

JOANNE L. STEWART

Department of Chemistry
Hope College
35 E. 12th Street
Holland, MI 49422-9000

phone: 616-395-7634
email: stewart@hope.edu
fax: 616-395-7118
web page: <http://www.chem.hope.edu/~stewart/>

EDUCATION

- 9/83 - 4/88 Ph.D. in Inorganic Chemistry, University of California, Berkeley. Thesis research with Professor Richard A. Andersen on synthesis and characterization of uranium amide and alkoxide compounds.
- 9/78-6/82 B.A. in Chemistry, Kalamazoo College, Kalamazoo, Michigan. Undergraduate research on transition metal metallocyclic compounds with Dr. Thomas J. Smith and on metal-metal multiply bonded compounds with Dr. Malcolm H. Chisholm.
- 9/80 - 4/81 Friedrich-Alexander University, Erlangen, Federal Republic of Germany; as partial fulfillment of B.A. requirements.

RESEARCH EXPERIENCE

- 5/88 – present Hope College, Department of Chemistry. Directing undergraduate research in synthetic chemistry. Enantioselective synthesis of homoallylic alcohols using tin(II) compounds; synthesis of main group metal alkoxide and thiolate compounds; stabilization of low-coordinate main group metal compounds with sterically demanding ligands; multinuclear NMR.
- 8/01-6/02 University of California, San Diego, Department of Chemistry, Visiting Scholar. Science Studies and chemistry research in nanoscience.
- 8/94 - 6/95 Harvard University, Department of Chemistry, Visiting Scholar in Chemistry. Synthesis and characterization of copper(I) complexes used in asymmetric aziridination reactions.
- 9/83 - 4/88 University of California, Berkeley, CA. Ph.D. thesis research with Prof. Richard A. Andersen. Synthesis of uranium III, IV, and V compounds with amide and alkoxide ligands; characterization by ^1H and ^{13}C NMR, IR, mass spectroscopy, magnetic measurements and X-ray crystallography; studies on the reactivity of uranium-carbon bonds with CO, H₂, and ethylene.

8/82 - 6/83 General Electric Corporate Research and Development, Schenectady, NY, Associate Staff Chemist. Catalyst development for room-temperature-vulcanizing systems; synthesis of organotin compounds and structure elucidation by ^{119}Sn NMR; silicone polymer degradation studies; synthesis of silicon-containing cure accelerators.

12/81 - 3/82 University of Indiana, Bloomington, IN. Undergraduate research with Prof. Malcolm H. Chisholm. Synthesis of trialkylphosphine adducts of hexakis(alkoxy)dimolybdenum compounds; synthesis of a novel mixed phosphine-amine ligand; investigation of dynamic processes by variable temperature ^1H and ^{31}P NMR.

TEACHING EXPERIENCE

12/99 - present Professor of Chemistry, Hope College. Courses taught include Introductory Chemistry I and II, Introductory Laboratory, Inorganic Chemistry, Advanced Inorganic and Organometallic Chemistry, Inorganic Laboratory, Analytical Laboratory, Organic Laboratory, First-Year Seminar.

8/94 - 12/99 Associate Professor of Chemistry, Hope College.

8/88 - 8/94 Assistant Professor of Chemistry, Hope College.

8/89 - 8/98 Hope College Teaching Enhancement Workshop. Participated as a workshop leader or presenter in this four-day teaching workshop presented each fall for new faculty at Hope College.

7/88 - 7/91 Lecturer for NSF Summer Workshop for High School Chemistry Teachers held at Hope College. Lecture topics included structure and bonding in molecules, equilibrium, and acid-base chemistry.

9/83 - 9/86 University of California, Berkeley, CA, teaching assistant. Taught one semester of general chemistry and two semesters of quantitative analysis.

ADMINISTRATIVE EXPERIENCE

9/04-present Director of Integrative Studies in Science for Hope's HHMI program

7/99 - 7/01 Chemistry Department Chair

9/99 – present Chair of Hope College Sexual Harassment Policy Advocates

WORKSHOP PRESENTATIONS

Multi-Initiative Dissemination Workshop, workshop to disseminate the results of the five NSF “systemic change in chemistry” grants, October 15-16, 2004, University of Tennessee, Knoxville, TN.

Multi-Initiative Dissemination Workshop, March 5-6, 2003, Housatonic College, Bridgeport, CT.

Promoting Active Learning in Real-World Contexts in General Chemistry, NSF Chautauqua Short Course, June 8-10, 2003, Berkeley, CA.

Multi-Initiative Dissemination Workshop, April 4-5, 2003, Central Michigan University, Mt. Pleasant, MI.

Multi-Initiative Dissemination Workshop, January 24-25, 2003, University of Richmond, Richmond, VA.

Multi-Initiative Dissemination Workshop, University of Arizona, Tucson, AZ, April 26-28, 2002.

ChemConnections Faculty Workshop, 2YC3 Meeting, Community College of Southern Nevada, Las Vegas, NV, Nov 1, 2001.

ChemConnections Faculty Workshop, 2YC3 Meeting, San Diego City College, San Diego, CA, March 31, 2001.

ChemLinks/ModularCHEM Workshop, 16th Biennial Conference on Chemical Education, Ann Arbor, MI, Aug 1, 2000.

“Cooperative Learning in College Teaching,” workshop for Ball State University, May 21-22, 1998.

“Cooperative Learning in College Chemistry,” seminar and workshop for San Jose State University, Department of Chemistry, April 24-25, 1997.

Association of American Colleges and Universities Conference, “Involving Students in Active and Collaborative Learning,” Chicago, IL, October 20-21, 1995.

Workshop for science and mathematics faculty, “Cooperative Learning in the College Classroom,” Siena College, Loudonville, NY, August 30-31, 1994.

Project Kaleidoscope Workshop on Reforming Introductory Math and Science Courses, Bryn Mawr College, Bryn Mawr, PA, July 29-31, 1993. Gave presentation and led afternoon workshop on using cooperative learning in introductory math and science courses.

National Science Foundation Chautauqua workshop, “Cooperative Learning in Science and Mathematics,” University of Puerto Rico, San Juan, P.R., March 25-27, 1993. Organized and presented three day faculty development workshop for thirty-five science and mathematics faculty from the United States and Puerto Rico.

Pew Mid-States Consortium faculty development workshop, "Cooperative Learning in Science," Carleton College, Northfield, MN, April 10-12, 1992. Co-organizer of three day workshop on cooperative learning.

CONSULTING

Member of Committee of Visitors at National Science Foundation. Reviewed Chemistry Division, February 2-4, 2004.

Member of external review panel for review of chemistry department at Lewis and Clark College, Portland, OR, March 2002.

Member of external review panel for review of chemistry department at Macalester College, St. Paul, MN, April 2001.

Member of external review panel for review of chemistry department at St. Olaf, Northfield, MN, Oct 1-3, 2000.

Keck-Project Kaleidoscope consultant for Kutztown University, May 1999

Member of external review panel for review of chemistry department at Muskingum College, April 1999.

Member of external review panel for review of chemistry department at Colorado College, 1997.

Keck-Project Kaleidoscope consultant for University of Hartford, 1994-1995.

Hart and Cooley, Inc., Holland, MI, 1990 - 1994.

HONORS AND AWARDS

Provost's Award for Excellence in Teaching, 1996

Bruce H. Mahan Teaching Award, 1985; honorable mention, 1986

American Institute of Chemists Award, 1982

Honors on Undergraduate Thesis, 1982

PROFESSIONAL AND HONORARY SOCIETIES

American Chemical Society, Sigma Xi, Association for Women in Science, Council on Undergraduate Research, Midwest Association of Chemistry Teachers in Liberal Arts Colleges

RESEARCH SUPPORT

National Science Foundation - Research Experiences for Undergraduates, "A Collaborative Student-Faculty Research Program in Chemistry and Biochemistry," March 2003-March 2007, \$256,000.

Merck/AAAS, "Making New Bonds: Research at the Interface of Biology and Chemistry at Hope College," 2001-2003, \$60,000 (with Chris Barney, Dept of Biology, Hope College)

Simon Den Uyl Summer Fellowship (faculty development grant), "Asymmetric Allylation Reactions Using Chiral Tin Complexes," \$3,600, Summer 2001.

GlaxoSmithKline Undergraduate Summer Fellowship (to support research of Karen Clark), \$5,000, Summer 2001.

National Science Foundation - Research Experiences for Undergraduates, "Research Experiences for Undergraduates at Hope College," March 2000-March 2003, \$139,119.

National Science Foundation (subcontract from ChemLinks grant), "Development of a guide to teaching with modules," 1999, \$9,342.

Hope College NSF-AIRE support for undergraduate student in education, "The development of a super-instructor's manual for the ChemConnections curriculum," 1999, \$3,000.

Hope College-Howard Hughes Medical Institute Faculty Development Grant, "The Development of a New Inquiry-Based Inorganic Chemistry Laboratory," 1998, \$5,000.

National Science Foundation (subcontract from ChemLinks grant), "ChemLinks Module Development," 1998, \$5,000.

National Science Foundation (subcontract from New Traditions grant), "New Traditions Inorganic Chemistry Course," 1997, \$5,000.

GlaxoWellcome Summer Fellowship (to support work of Sarah Cortright), "Asymmetric Synthesis using Chiral Tin(II) Reagents," 1997, \$6,000.

Petroleum Research Fund (Type B), "Main Group Metal Alkoxides and Thiolates," 1991-1993, \$20,000.

National Science Foundation Chautauqua short course, "Cooperative Learning in Science and Mathematics," site expenses, travel expenses, and stipend, (total *ca.* \$20,000), 1993.

Hope College Faculty Development Grant, "New Synthetic Routes to Important Materials," 1993, \$2,800.

Pew Mid-States Consortium for Math and Science, funding for workshop on cooperative education in science, 1992, \$26,800.

Hope College Faculty Development Grant, "The Completion of NMR Studies on New Tin(II) Compounds," 1990, \$2,400.

Research Corporation, Cottrell College Science Grant, "Synthesis of Early Transition Metal-Group 14 Element Compounds: Potential Precursors to Ferroelectrics," 1988-1990, \$18,000.

Hope College Faculty Development Grant, "General Electric NMR Omega System Workshop," 1989, \$1,000.

Petroleum Research Fund (Type G), "Synthesis of Molecular Precursors to Electronic Ceramics," 1988-1990, \$18,000.

PUBLICATIONS

*indicates undergraduate author

Joanne L. Stewart and Valorie L. Wilkerson*, *ChemConnections: A Guide to Teaching with Modules*; John Wiley & Sons: New York, 1999.

George C. Lisensky, Arthur B. Ellis, Herbert Beall, Dean J. Campbell, Joanne L. Stewart, *Build a Better CD Player: How Can You Get Blue Light From a Solid?* (beta version of ChemConnections module); John Wiley & Sons: New York, 1998.

William Van Zandt*, John C. Huffman, Joanne L. Stewart, "Synthesis and X-ray Crystal Structure of a Lead Aryl Oxide Dimer, $\text{Pb}_2(\mu\text{-O-2,6-Ph}_2\text{C}_6\text{H}_3)_2(\text{O-2,6-Ph}_2\text{C}_6\text{H}_3)$," *Main Group Metal Chemistry* **1998**, *21*, 237-240.

Joanne L. Stewart, Richard A. Andersen, "Trivalent uranium chemistry: molecular structure of $[(\text{Me}_3\text{Si})_2\text{N}]_3\text{U}$," *Polyhedron* **1998**, *17*, 953-958.

Joanne L. Stewart, Richard A. Andersen, "Crystal Structure of $[(\text{Me}_3\text{Si})_2\text{N}]_4\text{U}_2[\mu\text{-N(H)(mesityl)}]_2$ and $[(\text{Me}_3\text{Si})_2\text{N}]_4\text{U}_2[\mu\text{-N(p-tolyl)}]_2$; Compounds with Asymmetrically Bridging Primary Amide and Imide Groups," *New J. Chem.* **1995**, *19*, 587-595.

"Designing Cooperative Activities" and "Small Group Skills" in *Experiences in Cooperative Learning: A Collection for Chemistry Teachers*. Edited by Susan C. Nurrenbern. Institute for Chemical Education, University of Wisconsin, Madison, 1995.

Joanne L. Stewart, "Why So Few Women?" *Council on Undergraduate Research Quarterly* **1994**, *15(1)*, 13-16.

Lucy H. Kras*, Annica Euvrard*, Yvonne N. Grassl*, Suzanne M. Ronda*, Joanne L. Stewart, "Synthesis of $\text{Sn}[\text{OCH}(t\text{-Bu})_2]_2$ and $\text{Sn}[\text{OSi}(t\text{-Bu})_3]_2$: Variable Temperature ^1H and ^{119}Sn NMR Studies," *Main Group Metal Chemistry* **1994**, *17*, 409-412.

Britt E. Lindfors*, Joanne L. Stewart; "Synthesis and Characterization of New Tin(II) Phenoxides," *Proceedings of the Fourth National Conference on Undergraduate Research*, Vol. 1, **1990**.

Joanne L. Stewart, Richard A. Andersen; "Preparation and Structure of the Addition Compound $\text{MeLiU}[\text{OCH}(\text{CMe}_3)_2]_4$; a Compound with a Uranium to Carbon Bond," *J. Chem. Soc., Chem. Comm.* **1987**, 1846-1847.

R.H. Fish, T-J Kim, J.L. Stewart, J.H. Bushweller, R.K. Rosen, J.W. Dupon; "Synthesis of Dimetalla-azacyclobutenes via Reaction of Polynuclear Heteroaromatic Nitrogen Compounds with Triruthenium Dodecacarbonyl: Reactivity and Structural Elucidation," *Organometallics* **1986**, 5, 2193-2198.

M.J. Chetcuti, M.H Chisholm, J.C. Huffman, J.L. Stewart; "Synthesis Characterization and Equilibrium of the Complexes $\text{M}_2(\text{OR})_6\text{L}_2(\text{M}=\text{M})$ [$\text{M}=\text{Mo}$, W ; $\text{R}=\text{i-Pr}$, $\text{CH}_2\text{-t-Bu}(\text{Ne})$; $\text{L}=\text{PMe}_3$, PEt_3 or $\text{L}_2=\text{Me}_2\text{PC}_2\text{H}_4\text{PMe}_2(\text{DMPE})$, $\text{Me}_2\text{PC}_2\text{H}_4\text{NMe}_2(\text{TMAPE})$]" ACS Symposium Series, 211, 527, **1983**.