Katherine M. Van Heuvelen, Ph.D.

Department of Chemistry, Harvey Mudd College, 301 Platt Blvd, Claremont, CA 91711
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ACADEMIC POSITIONS

Assistant Professor of Chemistry 2012 – present
Harvey Mudd College; Claremont, CA

RESEARCH INTERESTS

Bioinorganic chemistry
Spectroscopy (UV-Vis, magnetic circular dichroism, resonance Raman, X-ray absorption, EPR)
Computational chemistry

EDUCATION

University of Wisconsin-Madison; Madison, WI 2004 – 2009
Ph.D. in Inorganic Chemistry

St. Olaf College; Northfield, MN 2000 – 2004
B.A. in Chemistry and Religion, summa cum laude

RESEARCH EXPERIENCE

University of Minnesota; Minneapolis, MN 2009 – 2012
NIH NRSA Postdoctoral Fellow 2010 – 2012
Laboratory of Professor Lawrence Que, Jr.

University of Wisconsin-Madison; Madison, WI 2004 – 2009
NSF Graduate Research Fellow 2005 – 2008
Laboratory of Professor Thomas C. Brunold

St. Olaf College**;** Northfield, MN 2002 – 2004
Laboratories of Professors Gary L. Miessler and Gary O. Spessard

PUBLICATIONS

An Ultra-Stable Oxoiron(IV) complex and its Blue Conjugate Base
England, J.; Bigelow, J.O.; **Van Heuvelen, K.M.**; Farquhar, E.R.; Martinho, M.; Meier, K.K.; Frisch, J.R.; Münck, E.; Que, L. *Chem. Sci.* **2014**, *5*, 1204 – 1215.

Sc^{3+} can trigger the formation of an oxoiron(IV) complex from O_2 and its nonheme iron(II) precursor via a Sc^{3+}-peroxo-Fe^{3+} intermediate
Li, F.; **Van Heuvelen, K.M.**; Meier, K.M.; England, J.; Münck, E.; Que, L. *J. Am. Chem. Soc.* **2013**, *135*, 10198 – 10201.

Isolation and Characterization of a Thiolato-Iron(III)-Peroxy Anion Complex
McDonald, A.R.; Van Heuvelen, K.M.; Guo, Y.; Münck, E.; Que, L. *Angew. Chem. Int. Ed.* **2012**, *51,* 9132 – 9136.

One-Electron Oxidation of an Oxoiron(IV) Complex to Form an $[O=Fe^{V}=NR]^{+}$ Center
Van Heuvelen, K.M.; Fieder, A.T.; Shan, X.; DeHont, R.; Meier, K.K.; Münck, E.; Que, L. *Proc. Nat. Acad. Sci.* **2012***, 109*, 11933 – 11938.

A More Reactive Trigonal-Bipyramidal High-Spin Oxoiron(IV) Complex with a cis-Labile Site
England, J.; Guo, Y.; Van Heuvelen, K.M.; Cranswick, M.A.; Rohde, G.T.; Bominaar, E.L. Münck, E.; Que, L. *J. Am. Chem. Soc.* **2011**, *133*, 11880 – 11883.

Characterization of a High-Spin Non-Heme Fe^{III}-OOH Intermediate and Its Quantitative Conversion to an Fe^{IV}=O Complex
Li, F; Meier, K.K.; Cranswick, M.A.; Chakrabrti, M.; Van Heuvelen, K.M.; Münck, E.; Que, L. *J. Am. Chem. Soc.* **2011**, *133*, 7256 – 7259.

Spectroscopic and Computational Studies on High-Spin Ni(II) Thiolate Compounds
Van Heuvelen, K. M.; Cho, J.; Dingee, T.; Riordan, C. G.; Brunold, T. C.
Inorg. Chem. **2010**, *49*, 6535 – 6544.

Spectroscopic and Computational Studies of the μ–η^2:η^2–Disulfido–Bridged Dinickel(II) Species $[(PhTt^{tBu})_2Ni_2(\mu–\eta^2:\eta^2–S_2)]$
Van Heuvelen, K. M.; Cho, J.; Riordan, C. G.; Brunold, T. C.
Inorg. Chem. **2010**, *49*, 3113 – 3120.

Spectroscopic and Computational Studies of the Trans-μ-1,2-Disulfido-Bridged Dinickel(II) Species $[Ni_2(tmc)_2(S_2)](OTf)_2$: Comparison of End-on Disulfido and Peroxo Bonding in Ni(II) and Cu(II) Species
Van Heuvelen, K. M.; Kieber-Emmons, M. T.; Riordan, C. G.; Brunold, T. C.
Inorg. Chem. **2010**, *49*, 3104 – 3112.

Synthesis and Spectroscopic Characterization of a μ-1,2-Disulfidodinickel Complex
Kieber-Emmons, M. T.; Van Heuvelen, K. M.; Brunold, T. C.; Riordan, C. G.
J. Am. Chem. Soc., **2009**, *131*, 440 – 441.

Computational Studies of Bioorganometallic Enzymes and Cofactors
Liptak, M. D.; Van Heuvelen, K. M.; Brunold, T. C.
In *Metal Ions in Life Sciences Vol 6: Metal-Carbon Bonds in Enzymes and Cofactors*. Eds. Sigel, A.; Sigel, H.; Sigel, R. K. O. Cambridge: Royal Society of Chemistry, 2009.

New Synthetic Routes to a Disulfido Dinickel(II) Complex: Characterization and Reactivity of a $Ni_2(\mu\text{-}\eta^2:\eta^2\text{-}S_2)$ Core
Cho, J**.;** Van Heuvelen, K. M.; Yap, G. P. A.; Brunold, T. C.; Riordan, C. G.
Inorg. Chem. **2008**, *47*, 3931 – 3933.

Ferromagnetic Semiconducting EuO Nanorods
Bierman, M. J.; Van Heuvelen, K. M.; Schmeiβer, D.; Brunold, T. C.; Jin, S.
Adv. Mater. **2007**, *19*, 2677 – 2681.

Identification of an "End-On" Nickel-Superoxo Adduct, $Ni(tmc)(O_2)^+$
Kieber-Emmons, M. T.; Annaraj, J.; Seo, M. S.; Van Heuvelen, K. M.; Tosha, T.; Kitagawa, T.; Brunold, T. C.; Nam, W.; Riordan, C. G.
J. Am. Chem. Soc. **2006**, *128*, 14230 – 14231.

Spectroscopic and Computational Studies of Reduction of the Metal versus the Tetrapyrrole Ring of Coenzyme F-430 from Methyl-Coenzyme M Reductase
Dey, M.; Kunz, R. C.; Van Heuvelen, K. M.; Craft, J. L.; Horng, Y. C.; Tang, Q.; Bocian, D. F.; George, S. J.; Brunold, T. C.; Ragsdale, S. W.
Biochemistry **2006**, *45*, 11915 – 11933.

COURSES TAUGHT

Chem 23S: Structure
Chem 19: General Chemistry Intensive
Chem 24: Chemical Laboratory
Chem 40: Introduction to Chemical Research
Chem 104: Inorganic Chemistry
Chem 110: Inorganic Chemistry Laboratory

HONORS AND AWARDS

National Institute of Health NRSA Postdoctoral Fellowship	2010 – 2012
National Science Foundation Graduate Research Fellowship	2005 – 2008
McElvain Fellowship (University of WI-Madison)	2004
Distinction in Chemistry (St. Olaf College)	2004
Distinction in Religion (St. Olaf College)	2004
Courtland and Ellen Agre Award in Chemistry (St. Olaf College)	2004
Junia Award in Religion (St. Olaf College)	2004
Dow Chemical Scholarship (St. Olaf College)	2004
Regents Scholar (50% tuition, St. Olaf College)	2000 – 2004
National Merit Scholar	2000

AFFILIATIONS

American Association for the Advancement of Science	2012 – present
American Chemical Society	2003 – present
Phi Beta Kappa	2003 – present
Theta Alpha Kappa	2004
Phi Lambda Upsilon	2004

PRESENTATIONS

Investigation of the Electronic Structure of Cobaloximes
Van Heuvelen, K. M.
Poster presented at the Gordon Research Conference: Metals in Biology,
January 26 – 31, 2014, Ventura, CA

One-Electron Oxidation of an Oxoiron(IV) Complex
Van Heuvelen, K.M.; Fiedler, A.T.; Meier,K.K.; DeHont,R.; Shan.X.; Münck,E.; Que,L..
Poster presented at the International Conference of Bioinorganic Chemistry
August 7-12, 2011, Vancouver, British Columbia

One-Electron Oxidation of an Oxoiron(IV) Complex
Van Heuvelen, K. M.; Fiedler,A.T.; Meier,K.K.; DeHont,R.; Shan.X.; Münck,E.; Que,L..
Poster presented at the Gordon Research Conference: Metals in Biology,
January 30 – February 3, 2011, Ventura, CA

Graduate School in Chemistry
Van Heuvelen, K. M**.**
Invited seminar presented at St. Olaf College
October 14, 2010, Northfield, MN

Insights into the Mechanism of Methyl-Coenzyme M Reductase: Spectroscopic and Computational Studies of Ni-C Bonding in Cofactor F430
Van Heuvelen, K. M.; Dey, M.; Kunz, R.; Ragsdale, S. W.; Brunold, T. C.
Talk presented at the Gordon Research Seminar: Bioinorganic Chemistry,
January 29 – February 1, 2009, Ventura, CA

Spectroscopic and Computational Studies of Ni–Alkyl Bonding in the Active Site of Methyl-Coenzyme M Reductase
Van Heuvelen, K. M.; Dey, M.; Kunz, R.; Ragsdale, S. W.; Brunold, T. C.
Poster presented at the Gordon Research Seminar: Bioinorganic Chemistry,
January 29 – February 1, 2009, Ventura, CA

Spectroscopic and Computational Insights into Ni–S Bonding in Methyl–CoM Reductase and Synthetic $Ni_2(S_2)$ Complexes
Van Heuvelen, K. M.; Dey, M.; Kunz, R.; Kieber-Emmons, M. T.; Cho, J.; Riordan, C. G.; Ragsdale, S. W.; Brunold, T. C.
Poster presented at the Gordon Research Seminar: Bioinorganic Chemistry,
January 31 – February 3, 2008, Ventura, CA

So You Want to Go to Grad School
Van Heuvelen, K. M.
Invited seminar presented at St. Olaf College
September 2008, Northfield, MN

Spectroscopic and Computational Studies of Ni-Containing Enzymes: Application to Acetyl-CoA Synthase/Carbon Monoxide Dehydrogenase and Methyl-Coenzyme M Reductase
Van Heuvelen, K. M.; Dey, M.; Kunz, R.; Kieber-Emmons, M. T.; Riordan, C. G.; Ragsdale, S. W.; Brunold, T. C.
Poster presented at the International Conference of Biological Inorganic Chemistry
July 31 – August 5, 2005, Ann Arbor, MI

Modeling Enzyme Active Sites: Synthesis of Group VI Heterobimetallic Compounds
Van Heuvelen, K. M.; Miessler, G. L.
Talk presented at the St. Olaf Summer Research Symposium
August 2002/2003, Northfield, MN

Green Chemistry: Diels-Alder Reactions in Ionic Solutions
Patterson, M.; Van Heuvelen, K. M.; Spessard, G.
Poster presented at St. Olaf College
May 2003, Northfield, MN

Modeling Enzyme Active Sites: Synthesis of Group VI Heterobimetallic Compounds
Van Heuvelen, K. M.; Miessler, G. L.
Talk presented at the Pew Midstates Science and Mathematics Consortium
Fall 2003, Chicago, IL