

## Education

University of Illinois at Urbana-Champaign

**Ph.D. Chemistry, 2014**

Study Area: Theoretical Physical Chemistry

Advisor: Thom H. Dunning, Jr.

University of Notre Dame

**B.S. Biochemistry, summa cum laude, 2007**

## Professional Experience

Postdoctoral Fellow, Department of Chemical Engineering, University of Texas at Austin, Advisor: Thomas Truskett and Delia Milliron, August 2014–present

Research Assistant, University of Illinois at Urbana-Champaign, May 2014–August 2014

## Awards

- **Certificate in Foundations of Teaching**, University of Illinois Center for Teaching Excellence, Fall 2011
- **List of Teachers Ranked as Excellent By Their Students (with the designation of outstanding)**, University of Illinois Center for Teaching Excellence, Fall 2011
- **Center for Advanced Theory and Molecular Simulation Travel Award**, University of Illinois at Urbana-Champaign, September 2010
- **Molecular Quantum Mechanics Student Poster Award**, Department of Energy, May 2010
- **National Science Foundation Graduate Research Fellowship**, National Science Foundation, 2009–2012
- **American Chemical Society Physical Chemistry Division Outstanding Student Poster Award**, American Chemical Society, August 2007
- **Robert C. and Carolyn J. Springborn Graduate Fellowship**, University of Illinois at Urbana-Champaign, 2007–2009
- **William R. Wischerath Award**, University of Notre Dame, May 2007
- **Glenna R. Joyce Scholarship (full academic scholarship to the University of Notre Dame)**, Glenna R. Joyce Trust Fund, 2003–2007
- **Howell Undergraduate Research Award in Human Nutrition**, Ohio State University, 2005

## Publications

1. B. A. Lindquist, David E. Woon and T. H. Dunning, Jr., “Insights into the Electronic Structure of Disulfur Tetrafluoride ( $S_2F_4$ ) Isomers from Generalized Valence Bond Theory,” *J. Phys. Chem. A* **2014**, <http://dx.doi.org/10.1021/jp5085444>
2. B. A. Lindquist, David E. Woon and T. H. Dunning, Jr., “Effects of Ligand Electronegativity on Recoupled Pair Bonds with Application to Sulfurane Precursors,” *J. Phys. Chem. A* **2014**, *118*(30), 5709–5719.

3. B. A. Lindquist, David E. Woon and T. H. Dunning, Jr., "Electronic Structure of H<sub>2</sub>S, SF<sub>2</sub>, and HSF, and Implications for Hydrogen-Substituted Hypervalent Sulfur Fluorides," *J. Phys. Chem. A* **2014**, *118*(7), 1267-1275.
4. B. A. Lindquist, and T. H. Dunning, Jr., "The Nature of the SO Bond of Chlorinated Sulfur-Oxygen Compounds," *Theor. Chem. Acc.* **2014**, *133*(3), 1443.
5. B. A. Lindquist, and T. H. Dunning, Jr., "Bonding in FSSF<sub>3</sub>: Breakdown in Bond Length-Strength Correlations and Implications for SF<sub>2</sub> Dimerization," *J. Phys. Chem. Lett.* **2013**, *4*(18), 3139-3143. [featured in the Research Highlights section of Nature Chemistry: L. Mueck, *Nature Chem.* **2013**, *5*, 896.]
6. B. A. Lindquist, Tyler Y. Takeshita, David. E. Woon and T. H. Dunning, Jr., "Bonding in Sulfur-Oxygen Compounds-HSO/SOH and SOO/OSO: An Example of Recoupled Pair  $\pi$  Bonding," *J. Chem. Theory Comput.*, **2013**, *9*(10), 4444-4452.
7. B. A. Lindquist, K.E. Furse, and S. A. Corcelli, "Nitrile Groups as Vibrational Probes of Biomolecular Structure and Dynamics: An Overview," *Phys. Chem. Chem. Phys.* **2009**, *11*, 8119-8132.
8. A. M. Virshup, C. Punwong, T. V. Pogorelov, B. A. Lindquist, C. Ko, and T. J. Martínez, "Photodynamics in Complex Environments: *Ab Initio* Multiple Spawning Quantum Mechanical/Molecular Mechanical Dynamics," *J. Phys. Chem. B* (Centennial Feature Article) **2009**, *113*, 3280-3291.
9. B. A. Lindquist, R. T. Haws, and S. A. Corcelli, "Optimized Quantum Mechanics/Molecular Mechanics Strategies for Nitrile Vibrational Probes: Acetonitrile and *para*-Tolunitrile in Water and Tetrahydrofuran," *J. Phys. Chem. B* **2008**, *112*, 13991-14001.
10. B. A. Lindquist and S. A. Corcelli, "Nitrile Groups as Vibrational Probes: Calculations of the C $\equiv$ N Infrared Absorption Line Shape of Acetonitrile in Water and Tetrahydrofuran," *J. Phys. Chem. B* **2008**, *112*, 6301-6303.
11. K. E. Furse, B. A. Lindquist, and S. A. Corcelli, "Solvation Dynamics of Hoechst 33258 in Water: An Equilibrium and Nonequilibrium Molecular Dynamics Study," *J. Phys. Chem. B* **2008**, *112*, 3231-3239.

## Oral Presentations

- "Recoupled pair bonding in the  $\pi$  system of sulfur- and oxygen-containing molecules" Midwest Theoretical Chemistry Conference, Urbana, Illinois May 29-31, 2013
- "Addressing misconceptions about chemical bonding and molecular structure with an atom-by-atom approach to building molecules" 2012 Biennial Conference on Chemical Education, State College, Pennsylvania July 29-August 2, 2012
- "Investigation into misconceptions about chemical bonding and molecular structure held by general chemistry students" 2012 Biennial Conference on Chemical Education, State College, Pennsylvania July 29-August 2, 2012
- "How Ligand Properties Affect the Formation and Characteristics of Recoupled Pair Bonds" 66<sup>th</sup> OSU International Symposium on Molecular Spectroscopy, Columbus, Ohio June 20-24, 2011

## Poster Presentations

- “**Photodynamics of the GFP Chromophore Studied with *Ab Initio* Multiple Spawning**” Gordon Research Conference: Atomic and Molecular Interactions, New London, New Hampshire July 6-11, 2010
- “**Photodynamics of the GFP Chromophore Studied with *Ab Initio* Multiple Spawning**” Molecular Quantum Mechanics, Berkeley, California May 24-29, 2010
- “**Photodynamics of the GFP Chromophore Studied with *Ab Initio* Multiple Spawning**” Midwest Theoretical Chemistry Conference, Carbondale, Illinois May 28-30, 2009
- “**Calculations of the C≡N Vibrational Line Shape**” American Chemical Society National Meeting, Boston, Massachusetts August 19-23, 2007
- “**Computational Studies of C≡N Bonds as Vibrational Probes of Protein Structure and Dynamics**” Midwest Theoretical Chemistry Conference, Bloomington, Indiana June 28-30, 2007
- “**Computational Studies of C≡N Bonds as Vibrational Probes of Protein Structure and Dynamics**” American Chemical Society National Meeting, Chicago, Illinois March 25-29, 2007

## Teaching Experience

- University of Illinois at Urbana-Champaign** **Fall 2013**
- Lecturer for Chemistry 101: Introductory Chemistry
- University of Illinois at Urbana-Champaign** **Fall 2011**
- Teaching Assistant for Chemistry 202: Accelerated Chemistry I
- University of Notre Dame** **Fall 2005**
- Teaching Assistant for Biology 250L: Classical and Molecular Genetics Laboratory
- University of Notre Dame** **Fall 2004**
- Peer Tutor