

Assistant Professor
Department of Chemistry and Biochemistry
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Education

Ph.D. in Chemistry	University of Washington, 2014
B.S. in Chemistry, <i>magna cum laude</i>	Boise State University, 2008
B.S. in Mathematics, <i>magna cum laude</i>	Boise State University, 2008

Research Experience

Postdoctoral Research with Prof. Mircea Dincă Massachusetts Institute of Technology <i>Conductive Metal-Organic Frameworks</i>	2015–2016
Graduate Research with Prof. Daniel R. Gamelin University of Washington <i>Electronic and Impurity Doping of Colloidal Semiconductor Nanocrystals</i>	2009–2014 2006–2008
Undergraduate Research with Prof. Don L. Warner Boise State University <i>Experimental and Computational Studies of 4-Oxazoline Ring-Opening and Azomethine Ylide Generation</i>	

Honors and Awards

American Chemical Society Division of Inorganic Chemistry Young Investigator Award	2015
University of Washington Clean Energy Institute Exploratory Research Fellowship	2014
University of Washington Department of Chemistry Graduate Student Merit Award	2013
National Science Foundation Graduate Research Fellowship	2011
University of Washington Cady Fellowship for Excellence in Inorganic Chemistry	2009
Boise State University Department of Chemistry and Biochemistry Award for Outstanding Graduating Senior	2009
Boise State University Department of Chemistry and Biochemistry Award for Outstanding Student in Inorganic Chemistry	2009
Boise State University Department of Mathematics Scholarship	2008
Boise State University Department of Chemistry and Biochemistry Award for Outstanding Student in Physical Chemistry	2008
Barry M. Goldwater Scholarship for Scientists and Engineers	2007
Idaho INBRE Research Scholarship	2007
Boise State University Chemistry Department Summer Research Fellowship	2006
Boise State University Science Competition Day Scholarship	2004
Boise State University Arguinchona Honors College Scholarship	2004
Boise State University Albertson's Honor's College Scholarship	2004
Boise State University Dean's Scholarship	2004

Publications

- Hartstein, K. H.; **Schimpf, A. M.**; Gamelin. "Cyclotron Splittings in Electronically Doped Semiconductor Nanocrystals Probed by Magnetic Circular Dichroism Spectroscopy" *Submitted*.

18. Valdez, C. N.; **Schimpf, A. M.**; Gamelin, D. R.; Mayer, J. M. "Proton-Controlled Reduction of ZnO Nanocrystals: Effects of Molecular Reductants, Cations and Thermodynamic Limitations" *J. Am. Chem. Soc.* **2016**, *J. Am. Chem. Soc.* **2016**, *138*, 1377–1385.
17. Carroll, G. M.; **Schimpf, A. M.**; Tsui, E. Y.; Gamelin, D. R. "Redox Potentials of Colloidal n-Type ZnO Nanocrystals: Effects of Confinement, Electron Density, and Fermi-Level Pinning by Aldehyde Hydrogenation" *J. Am. Chem. Soc.* **2015**, *137*, 11163–11169.
16. **Schimpf, A. M.**; Knowles, K. E.; Carroll, G. M.; Gamelin, D. R. "Electronic Doping and Redox-Potential Tuning in Colloidal Semiconductor Nanocrystals" *Accounts Chem. Res.* **2015**, *48*, 1929–1937.
15. **Schimpf, A. M.**; Rinehart, J. D.; Ochsenein, S. T.; Gamelin, D. R. "Charge-State Control of Mn²⁺ Spin Relaxation Dynamics in Colloidal n-Type Zn_{1-x}Mn_xO Nanocrystals" *J. Phys. Chem. Lett.* **2015**, *6*, 1748–1753. *Selected for ACS Editors' Choice.*
14. Connor, K. P.; Cruce, A. A.; Krzyaniak, M.; **Schimpf, A. M.**; Frank, D. J.; Ortiz de Montellano, P. R.; Atkins, W. M.; Bowman, M. K. "Drug Modulation of Water-Heme Interactions in Low-Spin P450 Complexes of CYP2C9d and CYP125A1" *Biochemistry* **2015**, *54*, 1198–1207.
13. **Schimpf, A. M.**; Ochsenein, S. T.; Gamelin, D. R. "Surface Contributions to Mn²⁺ Spin Dynamics in Colloidal Doped Quantum Dots" *J. Phys. Chem. Lett.* **2015**, *6*, 457–463.
12. **Schimpf, A. M.**; Runnerstrom, E. L.; Lounis, S.; Milliron, D. J.; Gamelin, D. R. "Redox Chemistries and Plasmon Energies of Photodoped In₂O₃ and Sn-doped In₂O₃ Nanocrystals" *J. Am. Chem. Soc.* **2015**, *137*, 518–524. *Selected for ACS Editors' Choice and Spotlights on Recent JACS Publications.*
11. Goings, J. J.; **Schimpf, A. M.**; May, J. W.; Johns, R. W.; Gamelin, D. R.; Li, X. "Theoretical Characterization of Conduction-Band Electrons in Photodoped and Aluminum-Doped Zinc Oxide (AZO) Quantum Dots" *J. Phys. Chem. C* **2014**, *118*, 26584–26590.
10. Valdez, C. N.; **Schimpf, A. M.**; Gamelin, D. R.; Mayer, J. M. "Low Capping Group Surface Density on ZnO Nanocrystals" *ACS Nano* **2014**, *8*, 9463–9470. *Highlighted on nanotechweb.org.*
9. Connor, K. P.; **Schimpf, A. M.**; Cruce, A. A.; McLean, K. J.; Munro, A. W.; Frank, D. J.; Ortiz de Montellano, P. R.; Bowman, M. K.; Atkins, W. M. "Strength of Axial Water Ligation in Substrate-Free Cytochrome P450s is Isoform Dependent" *Biochemistry* **2014**, *53*, 1428–1434.
8. **Schimpf, A. M.**; Thakkar, N.; Gunthardt, C. E.; Masiello, D. J.; Gamelin, D. R. "Charge-Tunable Quantum Plasmons in Colloidal Semiconductor Nanocrystals" *ACS Nano* **2014**, *8*, 1065–1072.
7. Cohn, A. W.; Rinehart, J. D.; **Schimpf, A. M.**; Weaver, A. L.; Gamelin, D. R. "Size Dependence of Negative Trion Decay in Photodoped CdSe Nanocrystals" *Nano Lett.* **2014**, *14*, 353–358.
6. Rinehart, J. D.; **Schimpf, A. M.**; Weaver, A. L.; Cohn, A. W.; Gamelin, D. R. "Photochemical Electronic Doping of CdSe Nanocrystals" *J. Am. Chem. Soc.* **2013**, *135*, 18782–18785.
5. **Schimpf, A. M.**; Gunthardt, C. E.; Rinehart, J. D.; Mayer, J. M.; Gamelin, D. R. "Controlling Carrier Densities in Photochemically Reduced Colloidal ZnO Nanocrystals: Size Dependence and Role of the Hole Quencher" *J. Am. Chem. Soc.* **2013**, *135*, 16569–16577.
4. De Trizio, L.; Buonsanti, R.; **Schimpf, A. M.**; Llordes, A. Gamelin, D. R.; Simonutti, R.; Milliron, D. J. "Nb-doped Colloidal TiO₂ Nanocrystals with Tunable Infrared Absorption" *Chem. Mater.* **2013**, *25*, 3383–3390.
3. Cohn, A. W.; **Schimpf, A. M.**; Gunthardt, C. E.; Gamelin, D. R. "Size-Dependent Trap-Assisted Auger Recombination in Semiconductor Nanocrystals" *Nano Lett.* **2013**, *13*, 1810–1815.

2. **Schimpf, A. M.**; Ochsenein, S. T.; Buonsanti, R.; Milliron, D. J.; Gamelin, D. R. "Comparison of Extra Electrons in Colloidal n -Type Al^{3+} -Doped and Photochemically Reduced ZnO Nanocrystals" *Chem. Comm.* **2012**, 48, 9352–9354.
1. **Schimpf, A. M.**; Gamelin, D. R. "Thermal Tuning and Inversion of Excitonic Zeeman Splittings in Colloidal Doped CdSe Quantum Dots" *J. Phys. Chem. Lett.* **2012**, 3, 1264–1268.

Invited Lectures

11. *University of Pittsburgh*, Pittsburgh, PA, February 1, 2016.
10. *University of Miami*, Coral Gables, FL, January 27, 2016.
9. *University of California – San Diego*, San Diego, CA, January 20, 2016.
8. *California Institute of Technology*, Pasadena, CA, January 11, 2016.
7. *Princeton University*, Princeton, NJ, January 6, 2016.
6. *Virginia Polytechnic Institute and State University*, Blacksburg, VA, December 14, 2015.
5. *University of Illinois at Urbana-Champaign*, Urbana, IL, December 11, 2015.
4. *University of California – Los Angeles*, Los Angeles, CA, December 4, 2015.
3. *Georgia Institute of Technology*, Atlanta, GA, December 1, 2015.
2. *American Chemical Society Division of Inorganic Chemistry Young Investigator Award Symposium*, Boston, MA, August 16, 2015.
1. *Boise State University*, Boise, ID, November 12, 2010.

Poster Presentations

1. "Electronically Doped Semiconductor Nanocrystals" *Colloidal Semiconductor Nanocrystals Gordon Research Conference*, Smithfield, RI, July 23, 2014.

Outreach and Broader Impacts

Undergraduate Research Mentoring (2011–present)

- Worked closely with two undergraduate students to train them in the areas of nanocrystal synthesis, spectroscopic characterization and electronic doping
- Provided mentorship for scientific presentations and graduate school preparation

Expanding Your Horizons in Math/Science/Technology Career Conferences (2011–2014)

- Volunteered at conference aimed at exposing young women to different career options in STEM fields
- Co-led nanotechnology workshop focused on introducing basic nanotechnology concepts through hands-on activities

Center for Enabling New Technologies Through Catalysis (CENTC) Outreach Program (2010–2014)

- Taught a series of 3-day lecture/laboratory sessions at various high schools
- Instructed students on current topics in renewable energy
- Led a laboratory for synthesizing biodiesel and testing its capabilities

Young Discoverers Program, Discovery Center of Idaho (2005–2008)

- Directed a program aimed at getting young children interested in science
- Designed weekly curricula focused on translating an important scientific concept into a straightforward, exciting activity

Teaching Experience

Teaching assistant for organic chemistry, University of Washington, Seattle, WA (2010)
Teaching assistant for general chemistry, University of Washington, Seattle, WA (2009)
Intermediate algebra instructor, Boise State University, Boise, ID (2009)

Organic chemistry lab instructor, Boise State University, Boise, ID (2009)

Math tutor, The Math Advantage, Boise, ID (2009)

General chemistry lab instructor, Boise State University, Boise, ID (2008-2009)

Teaching assistant for organic chemistry, Boise State University, Boise, ID (2006-2009)

General chemistry tutor, Boise State University, Boise, ID (2006-2009)

Leader of Young Discoverers Program, Discovery Center of Idaho, Boise, ID (2005-2008)

Math tutor, 100 and 200 level math, Boise State University, Boise, ID (2004-2009)

Math tutor, St. Joes Elementary School, Boise, ID (2003-2004)