

## Sharon J. Nieter Burgmayer

office  
Department of Chemistry  
Bryn Mawr College  
Bryn Mawr, PA 19010  
(610)526-5106  
sburgmay@brynmawr.edu

### Education

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

### Professional Appointments

## Research Grant Awards and Proposals

|   |                                  |           |
|---|----------------------------------|-----------|
| National Institutes of Health<br><i>"Investigation of a Pterin-Dithiolene Model Complex for the Molybdenum Cofactor"</i>                              | 2014-2018                        | \$370,600 |
| HHMI New Directions Grant<br><i>"Transition Metals and Computational Modeling: Classroom and Laboratory Applications"</i><br>with Prof. Jason Schmink | 2013-2014                        | \$23,500  |
| 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<br><i>In support of "Frontier in Metal Dithiolenes" symposium</i>   | 2008                             | \$3600    |
| National Institutes of Health<br><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<br><i>"Study of Improved Model Complexes for Molybdoenzyme Active Sites"</i>  | 2000-2003                        | \$98,417  |
| National Science Foundation<br><i>"Studies of Model Compounds for the Active Site of DMSO Reductase"</i>  | 1999-2001                        | \$82,686  |
| Bryn Mawr College Faculty Research Grant<br><i>"Purchase of a Research Microscope"</i>  | 1995-1996                        | \$2350    |
| Research Corporation<br><i>"Studies of Model Compounds for the Metal Sites in Pterin-Dependent Metalloenzymes"</i>                                    | 1992-1994                        | \$13,000  |
| National Institutes of Health<br><i>"Models for Metalloenzymes having Pterin Cofactors"</i>   | 1990-1992                        | \$120,113 |
| Pew Science Program<br>(with Dr. Lynn Francesconi, U. of Penn.)<br><i>"Ligand Design Applied to Technecium Radiopharmaceutical Development"</i>       | 1990-1991                        | \$10,000  |
| Pew Science Program<br>(with Dr. Thomas Spiro, Princeton University)<br><i>"Resonance Raman Studies on Molybdenum Dithiolene Model Complexes"</i>     | 1989-1990                        | \$8,000   |
| Exxon Education Foundation<br><i>"Models for Molybdenum Enzymes"</i>  | 1987-1988                        | \$15,000  |
| Exxon Research & Engineering Company<br><i>"Syntheses of Copper(II) Pteridines"</i>   | 1987                             | \$2,500   |
| <b>Grant in Support of New Course Development</b><br>Sponsored by the Center for Science in Society<br>and the Center for Visual Culture              | 2002-2003                        | \$10,000  |





10. "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.
9. "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.
8. "Molybdenum Enzymes, Cofactors and Model Systems"  
Sharon J. Nieter Burgmayer, Edward I. Stiefel.  
*Journal of Chemical Education* **1985**, 62, 943.
7. "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.
6. "Synthesis and Structure of a Seven-Coordinate Molybdenum Carbonyl Fluoride Derivative"  
Sharon J. Nieter Burgmayer, J.L. Templeton. *Inorganic Chemistry* **1985**, 24, 2224.
5. "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.
4. "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.
3. "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.
2. "Chemical, Spectral and Structural Features of Mo(RCCR)<sub>2</sub>(S<sub>2</sub>CNC

Sharon J. Nieter Burgmayer, in Progress in Inorganic Chemistry, Vol. 52, Stiefel, E. I., Ed.; Wiley, N. Y., **2004**.

4. "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.

2. "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.

1. "Molybdenum Complexes of Reduced Pterins"

Sharon J. Nieter Burgmayer, Kristin Everett, Laura Bostick in Moly of EN( C)4 (om)17.1 (1.6 (s)-2Nol)-4.6-4 401 (s)-2N



*and*

International Conference on Bioinorganic Chemistry, Minneapolis, July 1999.

17. "A Double-Pronged Approach to the Molybdenum Cofactor" *with Dori Pearsall*  
Gordon Research Conference "Metals in Biology", Ventura, January, 1998
15. "The Search For Small Molecule Models for the Molybdenum Cofactor" *with Dori Pearsall*  
Molybdenum Enzyme Conference, Univ. Sussex, UK April, 1997
15. "The Search For Small Molecule Models for the Molybdenum Cofactor" *with Dori Pearsall*  
Middle Atlantic Regional Meeting ACS, Villanova, May, 1996
14. "Molybdenum Complexes of Reduced Pterins" *with Kateri Paul, Heather Layton, Cory Rogge*  
National American Chemical Society Meeting, Washington, D. C., August 1994
13. "ESEEM of Molybdenum Dithiolene Models for Mo-co" *with Cheryl Soricelli, Lisa Ziemer*  
National American Chemical Society Meeting, Washington, D. C., August 1994
12. "Molybdenum Complexes of Dihydropterin" *invited symposium speaker*  
National American Chemical Society Meeting, Washington, D. C., August 1992
- 11 "Properties of a Reduced Molybdenum-Pterin Complex"



2. "Unusual Ligand Formation in CS<sub>2</sub> Chemistry: Synthesis, Structure Reactivity of



National American Chemical Society Meeting, Philadelphia, September 1984

1. "Construction of d<sup>4</sup> Metal Carbonyl Derivatives with Acute OC-M-CO Angles"

National American Chemical Society Meeting, Washington, D.C., August 1983

## **Presentations without Abstracts**

Arche 36monA ( )

Total Synthesis of the Molybdenum Cofactor  
Synthesis of Ruthenium Pteridine Complexes  
DNA Photocleavage by Ruthenium Pteridine Complexes

## Current Research Collaborators

Dr. Martin Kirk, Department of Chemistry, University of New Mexico  
Dr. Patrick J. Carroll, Department of Chemistry, University of Pennsylvania  
Dr. Glenn Yap, Department of Chemistry, University of Delaware

## Post-Doctoral Associates

|  |                             |
|--|-----------------------------|
| Dr. Samantha Glazier, <i>Keck Teaching Postdoctoral Fellow</i> | January 2002-present        |
| Dr. Curtis Wahlgren  | August, 1990-February, 1991 |

## College Activities

|  |              |              |
|--|--------------|--------------|
| Dean of Graduate Studies                         | 2013-present |              |
| Chair, GSSWSR Dean Search Committee              | 2016         |              |
| Convenor, GSSWSR Leadership Transition Committee | 2015-2016    | 2013-present |
| Interim Dean of Graduate Studies                 | 2013-        |              |

|   |                                   |
|---|-----------------------------------|
| 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, <i>Summer Science Institute</i>  | 2002                              |
| Participant, <i>Summer Science Institute</i><br><i>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<br>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<br>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

11. Chair, Conference on Molybdenum and Tungsten Enzymes, Santa Fe, New Mexico for June 2017
10. Co-Chair (with Günter Schwarz), Conference on Molybdenum and Tungsten Enzymes, Lake Balaton, Hungary for September 2015
9. Co-Chair (with Jose Moura), Conference on Molybdenum and Tungsten Enzymes, Lisbon, Portugal summer 2013
8. Co-Organizer, Symposium on Frontiers in Metal Dithiolenes, American Chemical Society National Meeting, Philadelphia, August 2008
7. Outside Reviewer, Department of Chemistry, Gettysburg College, 2003

6. ACS Division of Education. Inorganic Exam Committee, August 2000-2002,  
and August 1995-1997
5. Chair, Cofactor Biosynthesis and Properties Session,  
Gordon Conference on Molybdenum and Tungsten Enzymes, July 1999
4. Delaware Valley Science Fair Judge, March 1992, March 2000
3. NSF review panel "REU Program for Undergraduates", Nov. 1993
2. AWIS Mentoring Project, December 1995
1. Chair, Bioinorganic Session, Middle Atlantic Regional Meeting, May 1996  
American Chemical Society

## Master's Theses Supervised

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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*1992)

“Building a Better Model for the Molybdenum Cofactor: A New Class of Molybdenum Dithiolene Complexes”

4. Shannon Dalton (2007 - 2009)

“An Investigation of the Interactions between DNA and Family of Ruthenium(II) Pteridinyl Complexes”

5. Benjamin Williams (2010 – present)

“Exploring Pteridine Chemistry in Two Bioinorganic Systems”

6. Samantha Klein (2010 – present, jointly supervised with Jonas Goldsmith)

7. Douglas Gisewhite (2014-present)

## Undergraduate Research Supervised 1986-2006

|                       |   |                          |  |
|-----------------------|---|--------------------------|--|
|                       | <b>Period supervised (external support)</b>                                       | 30. Martha Heintzelman   | summer 1994, 1994-1995   |
| 1. Adrienne Howard    | 1986-1987   | 31. John Murphy          | summer 1994  |
| 2. Joanna Perkinson   | 1986-1987, summer 1987<br>(Exxon grant)   | (Conestoga High School)  |  |
| 3. Amy Baruch         | 1987-1988   | 32. Jennifer Peterson    | fall 1994  |
| 4. Sharon Brodie      | 1987-1988   | 33. Judy Burke           | 1994-1995, (Minority Women in<br>Science Program)                        |
| 5. Ayesha Jafri       | 1987-1988   | 34. Sara Tuttle          | semester II 1995, summer 1995,<br>1996-1997                              |
| 6. Veronka Szalai     | 1987-1988, summer 1988<br>(Exxon grant)   | 35. Stephanie Eisenbarth | 1994-1996  |
| 7. Najma Dalal        | 1988-1989   | 36. Laurie Schubert      | summer 1995, 1995-1996   |
| 8. Karen Kerr         | 1988-1989, spring 1988<br>(Exxon grant)   |                          |  |
| 9. Sushma Patel       | 1988-1989   |                          | <b>Period supervised (external support)</b>                              |
| 10. Sarah Richards    | spring - summer 1988,<br>(Exxon grant),<br>Marshall Fellow, 1988-1989             | 37. Mikalina Efras       | summer 1995, 1995-1996   |
| 11. Keum Yoon         | 1988-1989, summer 1988<br>(Dana fellowship)                                       | 38. Zermatt Scutt        | 1995-1996,<br>(Minority Women in Science Program)                        |
| 12. Virginia Nez      | summer 1989   | 39. Jennifer Loch        | 1996-1997  |
| 13. Kristin Everett   | 1988-1989 (Dana fellowship)<br>1989-1990, summer 1990<br>(Pew Science Consortium) | 40. Catherine Matsen     | 1996-1997  |
| 14. Karoline Mosny    | 1988-1989 (Dana fellowship)<br>1989-1990  | 41. Carrie Tomasallo     | summer 1996, 1996-1997   |
| 15. Holli Horak       | 1989-1990, summer 1990<br>(Pew Science Consortium)                                | 42. Abi Haka             | semester II, 1996, 1997-1998   |
| 16. Michelle Arkin    | 1989-1990, summer 1990 (NIH)<br>Marshall Fellow, 1989-1990                        | 43. Carol Carneal        | summer 1997, 1997-1998   |
| 17. Yoko Momoyama     | summer 1990-1992<br>(Pew Science Consortium)<br>Marshall Fellow, 1991-1992        | 44. Telandria Boyd       | summer 1997, 1997-1998   |
| 18. Lavina Barwhani   | 1990-1992<br>(Pew Science Consortium and NIH )                                    | 45. Rebekah Katz         | summer 1997, 1997-1998   |
| 19. Aletha Akers      | 1991 (NIH), summer 1991, 1992-1993  | 46. Eva Moore            | summer 1997, 1997-1998   |
| 20. Sarah Dempster    | summer 1991 and 1992-1993   | 47. Melissa Marchin      | 1997-1998  |
| 21. Audrey Ettinger   | 1991-1992   | 48. Laura Picraux        | 1997-1998  |
| 22. Katherine Erkkila | 1991-1992   | 49. Mattie Towle         | 1997-1998, Sem I 1998  |
| 23. Lisa Ziemer       | summers 1992, 1993 and 1993-1994  | 50. Susan Ashton         | Sem. II, 1998, summer 1998,<br>Sem. I 1998,<br>summer 1999, 1999-2000    |
| 24. Laura Bostick     | summer 1992 and 1992-1993   | 51. Francine Morris      | summer 1998, Sem. I 1998, summer   |
| 25. Lily Tadayyon     | summer 1992 and 1992-1993   | 1999, 1999-2000          |  |
| 26. Joy Heising       | summer 1992 and 1992-1993   | 52. Deborah Bae          | summer 1998, 1998-1999, 1999-2000  |
| 27. Charolotte Dai    | summer 1993 and 1993-1994   | 53. Shannon Blaney       | summer 1998, 1998-1999   |
| 28. Kateri Paul       | summer 1993, 1994,<br>Marshall Fellow, 1993-1994                                  | 54. Kristin Gower        | summer 1998  |
| 29. Cory Rogge        | summers 1993, 1994 and 1993-1994  | 55. Kristina Muncan      | summer 1998, 1998-1999   |
|                       |   | 56. Wendy Belliston      | 1998-1999  |
|                       |   | 57. Deepa Jeyakumar      | Sem. I 1998  |
|                       |   | 58. Rickquel Tripp       | 1998-1999, (GE Faculty for the Future)                                   |
|                       |   | 59. Ria Sankar           | 1998-1999, 1999-2000,<br>summer 2000-2002<br>(GE Faculty for the Future) |
|                       |   |                          | 2001-2002  |
|                       |   | 60. Anne Braun           | Marshall fellow, summer 1999,<br>1999-2000                               |
|                       |   | 61. Whitney Drake        | summer 1999, 1999-2000   |

- 62. Jen Malone summer 1999, 1999-2000
- 63. Jen Pectol summer 1999, 1999-2000
- 64. Teresa Perez summer 1999, 1999-2000  
*(GE Faculty for the Future)*
- 65. Calies Sauk-Schubert summer 1999, 1999-2000
- 66. Mariah Schumacher summers 2000 and 2001, 2001-2002
- 67. Lindsay Alaishuski summers 2000 and 2002, 2002-2003
- 68. Janet Lee summers 2000 and 2001, 2001-2002
- 69. Grace Shin summers 2001 and 2002, 2002-2003
- 70. Rebecca Soinski summer 2000
- 71. Akino Yamashita summer 2000, 2000-2001
- 72. Jeanne Moody 2000-2001
- 73. Erin Dwight summer 2001, fall 2001
- 74. Jessica Herzog summer 2001, 2001-2002
- 73. Laura Snyder summers 2001 and 2002, 2002-2003  
*(GE Faculty for the Future),  
Marshall Fellow 2003-2004.*

i d 74. Kia Howell 2001-2002 *(GE Faculty for the Future)* 2001-2002

13. Lily Tadayon (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.

\*\*The Stuff of Art CHEM100/HART100

2004, 2006, 2010, 2012