

Adam T. Moser

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Education

University of Minnesota Minneapolis, MN *Aug 2003 – Aug 2009*

Ph.D. in Chemistry, August 2009, “Computational Investigation of Nucleic Acids”
Advisor: Dr. Darrin York GPA: 3.94 (in major 4.00)

Wabash College Crawfordsville, IN *Aug 1999 – May 2003*

B.A. in Chemistry, summa cum laude
Minors: Math, Physics GPA: 3.95 (in major 4.00)

Teaching Experience

Loras College Dubuque, IA

Assistant Professor of Chemistry *Fall 2012 - present*
General Chemistry (CH111/112), Intensive Research Experience (CH200), Biophysical Chemistry (CH350), Physical Chemistry (CH351), Quantum Chemistry (CH352), Research (CH400).
Department physical and biophysical chemist. Provides support for all coursework appropriate in the major as well as support of the general education curriculum (Modes of Inquiry - LIB100). Research advisor for chemistry and biochemistry student theses.

Boston University Boston, MA

Post-doctoral Faculty Fellow *Fall 2009 – Summer 2012*
Intensive General, Quantitative Analytical Chemistry (CH111) & General Chemistry (CH101/102)
Led discussions and developed course material for CH111 (~70 students). Gave lectures, lead discussions, wrote assessment, and for CH101/102 (~900 students). Course development includes ALEKS tutoring system, online homework systems (WebAssign, Owl), forward based assessment, student response systems, course and material structure, Learning Assistant program, etc.

University of St. Thomas St. Paul, MN

Adjunct Faculty *Fall 2008*
Chemical, Thermodynamic, and Reaction Dynamics Lab (Chem 331)
Physical chemistry lab for 20 seniors. Lab work included statistics, computational methods, physiochemical measurements related to thermodynamics and kinetics. Work with Igor-pro laboratory software.

ChemFoundations Instructor

Fall 2008

Volunteered to lead a pilot small group (~20 member) discussion section to parallel general chemistry lecture. Implemented a variety of student-centered active learning techniques, including peer learning, verbal recall, and rapid feedback.

General Chemistry Substitute Lecturer

2006 – 2009

Gave 6-12 lectures a semester on a variety of general chemistry topics for ~200 students (majors and non-majors). Included demonstrations and student feedback.

Achieving College Excellence in the Sciences (ACES)

2004

Tutoring service for students coming from at risk backgrounds. Worked on developing key skills and conceptual understanding with a single student over each semester.

General Chemistry Laboratory Assistant

2003 – 2004

Taught general chemistry laboratory for 20-25 students. Some laboratory development. Gave pre-test preparation lectures.

Teaching Development

“LA Program: An Experimental Learning Program”

Fall 2010

Workshop for implementation of the Learning Assistant (LA) program developed at University of Colorado, Boulder. Discussed program specifics, funding sources, and administration as well as saw the program in action. (<http://laprogram.colorado.edu/>)

Practicum for Future Faculty (GRAD 8102)

Spring 2008

Graduate course in the Preparing Future Faculty Program. Included mentorship with a current professor, understanding of institutional culture and faculty responsibility, methods of achieving personal and professional balance, and institutional fit.

Teaching in Higher Education (GRAD 8101)

Summer 2007

Graduate course in the Preparing Future Faculty Program. Included topics such as active learning techniques, syllabus and course design, learning styles, reflective teaching, outcome driven learning, and evaluation techniques.

Midwestern Association of Chemistry Teachers in Liberal
Arts Colleges (MACTLAC) Annual Meeting

Oct 2007

Held at Viterbo University, La Crosse, Wisconsin. Attended panels on biology/chemistry cross discipline and undergraduate research strategies.

Research Experience

FUTURE in Biomedicine Fellow University of Iowa
Dr. Adrian Elcock Iowa City, IA Jun 2014 – Aug 2014
Development of parameters for phosphorylated for Brownian dynamic simulations using molecular dynamic simulations. Investigation of the role of phosphorylation on protein dynamics and aggregation.

Post-doctoral Fellow Boston University
Dr. John Straub Boston, MA Sept 2009 – Aug 2012
Structural and thermodynamic properties defining protein aggregation are elucidated through computational studies of early stages of amyloid protein aggregation, including the formation of small oligomers from monomeric protein. Use of reverse micelle systems to control hydration and crowding to understand their role in aggregation.

Graduate Research Assistant University of Minnesota
Dr. Darrin York Minneapolis, MN Jan 2005 – Aug 2009
Worked on a variety of computational projects including implicit and explicit solvation model development, benchmark ab initio calculations for proton affinity and gas phase basicities, and ribozyme simulation. Included collaborative work with the University of Minnesota Masonic Cancer Center on the influence of C5 DNA methylation on tobacco induced lung cancer.

Research Technician FDA: Center for Biologic Evaluation and Research
Dr. Richard Pastor Bethesda, MD Jun 2002 – Aug 2002
Determined new ab initio potential energy surfaces ethers used in parameterization of molecular mechanical force fields for the CHARMM program.

Undergraduate Research Wabash College
Dr. Scott Feller Crawfordsville, IN Jun 2001 – May 2003
Developed new molecular mechanical parameters based on ab initio potential energy surfaces for use in lipid bilayer simulation. Development of a fluorescence probe model.

Publications

9. “Probing the Structure and Dynamics of Confined Water in AOT Reverse Micelles” Anna Victoria Martinez, Laura Dominguez, Edyta Małolepsza, **Adam Moser**, Zack Ziegler, and John E. Straub, J. Phys. Chem. B, 117, 7345-7351 (2013).

8. “Benchmark Calculations of Proton Affinities and Gas Phase Basicities of Biomolecules” **Adam Moser**, Kevin Range, Darrin York, J. Phys. Chem. B, 114, 13911-13921 (2010).

7. “Exocyclic deoxyadenosine adducts of 1,2,3,4-diepoxybutane: synthesis, structural characterization, and mechanistic studies” Uthpala Seneviratne, Sergey Antsyovich, Melissa Goggin, Danae Quirk Dorr, Rebecca Guza, **Adam Moser**, Carrie Thompson, Darrin M. York and Natalia Tretyakova., Chem. Res. Toxicol., 23(1), 118-133 (2010). (*highlighted article*)

6. “Density functional study of the influence of C5 cytosine substitution in base pairs with guanine” **Adam Moser**, Becky Guza, Natalia Tretyakova, Darrin York. Theor. Chem. Acc., 122, 179-188 (2009).

5. "Unraveling the mechanisms of ribozyme catalysis with multi-scale simulations" Tai-Sung Lee, George M. Giambasu, **Adam Moser**, Kwangho Nam, Carlos Silva-Lopez, Francesca Guerra, Olalla Nieto-Faza, Timothy J. Giese, Jiali Gao and Darrin M. York, in *Multi-scale Quantum Models for Biocatalysis: Modern Techniques and Applications*, Darrin M. York and Tai-Sung Lee eds., Springer Verlag, New York, (2009).
4. "Additive and Classical Drude Polarizable Force Fields for Linear and Cyclic Ethers" Igor Vorobyov, Victor M. Anisimov, Shannon Greene, Richard M. Venable, **Adam Moser**, Richard W. Paster, Alexander D. MacKerell, Jr., J. Chem. Theory Comput., 3, 1120-1133, (2007).
3. "CHARMM Force Field Parameters for Simulation of Reactive Intermediates in Native and Thio-Substituted Ribozymes" Evelyn Mayaan, **Adam Moser**, Alexander D. MacKerell, Jr., Darrin M. York, J. Comput. Chem., 28, 495-507, (2007).
2. "QCRNA 1.0: A database of quantum calculations for RNA catalysis" Timothy J. Giese, Brent A. Gregersen, Yun Liu, Kwangho Nam, Evelyn Mayaan, **Adam Moser**, Kevin Range, Olalla Nieto Faza, Carlos Silva Lopez, Angel Rodriguez de Lera, Gijs Schaftenaar, Xabier Lopez, Tai-Sung Lee, George Karypis and Darrin M. York, J. Mol. Graph. Model., 25, 423-433, (2006).
1. "Multi-level and density functional electronic structure calculations of proton affinities and gas-phase basicities involved in biological phosphoryl transfer" Kevin Range, Carlos Silva Lopez, **Adam Moser**, and Darrin M. York, J. Phys. Chem. A, 110, 791-797, (2006).

Posters and Presentations

"Computational Biophysics with Undergraduates" **Adam Moser**. Iowa Biochemistry Workshop, University of Iowa, Iowa City, IA (presentation) 2014.

"ALEKS: Moving Beyond Traditional Homework" **Adam Moser**. American Chemical Society National Meeting, Dallas, TX (workshop), 2014.

"Kinetic vs. Thermodynamic Control: Slow Movement to a New Paradigm" David Oostendorp Ph.D., **Adam Moser** Ph.D., Jason Painter, Kaitlin Hefel, American Chemical Society National Meeting, New Orleans, LA (poster), 2013.

"Investigating the effect of peer teachers on learning environments in large STEM courses," M. T. Knight, P. Garik, **A. Moser**, N. Hammond, E. Manher Jariwala, K. Spilios, A. Seliga, A. Duffy, D. Dill, and B. B. Goldberg, National Association of Research on Science Teaching (NARST) Rio Grande, Puerto Rico, 2013.

"Improving Educational Outcomes through Learning Assistants in Biology, Chemistry, and Physics" Kathryn Spilios, **Adam Moser**, Andrew Duffy, Nic Hammond, Manher Jariwala, Nick Gross, Dan Dill & Bennett Goldberg, Peter Garik, Alexis Knaub, Meredith Knight & Tom Hunt. Boston University Instructional Innovation Conference. Boston, MA (presentation), March 2012

"Learning Assistant (LA) model" **Adam Moser**, Nic Hammond. Postdoctoral Faculty Fellow Career Development Workshop, Boston MA, August 2011.

“Assessment and LEarning in Knowledge Spaces (ALEKS) in General Chemistry at Boston University” **Adam Moser**. ALEKS Conference. Washington D.C., March 2011 and Irvine, CA, July 2011 (invited presentations).

“Learn by Doing: Creating an effective undergraduate learning experience through teaching and research” **Adam Moser**. American Chemical Society National Meeting. AIE. Boston, Massachusetts (poster), 2010.

“Effects of MeC and its structural analogs on reaction of DNA with benzo[a]pyrene diol epoxides” Becky Guza, **Adam Moser**, Natalia Tretyakova, Darrin York. NIH Training Grant Symposium: The Interface of Science and Discovery. Minneapolis, Minnesota. University of Minnesota (poster), 2008.

“Solvation of Phosphoric Acid and its Anions” **Adam Moser**, Dr. Darrin York. 4th Annual Chemistry Graduate Student Research Symposium Minneapolis, Minnesota. University of Minnesota (presentation), 2005.

“Research Opportunities in the York Group: Multi-Scale Quantum Models for RNA Catalysis” Timothy Giese, Yun Liu, **Adam Moser**, Olalla Nieto Faza, Carlos Silva Lopez, Kwango Nam, Evelyn Mayaan, Kevin Range, Brent Gregersen. Prospective Graduate Student Poster Session. Minneapolis, Minnesota. University of Minnesota (poster), 2004 – 2006.

“How Oxygen Affects Torsional Energy: A Computational Study of Ethers” **Adam Moser**, Richard M. Venable, Dr. Richard Pastor. National Conference on Undergraduate Research. Salt Lake City, Utah. University of Utah (poster), 2003.

“Molecular Modeling of Lipid Bilayer Membranes” **Adam Moser**, Dr. Scott Feller. American Chemical Society Indianapolis Section. Indianapolis, Indiana. Butler College (poster), 2001.

Awards

University of Minnesota	Minneapolis, MN	
National Defense Science and Engineering Graduate Fellowship		2005 – 2008
Department of Energy Computation Science Graduate Fellowship		2005
Kolthoff Fellowship		Sept 2003
Wabash College	Crawfordsville, IN	
Macintosh Graduate Fellow		May 2003
Phi Beta Kappa Research Award		May 2003
Edgar C. Britton Memorial Award in Chemistry		May 2003
Dr. Howell Chemistry Award		May 2002
Underwood Award in Chemistry		May 2001
Dean’s List (8 semesters)		1999 – 2003

Professional Affiliations and Service

American Chemical Society Member	<i>2003 – present</i>
Council on Undergraduate Research	<i>2009 – present</i>
University of Minnesota Intramural Softball Science League Coach	<i>2005 – 2009</i>
Phi Beta Kappa	<i>2003</i>
Wabash College Chemistry Club	<i>Fall 1999 – Spring 2003</i>
President 2001 – 2003	
Vice President 2000 – 2001	
Wabash College High School Chemistry Olympics Coordinator	<i>Spring 2002 and 2003</i>

References

Upon request