

The Department of Chemistry and Biochemistry Utah State University

SPRING 2005

Dear Alum:

I hope your spring is as pretty and luxuriant as ours here in Cache Valley. After the last few drought years, the snowy winter and cool, rainy spring seems like a breath of fresh air, that we hope will return us to a more normal weather cycle. Thoughts will soon turn toward summer: lawns, gardens, flowers.

But in the meantime, I hope you will indulge me by permitting me to brag about our Department, which has received a number of notable recognitions of late, and well deserved in my opinion. The Department as a whole was the recipient of this year's University Award for Departmental Teaching Excellence. This award is meant to recognize not any one individual, or even group of individuals, but rather a culture of teaching excellence that extends over the entire Department. In addition to the high quality of our instruction in the classroom and lab, the faculty were recognized for their dedication to undergraduate research and mentoring. Stan Albrecht, USU's new President, came to Widtsoe to present the award in April, along with a plaque that we have proudly hung in the Departmental Office.

There were quite a few individual awards as well. Steve Aust received the nationally competitive ACS Spencer Award which recognizes meritorious achievement in the field of Agricultural and Food Chemistry. Steve and his wife Karen traveled out to Kansas City for a ceremony in his honor. Stephen Bialkowski won a Fulbright Scholarship to carry out research in Slovenia. Vernon Parker was the 2005 recipient of USU's Wynne Thorne Award, which recognizes one individual each year for their research accomplishments. Alvan Hengge picked up this year's recognition as Teacher of the Year in the College of Science. In addition to his promotion to full Professor, Alex Boldyrev was named as the Outstanding Faculty



Researcher of the Year in the College. (In fact, a member of our Department has received this award in each of the last five years.)

Recognition of quality and accomplishment extended to our students as well. Anastassia Alexandrova received the Chemical Computing Group Excellence Award from the ACS Division of Computers in Chemistry. She was

also named the College of Science's Graduate Student Researcher of the Year, as well as the recipient of the Robins Award, recognizing her as the finest graduate student researcher in all of USU. Rex Watkins, the College of Science Valedictorian for 2005, received an ACS Division of Inorganic Chemistry Travel Award, as well as a Graduate Fellowship from Phi Kappa Phi. Ashley Ellsworth received the College's honor as Scholar of the Year, and was recognized university-wide in the same category. Seven other students received URCO grants from the University, helping them pursue their undergraduate research projects over the next year. Jeff Boyd and Dave Wampler, both graduate students, won prizes for their research presentations at the University's competition. Miguel Pabon received a Sigma Xi Grant-in-Aid of Research and Eric Vawdrey received a Sigma Xi summer research award. Rebecca Bennion Mitchell and Sandra Cove Viera both received new Eccles Undergraduate Research Fellowships. And not unexpectedly, the students in our Department vanquished their foes in the university's Science Day Quiz Bowl. If you wander into the Department office, you will see displayed the (rather large) trophy that comes with this victory. (See photo above)

We were delighted to bestow the Department's 2005 Alumni Achievement Award on Bob Wardle. Those of you who graduated with Bob in 1981 may remember him as an undergraduate researcher in Richard Olsen's lab. After his PhD at Caltech, Bob

found his way back to Utah, and is now Director of Research and Development Laboratories at Thiokol. Bob joined us at the Department's Honors Ceremony in April. (Please be sure to get me your nominations for the 2006 award soon!)

Our third annual Gaurth Hansen Seminar speaker was Berkeley's Judith Klinman. Dr. Klinman presented an enlightening lecture in April, and also attended a poster session in which some of our biochemistry students presented their ongoing projects.

The Department was stressed over the last year with Vernon Parker off on sabbatical in Sweden. Vernon had taken over responsibility for the bulk of our instructional labs, leaving a gaping hole in our program while he was away. We were fortunate that John Hubbard and Alvan Hengge agreed to step up for us this year, and keep our many labs going without missing a beat. We are indebted to both of them for this service.

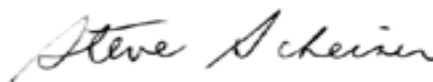
Glen Thornley, whom most of you will remember as the man behind the scenes of this Department for many years, opted for early retirement, although I did persuade him to stay on for a year in a part-time role. He has been immensely useful in training his two replacements. LuAnn Stocking has taken over Glen's Departmental duties, keeping track of the budget, coordinating laboratory repairs, and helping the faculty manage their research accounts. Tracy Gilson assumed the role of Manager of ChemStores, which has over the years developed into a rather major storehouse of scientific supplies.

Additional staff turnover took place in the Department Office. With the departure of two of our staff, Geri Child's stability and capable guidance was needed more than ever. We were fortunate to be able to lure Camille Miller back from the President's Office, and to attract Miriam Felton to take over other duties in the Office.

Well, now that I have listed all this in one place, I realize the past year has in fact been one of great change for us. I believe that the recognition achieved over the past year is only the tip of the iceberg, and your former Department will be receiving more and more national attention over the next few years. I will close by thanking you for your continuing support as we strive to make you proud of the Department where

you received some of your training. Goodbye for now, and please accept my wishes for a cheerful and bright summer.

Cordially,



ALUMNI NEWS

Dennis E. Jackman (PhD 1970) serves as Senior Chemical Specialist at Bayer Crop Science in Kansas.

William Kent Glanville (PhD 1976) was Assistant Professor at Weber State Univ until 1980, after which he served as a Police Officer here in Logan until 1988. He is currently a Senior Forensic Chemist with the Drug Enforcement Administration in Dallas.

Royce W. Beal (BS 1995) went on to earn a PhD at the University of Delaware. He has been employed at Air Force Research Labs (Edwards and Wright-Patterson). He currently works as Program Manager of Solid Propulsion Sustainment at the ICBM System Wing at Hill AFB.

ALUMNI LINK

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

- **Alumni**
- **Alumni Database**
- **Alumni Newsletter**

Please send along news of your career, your personal life, anything that you would like to share with fellow alumni. Just tear off the last sheet in this newsletter and put in the mail or submit your information electronically through the **Alumni Database**.

FACULTY HONORS



Vernon Parker won the University's annual Wynne Thorne Award, recognizing an individual for outstanding research contributions. He was recognized for his reexamination of the kinetics of the foundation reactions of physical organic chemistry, work which challenges some of the currently accepted beliefs. His success has resulted in continuously excellent reviews from experts in the field over a period of years.



Steven Aust was the recipient of the 2004 Kenneth A. Spencer Award which recognizes meritorious achievement in the field of Agricultural and Food Chemistry. Steven and his wife Karen traveled to Kansas City to accept this prestigious award at the Spencer Award Banquet in February. He was recognized for his study of the role of metals, most notably iron, in the oxidation of biomolecules that are thought to autoxidize, and the role of iron in ischemia-reperfusion injury.



Alexander Boldyrev was promoted to full Professor and was named College of Science Faculty Researcher of the Year. Alex was cited for addressing truly central problems of chemistry by a combination of theoretical and experimental approaches. He has demonstrated that the concept of aromaticity extends to an entirely novel class of molecules, inorganic substances, composed nearly entirely of metal atoms. This work has received worldwide attention.



Alvan Hengge was the recipient of this year's College of Science Teacher of the Year award. Alvan has proven immensely popular as an instructor, despite the pressures of a very difficult organic chemistry curriculum, with its large enrollment. His style pushes his students to think: he engages them in the class, posing questions and paradoxes for them to solve. His world-class reputation in research is an important element in his conscientious mentoring of graduate and undergraduate researchers.



Stephen Bialkowski won a prestigious Fulbright Award to carry out research in Slovenia. He was recognized as one of the world's authorities on certain aspects of the overlap between analytical chemistry, physical chemistry, and spectroscopy. He has published extensively in this arena, including a leading text, *Photothermal Spectroscopy Methods for Chemical Analysis*.

FACULTY ACHIEVEMENTS IN 2004

Steve Aust has been named this year's winner of the Kenneth A. Spencer Award which recognizes meritorious achievement in the field of Agricultural and Food Chemistry.

Lisa Berreau served as NIH panel member. Her grant application on model studies of a nickel dioxygenase was funded by NIH.

Stephen Bialkowski won a Fulbright Scholarship to carry out research in Slovenia later this year. He also received funding for a large collaborative effort in condensed phase laser photoacoustic spectroscopy with researchers at Battelle and PNNL.

Alex Boldyrev was promoted to full Professor, effective July 2005. He was the recipient of this year's College of Science Researcher of the Year award. His student, Anastassia Alexandrova, received a Chemical Computing Group CCG Excellence Award from the ACS Division of Computers in Chemistry. He was Invited to Speak at the 7th Congress of World Association of Theoretically Oriented Chemists in Cape Town, South Africa. Alex and Anastassia were spotlighted by having their paper featured on the cover of a recent issue of the Journal of Physical Chemistry.

Scott Ensign had his project on Microbial metabolism of aliphatic alkenes and epoxides renewed by NIH, for more than \$1 M in research dollars. He also had his project concerning sequencing a bacterium prioritized in the top category by the DOE Joint Genome Institute.

David Farrelly spoke at the Conference on Chemical Reaction Dynamics in Dalian, China.

Alvan Hengge is the College of Science's Teacher of the Year.

Rick Holz was awarded a CURI grant for his project on New Drugs to Treat Antibiotic Resistant Bacterial Infections in Utah.

Vernon Parker was the recipient of the Wynne Thorne Award, recognizing outstanding achievement in research.

Lance Seefeldt had his illustration for a paper appear on the cover of the August 13 issue of the Journal of Biological Chemistry. One of his articles in JACS was the focus of a C&E News Science Concentrate in August. Brett Barney, a postdoctoral researcher working in Lance Seefeldt's research group, was awarded a USDA Postdoctoral Fellowship for a two-year period.

Phil Silva received a CURI grant from USU and made a presentation at the Annual American Association for Aerosol Research Conference in Atlanta.

Steve Scheiner has been appointed IUPAC Task Group Chairman of a project designed to categorize hydrogen bonding and other intermolecular interactions.

COMINGS AND GOINGS

LuAnn Stocking has taken over departmental duties of keeping track of the budget, coordinating laboratory repairs, and helping the faculty manage their research accounts. She and her husband reside in North Logan.

Tracy Gilson has joined our department in the role of Manager of ChemStores, which has over the years developed into a rather major storehouse of scientific supplies. She and her husband reside in Logan.



- LuAnn and Tracy

Outstanding Students



Anastassia Alexandrova was named as USU Outstanding Graduate Researcher of the Year.

Ashley Ellsworth was named as the USU Scholar of the year.



Rex Watkins was named as the College of Science Valedictorian

DEPARTMENT NEWS

THE R. GAURTH HANSEN THIRD ANNUAL SEMINAR SERIES

Judith Klinman, Professor of Chemistry and Professor of Molecular & Cell Biology at the University of California, Berkeley presented the third annual Hansen Seminar titled *Enzyme Activation of Molecular Oxygen*.



- Judith Klinman, Steve Scheiner, and Joan Hevel

PROFESSOR ALVAN HENGGE HONORED FOR ACHIEVEMENTS

As part of the inaugural lecture series at USU, Alvan Hengge, professor of organic chemistry, was honored Feb. 1 at the University Residence by family, friends and colleagues for his promotion to full professor.



- Steve Scheiner, President Stan Albrecht, Alvan Hengge, and Dean Don Fiesinger

2005 DEPARTMENT TEACHING EXCELLENCE AWARD

The department's culture of teaching excellence centers around the idea that to truly learn science, one must do science. The Department places a great deal of emphasis on engaging their students in the discovery process during the undergraduate experience.



- Presentation of award. Dean Don Fiesinger, President Stan Albrecht, Steve Scheiner, and Award Committee members.

UNDERGRADUATE RESEARCH AWARDS – SUMMER 2005



With the goal of further promoting undergraduate research in the Department, Undergraduate Summer Research Awards were made available for summer 2005 to Eric Vawdrey, German Ellsworth, Brett Hamilton, Joshua Schliesser, John Fisher, and Jonathan Gardner.

URCO GRANTS 2004-2005

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

FALL 2004

Kelly Doyle

Faculty Mentor: Lisa M. Berreau

Sandra Viera

Faculty Mentor: Joan M. Hevel

Rex Watkins

Faculty Mentor: Lisa M. Berreau

Michael Yurth

Faculty Mentor: Lance C. Seefeldt

SPRING 2005

Talina Christensen

Faculty Mentor: Ann E. Aust

Ren Gonzalez

Faculty Mentor: Ann E. Aust

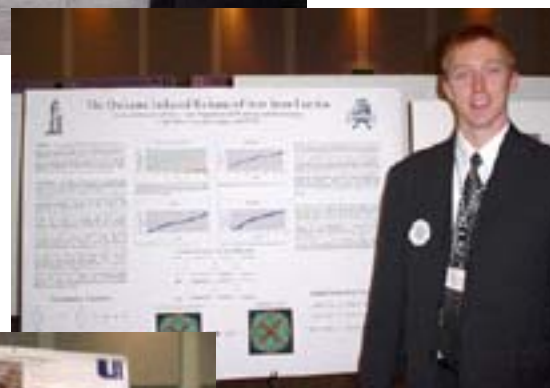
Rebecca Mitchell

Faculty Mentor: Alvan C. Hengge

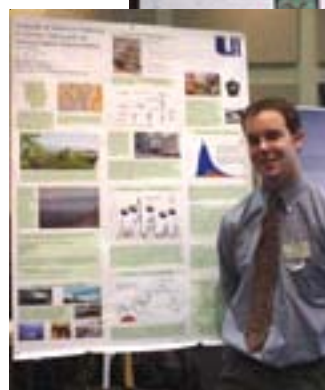
RESEARCH ON CAPITOL HILL



Landon Karren



Joshua Schleisser



Eric Vawdrey

SCIENCE DAY QUIZ BOWL WINNING TEAM



Rebecca Mitchell, Elizabeth Pound, Trevor Nielson, Rachel Ha, and Logan McKenna have the bragging rights to *Smartest in the College of Science*. Two teams of five undergraduates from each of the six departments in the College of Science competed. They received a trophy for this victory to display in the Department Office and individual cash prizes.

USU GRADUATE STUDENT SYMPOSIUM

- Research Presentations



Gabe Velazquez



Dave Wampler
Jeff Boyd

COMMENCEMENT 2005**DOCTORATES****Anastassia N. Alexandrova**

Major: Chemistry

Major Professor: Dr. Alex I. Boldyrev

Dissertation Title: Multiply Aromatic Clusters via *Ab Initio* Genetic Algorithm

Position: Postdoctoral Fellow, Yale University

Alexander Baldys

Major: Biochemistry

Major Professor: Dr. Ann E. Aust

Dissertation Title: Role of Iron in the Mechanism of Asbestos-Induced Apoptosis in Human Lung and Pleural Target Cells

Position: Postdoctoral Fellow, University of South Carolina, Charleston, South Carolina

Robert Igarashi

Major: Biochemistry

Major Professor: Dr. Lance C. Seefeldt

Dissertation Title: Mechanistic Studies of Mo-Dependent Nitrogenase from *Azotobacter vinelandii*

Position: Postdoctoral Fellow, University of California, Berkeley

Geoff Nadolski

Major: Chemistry

Major Professor: Dr. Brad S. Davidson

Dissertation Title: Solution and Solid-Phase Approaches for the Synthesis of Laulimalide, A Sponge-Derived Microtubule Poison

Position: Research Scientist, Hawaii Biotech, Inc., Oahu, Hawaii

MASTERS**Apoorba Bharadwaj**

Major: Chemistry

Major Professor: Dr. Brad S. Davidson

Thesis Title: Synthesis of C15-C28 and C15-C27 Fragment Analogs of the Microtubule Stabilizing Compound Laulimalide

Jorge Antonio Bucio

Major: Biochemistry

Major Professor: Dr. Scott A. Ensign

Thesis Title: Production of Recombinant NADPH: 2-Ketopropyl-Coenzyme M Oxidoreductase/Carboxylase

Ben M. Elliott

Major: Chemistry

Major Professor: Dr. Alex I. Boldyrev

Thesis Title: "The *Ab Initio* Search for Oxygen-Rich Molecules"

Position: PhD Student, Yale University

GRADUATING SENIORS**James W. Anderson**

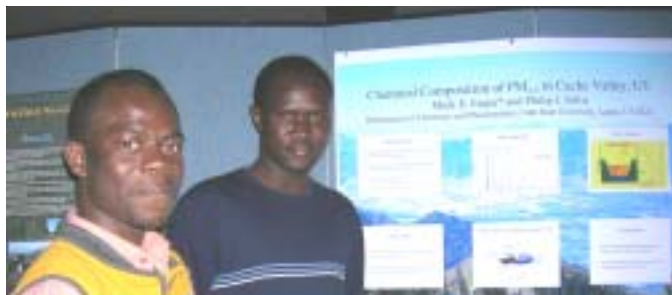
Continue to Pharmacy School

Chelsey Ashcroft**Kelly Doyle**

Continue to Graduate School, Dept of Medicinal Chemistry in the College of Pharmacy University of Utah

Ashley Ellsworth

Continue to Medical School

Ricky L. GardnerContinue to Medical School
Ohio State University

Justin Holm

Continue to Graduate School
Colorado School of Mines

Landon Karren

Research Assistant, Oregon Health Sciences
University, Portland, Oregon

Casey Q. Miller

Lab Technician, U.S. Magnesium
Dugway, Utah

Benjamin M. Nielsen

Seek Employment and then continue to graduate
school

Zachary Reed

Continue to graduate school, MS in Food Science
Oregon State University

Heidi Roskelley

Continue education in Nursing Program for RN
USU/WSU

Rex Watkins

Continue to graduate school
University of Wisconsin-Madison

Matthew Wheatley

Continue to Medical School
Medical College of Wisconsin



**CHEMISTRY AND BIOCHEMISTRY
SPRING AWARDS 2005
PRESENTED APRIL 21, 2005**

THOMAS M. FARLEY FRESHMAN CHEMISTRY AWARD

Newell T. Elison
Elisabeth Linton
Miguel D. Ramos
Kevin P. Redding
Ashley Wilkinson

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

Jonathan Gardner

GARTH L. LEE UNDERGRADUATE SCHOLARSHIP AWARD

1st Year	Mikalla Loosli
2nd Year	Bonnie Van Ausdal
3rd Year	Sandra Viera
4th Year	Justin Holm

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

Jonathan Gardner

THE IRVING CONDIE FROST ENDOWED SCHOLARSHIP AWARD

John Fisher

MAESER-BAUER UNDERGRADUATE SCHOLARSHIP AWARD

Chelsey Ashcroft

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

Ashley Ellsworth

UNDERGRADUATE RESEARCH AWARDS

John Fisher
Jonathan Gardner
Joshua Schliesser
Brett Hamilton
German Ellsworth
Eric Vawdrey

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

Rex Watkins

**OUTSTANDING GRADUATING SENIOR IN THE
DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY**

Ashley Ellsworth

**MAESER-BAUER GRADUATE TEACHING
ASSISTANT AWARD**

Antonio Bucio Eric Tanifum

CHEMISTRY AND BIOCHEMISTRY ALUMNI AWARD

Tim Humphry Ian McAlexander

THE MARJORIE H. GARDNER TEACHING AWARD

Kerensa Sorensen-Stowell

D.A. GREENWOOD MEMORIAL AWARD IN

BIOCHEMISTRY

David Wampler

THOMAS F. EMERY RESEARCH SCHOLAR MEMORIAL

AWARD IN BIOCHEMISTRY

Sangha Mitra

THE GEORGE H. AND BILLIE BUSH EMERT

SCHOLARSHIP AWARD

Mitra Ghafourian

**ALUMNI ACHIEVEMENT
AWARD 2005**



- Dr. Richard Olsen, Dr. Robert Wardle, and Dr. Steve Scheiner

Dr. Robert B. Wardle, recipient of the 2005 Alumni Achievement Award, completed his BS degree in Chemistry at USU where he participated in undergraduate research with Dr. Richard K. Olsen. This award is presented to USU Alumni who have made significant contributions to chemistry and biochemistry.



BENEFACTORS FOR 2004

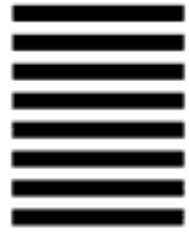


- Lisa M. Berreau
- Stephen Bialkowski and Agnes Chartier
- Alex I. Boldyrev
- Robert S. Brown
- Michael Cameron
- Roberta E. Clement
- Thomas Keith Eccles
- George H. and Billie Bush Emert
- Brandt L. Esplin
- Joseph D. Evans
- Alvan C. and Maribeth Evanson-Hengge
- Exxon Mobil Foundation
- Darrell L. Gallup
- Anna Lou Hansen
- Lars P. Hansen and Grace Tsiang
- Menard Heydanek
- Richard H. Hoff
- John Huff
- Mateusz L. Hupert
- Peter C. Jeppson
- Wendell L. and Sharlene M. Jolley
- Michael O. Killpack
- David L. Klopotek
- Lockheed Martin
- Theodore E. Mifflin
- Robert G. Mortimer
- Richard and Lavina Olsen
- Vernon and Monica Parker
- Harlin G. and Marilyn Pulsipher
- Pzier Foundation
- Vincent Reese
- Rutter Foundation
- John Sorensen
- C. Ray Thompson
- Glen J. Thornley
- James Thorne
- Lina Teng
- Harris O. Van Order
- Ward Family Living Trust
- Robert B. Wardle
- Makgorzata Witek
- Arthur J. Wittwer
- Willis A. and Kitty Wood
- Wyeth International, Inc.
- Shang Fa Yang

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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 **2006 Alumni Achievement Award**? Please write a brief outline of accomplishments of your nominee above, detach and mail, postage paid.