

Jonathan R. Frisch, PhD

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Education

University of Minnesota, Minneapolis, MN January 2010
Ph.D. (Inorganic Chemistry)

ADVISOR: PROFESSOR LAWRENCE QUE, JR.

Minnesota State University, Mankato, MN June 2001
B.S. (Psychology)
Summa Cum Laude

Professional Experience

University of Wisconsin - Stout Menomonie, WI August 2017 – present

Assistant Professor of Chemistry

- Teach Introductory Chemistry (CHEM 135)
- Teach Instrumental Methods of Analysis (CHEM 435)
- Teach Inorganic Chemistry (CHEM 425)
- Teach College Physics II (PHYS 242)
- Serve as Applied Science Industrial Chemistry Concentration Coordinator (2017 – present)
- Serve on DIN Committee (2017 – present)
- Represent STEMM on Institutional Review Board (2017 – present)
- Serve on Applied Biochemistry and Molecular Biology Committee (2017 – present)
- Serve on Interdisciplinary Science Concentration Committee (2017 – present)
- Oversee Undergraduate Research Using Biomimetic Complexes for Oxygen Activation and CO₂ Remediation (2017 – present)

University of Wisconsin - Stout Menomonie, WI August 2013 – June 2017

Instrumentation Innovator and Instructor

- Coordinated instrument use, training and maintenance for entire department
- Coordinated interdepartmental research
- Provided expertise to maximize effective use of chemical instrumentation
- Taught Analytical Chemistry Lab (CHEM 331)
- Taught Introductory Chemistry (CHEM 135)
- Taught Instrumental Methods of Analysis (CHEM 435)
- Taught Inorganic Chemistry (CHEM 425)
- Taught University Physics I Laboratory (PHYS 281)
- Taught College Physics II Laboratory (PHYS 242)
- Produced proposal for new Inorganic Chemistry course (course was approved)
- Served on Committee for Addition of Industrial Chemistry Concentration in the Applied Science Program (concentration was approved)

- Served on Physics Lab Manager Search Committee (2016)
- Served on DIN Committee (2016 – 2017)
- Represented STEMM on Institutional Review Board (2015 – 2017)
- Served on Committee for Applied Biochemistry and Molecular Biology as a New Program (2015 – 2017)
- Served on Interdisciplinary Science Concentration Committee (2014 – 2017)

Kappler Guntersville, AL

February 2012 – June 2013

Consultant

- Analysis of fire-retardant materials
- Confidential work investigating various properties of other materials

Mississippi State University Mississippi State, MS

January 2011 – June 2013

Instrumentation Manager and Instructor

- Coordinated instrument acquisition, use, training and maintenance for entire department
- Coordinated interdepartmental research with Departments of Biology, Chemical Engineering, Veterinary Science, Anthropology and Archaeology
- Chaired Committee to Unify Upper Level Undergraduate Labs

Hamline University Saint Paul, MN

September 2010 - December 2010

Visiting Assistant Professor of Chemistry

- Taught Inorganic Chemistry

University of Wisconsin - Stout Menomonie, WI

September 2009 - September 2010

Lecturer

- Taught Introductory Chemistry (CHEM 135)
- Taught Chemistry of Polymers (CHEM 325)
- Taught Chemistry of Materials (CHEM 341)

The Princeton Review Minneapolis, MN

December 2006 - December 2010

Instructor and Tutor

- Generated and presented lectures on both general chemistry and introductory physics
- Tutored individual students in both general chemistry and introductory physics

University of Minnesota Minneapolis, MN

January 2006 - January 2010

Research Assistant

- Devised new technique for Fe(IV)-oxo resonance Raman spectroscopy
- Designed and synthesized air-sensitive, bioinorganically relevant coordination complexes
- Performed X-ray diffraction crystallography of synthesized complexes
- Planned and executed reactions involving synthesized complexes

- Analyzed intermediates using UV-Vis, resonance Raman, Mössbauer and X-ray absorption spectroscopies
- Maintained and utilized Argon and Krypton lasers and related monochromator/detector
- Mentored junior graduate students

University of Minnesota Minneapolis, MN

January 2004 - December 2005

Teaching Assistant

- Prepared and presented weekly lesson plan for two general chemistry laboratory sections
- Tutored both general and inorganic chemistry
- Provided written performance feedback to both students and professors

Publications

Bigelow, J. O.; England, J.; Klein, J. E. M. N.; Farquhar, E. R.; Frisch, J. R.; Martinho, M.; Mandal, D.; Münck, E.; Shaik, S. and Que, Jr., L. "Oxoiron(IV) Tetramethylcyclam Complexes with Axial Carboxylate Ligands: Effect of Tethering the Carboxylate on Reactivity" *Inorg. Chem.* **2017**, *56*, 3287.

Peacock, E.; Gabitov, R.; Frisch, J. R.; Hadden, C. S.; Carlock, B. and Henderson, K. L. "LA-ICP-MS chemical analysis of archaeological otoliths as a tool for seasonality and site catchment studies" *Journal of Archaeological Science*, **2016**, *65*, 11.

England, J.; Bigelow, J. O.; Van Heuvelen, K. M.; Farquhar, E. R.; Martinho, M.; Meier, K. K.; Frisch, J. R.; Münck, E. and Que, Jr., L. "An ultra-stable oxoiron(IV) complex and its blue conjugate base" *Chemical Science*, **2014**, *5*, 1204.

Frisch, J. R.; McDonnell, R.; Rybak-Akimova, E. V. and Que, Jr., L. "Factors Affecting the Carboxylate Shift Upon Formation of Nonheme Diiron-O₂ Adducts" *Inorganic Chemistry*, **2013**, *52*, 2627.

Wang, D.; Ray, K.; Collins, M. J.; Farquhar, E. R.; Frisch, J. R.; Gómez, L.; Jackson, T. A.; Kerscher, M.; Waleska, A.; Comba, P.; Costas, M. and Que, Jr., L. "Nonheme oxoiron(IV) complexes of pentadentate N5 ligands: spectroscopy, electrochemistry, and oxidative reactivity" *Chemical Science*, **2013**, *4*, 282.

Company, A.; Prat, I.; Frisch, J. R.; Mas-Ballesté, R.; Güell, M.; Juhász, G.; Ribas, X.; Münck, E.; Luis, J. M.; Que, Jr., L.; Costas, M. "Modeling the *cis*-Oxo-Labile Binding Site Motif of Non-Heme Iron Oxygenases: Water Exchange and Oxidation Reactivity of a Non-Heme Iron(IV)-Oxo Compound Bearing a Tripodal Tetradentate Ligand" *Chemistry - A European Journal*, **2011**, *17*, 1622.

Garcia-Bosch, I.; Company, A.; Frisch, J. R.; Torrent-Sucarrat, M.; Cardellach, M.; Gamba, I.; Güell, M.; Casella, L.; Que, Jr., L.; Ribas, X.; Luis, J. M.; Costas, M. "O₂-Activation and Selective Phenolate *ortho*-Hydroxylation by an Unsymmetric Dicopper μ - η^1 : η^1 -Peroxido Complex" *Angewandte Chemie (International ed. in English)*, **2010**, *49*, 2456.

Frisch, J. R.; Vu, V. V.; Martinho, M.; Münck, E.; Que, Jr., L. "Characterization of Two Distinct Adducts in the Reaction of a Non-heme Diiron(II) Complex with O₂" *Inorganic Chemistry*, **2009**, *48*, 8325.

England, J.; Martinho, M.; Farquhar, E. R.; Frisch, J. R.; Bominaar, E. L.; Münck, E.; Que, Jr., L. "A Synthetic High-Spin Oxoiron(IV) Complex. Generation, Spectroscopic Characterization, and Reactivity" *Angewandte Chemie (International ed. in English)*, **2009**, *48*, 3622.
Fiedler, A. T.; Shan, X.; Mehn, M. P.; Kaizer, J.; Torelli, S.; Frisch, J. R.; Koder, M.; Que, Jr., L. "Spectroscopic and Computational Studies of (∞ -Oxo)(∞ -1,2-peroxo)diiron(III) Complexes of Relevance to Nonheme Diiron Oxygenase Intermediates" *J. Phys. Chem. A*, **2008**, *112*, 13037.

Thibon, A.; England, J.; Martinho, M.; Young, Jr., V. G.; Frisch, J. R.; Guillot, R.; Girerd, J.-J.; Münck, E.; Que, Jr., L.; Banse F. "Proton- and Reductant-Assisted Dioxygen Activation by a Nonheme Iron(II) Complex to Form an Oxoiron(IV) Intermediate" *Angewandte Chemie (International ed. in English)*, **2008**, *47*, 7064.

Presentations

Dissertation Defense

University of Minnesota, Minneapolis, MN January 2010
Frisch, J. R. and Que, Jr., L. "Spectroscopic Identification and Characterization of Diiron(III,III)-Peroxo Intermediates"

Metalloprotein Interest Group

University of Minnesota, Minneapolis, MN February 2009
Frisch, J. R. and Que, Jr., L. "Unexpected Bridge Effects on the Stability of Diiron(III,III)-Peroxo Intermediates"

Metalloprotein Interest Group

University of Minnesota, Minneapolis, MN September 2007
Frisch, J. R. and Que, Jr., L. "Spectroscopic Investigation of Nonheme Peroxodiiron Substrate Oxidations"

Posters

STEMM Student Project Expo May 2017
University of Wisconsin-Stout, Menomonie, WI
Jerominski, E. and Frisch, J. R. "AA Spectroscopy Analysis of Sodium and Potassium Content in Sport Drinks"

STEMM Student Project Expo May 2017
University of Wisconsin-Stout, Menomonie, WI
Ebert, E.; James, W. and Frisch, J. R. "Measuring Phosphorous in Lake Menomin and the Red Cedar River"

STEMM Student Project Expo May 2017
University of Wisconsin-Stout, Menomonie, WI
Schroder, J. and Frisch, J. R. "Analysis of Metals in Bottled Water"

STEMM Student Project Expo May 2017
University of Wisconsin-Stout, Menomonie, WI
Junaidi, N. J. and Frisch, J. R. "Various Atomic Absorption Spectroscopies for Identification of Stainless Steel Grades"

- STEM Student Project Expo** May 2016
 University of Wisconsin-Stout, Menomonie, WI
 Vandenberg, M. L.; James, W. and Frisch, J. R. "Phosphorus Content of Creeks in Dunn County, Wisconsin"
- STEM Student Project Expo** May 2016
 University of Wisconsin-Stout, Menomonie, WI
 Thomas, M.; Kadnikov, D.; Grant, J. and Frisch, J. R. "Synthesis of a New Chemical Probe for the Detection of Citrullination of Proteins Linked to Autoimmune Diseases"
- STEM Student Project Expo** May 2016
 University of Wisconsin-Stout, Menomonie, WI
 Olson, M. C. and Frisch, J. R. "Analysis of Ethanol and Unique Additives in Gasoline"
- STEM Student Project Expo** May 2016
 University of Wisconsin-Stout, Menomonie, WI
 Kadlec, K. and Frisch, J. R. "MALDI-TOF Mass Spectrometry: Theory & Practice"
- STEM Student Project Expo** May 2016
 University of Wisconsin-Stout, Menomonie, WI
 Eckert, J. and Frisch, J. R. "Use of ELISA in Testing Cyanobacteria Accumulation in Fish"
- STEM Student Project Expo** May 2015
 University of Wisconsin-Stout, Menomonie, WI
 Kholos, S. and Frisch, J. R. "Analysis of Total Carbohydrate Content in Regular Beer and Light Beer Using Ultraviolet-Visible Spectroscopy"
- STEM Student Project Expo** May 2015
 University of Wisconsin-Stout, Menomonie, WI
 Sargeant, M. and Frisch, J. R. "Analysis of Bisphenol-A in Common Plastics"
- STEM Student Project Expo** May 2015
 University of Wisconsin-Stout, Menomonie, WI
 Komro, J. J. W. and Frisch, J. R. "Analysis of Ethanol Content in Distilled Liquors"
- STEM Student Project Expo** May 2015
 University of Wisconsin-Stout, Menomonie, WI
 Petska, E. M. and Frisch, J. R. "Effects of Agricultural Runoff on Total Phosphorus in Isolated Wetlands"
- STEM Student Project Expo** May 2014
 University of Wisconsin-Stout, Menomonie, WI
 Pilney, E. and Frisch, J. R. "Determining Radicals in Metalin Yellow Using HRP"
- STEM Student Project Expo** May 2014
 University of Wisconsin-Stout, Menomonie, WI
 Smith, A. and Frisch, J. R. "Evaluating Nitrate Levels in St. Croix River Tributaries"

STEM Student Project Expo University of Wisconsin-Stout, Menomonie, WI Lucchesi, J. and Frisch, J. R. "Methylene Chloride in Coffee"	May 2014
STEM Student Project Expo University of Wisconsin-Stout, Menomonie, WI Voeller, S. and Frisch, J. R. "Daily Chemical Contact Measured From Commercial Silicone Bracelets"	May 2014
STEM Student Project Expo University of Wisconsin-Stout, Menomonie, WI Hanson, M. and Frisch, J. R. "Phosphorus in Groundwater"	May 2014
STEM Student Project Expo University of Wisconsin-Stout, Menomonie, WI Kilibarda, S. and Frisch, J. R. "Alcohol in Wine"	May 2014
STEM Student Project Expo University of Wisconsin-Stout, Menomonie, WI Hansen, H. and Frisch, J. R. "Cadmium and Phosphate Analyses of Water Samples from Lakes and Rivers around Menomonie"	May 2014
235th ACS National Meeting New Orleans, LA Frisch, J. R.; Fiedler, A. T., Martinho, M.; Stubna, A.; Münck, E.; Que, Jr., L. "Characterization and Reactivity of Two Diiron(III,III)-Peroxo Complexes Formed from a Single Diiron(II,II) Complex"	April 2008
1st Georgian Bay International Conference on Bioinorganic Chemistry Parry Sound, Ontario Frisch, J. R. and Que, Jr., L. "Formation of Two Different Peroxodiiron(III,III) Species from One Diiron(II,II) Complex"	May 2007
Gordon Research Conference Ventura, CA Frisch, J. R. and Que, Jr., L. "Bridge Effects on Nonheme Diiron(II,II)/O ₂ Reactivity"	February 2006

Honors and Awards

University of Wisconsin Stout Summer Research Fellowship	2018
University of Wisconsin Stout STEMM Startup Funding	2017
Bagley College of Engineering IMAGE Award <i>(Increasing Minority Access to Graduate Education)</i>	2012
University of Minnesota Chemistry Graduate Research Appointment	2006 - 2010
CRC Freshman Chemistry Award	1999

University Service

Mississippi State University

- Chaired Committee to Unify Upper Level Undergraduate Labs (2011 – 2012)

University of Wisconsin-Stout

- Serve on Applied Biochemistry and Molecular Biology Committee (2017 – present)
- Served on Committee for Addition of Industrial Chemistry Concentration in the Applied Science Program (concentration was approved)
- Served on Physics Lab Manager Search Committee (2016)
- Serve on DIN Committee (2016 – present)
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- Serve on Interdisciplinary Science Concentration Committee (2014 – present)

Volunteer Work

National Science Olympiad <i>Staff Scientist</i>	2016
Wisconsin State Science Olympiad <i>Bottle Rocket</i>	2016
Wisconsin State Science Olympiad <i>Chemistry Lab</i>	2014
Mississippi Science and Engineering Fair <i>Region V Judge</i>	2011 - 2013
Minnesota Academy of Science <i>State Science Fair Main Awards Judge</i>	2006 - 2010
University of Minnesota Chemistry Student Seminar Committee	2004 - 2010
