

# Mark R. Zierden

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| Education    | <b>Postdoctoral Researcher</b><br>University of Wisconsin – Madison, Department of Entomology<br>Advisor: Richard L. Lindroth   | Madison, WI      |
|              | <b>Temple University</b><br>Ph.D. Department of Chemistry, December 2016.<br>Advisor: Ann M. Valentine  | Philadelphia, PA |
|              | <b>Stockton University</b><br>Bachelor of Science, Chemistry, December 2010.<br>Advisor: Rogers Barlatt   | Pomona, NJ       |
| Appointments | <b>Assistant Professor</b><br>Lake Superior State University  | 2022-current     |
| Research     | <b>Postdoctoral Researcher</b><br>University of Wisconsin – Madison, Department of Entomology<br>Advisor: Richard L. Lindroth<br>Developed projects analyzing the effects of metal soil contamination on <i>Populus tremuloides</i> , including the chemical response and quantitation of organic acids and phytochelatin, as well as determining these compounds in active <i>Populus</i> remediation sites. Developed project relating <i>P. tremuloides</i> 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. | 2018-2022        |
|              | <b>Graduate Research Assistant</b><br>Temple University, Department of Chemistry<br>Advisor: Ann M. Valentine<br>Thesis: Towards Understanding the Trafficking of Iron and Titanium Ions in Organisms<br>Developed method of isolation and characterization of titanium mineral binding proteins from <i>R. ruber</i> GIN-1 for the purposes of evaluation of specific mineral binding moieties. Studied the kinetics of reduction of iron(III) to iron(II) by nicotransferrin for purposes of further elucidation of the transferrin cycle. Techniques used in these studies include UV-Vis spectroscopy, Fast   | 2011-2016        |

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  $\text{Ni}(\text{ClO}_4)_2 \cdot 6\text{H}_2\text{O}$  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 Spectrometrists,

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.  $\text{TiO}_2$  exposure alters transition metal ion quota in *Rhodococcus ruber* GIN-1. *Metallomics*, 2020, 12, 8-11.

Eisenring, M., Best, R. J., **Zierden, M. R.**, Cooper, H. F., Norstrem, M., Whitham, T. G., Grady K., Allan, G. J., Lindroth, R. L. Genetic divergence along a climate gradient shapes chemical response of a foundational tree species to both climate stress and leaf damage. *Global Change Biology*, 2022, 00, 1-17.

**Zierden, M. R.**, Morrow, C. J., Lindroth R. L. Relationship of *Populus tremuloides* defense compounds among tissues. (In Prep).

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  
Lectures

Stockton University Chemistry Seminar, September 16, 2013  
“Ferriredutase activity of nicatransferrin, a model monolobal transferrin”

Poster  
Presentations

“Ferriredutase activity of nicatransferrin, a model, monolobal transferrin from the ascidian *Ciona intestinalis*” Mark R. Zierden, Jean Gaffney and Ann M. Valentine, MASIS, Temple University, July 2014

“Ferriredutase 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

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

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| News Articles        | Mark Zierden, “Postdoc Excellence Awards recognize outstanding UW-Madison postdocs and faculty”, <i>UW-Madison News</i> , <a href="https://news.wisc.edu/postdoc-excellence-awards-recognize-outstanding-uw-madison-postdocs-and-faculty/">news.wisc.edu/postdoc-excellence-awards-recognize-outstanding-uw-madison-postdocs-and-faculty/</a> , 2021, April 27  |
| Awards               | Department of Chemistry Guy Allen Award for Outstanding Teaching, 2016<br>Temple University Doctoral Dissertation Completion Grant, 2016<br>Pre-doctoral Summer Research Opportunity Grant, 2015<br>Temple University Bioinorganic Symposium Award, 2012  |
| Certifications       | Teaching in Higher Education Certificate<br>Temple University, 2012   |
| Service and Outreach | University of Wisconsin-Madison Postdoctoral Association (UWPA), 2019-21<br>UWPA Awards Committee Chair, 2021<br>UWPA Treasurer, 2020-2021<br>UWPA Communications Director, 2019-2020<br>Committee Co-chair, Future of Research Mentoring Future Scientists Satellite Event, 2019<br><br>Undergraduate Research Scholar program Mentor 2021-2022<br><br>Presenter, UW-Madison Science Explorations, 2019<br><br>Student Distinguished Lectureship Committee, Temple University, 2013-2016<br><br>Stereotopical Chemistry podcast co-host, 2015-2017 |