

## Dr. Sheri Lense

University of Wisconsin – Oshkosh  
Department of Chemistry  
800 Algoma Boulevard  
Oshkosh, WI 54902

Phone: (920) 424-3476  
Fax: (920) 424-3383  
lenses@uwosh.edu

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### I. EDUCATION AND PROFESSIONAL POSITIONS

#### **University of Wisconsin – Oshkosh**

Assistant Professor of Chemistry (2013 – present)

#### **Pacific Northwest National Laboratory**

Postdoctoral Research Associate (2010 – 2013)

Postdoctoral Advisor: Dr. Wendy Shaw, Ph.D.

#### **Emory University**

Ph.D. in Chemistry (2010)

Graduate Advisor: Dr. Cora Macbeth, Ph.D.

#### **Princeton University**

B.A. in Chemistry (2003)

### II. RESEARCH EXPERIENCE

#### **Assistant Professor of Chemistry**

*University of Wisconsin – Oshkosh, Oshkosh, WI* (2013 – present)

Currently studying coordination complexes used as homogeneous catalysts for the conversion of CO<sub>2</sub> to chemical fuels.

#### **Postdoctoral Research Associate with Dr. Wendy Shaw**

*Pacific Northwest National Laboratory* (2010 – 2013)

Investigated multifunction nickel-containing catalysts for hydrogen oxidation and production.

#### **Graduate Research Assistant with Dr. Cora E. MacBeth**

*Emory University, Atlanta, GA* (2006-2010)

Studied photosensitizers used in dye-sensitized solar cells and heterodinuclear coordination complexes.

#### **Undergraduate Research with Dr. Robert Cava**

*Princeton University, Princeton, NJ* (2002-2003)

Investigated proton-conducting perovskites for use in fuel cells.

### III. TEACHING EXPERIENCE AND TRAINING

**Instructor, CHEM 106 General Chemistry II Lecture, Laboratory and Discussion**

*University of Wisconsin – Oshkosh, Oshkosh, WI (Fall 2015 - present)*

**Instructor, CHEM 104 Chemistry of Materials**

*University of Wisconsin – Oshkosh, Oshkosh, WI (Spring 2015)*

**Instructor, CHEM 106 General Chemistry II Laboratory**

*University of Wisconsin – Oshkosh, Oshkosh, WI (Spring 2014 and Spring 2015)*

**Instructor, CHEM 360 Special Topics (Chemistry of Sustainable Energy)**

*University of Wisconsin – Oshkosh, Oshkosh, WI (Spring 2014)*

**Instructor, CHEM 470L Inorganic Chemistry Laboratory**

*University of Wisconsin – Oshkosh, Oshkosh, WI (Fall 2013 and Fall 2014)*

**Instructor, CHEM 470 Inorganic Chemistry**

*University of Wisconsin – Oshkosh, Oshkosh, WI (Fall 2013 and Fall 2014)*

**Teaching Assistant, CHEM 350 Inorganic Chemistry**

*Emory University, Atlanta, GA (Fall 2008)*

**Teaching Assistant, CHEM 355L Inorganic Chemistry Lab**

*Emory University, Atlanta, GA (Spring 2007)*

**Teaching Assistant, CHEM 142 General Chemistry II Lab**

*Emory University, Atlanta, GA (Spring 2006)*

**Teaching Assistant, CHEM 1A General Chemistry I Lab**

*University of California – Berkeley, Berkeley, CA (Fall 2004)*

### IV. MENTORING EXPERIENCE

**Supervisor, undergraduate students**

*Kong Choua Thao (2016-present)*

*Jessica Andersen, University of Wisconsin – Oshkosh (2016-present)*

*Rachel Radue, University of Wisconsin – Oshkosh (2015-present)*

*Madelynn Schultz, University of Wisconsin – Oshkosh (2015-present)*

*Brent Jeffery, University of Wisconsin – Oshkosh (2014-2015)*

*Andrew Wildish, University of Wisconsin – Oshkosh (2014-2015)*

*Sara Arafah, University of Wisconsin – Oshkosh (2014)*

*Emmanuel Salinas Barron, University of Wisconsin – Oshkosh (2013-2014)*

## V. FELLOWSHIPS AND GRANTS

*"MRI: Acquisition of a Nuclear Magnetic Resonance Spectrometer,"* National Science Foundation Major Research Instrumentation Grant (CHE – 1625483), \$355,244, funded 2016.

*"Multifunctional Bipyridine Ligands for the Catalytic Reduction of CO<sub>2</sub> to CO,"* American Chemical Society Petroleum Research Fund Undergraduate New Investigator Grant (54833-UNI3), \$55000, funded 2015.

*"The Synthesis and Characterization of Novel Catalysts to Recycle Carbon Dioxide,"* Undergraduate Student and Faculty Collaborative Research Project with Andrew Wildish, University of Wisconsin Oshkosh Students Scholarly and Creative Activities Program, \$3550, funded 2014.

*"Multifunctional CO<sub>2</sub> Reduction Catalysts,"* University of Wisconsin Oshkosh Internal Faculty Development Grant (FDR861), \$7889.50, funded 2014.

*"Council on Undergraduate Research"* University of Wisconsin Oshkosh Off-Campus Faculty Development Project (FDW850), \$1500, approved 2013.

## VI. AWARDS AND HONORS

ARCS® Fellowship (2009-2010)

American Crystallographic Association Scholarship for the Summer Course in Small Molecule Crystallography (2009)

## VII. PROFESSIONAL DEVELOPMENT

Inclusive Excellence Pedagogy, UW Oshkosh (2016)

Best Practices for Teaching STEM Courses Certificate Program, UW Oshkosh (2015)

UW System Women & Science Program Opening Workshop for New STEM Educators (2013)

## VIII. SERVICE AND OUTREACH

College Day for Kids, UW Oshkosh (2016)

University of Wisconsin – Oshkosh Celebration of Scholarship Judge (2016)

College Day for Kids, UW Oshkosh (2015)

University of Wisconsin – Oshkosh Celebration of Scholarship Judge (2014)

University of Wisconsin Oshkosh Chemistry Department Safety Committee (2013-2014)

University of Wisconsin Oshkosh Chemistry Department Curriculum Committee (2013-2014)

## IX. PROFESSIONAL SOCIETIES

Member of the American Chemical Society (2009 – present)

Member of the American Crystallographic Association (2012 – present)

## X. PUBLICATIONS (Undergraduate Students at UW Oshkosh are underlined)

Sheri Lense, Kong Choua Thao, Jessica Andersen, and Madelynn Schultz, “The Effect of pK<sub>a</sub> of an Intramolecular Acid Substituent on a CO<sub>2</sub> Reduction Catalyst,” *Research in progress*.

Sheri Lense, Jessica Andersen, Kong Choua Thao, and Rachel Radue, “Inhibition of a CO<sub>2</sub> Reduction Catalyst by an Intramolecular Carboxylic Acid Substituent,” *Research in progress*.

Sheri Lense, Nicholas A. Piro, Scott W. Kassel, Andrew Wildish, Brent Jeffery, “Crystal structures of *fac*-tricarbonylchloro(6,6'-dihydroxy-2,2'-bipyridine)rhenium(I) and *fac*-bromotricarbonyl(6,6'-dihydroxy-2,2'-bipyridine)manganese(I),” *Acta Cryst. Section E* (2016), 72(8), 1201-1205.

Dutta, Arnab; Lense, Sheri; Roberts, John A. S.; Helm, Monte L.; Shaw, Wendy J., “The Role of Solvent and the Outer Coordination Sphere on H<sub>2</sub> Oxidation Using [Ni(P<sup>Cy</sup><sub>2</sub>N<sup>Pyz</sup><sub>2</sub>)<sub>2</sub>]<sup>2+</sup>,” *Eur. J. of Inorg. Chem.* (2015), 2015(31), 5218-5225.

Das, Atanu K.; Engelhard, Mark H.; Lense, Sheri; Roberts, John A. S.; Bullock, R. Morris, “Covalent attachment of diphosphine ligands to glassy carbon electrodes via Cu-catalyzed alkyne-azide cycloaddition. Metallation with Ni(II),” *Dalton Trans.* (2015), 44(27), 12225-12233.

Labios, Liezel A.; Weiss, Charles J.; Egbert, Jonathan D.; Lense, Sheri; Bullock, R. Morris; Dougherty, William G.; Kassel, W. Scott; Mock, Michael T., “Synthesis and Protonation Studies of Molybdenum(0) Bis(di-nitrogen) Complexes Supported by Diphosphine Ligands -Containing Pendant Amines,” *Zeitschrift fuer Anorganische und Allgemeine Chemie* (2015), 641(1), 105-117.

Reback, Matthew L.; Buchko, Garry W.; Kier, Brandon L.; Ginovska-Pangovska, Bojana; Xiong, Yijia; Lense, Sheri; Hou, Jianbo; Roberts, John A. S.; Sorensen, Christina M.; Raugei, Simone; Squier, Thomas C.; Shaw, Wendy J., “Enzyme Design from the Bottom Up: An Active Nickel Electrocatalyst with a Structured Peptide Outer Coordination Sphere,” *Chemistry – A European Journal* (2014), 20(6), 1510-1514.

Sheri Lense, Arnab Dutta, John Roberts, and Wendy J. Shaw, “A Proton Channel Allows a Hydrogen Oxidation Catalyst to Operate at a Moderate Overpotential with Water Acting as a Base,” *Chemical Communications* (2014), 50(7), 792-795.

James A. Franz, Molly O'Hagan, Ming-Hsun Ho, Tianbiao Liu, Monte L. Helm, Sheri Lense, Daniel L. DuBois, Wendy J. Shaw, Aaron M. Appel, Simone Raugei, and R. Morris Bullock, "Conformational Dynamics and Proton Relay Positioning in Nickel Catalysts for Hydrogen Production and Oxidation," *Organometallics* (2013), 32(23), 7034-7042.

Arnab Dutta, Sheri Lense, Jianbo Hou, Mark Engelhard, John Roberts and Wendy Shaw, "Proton Channels Enable H<sub>2</sub> Oxidation and Production with a Water Soluble Nickel-Based Catalyst," *Journal of the American Chemical Society* (2013), 135(49), 18490-18496.

Sheri Lense, Ming-Hsun Ho, Shentan Chen, Avijita Jain, Simone Raugei, John C. Linehan, John Roberts, Aaron M. Appel and Wendy J. Shaw, "Incorporating Amino Acid Esters into Catalysts for Hydrogen Oxidation: Steric and Electronic Effects and the Role of Water as a Base," *Organometallics* (2012), 31(19), 6719-6731.

Avijita Jain, Sheri Lense, John C. Linehan, Simone Raugei, Herman Cho, Daniel L. DuBois and Wendy J. Shaw, "Incorporating Peptides in the Outer-Coordination Sphere of Bioinspired Electrocatalysts for Hydrogen Production," *Inorganic Chemistry* (2011), 50(9), 4073-4085.

Rui Cao, Kevin P. O'Halloran, Daniel A. Hillesheim, Sheri Lense, Kenneth I. Hardcastle and Craig Hill. "Controlled Synthesis of a Functionalized Polytungstate Ligand and a {MaMbMc(PW<sub>9</sub>)<sub>2</sub>} Sandwich Complex," *CrystEngComm* (2011), 13(3), 738-740.

Savita K. Sharma, Philip S. May, Matthew B. Jones, Sheri Lense, Kenneth Hardcastle, Cora E. MacBeth, "Catalytic Dioxygen Activation by Co(II) Complexes Employing a Coordinatively Versatile Ligand Scaffold," *Chemical Communications* (2011), 47(6), 1827-1829.

Jie Song, Zhen Luo, Haiming Zhu, Zhuangqun Huang, Tianquan Lian, Alexey L. Kaledin, Djameladdin G. Musaev, Sheri Lense, Kenneth I. Hardcastle, Craig L. Hill, "Synthesis, Structure and Characterization of Two Polyoxometalate-Photosensitizer Hybrid Materials," *Inorganic Chimica Acta* (2010), 363(15), 4381-4386.

Claire Besson, Zhuangqun Huang, Yurii V. Geletii, Sheri Lense, Kenneth I. Hardcastle, Djameladdin G. Musaev, Tianquan Lian, Anna Proust and Craig L. Hill, "Cs<sub>9</sub>[(γ-PW<sub>10</sub>O<sub>36</sub>)<sub>2</sub>Ru<sub>4</sub>O<sub>5</sub>(OH)(H<sub>2</sub>O)<sub>4</sub>], a New All-Inorganic, Soluble Catalyst for the Efficient Visible-Light-Driven Oxidation of Water," *Chemical Communications* (2010), 46(16), 2784-2786.

Matthew A. Boone, Rongbiao Tong, Frank E. McDonald, Sheri Lense, Rui Cao and Kenneth I. Hardcastle, "Biomimetic Synthesis from Squalene-Like Precursors: Synthesis of ent-Abudinol B and Reassessment of the Structure of Muzitone," *Journal of the American Chemical Society* (2010), 132(14), 5300-5308.

Yu Hou, Lin Xu, Morgan Cichon, Sheri Lense, Kenneth Hardcastle and Craig Hill. "A New Family of Dinuclear Transition Metal-Substituted Polytungstophosphates Containing Two

Types of Metals in the Central Belt:  $M'_2M_2(PW_9O_{34})_2^{12-}$  ( $M' = Na$  or  $Li$ ,  $M = Mn^{2+}$ ,  $Co^{2+}$ ,  $Ni^{2+}$ , and  $Zn^{2+}$ ),” *Inorganic Chemistry* (2010), 49(9), 4125-4132 .

Sheri Lense, Kenneth I. Hardcastle, Cora E. MacBeth, “Effect of Methylene Spacers on the Spectral, Electrochemical and Structural Properties of bis(4,4'-disubstituted-2,2'-bipyridyl) Ruthenium(II) Dye Analogues,” *Dalton Transactions* (2009), 7396-7401.

Michael S. Goligorsky, Husna Abedi, Eisei Noiri, Alice Takhtajan, Sheri Lense, Victor Romanov, and Ian Zachary, “Nitric Oxide Modulation of Focal Adhesions in Endothelial Cells,” *American Journal of Physiology* 276 (1999), C1271-C1281.

## XI. SELECTED PRESENTATIONS

Sheri Lense\*, Ilia A. Guzei, Kong Choua Thao, Jessica Andersen, and Madelynn Schultz, “Effects of acid strength and position of an intramolecular acidic functional group on the catalytic reduction of  $CO_2$  to  $CO$ ,” 253<sup>rd</sup> ACS National Meeting, San Francisco, CA. (Poster presentation accepted to 2017 convention)

Jessica Andersen, Kong Choua Thao, and Sheri Lense, “The Effect of  $pK_a$  of an Intramolecular Acid Substituent on a  $CO_2$  Reduction Catalyst,” Wisconsin Science and Technology Symposium, Oshkosh, WI (2016). (Poster presentation)

Andrew Wildish and Sheri Lense, “The Synthesis and Characterization of Novel Catalysts to Recycle  $CO_2$ ,” University of Wisconsin Oshkosh Celebration of Scholarship, Oshkosh, WI (2015). (Poster presentation)

Sheri Lense, Yuhui Cheng and Wendy Shaw, “Adding Proton Channels to a Hydrogen Oxidation Catalyst, 242<sup>nd</sup> ACS National Meeting, Denver, CO (2011). (Oral presentation)

Sheri Lense and Cora E. MacBeth, “Heterobimetallic Metal Complexes that Incorporate Both Transition and Alkali Metals: Synthesis, Characterization and Reactivity,” 239<sup>th</sup> ACS National Meeting, San Francisco, CA (2010). (Poster presentation)

Sheri Lense and Cora E. MacBeth, “Designing Heterobimetallic Metal Complexes that Incorporate Both Transition Metal and Alkali Metal Ions,” 61<sup>st</sup> Southeast Regional Meeting of the American Chemical Society, San Juan, Puerto Rico (2009). (Poster Presentation)

Sheri Lense, Dave Stockwell, Tianquan Lian and Cora E. Macbeth. “Investigating Semiconductor-Photosensitizers Using N3 Dye Analogues,” 235<sup>th</sup> ACS National Meeting, New Orleans, LA (2008). (Poster presentation)