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EDUCATION

Iowa State University, Ames, Iowa

Doctor of Philosophy: Chemistry, 1991, Advisor: L. Keith Woo

Dissertation Title: Electron Transfer Reactions of High-Valent Metalloporphyrins

Carroll College, Waukesha, Wisconsin

Bachelor of Science, 1984, Majors: Chemistry and Mathematics, Minor: Physics

EXPERIENCE

Chair-Department Chemistry, Geoscience, and Physics 2006–2009

Professor of Chemistry, Edgewood College, 2014-present

Associate Professor of Chemistry, Edgewood College, 2004–2014

Assistant Professor of Chemistry, Edgewood College, 2001–2004

- Taught Chemistry 110 S: Introductory Chemistry
- Taught Chemistry 111 S: Introductory Organic Chemistry and Biochemistry
- Taught Chemistry 120 S: General Chemistry I
- Taught Chemistry 121 S: General Chemistry II
- Taught Chemistry 200 2E: Green and Sustainable Chemistry
- Taught Chemistry 321: Organic Chemistry I
- Taught Chemistry 361: Physical Chemistry
- Taught Chemistry 370: Integrated Laboratory
- Taught Chemistry 371: Inorganic Chemistry I
- Taught Chemistry 400 3: Ethics and Responsibility in Scientific Research

- Taught Chemistry 471: Inorganic Chemistry II
- Taught Chemistry 480 K: Chemistry Seminar
- Taught First Year Forum
- Supervised undergraduate research projects, 2001–present
- Supervised Human Issues projects, 2003–2013
- Faculty Athletics Representative to National Collegiate Athletic Association for Edgewood College, 2006–present
- Faculty advisor of Achievement in Medicine, 2005–present
- Symposium Organizer 20th and 22nd Biennial Conference of Chemical Education 2008, 2012
- Reviewer for Journal of Chemical Education and The Chemical Educator, 1996–present
- Book proposal reviewer for ReAction! Chemistry in the Movies
- Textbook reviewer: *Physical Chemistry* by Atkins and dePaula, *Analytical Chemistry* and *Quantitative Analysis* by Hage and Carr

Curriculum development, including program review, 2012

- Reviewer for joint United States and former Soviet Union research proposal
- Reviewer for Petroleum Research Fund
- Judge Davidson Institute for Talent Development
- Prepared grants
- Supervised instrument purchases
- Academic Advisor for the Athletic Department, 2002–2006
- Member of the 18th Biennial Conference of Chemical Education Organizing Committee
- Curriculum development, 2004
- Had radioactive material removed from chemistry stockroom
- Summer researcher at the University of Wisconsin, 2003

Assistant Professor of Chemistry, Glenville State College, 1996–2001

- Attended National Microscale Chemistry Center Workshop at Merrimack College
- Taught biochemistry and organic, inorganic, general, allied health, analytical, and physical chemistry courses
- Supervised undergraduate student workers
- Prepared program review reports
- Pre-health profession advisor
- Supervised undergraduate research
- Supervised chemical laboratory cleanup and inventory
- Obtained West Virginia EPSCoR Instrumentation Grant
- Obtained Passer Professional Development Grant
- Curriculum development
- Faculty advisor for award winning student section of the American Chemical Society
- Directed seminar program
- Supervised professional school visitation program
- Obtained publicity for chemistry program
- Supervised instrument purchases
- Textbook reviewer

Visiting Assistant Professor of Chemistry, Mercer University, 1995–1996

- Taught General Chemistry lecture and laboratory
- Supervised undergraduate research student

Postdoctoral Fellow, University of Pennsylvania, Advisor: Michael J. Therien 1993–1995

- Prepared electron deficient, pyrrole derivatives, porphyrins and metal complexes of these porphyrins
- Investigated photophysical, electrochemical, magnetic, optical, and fluorescence properties of these porphyrins and metal complexes
- Prepared and presented research papers

Postdoctoral Fellow, University of North Carolina, Advisor: H. Holden Thorp, 1991–1993

- Prepared macrocyclic ligands and metal complexes of these ligands, polypyridyl metal complexes, and organometallic complexes
- Studied kinetics and mechanisms of metal oxo complexes with DNA
- Supervised and directed synthesis of organometallic complexes for quenching studies
- Supervised undergraduate research students
- Instructed students in high vacuum techniques

Research and Teaching Assistant, Iowa State University, Advisor: L. Keith Woo, 1986–1991

- Taught general chemistry recitation and general and inorganic chemistry laboratories
- Graded for inorganic and organometallic chemistry courses
- Prepared high-valent metalloporphyrins
- Studied atom transfer kinetics, mechanisms, and thermodynamics of these complexes
- Prepared and studied reactions with organometallic complexes
- Supervised undergraduate research students

RESEARCH INTERESTS

- Chemical education using movies, novels, television, and analogies
- Integration of green chemistry into chemistry curriculum, Human Issues, and COR programs
- Kinetics, mechanisms, and thermodynamics of atom transfer reactions
- Sulfur reductions of porphyrinatonicitridometal complexes
- Active learning curricular development of chemistry laboratory and classes
- Historical investigations of World War I munitions workers
- Preparation of electron deficient porphyrins and metal complexes

INSTRUMENTATION EXPERIENCE

- Fourier transform infrared spectroscopy
- Fourier transform nuclear magnetic resonance spectroscopy
- Ultraviolet-visible spectroscopy
- High High-pressure liquid chromatography
- X-ray fluorescence spectroscopy
- Gas chromatography

- Electrochemical techniques
- Florescent spectroscopy
- Small kit gel electrophoresis
- Glovebox and high vacuum techniques

GRANTS

- Prepared Petroleum Research Fund proposal entitled “Investigations of Sulfur Reduction Products of High-Valent Metalloporphyrins”
- Edgewood College Minigrants
- West Virginia EPSCoR Instrumentation Grant
- Passer Professional Development Grant
- Glenville State College Technology Minigrant

PROFESSIONAL AFFILIATIONS

- American Chemical Society, member since 1983
 - Division of Chemical Education
 - Division of Inorganic Chemistry
- Secretary of the Northern West Virginia Section of the American Chemical Society, 2000
- Student Affiliate of the American Chemical Society, 1982–1984
- Council of Undergraduate Research, member since 2003
- Midwestern Association of Chemistry Teachers in Liberal Arts Colleges, member since 2003
- Chemical Education Newsgroup
- National Science Teachers Association, member since 2005
- Virtual Inorganic Pedagogical Education Resource, member since 2008
- Green Chemistry Education Network, member since 2006
- Sr. Mary Nona McGreal Society, gold member since 2007

COMMITTEE WORK

- Professional Development Committee, 2012–present, Chair 2013–present
- Coordinator Faculty Colloquium, 2012–2013 with Sayeeda Mamoon, 2013–2014 with Annette Hemmings
- Chemistry Program Review Chemistry, Chair 2012
- Athletic Advisory Committee, 2004–present, Chair 2012 to present
- Exploration of the Natural World and Analysis of Human Behavior and Social Structure Domain Subcommittee, 2011–present, Chair 2011–present
- COR Domain Subcommittee, 2012–present
- Oral Communications Cornerstone Subcommittee, 2008–2010
- Physics Search Committee Chair, 2012: First tenure track search in the department since 2001
- Adjunct Faculty Evolutions Policy Development, 2011
- Faculty Athletic Representative to the NCAA, 2006– present
- Chair Northern Athletics Conference Faculty Athletic Representative Standing Committee, 2008–2010

- Reader for Advanced Placement Chemistry Exam, 2004–present
- Secretary Faculty Association, 2009–2010
- Adjunct Physics Search Committee Chair, 2013
- Organizing Committee Sister Ester Heffernan Lecture, 2013
- Associate Dean of Student’s Search Committee, 2009
- Natural Science Division Student Issues Committee, 2003–present
- Natural Science Division Grievance Committee, 2012–present
- Men’s Basketball Search Committee, 2012
- Interview Panel Men’s Basketball Coach, 2006
- Interview Panel Women’s Basketball Coach, 2004, 2006, 2009
- Interview Panel Women’s Tennis Coach, 2009
- Interview Panel Women’s Volleyball Coach, 2006
- Interview Panel Athletics Director, 2006
- Religious Studies Faculty Search Committee, 2008
- Adjunct Chemistry Faculty Search Committee, 2006
- Student Affairs Committee, 2004–2008
- General Education Review Committee, 2003–2005
- Physical Science Curriculum Committee, Chair 2003–2005
- Sonderegger Science Director Search Committee, 2002
- Administrative Assistant Search Committee, 2004
- Interview Panel Sports Information Director, 2003
- Biology Search Committee, 2005
- Mathematics Search Committee, 2003
- Interactive Science Education Exhibit Center Committee, 2004–2006
- Teagle Committee, 2001–2003
- Safety Committee, 2002–present
- Assessment Committee, 2002–2004
- Undergraduate Research Committee, 2002–2004
- Scholarship Committee, 2002–2004
- Bio/Chem Curriculum Committee, 2002–2003
- Majors/Minors Committee, 2002–2003
- Administrative Resource Committee, 2002–2003
- Laboratory Fee Committee, 2005–2006
- Instructional Technology Committee, 2007–2008
- Divisional Space Committee, 2003–2004
- Student Selected Inorganic Seminar Committee, 1989-1990, Chair 1990
- Science Olympiad Judge

SELECTED PUBLICATIONS

Goll, J. G. Using Space Program from Mercury to Apollo as Portrayed in the Movies *The Right Stuff* and *Apollo 13* and the Miniseries *From the Earth to the Moon* as a Teaching Tool, *American Chemical Society Symposium Series Hollywood Chemistry: When Science Meet Entertainment*, **2013**, 1139, 189. Invited book chapter

Goll, J. G. Identifying Solution Using Physical and Chemical Properties *Green Chemistry Education Materials*, **2012**. Invited article.

Goll, J. G. Enhanced Understanding of Chemical Concepts Through the Use of Analogies *Chem 13 News*, **2009**, 369, 8.

Gll, James G.; Wilkinson, L.; Snell, D. Teaching Chemistry Using *October Sky*. *Journal of Chemical Education*, **2009**, 86, 177.

Goll, J. G. Letter to the Editor *Journal of College Science Teaching*, **2008**, 38, 8.

Goll, J. G.; Ley, J. L.; Nytes, T. M. The Girls with Yellow Hands. *The Chemical Educator*, **2008**, 13, 3.

Goll, J. G.; Schiebel, A.; Ley, J. L. Teaching Science Using the Movie *Apollo 13*. *ScienceScope*, **2006**, 19, 57.

Goll, J. G.; Mundinger, S. L. Teaching Chemistry Using From the Earth to the Moon. *Journal of Chemical Education*, **2003**, 81, 292. March Issue Cover Story

Goll, J. G.; Woods, B. J. Teaching Chemistry Using the Movie *Apollo 13*. *Journal of Chemical Education*, **1999**, 76, 506.

Goll, J. G.; Moore, K. T.; Ghosh, A.; Therien M. J. Photophysics, Electrochemistry, Synthesis, and X-ray Photoelectron Spectroscopy of Highly-Electron Deficient [5,10,15,20-tetra(perfluoroalkyl)-porphyrinato] Zinc Complexes and their Free Base Derivatives. *Journal of the American Chemical Society*, **1996**, 118, 8344.

Goll, J. G.; Thorp, H. H. Oxidation of DNA by *trans*-Dioxoruthenium(VI) Complexes: Self Inhibition of DNA Cleavage by Metal Complexes. In honor of Harry B. Gray's 60th Birthday *Inorganica Chimica Acta*, **1996**, 242, 219.

Cheng, C.; Neyhart, G. A.; Welch, T. W.; Goll, J. G.; Thorp, H. H. Thermodynamics and Kinetics of Competing Redox Processes During DNA Cleavage: Reactivity-based Selectivity. **1995**, *NATO Symposium Series*.

Cheng, C.; Goll, J. G.; Neyhart, G. A.; Welch, T. W.; Singh, P.; Thorp, H. H. Relative Rates and Potentials of Competing Redox Processes During DNA Cleavage: Oxidative Mechanisms and Sequence-Specific Catalysis of the Self-Inactivation of Oxometal Oxidants by DNA. *Journal of the American Chemical Society*, **1995**, 117, 2970.

Goll, J. G.; Liu, W.; Thorp, H. H. Excited-State Quenching Through Large Intrinsic Barriers: Proton-Transfer Reactions of Metal Hydrides. *Journal of the American Chemical Society*, **1993**, 115, 11048.

Welch, T. W.; Neyhart, G. A.; Goll, J. G.; Cifan, S. A.; Thorp, H. H. Thymidine-Specific Cleavage of DNA by Octahedral Oxopolypyridyl-ruthenium(IV) Complexes. *Journal of the American Chemical Society*, **1993**, 115, 9311.

Woo, L. K.; Goll, J. G.; Berreau, L. M.; Weaving, R. Oxygen Atom Transfer Reactions of Chromium Porphyrins: An Electronic Rationale for Oxo Transfer versus μ -oxo Product Formation. *Journal of the American Chemical Society*, **1992**, *114*, 7411.

Woo, L. K.; Goll, J. G.; Czapla, D. J.; Hays, J. A. Thermodynamic and Kinetic Aspects of Two- and Three-Electron Redox Processes Mediated by Nitrogen Atom Transfer. *Journal of the American Chemical Society*, **1991**, *113*, 8478.

Woo, L. K.; Hays J. A.; Goll, J. G. Oxo-Transfer Reactions of Chromium and Titanium Porphyrins. *Inorganic Chemistry*, **1990**, *29*, 3917.

Woo, L. K.; Czapla, D. J.; Goll, J. G. Nitrogen/Chlorine Atom Exchange Reactions Between Manganese Porphyrins: Apparent Bridging Ligand Preferences in an Inner Sphere Process. *Inorganic Chemistry*, **1990**, *29*, 3915.

Woo, L. K.; Goll, J. G. Multielectron Redox Reactions Between Manganese Porphyrins Mediated by Nitrogen Atom Transfer. *Journal of the American Chemical Society*, **1989**, *111*, 3755.

SELECTED PRESENTATIONS

Goll, J. G.; Grimes, G. Teaching chemistry using television, movies, and novels. 22nd Biennial Conference on Chemical Education, State College, PA (August 2012).

Goll, J. G. Exploration of the Chemistry of Metalloporphyrins, Faculty Colloquium, Edgewood College, Madison, WI (May 2012).

Goll, J. G. Green Chemistry in General Chemistry and COR at Edgewood College 243rd National Meeting of the American Chemical Society, San Diego, CA (March 2012). Invited talk

Goll, J. G. Incorporating Green Chemistry at Edgewood College. 21st Biennial Conference on Chemical Education, Denton TX (August 2010).

Goll, J. G. Green Chemistry at Edgewood College. National Science Teachers Association, Minneapolis, MN (Presented October 2009).

Goll, J. G. Using Television Shows, Popular Movies, Novels and Analogies as Teaching Tools for Chemistry. ChemED 2009, Radford, VA (Presented August 2009).

Goll, J. G. Television Shows, Popular Movies, Novels and Analogies as Teaching Tools for Chemistry. Third Annual STEM Conference, Baraboo, WI (Presented May 2009).

Goll James G.; Haebig, J.; Mork, M.; Dokey, J.; Duellman, T.; Oryall, D. Green Chemistry and the Human Issues Studies Program at Edgewood College. 237th National Meeting of the American Chemical Society, Salt Lake City, UT (Presented March 2009). *Selected for Sci-Mix*

Goll James G.; Mork, M. Green Chemistry: A Human Issues Project. 237th National Meeting of the American Chemical Society, Salt Lake City, UT (Presented March 2009). *Selected for Sci-Mix*

Goll, J. G.; Wilkinson, L. Chemistry of *October Sky*. Midwest Association of Chemistry Teachers at Liberal Arts Colleges Conference, Dubuque, IA (Presented October 2008).

Goll, J. G. Teaching Chemistry Using Movies, Television, and Novels Biennial Conference on Chemical Education, Bloomington IN (Presented July 2008).

Goll, J. G.; Wilkinson, L. Chemistry of *October Sky*. 20th Biennial Conference on Chemical Education, Bloomington IN (Presented July 2008).

Goll, J. G.; Biller, J. R.; Handorf, A. M.; Eanelli, K. E.; Riley, P. K. Green Chemistry: A Human Issues Project at Edgewood College. Council on Undergraduate Research Conference, Greencastle, IN (Presented June 2006).

Goll, J. G.; Ley, J. L.; Nytes, T. M. The Girls with Yellow Hands. Council on Undergraduate Research Conference, Greencastle, IN (Presented June 2006).

Goll, J. G.; Ley, J. L.; Nytes, T. M. The Girls with Yellow Hands. Seven Rivers Undergraduate Research Symposium, LaCrosse, WI (Presented November 2005).

Goll, J. G.; Kately, L. J. The First Three Years as a Faculty Member. Midwest Association of Chemistry Teachers at Liberal Arts Colleges Conference, Appleton, WI (Presented October 2005).

Goll, J. G.; Biller, J. R.; Riley, P. K. Green Chemistry: A Human Issues Project at Edgewood College. Midwest Association of Chemistry Teachers at Liberal Arts Colleges Conference, Appleton, WI (Presented October 2005).

Goll, J. G.; Stracener, L. K-16 Activities at Edgewood College, Edgewood High School, and Edgewood Campus School. 18th Biennial Conference on Chemical Education, Ames, IA (Presented July 2004).

Goll, J. G. Porphyrins Throughout the Curriculum. 18th Biennial Conference on Chemical Education, Ames, IA (Presented July 2004).

Goll, J. G.; Snell, D. The Chemistry of *October Sky*. North Central Association for the Education of Teachers in Science, Rochester, MN (Presented October 2003).

Goll, J. G. Interviewing at Primarily Undergraduate Institutions. Seminar at University of Wisconsin (Presented June 2003).

Goll, J. G. Interviewing at Primarily Undergraduate Institutions. Seminar at Iowa State University of Science and Technology (Presented June 2003).

Goll, J. G.; Rhodes, S.; Rubio, B. Teaching Science Using the Movie *Apollo 13*. National Science Teachers Association, Philadelphia, PA (Presented March 2003).

Goll, J. G. Teaching Chemistry Using TV and the Movies. North Central Association for the Education of Teachers in Science, Madison, WI (Presented October 2001).

Goll, J. G. Electronically Deficient Porphyrins and Metalloporphyrins. Seminar at Ohio State University (Presented March 2001).

Goll, J. G. Electronically Deficient Porphyrins and Metalloporphyrins. Seminar at Marshall University (Presented September 2000).

Goll, J. G.; Kennedy, C. Teaching Chemistry Using *From the Earth to the Moon*. 220th National Meeting of the American Chemical Society, Washington, DC (Presented August 2000).

Goll, J. G.; Craft, B. The Chemistry of *October Sky*. 220th National Meeting of the American Chemical Society, Washington DC (Presented August 2000).

Goll, J. G.; Woods, B. J.; Kelley, W. W. Early Transition Metal Electron Deficient Metalloporphyrins. 219th National Meeting of the American Chemical Society, San Francisco, CA (Presented March 2000).

Goll, J. G. Teaching Using the Apollo Program. Seminar at Central Washington University (Presented November 1999).

Goll, J. G. Teaching Using the Movie *Apollo 13*. Seminar at Clemson University (Presented March 1998).

Goll, J. G.; Bradford, D. C. Integration of UV-vis Spectroscopy and Electrochemistry into the Teaching and Research at Glenville State College. West Virginia EPSCoR Conference, Charleston, WV (Presented October 1997).

Goll, J. G.; Woods, B. J. The Movie *Apollo 13* Viewed Through Chemists' Eyes. 214th National Meeting of the American Chemical Society, Las Vegas, NV (Presented September 1997).
Selected for symposium on the use of chemistry in the Movies and TV. Subject of Chemistry and Engineering News Article, Chemistry Classes are Transformed.

Hanson, R. M.; Lancaster, M. D.; Lancaster, J. D.; Carpenter, J.; Kelley, W. W.; Mays, R.L.; Jones, S.D.; Tingler D.; Vallombroso, T.; Goll, J. G. Student Affiliate Presentation. 213th National Meeting of the American Chemical Society, San Francisco, CA (Presented March 1997).

Goll, J. G. Using the Movie *Apollo 13* to Demonstrate Chemical Principles. 212th National Meeting of the American Chemical Society, Orlando, FL (Presented August 1996). *Selected for Sci-Mix.*

Goll, J. G.; Moore, K. T.; Ghosh, A.; Therien, M. J. Preparation, Characterization, and Spectroscopy of New Electron Deficient Porphyrins and Metalloporphyrins. 210th National Meeting of the American Chemical Society, Chicago, IL (Presented August 1995).

Goll, J. G.; Grover, N.; Thorp, H. H. DNA Cleavage by Transdioxoruthenium(VI). 204th National Meeting of the American Chemical Society, Washington, DC (Presented August 1992).

PROFESSIONAL INTERVIEWS and QUOTATIONS

Griep, M.; Mikasen, M. ReAction! Chemistry in the Movies, Quotation for Jacket Cover, July **2009**.

Albanese, M. Role of the Faculty Athletics Representative at Edgewood College, Halftime Interview, February **2008**.

Ham, B. Chemistry on Television. *Chemistry*, **2006**, 29.

Brennan, M., B. Chemistry Classes are Transformed. *Chemistry & Engineering News*, **1997**, 39.

SYMPOSIA ORGANIZED and PRESIDER

Organizer and Presider, Chemistry and Popular Media Biennial Conference on Chemical Education, State College, PA, July 2012

Presider, Advances in Teaching Inorganic Chemistry and Teaching through Different Lenses. Midwest Association of Chemistry Teachers at Liberal Arts Colleges Conference, Decorah, IA October 2010.

Organizer and Presider, Teaching Chemistry Using Novels, Movies, Television, Comics, and Analogies Chemical Education Conference, Radford, VA, August 2009.

Presider, Advances in Teaching Inorganic Chemistry. Midwest Association of Chemistry Teachers at Liberal Arts Colleges Conference, Dubuque, IA October 2008.

Organizer and Presider, two sessions, Teaching Chemistry Using Popular Media.

Biennial Conference on Chemical Education, Bloomington IN, July 2008.

Presider, one session, Novel Ideas in Inorganic Chemistry – Lecture and Laboratory.

Biennial Conference on Chemical Education, Bloomington IN, July 2008.

Presider, The Pro and Cons of a Natural Science Division Structure. Midwest Association of Chemistry Teachers at Liberal Arts Colleges Conference, LaCrosse, WI October 2007.