Mark R. Zierden

University of Wisconsin-Madison mzierden@wisc.edu

Department of Entomology labs.russell.wisc.edu/lindroth

1630 Linden Drive markzierden.wixsite.com/home

Madison, WI 53706

Education **Postdoctoral Researcher** Madison, WI

University of Wisconsin – Madison, Department of Entomology

Advisor: Richard L. Lindroth

**Temple University** Philadelphia, PA

Ph.D. Department of Chemistry, December 2016.

Advisor: Ann M. Valentine

**Stockton University** Pomona, NJ

Bachelor of Science, Chemistry, December 2010.

Advisor: Rogers Barlatt

Research **Postdoctoral Researcher** 2018-current

University of Wisconsin – Madison, Department of Entomology

Advisor: Richard L. Lindroth

Developed projects analyzing the effects of metal soil contamination on *Populus tremuloides*, including the chemical response and quantitation of organic acids and phytochelatins, as well as determining these compounds in active *Populus* remediation sites. Developed project relating *P. tremuloides* root and leaf defense chemistry to rhizome microbial communities This position also involved lab management duties including hiring and managing undergraduate researchers, management and ordering of lab supplies, maintenance of lab and field equipment, performing chemical assays for multiple projects, and training researchers from other labs. Chemical analysis involved quantitation of phenolic glycosides, condensed tannins, fiber and lignin, flavonoids and total phenolics, total nonstructural carbohydrates, and carbon and nitrogen.

**Graduate Research Assistant** 2011-2016

Temple University, Department of Chemistry

Advisor: Ann M. Valentine

Thesis: Towards Understanding the Trafficking of Iron and Titanium Ions in Organisms

Developed method of isolation and characterization of titanium mineral binding proteins from *R. ruber* GIN-1 for the purposes of evaluation of specific mineral binding moieties. Studied the kinetics of reduction of iron(III) to iron(II) by nicatransferrin for purposes of further elucidation of the transferrin cycle. Techniques used in these studies include UV-Vis spectroscopy, Fast Protein Liquid Chromatography, HPLC, LC/MS/MS, ICP-OES, polyacrylamide gel electrophoresis.

**Undergraduate Research Assistant** 2009-2010

Stockton University, Department of Chemistry

Advisor: Rogers Barlatt

Thesis: Thermochromic complexes of Ni(ClO4)2⋅6H2O with N,N-dimethylethylenediamine and N,N-diethylethylenediamine

Synthesized and characterized thermochromic compounds of nickel(II)N,N-dimethylethylenediamine perchlorate and nickel(II)N,N-diethylethylenediamine perchlorate using differential scanning calorimetry and thermogravimetric analysis.

**NSF-REU Research Fellow** 2010

Coe College, Department of Physics

Advisor: Steve Feller

Synthesized alkali-borate glasses varying the alkali metal mole fraction and characterized how this affected the glass transition width of the glass using differential scanning calorimetry.

Positions **Senior Scientist** 2018

Eurofins Lancaster Laboratories

Extractable and Leachable Department, LC-MS analysis

**Adjunct Assistant Professor** 2017

Temple University, Department of Chemistry

STEM Scholars instructor, Department of Chemistry Mass Spectrometrist, Inorganic and General chemistry laboratory instructor

Publications **Zierden, M. R.**, Valentine A. M. Contemplating a role for titanium in organisms. *Metallomics*, 2016, 8, 9-16.

Gallo, A. D., **Zierden, M. R.**, Profitt, L. A., Jones, K. E., Bonafide, C. P., Valentine, A. M. TiO2 exposure alters transition metal ion quota in *Rhodococcus ruber* GIN-1. *Metallomics*, 2020, 12, 8-11.

Teaching **Temple University, College of Science and Technology**

Experience Philadelphia, PA

Adjunct Assistant Professor

Science Education Program, STEM Scholars Program

**Temple University, Department of Chemistry** Philadelphia, PA

Adjunct Assistant Professor

General Chemistry II Lab, Basic Core General Chemistry I Lab, Inorganic Synthesis, Inorganic Chemistry

**Temple University, Department of Chemistry** Philadelphia, PA

Teaching Assistant

General Chemistry I, General Chemistry I Laboratory, Honors General Chemistry II, Inorganic Chemistry, Advanced Inorganic Chemistry, Applications of Chemistry, Applications of Chemistry Laboratory

**American Chemical Society Science Coach**

2014-2015, 2015-2016

George Washington Carver High School for Engineering and Science

**N.S.F. GK-12 Fellowship/Temple University**

Scientists as Teachers, Teachers as Scientists, Graduate STEM Fellow

2013-2014

**Stockton University**

Teaching Assistant

General Chemistry I Laboratory, Organic Techniques, Inorganic Chemistry

Co-teacher with Dr. Marc Richard

Experiential Chemistry

Invited Stockton University Chemistry Seminar, September 16, 2013

Lectures “Ferrireductase activity of nicatransferrin, a model monolobal transferrin”

Poster “Ferrireductase activity of nicatransferrin, a model, monolobal transferrin

Presentations from the ascidian *Ciona intestinalis*” Mark R. Zierden, Jean Gaffney and Ann M. Valentine, MASIS, Temple University, July 2014

“Ferrireductase activity of nicatransferrin, a model, monolobal transferrin from the ascidian *Ciona intestinalis*” Mark R. Zierden, Jean Gaffney and Ann M. Valentine, Philadelphia YCC Symposium, Drexel University, February 2013

“Ferrireductase activity of nicatransferrin, a monolobal transferrin from the ascidian *Ciona intestinalis*” Mark R. Zierden, Jean Gaffney and Ann M. Valentine, ACS National Meeting, Philadelphia, PA. August 2012

“Ferrireductase activity of nicatransferrin, a monolobal transferrin from the ascidian *Ciona intestinalis*” Mark R. Zierden, Jean Gaffney and Ann M. Valentine, MASIS, Johns Hopkins University, August 2012

News Articles Mark Zierden, “Postdoc Excellence Awards recognize outstanding UW-Madison postdocs and faculty”, *UW-Madison News*, news.wisc.edu/postdoc-excellence-awards-recognize-outstanding-uw-madison-postdocs-and-faculty/, 2021, April 27

Awards Department of Chemistry Guy Allen Award for Outstanding Teaching, 2016

Temple University Doctoral Dissertation Completion Grant, 2016

Pre-doctoral Summer Research Opportunity Grant, 2015

Temple University Bioinorganic Symposium Award, 2012

Certifications Teaching in Higher Education Certificate

Temple University, 2012

Service and University of Wisconsin-Madison Postdoctoral Association (UWPA), 2019-21

Outreach UWPA Awards Committee Chair, 2021

UWPA Treasurer, 2020-2021

UWPA Communications Director, 2019-2020

Committee Co-chair, Future of Research Mentoring Future Scientists Satellite Event, 2019

Presenter, UW-Madison Science Explorations, 2019

Student Distinguished Lectureship Committee, Temple University, 2013-2016

Stereotopical Chemistry podcast co-host, 2015-2017