	2005
General Chemistry CHEM103 -	1989
General Chemistry CHEM103L (now 113) -	2006
General Chemistry CHEM104 -	1993, 1995, 1997, 1999, 2001, 2002, 2003, 2005, 2007, 2009
Inorganic Chemistry CHEM231/ Inorganic Chemistry Laboratory CHEM231L (CHEM231L through 1998 only)	1986, 1987, 1988, 1989, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 2000, 2001, 2002, 2003, 2004, 2006, 2007, 2008
Inorganic Chemistry CHEM232/ Inorganic Chemistry Laboratory CHEM232L	1986, 1987, 1988, 1989, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998
**Research Methodology CHEM251 /252	2004, 2006, 2009
Advanced Inorganic Chemistry CHEM332	1993, 1995, 1997, 1998, 1999, 2001, 2008
Low Temperature Geochemistry GEO302 (with Professor Maria Luisa Crawford)	1998
#Theory and Experiment in Inorganic Chemistry (with Professor Michelle Francl)	1987, 1992, 1996
#Organometallic Chemistry CHEM534 (with Professor Charles Swindell)	1990
**Organometallic Chemistry CHEM534 (with Professor William Malachowski)	2005
**Molybdenum Enzymes: A Historical Tour CHEM332/532 (with Professor Susan White)	2002
Group Theory CHEM535 (with Edward Wovchko in 2001)	1989, 1990, 1991, 1992, 1997, 1998, 2001, 2003, 2006

**\*\*Advances in Spectroscopy** 2002  
(with Keck Fellow Samantha Glazier)

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**\*\*** denotes new course since promotion to full professor;

**#** denotes new course