

KRISTINE L. CARLSON

Department of Chemistry, University of North Dakota, Grand Forks, ND 58202-9024

Phone: (701)777-3441 Email: kristine.carlson@und.edu

EDUCATION

- University of North Dakota, Grand Forks, ND – Ph.D. physical chemistry (anticipated May 2007).
- Minnesota State University Moorhead, Moorhead, MN – B.A. chemistry, minor mathematics (May 1997).
- Fergus Falls Community College, Fergus Falls, MN – A.A. (May 1994).

TEACHING EXPERIENCE

- UND, Instructor, General Chemistry I (Chem 121), Summer 2006
- UND, Instructor, Survey of Chemistry (Chem 110), Spring 2005
- UND, Grader, Chemical Kinetics (Chem 531), Fall 2005
- UND, Grader, Survey of Physical Chemistry (Chem 466), Spring 2006
- UND, Laboratory TA, Fundamentals of Chem – Concepts (Chem 221), Fall 2005
Arranged a tour of Crystal Sugar facilities in East Grand Forks, MN for the class.
- UND, Laboratory TA, General Chemistry II (Chem 122), Spring 2006
- NDSU, Computational Chemistry Methods Workshop Leader, Spring 2006
- Bear Valley Unified School District, Big Bear Lake, CA (November 2000 – December 2001)
Substitute Teacher – kindergarden through 12th grade substitute teacher.
- Minnesota State University – Moorhead, Moorhead, MN (September 1995 – May 1997)
Chemistry Tutor – Tutored general and organic chemistry students.

RESEARCH AND CHEMISTRY WORK EXPERIENCE

- University of North Dakota, Graduate Research Assistant, June 2001 - present
- Minn-Dak Farmer's Cooperative, Wahpeton, ND (2002).
Process Chemist – investigated chemical composition of sugar beets using ion chromatography, monitored process chemical properties involved in sugar refining using polarimetry, refractometry, and other techniques.
- MD Anderson Cancer Center, Houston, TX (1997 –1998)
Research Assistant - Conducted scientific experiments using a variety of techniques to gain understanding of basic biochemical mechanisms of cancerous cells. These techniques included DNA studies, genomic transfections, protein purification and identification, and biochemical analysis.
- Mayo Graduate School, Rochester, MN (June 1996 – August 1996)
Summer Undergraduate Research Fellow - Conducted experiments to assist investigation of specific protein / DNA interactions.
- Minnesota State University – Moorhead, Moorhead, MN (1996 –1997)
Undergraduate Research Assistant (Dr. Abbas Pezesh, advisor) – EPR studies of radiation sensitization by DNA-binding drugs.
- Minnesota State University – Moorhead, Moorhead, MN (1996 –1997)
Undergraduate Research Assistant (Dr. Mark Wallert, advisor) – Fluorescence spectroscopy studies of Na⁺-H⁺ antiporter activity in rat myocytes and transfected cell lines.

KRISTINE L. CARLSON

Department of Chemistry, University of North Dakota, Grand Forks, ND 58202-9024

Phone: (701)777-3441 Email: kristine.carlson@und.edu

TECHNICAL SPECIALIZATION AND INTERESTS

Theoretical biophysical chemistry; quantum mechanics/molecular mechanics; biophysics; circular dichroism, porphyrins.

HONORS AND AWARDS

- 2006 St. Jude National Graduate Student Symposium invited speaker, March 2006.
- Iota Sigma Pi Triennial Convention Delegate, June 2005.
- Oak Ridge Associated Universities – sponsored student participant in the 54th Meeting of Nobel Laureates in Lindau, Germany, June 2004.
- Graduate Assistance in Areas of National Need (GAANN) Fellowship from the United States Department of Education, University of North Dakota (2002 – 2005).
- Merk Outstanding Chemistry Student Award, Minnesota State University – Moorhead (1997).
- Outstanding Analytical Chemistry Student Award, Minnesota State University – Moorhead (1996).
- Wal-Mart Competitive Edge Scholarship – Minnesota State University – Moorhead. (1994-1997).
- Honors Apprentice Scholar – Minnesota State University – Moorhead (1994 – 1997).
- 1994 Minnesota Community College Chancellor's Award of Excellence honouring women in mathematics, science, and engineering. Recipient speaker at the statewide award ceremony.
- Commencement speaker, Fergus Falls Community College (1994)

PROFESSIONAL MEMBERSHIPS & SERVICE

- American Chemical Society (Physical Chemistry Division) (1997 – present).
Student Editor, Red River Valley Section Newsletter 1996-1997.
- American Association for the Advancement of Science (1997 – present)
- Iota Sigma Pi: National Honor Society for Women in Chemistry (2003 – present)
Triennial Convention delegate, Member at Large (June 2005).
Committee Member, “Undergraduate Award for Excellence in Chemistry” (2006).
- Biophysical Society (2004 – present)
- UND Chemistry Graduate Student Association (2002 – present).
Executive Secretary (January 2003 – May 2006).

PUBLICATIONS

Carlson, Kristine L.; Bush, Sara; Vollmer, Sarah; Thomasson, Kathrine A. **Theoretical UV Circular Dichroism of cyclo(L-Glycine-L-Proline-L-Proline)₂**. *Manuscript in preparation.*

Carlson, Kristine L.; Lowe, Stephen L.; Thomasson, Kathryn A.; Hoffmann, Mark R. **Theoretical UV Circular Dichroism of Cyclo(L-Proline-1L-Proline)**. *J. Phys. Chem. A.* (2006), *110*(5), 1925-1933.

Carlson, Kristine L.; Lowe, Stephen L.; Thomasson, Kathryn A.; Hoffmann, Mark R. **Structural Minimization & Theoretical UV Circular Dichroism of Cyclic Dipeptides**. *J. Phys. Chem. A.* (2005), *109*(24), 5463-5470.

KRISTINE L. CARLSON

Department of Chemistry, University of North Dakota, Grand Forks, ND 58202-9024

Phone: (701)777-3441 Email: kristine.carlson@und.edu

ORAL & POSTER PRESENTATIONS

Carlson, Kristine L.; Hoffmann, Mark R.; Thomasson, Kathryn A. **Structural Insights from Circular Dichroism.** 2006 St. Jude National Graduate Student Symposium, Memphis, TN March 22 – 26, 2006, oral presentation.

Carlson, Kristine L.; Hoffmann, Mark R.; Thomasson, Kathryn A. **Structural Minimization & Theoretical UV Circular Dichroism of Cyclic Dipeptides.** 2006 St. Jude National Graduate Student Symposium, Memphis, TN March 22 – 26, 2006, poster.

Carlson, Kristine L.; Hoffmann, Mark R.; Thomasson, Kathryn A. **Structural Minimization & Theoretical UV Circular Dichroism of Cyclic Dipeptides.** 10th International Conference on Circular Dichroism, Sandestin, FL, August 21 – 25, 2005, poster.

Carlson, Kristine L.; Hoffmann, Mark R.; Thomasson, Kathryn A. **Modeling cyclic dipeptides and calculations of their UV CD spectra.** 49th Annual Biophysical Society Meeting, Long Beach, CA, United States, February 12 – 16, 2005, 2604-Pos.

Carlson, Kristine L.; Hoffmann, Mark R.; Thomasson, Kathryn A. **Theoretical Calculations of Circular Dichroism,** Department of Science Seminar, Minnesota State University – Moorhead, November 2004.

Carlson, Kristine L.; Hoffmann, Mark R.; Thomasson, Kathryn A. **Ab initio studies of cyclo(L-proline-L-proline) and theoretical calculation of the UV-CD Spectrum.** Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, United States, August 22-26, 2004, PHYS-319.

Carlson, Kristine L.; Hoffmann, Mark R.; Thomasson, Kathryn A. **Modeling cyclic dipeptides and calculations of their UV CD spectra.** 35th Midwest Theoretical Chemistry Conference, Ames, IA, United States, June 12-14, 2003.

Carlson, Kristine L.; Hoffmann, Mark R.; Thomasson, Kathryn A. **Modeling cyclic dipeptides and calculations of their UV CD spectra.** Abstracts of Papers, 225th ACS National Meeting, New Orleans, LA, United States, March 23-27, 2003, PHYS-460.

Carlson, Kristine; Jacobson, Michele; Pezeshk, Abbas. **Effects of Ionizing Radiation on DNA: an EPR Study.** Abstracts of Papers, 213th ACS National Meeting, San Francisco, CA, United States, April 13-17, 1997, CHED-196.

Carlson, Kristine; Jacobson, Michele; Pezeshk, Abbas. **Effects of Ionizing Radiation on DNA: an EPR Study.** Oral presentation at the 11th Annual Winchell Undergraduate Symposium, 69th Annual Meeting of the Minnesota Academy of Sciences, Hamline University, St. Paul, MN. April 1997.

Carlson, Kristine; Wallert, Mark. **Na⁺-H⁺ Antiporter Activation in Neonatal Rat Myocytes and Chinese Hamster Ovary Cells.** Oral presentation at the 10th Annual Winchell Undergraduate Symposium, 68th Annual Meeting of the Minnesota Academy of Sciences, Hamline University, St. Paul, MN. April 1996.

Carlson, Kristine; Wallert, Mark. **Study of Na⁺-H⁺ Antiporter Activity by Fluorescent Spectroscopy.** Poster presentation at the 9th Annual Winchell Undergraduate Symposium, 67th Annual Meeting of the Minnesota Academy of Sciences, Hamline University, St. Paul, MN. April 1995.