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Chemistry & Biochemistry Newsletter

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Fall 2003

# Chemistry & Biochemistry Newsletter

Department of Chemistry & Biochemistry, South Dakota State University

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*South Dakota State University*

# Chemistry & Biochemistry

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## Message from the Department Head



Welcome to the Fall 2003 semester!

This is turning out to be a year of growth for us in the department and at SDSU. As I write this, SDSU has just announced its largest enrollment ever – 10,561 students – up almost 600 students over the 2002/2003 school year. Early projections for Fall 2004 indicate that we might see a similar increase in the 2004/2005 school year!

Growth and change are inherent parts of the academic year. The Clinical Laboratory Technology Program has changed its name this year to Clinical & Laboratory Science (CLS) to reflect trends in the field. We are conducting two faculty searches to fill positions in chemical education and biochemistry. It is reflected in the number of majors that we have in the department this year. As of early November 2003, we have 60 chemistry majors and 32 CLS majors, with both majors continuing their increase in numbers that we have seen over the past four years. The plans for the renovation of Shepard Hall have changed significantly. We are no longer looking at renovating Old Shepard and building a new instructional wing; the Board of Regents has asked us to demolish Old Shepard and construct an entirely new addition to what is now new Shepard Hall. To accommodate this request we have reprogrammed our facility plan, and have just completed the initial planning and design phase. The Board is scheduled to review and approve (!) the plan in December 2003 and hopefully give permission to seek legislative approval to bond the project and begin construction yet this academic year.

We will have much to report on at the end of the year! We are excited about the growth and changes that we are undergoing as a department. I hope that you are as well.

Please stay in touch.

Jim Rice



## New Graduate Students in Chemistry/Biochemistry



**Blanca J. Gilbes** was born in New York City and graduated with a B.S. in Chemistry from Lehman College of CUNY in 1995. She graduated with a M.S. Ed. in Science Education at Lehman College in 2001, where she did research in the field of multiculturalism in chemistry. She also attended Long Island University (LIU) and is expecting to graduate with a M.S. in Chemistry in June 2004. She is currently a student in Dr. Fathi Halaweish's research group and her interests lie in the synthesis and characterization of novel cucurbitacins and their use as potential anti-cancer agents.



**Jeremy Jensen's** hometown is Truman, MN. He recently graduated from Southwest Minnesota State University in Marshall, MN, with a Bachelor of Science degree in Chemistry. His advisor is Dr. Fathi Halaweish and his areas of interest are synthetic organic, pharmaceutical, and analytical chemistry.



**Jia Lin** is from China. Her undergraduate major was Polymer Materials Science and Engineering. Her advisor for her Ph.D. program is Professor Thomas West. Her primary research interests are in biochemistry and also in synthesis and application.



**Desiree Lone Elk** comes from Pine Ridge, SD. She received her B.S. in Chemistry from SDSU in 2003. She is working with Dr. Rice's research group and is interested in environmental chemistry and organic chemistry. She hasn't chosen a project yet for her Ph.D. program. She says "It will deal with what I'm interested in." She enjoys recreational sports such as volleyball and softball and being around her family.



**Brent Ristow** was born and raised in Duluth, MN. He completed his undergraduate degree at the University of Wisconsin-River Falls. His graduate advisor is Dr. Ron Utecht and his research interests are in synthetic chemistry. His free time interests include hiking, camping, biking, and pretty much anything outdoors. He also enjoys watching the Twins, Vikes, and Wolves (when they are doing good), and roasting marshmallows with his girlfriend.



**Aruna Siva Trichy** is from India where she completed a master's degree in Pharmacy and worked as a Research Scientist for a year in R&D for the Dabue Research Foundation. Dr. Igor Sergeev's research work sounds interesting to her and she has joined his lab. She hopes to come up with some interesting findings during her graduate courses.



**Feng Xiang** comes from Chengdu, China. He graduated from Sichuan University with an undergraduate major in organic chemistry. After receiving his degree, Feng worked in the organic synthesis lab for two years. His research interest is synthesis of natural compounds. He has chosen Dr. Halaweish to be his advisor.



**Andrew Young** is from Manchester in the United Kingdom. He has recently graduated from the Manchester Metropolitan University with a BSc(Hons) degree in Medicinal and Biological Chemistry. His advisor is Dr. Fathi Halaweish and his areas of interest are synthetic organic chemistry and pharmaceutical chemistry.

## New Faculty



**David Cartrette** was born in Raleigh, NC. He earned a B.S. in Biochemistry and a B.A. in Chemistry from North Carolina State University in 1993. He earned an M.S. in Chemistry from Western Carolina University in 1997 and a Ph.D. in Chemical Education from Purdue University in 2003.

His research interests are Chemical Education (problem solving, knowledge/skill transfer, curriculum nature of science issues) and Organic Chemistry (natural product isolation, purification, and characterization).

His hobbies include Southern U.S. and Latin American cooking, hiking in the Appalachian Mountains (and has hiked the entire stretch of the Appalachian Trail within the state of North Carolina), and traveling, especially in Europe, Puerto Rico, and the Outer Banks.

He enjoys reading (especially Jose Saramago), writing fiction and black comedies, music (he's a classically trained pianist and still plays when time allows), furniture refinishing, and Atlantic Coast Conference (ACC) football and basketball.



**Theo Clark** received his B.S. in Chemistry (ACS-certified) with a concentration in Analytical/Inorganic Chemistry from Wright State University located in Dayton, OH, in 1990. He received his Master's degree in Analytical Chemistry in 1994 from Iowa State University. He completed

his doctorate in Chemistry with a concentration in Analytical/Organic Chemistry in 1998 at the University of Wyoming, Laramie, WY. He moved from Kirksville, MO, where he had served as a visiting assistant professor of Chemistry at Truman University, to the Sioux Falls area to teach on the USDSU campus.

Theo's current research is focused on profiling the fatty acid and nutritional composition of free-ranged poultry which addresses the need for more nutritional food products for health conscious consumers. His other research interests include: the cross-discipline subjects of organic and analytical chemistry with emphasis in the selective electro-organic transformations of compounds at catalytic electrodes and soft and hard materials development.

A few highlights from Theo's research accomplishments are: impedance behavior of polycrystalline electrode, applications of oriented nano-porous surfactant silica sol-gel thin films as fluid reservoirs; chemical synthesis of marine mussel cement peptide analogs as adhesions for dental materials: the study and characterization of adhesion polymers; and investigations of cleavable synthetic surfactants that form vesicles: entrapment, release, and signaling devices for the chemical detoxication of war grade nerve agents.



**Ron Hirko** obtained his B.S. in chemistry at Kent State University and earned his Ph.D. at Utah State University specializing in Physical Chemistry. He worked at Occidental Chemical Corporation in White Springs, FL, as section head of Physical Chemistry in R&D, quality

assurance manager, and senior scientist. While a section head, he directed the development of commercial processes for the recovery of waste fluoride as a synthetic fluorspar and for the production of anhydrous hydrofluoric acid from recovered fluoride values for which he received two United States patents.

Ron also worked at Quantegy, formerly Ampex Recording Media, as manager of Chemical and Physical Sciences. As such, he was accountable for all R&D as well as physical-chemical support which included analytical chemistry, quality assurance, process control, polymer engineering, rheology, tribology and XPS/ESCA activities. He was instrumental in the development of several new digital as well as other tape formats. He later affiliated with Southern Union State Community College in Opelika, AL, where he instructed general and survey chemistry as well as Chattahoochee Valley Community College where he taught calculus and trig based physics.

Ron's wife, Mary, has temporarily remained in Alabama as their daughter and grandson recently relocated from North Carolina to Auburn. Ron and Mary have three children. For hobbies, Ron enjoys the challenge of golf, photography, and working with Mary on their family genealogies.



**Sarah Madsen** earned her B.S. degree in Chemistry in 1988 from Central Washington University in Ellensburg, WA, and afterward worked in industry for four years, at Chemical Processors, a treatment and hazardous waste company, and Georgia-Pacific. Sarah obtained a Ph.D. in chemistry in 1998 at the University of Wyoming in Laramie. Her dissertation involved the spectroscopic characterization and synthesis of b-hematin, the synthetic analogue structurally identical to malaria pigment which is the heme-polymer found in malarial victims. She held two postdoc positions; the first was at the University of Michigan doing research in gene therapy and tissue engineering, and the second was at Los Alamos National Laboratory where she synthesized multivalent binding recognition moieties for a biosensor used in detecting hazardous biological pathogens. In 2001, Sarah moved to Kirksville, MO, as a visiting assistant professor at Truman State University teaching chemistry for non-majors and organic chemistry.

Sarah's family is her main interest, and is married to Dr. Theo Clark. She has a female cat named Harvey (after the rabbit in the play *Harvey*).



**Roger Traxinger** was born and raised just 60 miles east of Brookings in Marshall, MN. He received his bachelor's degree with majors in chemistry and biology from Southwest State University, and earned his Ph.D. in Biochemistry (and Computer Science) at the University of North Dakota Medical School. His graduate studies focused on stopped-flow kinetics of hepatic glucose-6-phosphatase/ phosphotransferase system and its relationship to metabolic regulation.

Roger was an NIH fellow working in the Department of Biochemistry at the University of Tennessee Health Science Center, Memphis. His post-doctoral work focused on the metabolic regulation of the glucose transporter and the hexosamine biosynthesis pathway, which he found regulates not only glucose transport but many, many other important regulatory functions by controlling genes expression through glycosylation-deglycosylation in competition with phosphorylation-dephosphorylation sites on transcription factors.

After his post-doctoral work, Roger retired from science and became a general contractor for several years before returning to Marshall where he worked in the ADM quality control labs writing their training manual and training lab personnel. His true passion has always been science, both teaching and research. He does, however, have a life outside of science and enjoy photography, astronomy, dogs (and cats), card and dice games, wood working, bike riding, camping and some sports.



**Steve Wuerz** was born in St. Louis, Missouri. He completed his education at Washington University, as well as the University of Manitoba. He taught Biochemistry, Organic Chemistry, and General Chemistry at the University of Manitoba and the University of Winnipeg for 15 years. He has edited science textbooks, including two used at SDSU.

Steve is divorced and has two children, ages 21 and 15. Steve has now made his home in Brookings. He enjoys reading, gardening, and camping. He likes a good joke, and dislikes forgetting the punch line.



## Alumni News

Where are you?

What are you doing?

*We gladly publish updates on our alum's careers and lives — if we receive them. It's a great way for all of us to keep in touch!*

*Each newsletter will contain information on alumni and their activities. If you would like to share something about yourself and what you are doing, please send us a note and we will include it in the next issue. You can FAX to us at (605) 688-6364, e-mail us at [James\\_Rice@sdstate.edu](mailto:James_Rice@sdstate.edu), and mail is always welcome.*

## Foundation Donors

*from March 2003-September 2003*

Albemarle Corporation  
 Edwin and Elizabeth Perley  
 Caterpillar Foundation  
 Keith and Glynn Bartels  
 Michael and Carol Klug  
 Robert and Edna Wayryner  
 Ervin and Betty Rivinius  
 Lorraine Bell  
 Irwin and Carol Scott  
 Marla Behm  
 Donald McRoberts  
 Elaine Olson  
 Joseph and Karen Morse  
 Paul Palmer  
 Joel Beckmann

## Faculty and Staff News

### Department Picnic



Faculty and students got together in September for the annual fall picnic in Hillcrest Park in Brookings.

Retired faculty members Royce Emerick and Ivan Palmer who cooked the chicken. Thanks so much for all of your help!



Retired faculty members who attended the picnic.



Faculty and students share some chicken and a place on the park grass.

## Recent Faculty Publications

### Don Evenson

Larson-Cook, KL, Brannian, JD, Hansen KA, Kasperson KM, Aamold ET, Evenson DP. (2003) Relationships between the outcomes of assisted reproductive techniques and sperm DNA fragmentation as measured by the sperm chromatin structure assay (SCSA). *Fertility and Sterility* 80:895-902.



Evenson

### Fathi Halaweish

Zhang, D. and Halaweish, F. T.. Isolation and identification of foetidissimim: a novel ribosome-inactivating protein from Cucurbita Foetidissima, *Plant Science*, 164, 387-393, 2003.

Halaweish, F. T.; Kronberg, S.; Rice, J. A. Rodent and ruminant ingestive response to flavonoids in Euphorbia esula, *J. Chem. Ecol.*, 29, 1073-1082, 2003.

Zhao, C., Qunfang, L., Halaweish, F.T., Baoping, S., Yuqing, Y., and Weimin, Z. Copacamphane, Picrotoxane, and Alloaromadendrane Sesquiterpene Glycosides and Phenolic Glycosides from Dendrobium moniliforme, *Nat. Prod. Sci.*, 66, 1140-1143, 2003.



Halaweish

### James Rice

Khalaf, M.; Kohl, S. D.; Rice, J. A.; Klumpp, E., 2003, Comparison of Sorption Domains in Molecular Weight Fractions of a Soil Humic Acid Using Solid-State 19F NMR, *Environmental Science & Technology*, 37: 2855-2860.

Shang, C.; Rice, J. A., Eberl D. D.; Lin. J. S., 2003, Measurement of the illite fundamental particle thickness using a direct Fourier transform of small-angle x-ray scattering data, *Clays & Clay Minerals*, 51: 293-300.

Halaweish, F. T.; Kronberg, S.; Rice, J. A., 2003, Rodent and ruminant ingestive response to flavonoids in Euphorbia esula, *J. Chem. Ecol.*, 29: 1073-1082.



Rice

### Nancy Thiex

Thiex, N. J.; Anderson, S.; Gildemeister, B. (2003) Crude Fat, Hexanes Extraction, in Feed, Cereal Grain, and Forage (Randall/Soxtec/Submersion Method): Collaborative Study, *Journal of AOAC International*, 86:5.



Thiex

### Thomas West

West, T. P. 2003. Effect of temperature on bacterial gellan production. *World Journal of Microbiology and Biotechnology* 19:649-652.

Santiago, M. F., and T. P. West. 2003. Effect of carbon source on pyrimidine biosynthesis in Pseudomonas alcaligenes ATCC 14909. *Microbiological Research* 158:83-87.

Santiago, M. F., and T. P. West. 2003. Comparison of aspartate transcarbamoylase regulation in Pseudomonas alcaligenes and Pseudomonas mendocina. *Journal of Basic Microbiology* 43:75-79.

Santiago, M. F., and T. P. West. 2002. Control of pyrimidine formation in Pseudomonas putida ATCC 17536. *Canadian Journal of Microbiology* 48:1076-1081.



West