

Chemistry Alumni Newsletter
University of North Dakota
Fall 2003
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Current Faculty by Division

Analytical (David Pierce); Chemical Education (Julie Abrahamson, Tom Ballintine); Inorganic (Harmon Abrahamson, Ewan Delbridge, Lothar Stahl); Organic (Amanitro Banerjee, Bill Shay, Irinia Smoliakova); Physical (Mark Hoffmann, Jenya Kozliak, Kathryn Thomasson).

Dr. Jeffrey Carlson Gave the Chemistry Alumni Lecture, September 26, 2003.



Lecture Title: Chemistry and Modern Beet Sugar Manufacturing.

Jeff L. Carlson is the Vice President of Operations, Minn-Dak Farmers Cooperative. He received his doctorate in physical chemistry from UND December 1985 under the direction of Dr. James Stewart, working on "A Study of Chymotrypsin by Active Site Labeling". His professional chemistry career began with 4 years at UMN - Morris, teaching chemistry. This was followed by a year with the EPA at the Region 10 Laboratory in Manchester, WA where he did analytical methods research and worked on Superfund projects. Through another UND chemistry graduate he learned of an opening "back home" at Minn-Dak Farmers Cooperative where in 1990 he became Technical Director, in charge of the process laboratory, environmental compliance and technical representation for the company. In September 2002 he assumed his current title as Vice President of Operations.

Since his introduction into the beet sugar industry, Dr. Carlson has been very active professionally with more than 20 industry wide presentations on process,

environmental and analytical subjects. He has continued a strong connection to education since 1994 by teaching annually a month-long course on environmental issues and methods at the Beet Sugar Development Foundation's McGinnis Institute of Beet Sugar Technology. The participants come from all around the world. In addition, he has continued his own education, obtaining the MBA degree from North Dakota State University in 2001. He is a member of the American Chemical Society and very active in the American Association of Beet Sugar Technologists.

UND Undergrad Wins National Award



Corrine Kvamme wins the National Educational Re-entry Award sponsored by the Members-at-Large of Iota Sigma Pi, the National Honor Society for Women in chemistry. Corrine, a Chemistry major at UND, is also a Registered Nurse who has returned to school with the ultimate goal of acceptance into medical school. Her educational journey brought a newfound interest in chemistry. She does undergraduate research with Dr. Irina Smoliakova preparing exo-glucal, a complex carbohydrate derivative. Corrine finds the work both enriching and challenging and has presented her work at the national American Chemical Society conference in New Orleans this past spring. Corrine says she has discovered the importance of chemistry in all walks of life.

Irinia Smoliakova, professor of organic chemistry writes: "Corrine is a very pleasant, smart, focused, and very energetic person. She has many friends. Last spring, the chemistry students elected her President of our Undergraduate Chemistry club." David Tilotta, professor of analytical chemistry noted that Corrine often asked questions in class that showed a "real world" appreciation for modern chemistry. He felt

that her appreciation stems from the fact that Corrine is an older-than-average student who gained valuable insight while working before returning to school.

Corrine was recognized for a variety of reasons. Her high grades, her career switch, and experience in her previous career will yield a chemist who has a unique perspective on potential beneficial uses of chemistry in society. In addition to her "book" knowledge, she also is able to use her classes and knowledge in an applied way. She is a leader in the classroom and the laboratory. She has demonstrated a true love of chemistry - going beyond what some starting chemistry majors never achieve, or desire. She shows a refreshing enthusiasm for chemistry, especially for research.

UND Graduate Student Wins International Fellowship



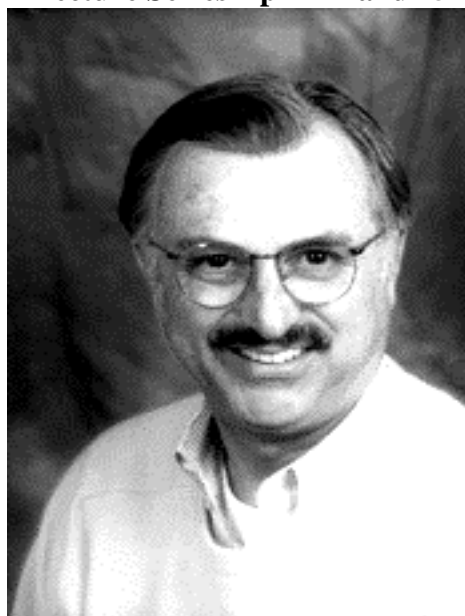
Relindis Mawo wins one of 58 (selected from 1,131 eligible applicants) American Association of University Women (AAUW) International Fellowships. The AAUW Educational Foundation is an organization that helps women pursue their personal and professional goals through fellowships, grants and awards. Fellowship and grant recipient undergo a highly competitive selection after having demonstrated scholarly or professional excellence. International fellowships are awarded for full-time or postgraduate study or research to women who are not U.S. citizens.

Relindis is a Cameroonian and earned a Bachelor's degree and a Master's degree in chemistry from the University of Buea, Cameroon in 1996 and 1998 respectively. She taught chemistry at the University of Buea from October 1998 to December 2001 before moving to the U.S. to pursue doctoral studies in chemistry at the University of North Dakota. Her graduate research with Dr. William Shay focuses on the

development of transition metal-mediated cascade reactions performed in environmentally friendly ionic liquids, and the application of this methodology in the synthesis of macrocyclic compounds that are backbones of many bioactive natural products. The organic synthesis knowledge she will gain at the end of her doctoral studies and the natural products chemistry knowledge that she gained during her Master's degree research will help her in her future plans to research the chemical structures of bioactive compounds in extracts of plant material used by traditional practitioners to cure diseases. This future research may lead to the discovery of new drugs for a number of diseases indigenous to sub-Saharan Africa.

Relindis writes: "The AAUW Educational Foundation has played a very important role in my scholastic achievements and I wish to acknowledge the impact of their efforts in encouraging and assisting women in their education is great."

Victor J. Hruby Gave the 2003 Abbott Lecture Series April 24 and 25



For the first time, a UND alumnus had the honor of giving the Abbott lecture series on April 24-25, 2003. Victor Hruby is Regents Professor of chemistry and biochemistry at the University of Arizona. He was honored for his contributions to the chemistry of peptide hormones, neurotransmitters, and biological analogs. He is responsible for many advances in the field, and has applied his basic research on peptide structure and function to many biological and medical problems.

Dr. Hruby is particularly renowned for his use of high field NMR and other physical methods for the conformational analysis of peptide hormones, analogs, and neurotransmitters. His success includes synthesis of conformationally and

topographically restricted oxytocin antagonist analogs with prolonged inhibitory activities. These compounds have clinical potential to be agents for blocking premature births.

Dr. Hruby received his undergraduate and master's degree in chemistry from UND and a Ph.D. from Cornell University. After completing a postdoc at Cornell's Medical College, Dr. Hruby began as an assistant professor at the University of Arizona in 1968. He was appointed Regents Professor, the university's highest honor, in 1989.

Dr. Hruby's awards and honors stretch back more than 40 years. Among them are the Pierce Award in Peptide Chemistry from the American Peptide Society (1993), the American Diabetes Association Research Award (1996), and the Javits neuroscience Investigator Award (1987-94). He is editor-in-chief of the *Journal of Peptide Research*. He presently sits on several journal editorial boards, has published more than 900 papers, and has written three books.

Summer Undergraduate Research Experience (REU) Program



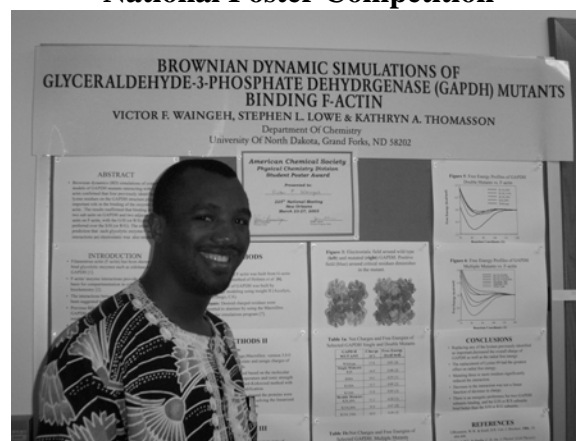
Summer Research Students: Front row: C. Dehen, B. Vottero, L. Rabenberg, & S. Vollmer. Second row: J. Hrdlicka, J. Ahlers, C. Carlson, J. Abrahamson & N. Axvig.

Recently, the Chemistry and Chemical Engineering Departments received a three-year NSF grant to support undergraduate interdisciplinary research emphasizing the application of environmental chemistry to address societal issues. P.I.s of the project are Dr. E. Kozliak (Chemistry) and Dr. M. Mann (Chemical Engineering). This summer, eight students participated. Joel Abrahamson (Kansas State University) worked with Dr. M. Mann: Designing a High-Temperature Materials Test Chamber. Jesse Ahlers (UND) worked with Dr. D. Muggli on A Novel Method for Transient Catalytic Reactions. Nathan Axvig (UND) worked with Drs. M. Hoffmann and I. Smoliakova on Theoretical Studies of Palladacycles). Christine Carlson (South Dakota School of Mines) worked with Drs. W. Seames and E. Kozliak Removing

Mercury from Coal via Acid Wash. Adam Falck (Arizona State University) worked with Dr. W. Shay on Metal-Mediated Cascade Reactions Performed in Ionic Solvents. Jason Hrdlicka (UND) worked with Dr. W. Seames on Design of System Components for a Combustion Test Furnace. Laura Rabenberg (UND) worked with Dr. D. Pierce on Speciation of Waterborne VOCs by Quartz Resonator Measurements. Breanne Vottero (South Dakota School of Mines) worked with Dr. A. Banerjee on 1-[2-(2-Hydroxyalkyl)phenyl]ethanone (HAPE): A Photoremovable Protecting Group for Carboxylic Acids. The students were conducting research during 10 summer weeks. The group had weekly meetings, where professors and undergraduate students made oral presentations about their research. REU participants also had a technically focused field trip to the Minn Dak Farmer's Cooperative (host Dr. Jeff Carlson, UND alumnus) and the Imation Plant (hosts Dr. Christy Chavez and Anne Koehler, UND alumnii) in Wahpeton, ND. The group enjoyed a trip to the Maple Lake (hosts Drs. T. Ballintine, Chemistry, and J. Erjavec, Chemical Engineering).

This summer, two more undergraduates conducted research in the department. Christopher Dehen worked with Dr. I. Smoliakova on Optically Active Cyclopalladated Complexes. Sarah Vollmer worked with Dr. K. Thomasson Comparing Structures of Cyclo(Gly-Pro-Pro)₂ Minimized by Force Fields at Various Dielectrics, the Tendency toward β -turns, and the Calculated UV Circular Dichroism. Dehen was a recipient of the Advanced Undergraduate Research Award provided by ND EPSCoR. Vollmer's research was sponsored by Dr. Thomasson's NIH grant. All students presented their research during the REU Poster Session held in the Chemistry Department on August 6th.

UND Graduate Student Wins ACS National Poster Competition



Victor Waingeh, a chemistry graduate student working for Kathryn Thomasson,

won the graduate student poster prize in Physical Chemistry at the National American Chemical Society meeting in New Orleans in April of 2003. His poster, titled "Brownian dynamic simulations of glyceraldehyde-3-phosphate dehydrogenase (GAPDH) mutants binding F-actin" was recognized for the quality of the poster and Victor's ability to explain his research to a panel of judges. Victor has recently submitted his work to *Biopolymers*.

Alumni News

Coretta Fernandes Ngassa received tenure at Lansing Community College, Chemistry Department.

Coretta and Felix Ngassa recently became parents of a daughter Elizabeth Maud

Ngassa on Sept. 4, 2003. Both parents are doing great!

Victoria Johnston Gelling has become a new mother. Her daughter, Madeline Johnston Gelling was born on July 2nd at 5:22 PM. Vicki continues her work as a Research Fellow in Polymers and Coatings at North Dakota State University.

Joke of the Day

This is purported to be an actual test answer.

Q: Explain one of the processes by which water can be made safe to drink.

A: Flirtation makes water safe to drink because it removes large pollutants like grit, sand, dead sheep, and canoeists.

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