

The Department of Chemistry and Biochemistry

Utah State University

SPRING 2004

Dear Alum:

The Department's spring Honors Ceremony was a joy as usual. Scholarships of one sort or another were presented to 21 undergraduate students and 8 graduate students, all basking in the proud smiles of family and friends. Although the weather was not as cooperative as usual, all enjoyed snacking on our light buffet in the Alumni Center following the ceremonies. We were pleased that Dave Ecker and his wife, Donna, were able to join us this year, as Dave accepted the Department's Alumni Achievement Award.

Our Chemistry Club was particularly active this year. Nine members of the club took a "career trip" of sorts out to the San Diego area, accompanied by Lance Seefeldt and Joel Kincart from the Dean's Office. The group visited Stratagene and ISIS Pharmaceuticals where they were hosted by Dan Clark and Dave Ecker, respectively. The students had a wonderful time, and the visit opened their eyes to the sorts of research that goes on in industrial laboratories. We hope to make this sort of exposure to industrial research a tradition in this Department.

Our instructional program was honored this year to be ranked amongst the seven finalists for the University's Department Teaching Excellence Award. And speaking of our undergraduate program, I am pleased to report that William Moore continues his outstanding handling of our physical chemistry lab courses, despite his formal retirement several years ago.



The Department will soon be upgrading our capstone course. Chem 4990 has been a 1-credit course wherein seniors were taught how to make a scientific presentation. We have decided that this format provides insufficient time for in-depth training in this area. As a result, each senior will be assigned to a faculty mentor who will guide them in development of a scientific presentation, including the observation of talks by graduate students and faculty. We will also include in this course a number of other important skills, including computer-guided literature searches. The course will soon be upgraded to two credits to be more in tune with the degree of effort. Another change involves exams. The Department is experimenting with the idea of using standardized ACS final exams for a few of our courses. In addition to allowing more detailed analysis of subsections of the material, these exams will provide an opportunity to assess how well our students are doing in comparison to national norms.

This spring witnessed the promotion of two of our faculty. Lisa Berreau was promoted to Associate Professor with tenure, and Alvan Hengge reached full Professor status. These milestones in their careers were well deserved, and we are proud of both of them. Two of our younger faculty have recently received federal grants that recognize their continuing research contributions. Tom Chang was funded by DARPA and NIH; Alex Boldyrev received a grant from NSF. We have missed Bob Brown and Brad Davidson who have been off on their sabbaticals this year. Bob has spent his time in California and Georgia, and Brad has learned some new scientific techniques in Switzerland. They are both expected back this summer, at which time Vernon Parker will be heading overseas to Sweden for his own sabbatical, leaving our general chemistry and organic labs in the capable hands of John Hubbard and Alvan Hengge.

We continued our tradition of honoring Gaurth Hansen with our annual Hansen Seminar. Our speaker this Spring was Joanne Stubbe of MIT who gave a

talk that we think Gaurth would have been pleased with. Dr. Stubbe was also kind enough to spend some time visiting with a number of our students.

We were delighted to learn that a longtime associate of Vernon Parker's, Yun Lu, has accepted a faculty position at Southern Illinois University - Edwardsville. Yun has carried out research with Vernon here at USU for some years, and has also assisted our undergraduate instruction program by teaching organic and general chemistry over the last few years. We wish Yun the best as he begins his independent academic career. One of our own alumni was the recipient of an internationally prestigious Alexander von Humboldt fellowship: after receiving his PhD in 2003 working with Alex Boldyrev, Aleksey Kuznetsov moved on to the Fritz-Haber Institut in Berlin.


The staff has undergone a number of changes this past year. Jack Chen took over as Laboratory Manager in January, and has been a conscientious worker. Jack came to us with a BS in Chemistry from Weber State, which has stood him in good stead as he learns the ropes. Audra Aston also began as one of our Office Triumvirate, under the capable guidance of Geri Child.

I am proud to announce that another of our staff, Buckley Banham, who services electronic equipment and computers, was lauded as one of the top three Classified Employees at USU this past spring. All in all, the Department's staff has continued to be topnotch, even with the turnover we suffer from time to time.

I want to express my sincere appreciation to Autoliv, ATK Bacchus, and BYU, which have all donated equipment to the Department, and Microsoft which has made available some important server software. Such contributions are invaluable in keeping our instructional program up to date.

With the semester over, the Department has moved into high gear in preparations for the Regional ACS Meeting that will come to campus very shortly. In fact, by the time this newsletter is printed and delivered, this June 6-9 Meeting will likely be all wrapped up, all 279 presentations worth. So I will close with a promise to fill you in on how this Meeting went in the Fall Newsletter. Wishing you a healthy and happy summer, full of sunshine and good health for you and your family.

With kind regards,



ALUMNI NEWS

Adrian Guy (BS 2001) is mother of two, Rebecca and Scott. She lives with her husband Michael in Madison.

Michael Guy (BS 2002) is researching the mechanism of an anti-apoptotic protein at the University of Wisconsin-Madison, working toward a PhD in biochemistry.

Alicja Copik (PhD 2003) has moved on to a postdoctoral appointment at the University of Texas, Medical Branch, in Galveston.

Aleksey Kuznetsov (PhD 2003) was the recipient of a fellowship from the Alexander von Humboldt Foundation. Aleksey is currently working at the Fritz-Haber Institut in Berlin.

ALUMNI LINK

<http://www.chem.usu.edu>

- **Alumni** – Reminisce about the Widtsoe Chemistry Building as it once was and watch it transform into the new Widtsoe Hall.
<http://www.chem.usu.edu/alumni.php>
- **Alumni Database** – The Department of Chemistry and Biochemistry wants to know about our alumni and any significant events in their lives.
<http://www.chem.usu.edu/alumni-database.php>
- **Alumni Newsletter**
Department Newsletters, including past issues are available at:
<http://www.chem.usu.edu/newsletters.php>

FACULTY ACHIEVEMENTS 2003

Stephen Bialkowski was selected as a Research fellow at the Pacific Northwest National Laboratory. He worked with James E. Amonette to assist with the development of gas-phase infrared photoacoustic/photothermal detectors for tracer gas analysis. He garnered the Willard Gardner Prize of the Utah Academy of Sciences, Arts, and Letters, and presented papers at the 15th Symposium on Thermophysical Properties and at the annual FACSS Meeting.

Alex Boldyrev published a paper dealing with antiaromaticity in an April issue of *Science*. This work was discussed in a number of articles in *Chem & Eng News* and was considered one of only three landmark achievements in the field of inorganic chemistry during 2003. Along with a graduate and an undergraduate student as coauthors, Boldyrev had a paper accepted for publication as a Communication in the *Journal of the American Chemical Society* in September.

Ann Aust participated in a site visit for NSF Iqert Nanoparticle Center at the University of California, Davis.

Tom Chang was awarded two major grants, one from DARPA and the other from NIH, as well as presenting his work at a Gordon Conference and the National ACS Meeting.

David Farrelly has been invited to speak at the Conference on Molecular Reaction Dynamics in Dalian, China.

Doug Harris organized a Workshop for High School Science Teachers at the Regional ACS Meeting in Logan and presented at the Adele C. Young Intermediate School Career Fair in Brigham City.

Alvan Hengge presented the results of his research at four different universities and at the International Isotope Effects Conference in Uppsala, Sweden. He contributed two chapters to the *Encyclopedia of Catalysis*.

Rick Holz served as a Visiting Research Professor at the Institute of Nanotechnology and Department of Chemistry of Northwestern University. He made ten presentations about his research to universities, AFOSR, DARPA, and Abbot Labs.

Vernon Parker was invited to present one of the plenary lectures at the IUPAC International Conference on Physical Organic Chemistry (ICPOC) by the Chinese Chemical Society in Shanghai, China. He had his grant application renewed by NSF for the fourth time.

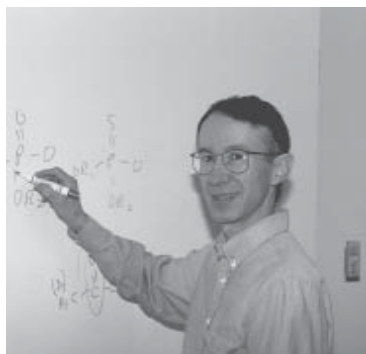
Lance Seefeldt had an article published as a prestigious Communication to the Editor in the *Journal of the American Chemical Society* in May. One of his figures was on the cover of a Fall issue of *Critical Reviews in Biochemistry and Molecular Biology*.



FACULTY HONORS



Dr. Lisa M. Berreau.
Promoted to Associate Professor with Tenure.



Dr. Alvan C. Hengge.
Promoted to Professor.



Dr. Lance C. Seefeldt
received the College of Science Researcher of the Year Award for 2004.

COMINGS AND GOINGS



Audra Aston joined the Department Office staff in January. She attended USU, pursuing an interest in Technical Writing. She and her husband Ki reside in Logan.

Jack Chen also joined the Department in January as the Lab Technician for the teaching laboratories. He and his wife reside in Ogden.



STAFF HONORS



Buckley Banham, Electronics Technician, received the honor of being one of the top three outstanding Classified Employees at USU for 2003-2004.

R. Gaurth Hansen Seminar Series 2004 Lecturer



Joanne Stubbe, Novartis Professor of Chemistry and Professor of Biology at the Massachusetts Institute of Technology was welcomed as our second annual Hansen Symposium Speaker.

The R. Gaurth Hansen Seminar Series is made possible by a generous endowment initiated by Dr. William Rutter, co-founder and former Chairman of the Board of the Chiron Corporation.



Professor Stubbe Visits with
Graduate Students over Lunch



Undergraduate Research Awards Summer 2004

With the goal of further promoting undergraduate research in the Department, Undergraduate Summer Research Awards were made available for summer 2004 to Rex Watkins, Kelly Doyle, Zahraa Al-Lawati, and Darin Humphreys. Funding for these awards was generously made available by the College of Science.



HONORS

Congratulations to **Jessica D. Gardner**, who graduated with Chemistry Honors and University Honors during the 2003-2004 Academic Year.

Talina Christensen will be one of nine Honors students who will be working as Honors Fellows for the 2004-2005 school year.

URCO Grants 2003-2004

Undergraduate Research and Creative Opportunity Grant Recipients in the Chemistry and Biochemistry:

Chad W. Wasden

Major Professor: Lisa M. Berreau

Title: Transesterification of Soybean Oil to Biodiesel via Metal Ligated Catalysts

Landon J. Karren

Major Professor: Steven D. Aust

Title: Quinine Induced Release of Iron from Ferritin

COMMENCEMENT 2004**Doctorates****Russell A. Allred**

Major: Chemistry

Major Professor: Lisa Berreau

Dissertation Title: "The Structures and Reactivities of Group 12 Metal Complexes Coordinated by Tripodal Nitrogen/Sulfur Ligands Possessing Internal Hydrogen Bond Donors."

Position: Forensic Chemist, United States Department of Justice, Miami, FL

Krzysztof P. Bzymek

Major: Biochemistry

Major Professor: Rick Holz

Dissertation Title: "Mechanistic Studies on the Leucine Aminopeptidase from *Vibrio Proteolyticus*."

Position: Postdoctoral Fellow, University of Delaware

Alicja Copik

Major: Biochemistry

Major Professor: Rick Holz

Dissertation Title: "Mechanistic Studies of Methionyl Aminopeptidases."

Position: Postdoctoral Fellow, University of Texas Medical Branch

Piotr Grzyska

Major: Chemistry

Major Professor: Alvan Hengge

Dissertation Title: "Insights on Enzymatic and Uncatalyzed Phosphoryl Transfer."

Position: Postdoctoral Fellow, Michigan State University

Aleksey E. Kuznetsov

Major: Chemistry

Major Professor: Alex Boldyrev

Dissertation: "Aromaticity and Antiaromaticity in All-Metal Systems."

Position: Alexander von Humboldt Fellow at Fritz-Haber Institut der Max-Planck Gesellschaft, Berlin, Germany

Magdalena Makowska-Grzyska

Major: Chemistry

Major Professor: Lisa Berreau

Dissertation Title: "Divalent Metal Complexes of Novel Tripodal Ligands: Synthesis, Reactivity, and Relevance to Biological Systems."

Position: Postdoctoral Associate, Department of Chemistry, Michigan State University

Boguslaw P. Nocek

Major: Biochemistry

Major Professor: John Peters

Dissertation Title: "X-Ray Crystallography Studies of 2-Ketopropyl-com Oxidoreductase/Carboxylase, R-2-Hydroxypropyl-com Dehydrogenase, and Acetone Carboxylase. Epoxypropane and Acetone Metabolism in *Xanthobacter* strain PY2."**Graduating Seniors****John L. Blau**Continue to Medical School
University of Colorado**Bumsu Cho**

Seek employment in Korea

Michael Christiansen

Continue to Graduate School, Chemistry
Brigham Young University

Brandt Esplin

Continue to Medical School
University of Oklahoma

Jessica D. Gardner

Continue to Graduate School, Biochemistry
University of Wisconsin-Madison

Shawn Hancey

Continue to Pharmacy School
University of Washington

Loren Hansen

Continue to Graduate School
Chemistry or Computer Science

Ryan D. Malnar

Continue to Law School

Jamie Purcell

Continue to Graduate School

Douglas Tanner

Continue to Graduate School, Chemistry
Brigham Young University

Kyle Tubbs

Continue to Medical School
University of Washington

Daniel J. Waite

Continue to Graduate School, Chemistry

Jarod M. Younker

Continue to Graduate School, Chemistry
The Pennsylvania State University

Chemistry and Biochemistry
SPRING AWARDS 2004
Presented April 22, 2004

THOMAS M. FARLEY FRESHMAN CHEMISTRY AWARD

Aaron Crandall

Julie Ford

Logan McKenna

Joseph Parker

T C Wright

**DIVISION OF ANALYTICAL CHEMISTRY AMERICAN
CHEMICAL SOCIETY AWARD**

Rex Watkins

GARTH L. LEE UNDERGRADUATE SCHOLARSHIP AWARD

1st Year Russell Rasmussen

2nd Year Jonathan Gardner

3rd Year Zahraa Al-Lawati

4th Year Jessica Gardner

**HARRIS O. AND ELEANOR Y. VAN ORDEN ENDOWED
SCHOLARSHIP AWARD**

John Blau

OSAMU FUJIWARA SCHOLARSHIP

Ashley Ellsworth

**THE R. GAURTH HANSEN, PH.D. ENDOWED
SCHOLARSHIP AWARD**

Ricky Gardner

THE IRVING CONDIE FROST ENDOWED SCHOLARSHIP AWARD

Chelsey Ashcroft

MAESER-BAUER UNDERGRADUATE SCHOLARSHIP AWARD

Rex Watkins

**THE AMERICAN INSTITUTE OF CHEMISTS FOUNDATION
UNDERGRADUATE AWARD**

Jamie Purcell

UNDERGRADUATE RESEARCH AWARDS

Zahraa Al-Lawati

Darin Humphreys

Kelly Doyle

Rex Watkins

OUTSTANDING GRADUATING SENIOR IN THE DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

Kyle Tubbs

MAESER-BAUER GRADUATE TEACHING ASSISTANT AWARD

Ben Elliott Thomas Zane Davis

CHEMISTRY AND BIOCHEMISTRY ALUMNI AWARD

Jinhua Wang Ben Elliott

THE MARJORIE H. GARDNER TEACHING AWARD

Jie Li

D.A. GREENWOOD MEMORIAL AWARD IN BIOCHEMISTRY

Thomas Zane Davis

THOMAS F. EMERY RESEARCH SCHOLAR MEMORIAL AWARD IN BIOCHEMISTRY

Jeff M. Boyd

THE GEORGE H. AND BILLIE BUSH EMERT SCHOLARSHIP AWARD

Justin Holm

**ALUMNI ACHIEVEMENT
AWARD 2004**



Dr. David J. Ecker, recipient of the 2004 Alumni Achievement Award, completed his Ph.D. degree in Biochemistry at USU, in the faculty research laboratory of Dr. Thomas F. Emery. Dave credits his career to, "Dr. Emery, who inspired a whole generation of biochemistry students."



CHEMISTRY CLUB Utah State University



BioTech Field Trip – Visits To –

Dr. David Ecker
ISIS Pharmaceuticals
Carlsbad, California

Dr. Dan Clark
Stratagene Inc.
La Jolla, California

Participants:

- Chelsey Ashcroft
- Matt Fowers
- Brett Hamilton
- Landon Karren
- Jamie Purcell
- Crystal Shipley
- Rex Watkins
- Chad Wasden
- Matt Wheatley
- Professor Lance Seefeldt
- Joel Kincart – College of Science



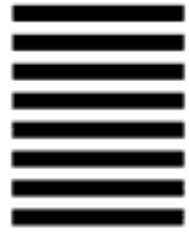
BENEFACTORS FOR 2003

ATK Bacchus
Alberto Abadie
Jeffrey Allen
Alliant Techsystems Community Investment Foun.
American International Group, Inc.
Autoliv
Gary S. Becker
Stephen Bialkowski and Agnes Chartier
Travis and Laura Bodrero
Brigham Young University
Robert S. Brown
Pierre Chiappori
Tanya Edwards Christensen
Roberta E. Clement
Deborah Davis & William Nickolai
Harold E. and Carolyn J. DeLamare
Mark Duggan
David L. Ellsworth
Donald W. Emerich
George H. and Billie Bush Emert
John and Mary Fajen
Paul Farnsworth (BYU)
Robert W. Fogel
Lisa N. Fryer
Osamu Fujiwara
Darrell L. Gallup
Michael Greenstone
Lars P. Hansen and Grace Tsiang
Eastman and Anne Hatch
James David Hulse
Mateusz L. Hupert
Richard K. Jolley, DDS
Wendell L. and Sharlene M. Jolley
Vernetti & Gary Jones
Lockheed Martin
Robert E. Lucas, Jr.
Nolan and Marian Mangelson
Microsoft
Theodore E. Mifflin
Thomas W. Moon
Cal D. Morgan
Kevin M. Murphy
Roger B. Myerson
Vernon and Monica Parker
Richard W. Perkins
Mordechai M. Perry
Nelson W. Rebert
Philip Reny
Julie A. Robinson and Neil Davidson
Allen R. Sanderson
Susanne M. Schennach
Rita and James Seiber
Shell Oil Company Foundation, Inc.
Larry A. Sjaastad
Hugo F. Sonnenschein
John L. and Lyndyl Sorensen
Brett Stanley
Nancy L. Stokey
Zhihua Shen and Gang Zheng
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Sheldon Taylor
Lester G. Telser
Glen Jay Thornley
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Ward Family Living Trust
Willis A. and Kitty Wood
Robert Young

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USU Degree(s) _____ Year(s) _____ Major(s) _____

Other Degree(s) _____ Year(s) _____ Major(s) _____

Profession/Employer _____

We are interested in any news about yourself, your career, your family, etc. that you would care to share with other alumni. Submit the information via <http://www.chem.usu.edu/alumni-database.php> or detach and mail, postage paid.

Is there someone you would like to nominate for the **2005 Alumni Achievement Award**? Please write a brief outline of accomplishments of your nominee above, detach and mail, postage paid.