



**The Dean's Corner**—October 3, 2003

Thursday, October 2, we held our second annual college-wide faculty and staff meeting and there were 50 to 60 people in attendance. I presented an overview of the past year: changes in our budget, additions to our faculty, a report on development efforts, and an update on our compact plan and other major initiatives underway in the College.

As announced at this meeting, our primary goal for this year is to create and promote a more favorable image of the College of Science for both on-campus and external constituencies. We displayed the various posters that have been developed, highlighting outstanding students in each department. Part of this marketing effort involves data collection, such as the grant activity, research publications, presentations at meetings, and other accomplishments of our faculty and students. This publication, *Science Scene*, then becomes an important vehicle of communication here on campus, presenting our successes and accomplishments to the broader university community. Please remember to report your various professional activities and those involving your students on a regular basis to your department head or departmental administrative assistant, so that we can accurately report all that is occurring in our college.

<u>College of Science Calendar</u>	
<b>Oct 30</b>	College Coffee Break, ESLC 245, Dumke Room, 2:30-4:00 pm
<b>Nov 20</b>	College Coffee Break, ESLC 245, Dumke Room, 2:30-4:00 pm
<b>Dec 12</b>	College Christmas Open House - 6:30 - 8:30 pm Logan Golf & Country Club Culinary Concepts, Catering —Please watch for RSVP notice—

Since mid August, I've had the opportunity to attend four department faculty meetings where I have presented some first-hand information about budget issues and current initiatives in the college, such as graduate and undergraduate recruiting efforts. I've also introduced a small pamphlet entitled "Information and Programs of Support for Faculty." It contains information about resources that are available to faculty in support of teaching and research, as well as sources of support for undergraduate and graduate student research. We will be distributing a revised version of this pamphlet to all faculty in the next few weeks.

In the pamphlet mentioned above, I have tried to stress the importance of supporting the professional activities of faculty in both teaching and research. The Dean's office is partnering with departments to provide travel support for faculty to make presentations at professional meetings and to attend meetings and workshops related to discipline-specific pedagogy. There are funding sources listed for undergrad and graduate student travel as well. Yes, we have had budget cuts, but please don't reduce your professional activities; they are important for the growth and development of your career as well as for the increased visibility of Utah State University and its programs.

I'd like to remind you of some important events coming up soon. On October 23 and 24, there will be a group of distinguished COS alumni visiting our campus. All have been quite successful in various aspects of the biotechnology industry and they have been invited to campus to share their expertise and insights with us. On October 23 there will be a presentation on intellectual property rights and laws and on October 24 there will be a panel discussion on "My road from USU to today and the future of biological science." Please look for a mailing and flyers announcing these two events and please encourage your students to attend with you.

<i>Contents</i> —	
College Business & News .....	2
Dean's Corner .....	1
Department Business & News .....	3
Grants .....	10
Presentations & Meetings .....	4
Publications .....	8

invited to campus to share their expertise and insights with us. On October 23 there will be a presentation on intellectual property rights and laws and on October 24 there will be a panel discussion on "My road from USU to today and the future of biological science." Please look for a mailing and flyers announcing these two events and please encourage your students to attend with you.

Thanks again for participating in our college-wide meeting and I hope that you all are having a productive fall semester.

*Don Fininger*

**Science Scene Publication Dates**

We anticipate posting *Science Scene* to our website and sending out *copies* monthly. Remember, the information you submit regarding your activities is included in the **monthly report to the Board of Trustees**. Please help us to inform them of your various activities by submitting on a regular basis.

Your department newsletter representatives submit information to the Dean's Office on the third Monday of each month, so please submit your information to your department so they can meet this deadline. Thank you!

**College of Science Alumni Biotech Roundtable**

**October 23—Intellectual Property Law Seminar**  
3:00 - 5:00 pm, Haight Alumni Center

**Featured Speakers:**

**Henry Nowak**—Chief Financial Office and Executive Vice President of Legal Affairs, Caprion Pharmaceuticals. "The Patent Process and Each Person's Role in It."

**Ned A. Israelson**—Managing partner of Knobbe Martens, Olson & Bear, LLP. KMOB is the top-ranked intellectual property firm in the West, specializing in all areas of technology. "Entrepreneurship: What Happens After the Patent."

**October 24—Panel Discussion / Q & A Session**  
9:00 - 11:00 am, Eccles Conference Center, Rm 216

**Students and faculty will have the opportunity to ask questions and talk to the following distinguished USU alumni and guests:**

**J. Donald deBethlzy**, President & Ceo Targacept, Inc.; **David J. Ecker**, President, Ibis Therapeutics Division, ISIS Pharmaceuticals; **Ned A. Israelson**, Managing Partner, Knobbe Martens Olson & Bear, LLP; **Jane B. Maxwell**, Vice President of Sales, SciTegic, Inc.; **Kameron W. Maxwell**, Consultant, various biotech companies; **Annemarie Moseley**, CEO, Cognate Therapeutics; **Ken Moseley**, General Counsel, Cognate Therapeutics; **Henry Nowak**, CFO and Executive Vice President of Legal Affairs, Caprion Pharmaceuticals; **Alan K. Smith**, COO & Sr. Vice President of Research & Development, Cognate Therapeutics; **Rex Spendlove**, Founder & President, Spendlove Research Foundation; **R.J. Tesl**, Senior Vice President of Clinical Development and Medical Affairs, SangStat Medical Corporation; **Richard D. Thomas**, President & CEO, Intercet, Ltd./Canswers-Asclepiusnet.

**UTAH STATE UNIVERSITY  
COLLEGE OF SCIENCE  
(AY 2003-04)**

**Faculty Senate**

[8 Representatives elected by the COS; serve for three-year terms]

Stephen Bialkowski (06)  
J.R. Dennison (06)  
Steve Allan (05)  
Chris Coray (05; Rep to Senate Exec)  
Greg Podgorski (05)

Tim Gilbertson (04)  
    completes Brindley term  
Dennis Welker (04)  
Lance Seefeldt (04)  
Don Fiesinger (appointed by Pres.)

**\* Educational Policies Committee (EPC)**

Richard Cutler (06)

**Academic Standards Subcommittee of EPC**

Vicki Allan

**General Education Subcommittee of EPC**

Richard Cutler  
Kandy Baumgardner

**Curriculum Subcommittee of EPC**

Dick Mueller

**\* Professional Responsibilities and Procedures Committee**

Greg Podgorski (04)

**Honors Advisory Board**

Jim Evans (06)  
JR Dennison (Faculty Senate rep)

**\* Academic Freedom and Tenure Committee**

Lance Seefeldt (05)

**\* Faculty Evaluation Committee**

Kathryn Turner (05)

**\* Budget and Faculty Welfare Committee**

Kathryn Turner (04)  
Stephen Bialkowski (Fac Senate rep)

**Faculty Evaluation Committee**

Kathryn Turner (05)

**Graduate Council**

John Stark (06)

**Council on Teacher Education**

Dick Mueller  
Jim Cangelosi

**Athletic Council**

Vicki Allan (04)  
Lance Littlejohn (04)

*Note: \* = one representative elected by COS; serves for a three-year term*

**Department of Biology**

Professors **William Brindley** and **James Gessaman** retired at the end of June 2003. Both have been in the Department of Biology for over 30 years.

**Timothy A. Gilbertson** has been appointed chairman of the Communication Disorders Review Committee study section of the National Institute for Deafness & other Communication Disorders at NIH for 2003-2004.

**Dennis L. Welker** was named the 2003 College of Science Undergraduate Research Mentor of the Year.

Annual Awards Program

On 18 April 2003, the Department of Biology held its Annual Awards Program in the Alumni Center. The following scholarships and awards were given:

- Bahler Scholarship: **Benjamin C. Jacobs, Kurtis B. Reed**
- Christenson Scholarship: **OJ Kevin Hansen, Benson H. Morrill**
- Shaw Scholarship: **Edgar L. Lee**
- Simmons Scholarship: **Wade R. Poulsen**
- Stanford Scholarship: **Laura M. Gardner**
- Hammond Scholarship: **Roger A. Bannister**
- MacMahon Scholarship: **Daniel G. Mulcahy**

A new scholarship, the David B. Drown Scholarship in Public Health, named in honor of Associate Professor Emeritus **Dr. David B. Drown** was established for Public Health students. The first recipient is **Jordan Beth Carter**.

In addition, **Edmund D. "Butch" Brodie, Jr.** was recognized for his years of service to the department as the department head. Butch assumed the role of department head in July 1994 and stepped down at the end of June 2003. After a sabbatical leave, he will return to the department as a faculty member and focus his efforts on his research and students. **Dr. Jon Y. Takemoto** is the new department head as of 1 July 2003.

Student Activities

**Kyle G. Ashton** and **Chris R. Feldman**. 2003. "Bergmann's Rule in Non-Avian Reptiles: Turtles Follow It, Lizards and Snakes Reverse It." *Evolution* 57:1151-1163.

Amanda Bakian

American Museum of Natural History – Frank M. Chapman Fund Summer 2003, \$1,500. "Looking Beyond the Corridor: The Role of Adjacent Non-riparian Habitats in Securing the Breeding Success and Survival of a Riparian-obligated Species."

**Roger A. Bannister** presented a paper titled "Muscarinic Modulation of Neuronal Voltage-gated Calcium Channels" at the following places: (1) Department of Physiology, University of Wisconsin-Madison Medical School, Madison, Wisconsin, 20 January 2003; (2) Department of Biomedical Sciences, Colorado State University, Fort Collins, Colorado, 30 January 2003; (3) Institute of Physiology I, Albert-Ludwigs University Freiburg, Freiburg im Breisgau, Germany, 6 February 2003; and (4) Eccles Institute of Human Genetics, University of Utah School of Medicine, Salt Lake City, Utah, 13 February 2003.

**Jennifer S. Brookshier** and W. Sue Fairbanks. 2003. "The Nature and Consequences of Mother-Daughter Associations in Naturally and Forcibly Weaned Bison." *Canadian Journal of Zoology* 81:414-423.

**Chris R. Feldman** presented a poster titled "Comparative Phylogeography of Three California Reptiles" at the Joint Meeting of the Society for the Study of Evolution, the Society of Systemic Biologists, and the American Society of Naturalists, Chico, California, 20-24 June 2003.

**Chris R. Feldman** and **Daniel G. Mulcahy**. 2003. "Ambystoma macrodactylum Distribution." *Herpetological Review* 34:160.

**Chris R. Feldman, Daniel G. Mulcahy,** and Robert W. Hansen. 2003. "Xantusia vigilis Distribution." *Herpetological Review* 34:167.

Christelle Guedot

Northwest Alfalfa Seed Growers Association Summer 2003, \$5,000. "Improved Nest Location and Its Impact on Chalkbrood-induced Mortality in *Megachile rotundata* Populations Used for Alfalfa Pollination."

**Benjamin Jacobs, Chris Larson, and Edgar Lee**, biology undergraduates, have been awarded an Undergraduate Research Award in the amount of \$4,000 from the American Heart Association (AHA). They will use their awards to work in one of ten cardiovascular research labs located in Utah, Nevada, and California, such as Stanford University, University of California – San Francisco, University of California – Berkeley, University of California – Davis, University of Utah, and Utah State University (lab of **Dr. Daryll DeWald**). Ben, Chris, and Edgar number among 15 students to receive an award.

**Daniel G. Mulcahy** gave a seminar titled "Biogeography and Systematics of Nightsnakes: An Assessment of Their Relationship with Neotropical Cateyed Snakes" to the Department of Biology, Idaho State University, Pocatello, Idaho, 27 March 2003.

**Daniel G. Mulcahy** gave a talk titled "Vicariance and Dispersal: A Novel Hypothesis for Baja California Biogeography" at the Joint Meeting of the Society for the Study of Evolution, the Society of Systemic Biologists, and the American Society of Naturalists, Chico, California, 20-24 June 2003.

**Daniel G. Mulcahy and Mikala A. Archibald**. 2003. "Geographic Variation in the Baja California Nightsnake (*Eridiphas slevini*), with Comments on Taxonomy and Diet." *Journal of Herpetology* 37:566-571.

**Daniel G. Mulcahy and Shana Geffney** each received a \$5,000 School of Graduate Studies Dissertation Fellowship for the 2003-2004 academic year.

**James Ford Parham** and **Chris R. Feldman**. 2003. "Lampropeltis zonata Diet." *Herpetological Review* 34:150.

**Sweta Rao** has been awarded a travel award from the Society of General Physiologists to attend the symposium "The Biology of Chloride" in Woods Hole, Massachusetts from 3-7 September 2003, where she made a presentation titled "Chloride Channels in Taste Cells: Multiple Subtypes and Functions". Co-authors on her presentation are **Dane Hansen** and **Tim Gilbertson**.

**Kirk W. Setser, Daniel G. Mulcahy, and Becky L. Williams**. 2003. "Lampropeltis triangulum Habitat." *Herpetological Review* 34:150.

The following posters were presented at the USU Student Showcase for Undergraduate Research on 17 April 2003:

**Maggie Buccambusco**. "Development of an RT-PCR Assay for Identification of Potential New Chemical Targets for Arenavirus." (mentor: **Joseph K.-K. Li**)

**Stephanie Chambers**. "RGS Protein Structural and Functional Determinants." (mentor: **Brett Adams**)

**Colin Clark**. "Gender and Faculty Perceptions of Utah State University." (mentor: **Kim Sullivan**)

**Brandt Esplin**. "What Factors Activate the Blue Copper Binding Protein Defense Gene?" (mentor: **Anne Anderson**)

**Victor Haroldsen**. "Correlating Nutritional Deficiencies with Mutations in Biosynthetic Pathways of CNR32." (mentor: **Dennis Welker**)

**Lisa Jeffs**. "Denitrification and the Effect of Low Nutrient Availability." (mentor: **Michelle Baker**)

**Christopher Larson.** “Production of Distinct EPS Structures by Different Strains of *Streptococcus thermophilus*.” (mentor: **Dennis Welker**)

**Kurtis Reed.** “Identification of *Daphnia* Species Using Mitochondrial DNA.” (mentor: **Mike Pfrender**)

**Wyatt Rivas.** “Autoantibodies to Select Brain Region in Autism.” (mentor: **Vjendra K. Singh**)

**Katie Ward.** “How is HSL Production Controlled in the Root-Colonizing Bacterium *Pseudomonas chlororaphis* 06.” (mentor: **Anne Anderson**)

#### Department of Chemistry & Biochemistry

**Lisa M. Berreau** presented a department seminar titled “Coordination and Bioinorganic Chemistry of Novel Tripodal Ligands,” 17 September 2003.

**Stephen Bialkowski** worked with collaborators in the Environmental Spectroscopy Laboratory in the Environmental Molecular Sciences Laboratory, Battelle’s Pacific Northwest National Laboratory, Richland, Washington, 14 July - 21 August 2003. He helped their researchers with three projects relating to clean energy; detection of carbon dioxide leakage from underground storage facilities that may be used in reducing carbon dioxide emissions; applications of photothermal spectrometry in micro-titer plate readers used for biochemical assays; and determination of thermodynamic heats of formation of free radicals in water and other solvents.

**Richard C. Holz** was a Research Visiting Professor at the Institute for Nanotechnology and Department of Chemistry at Northwestern University, Evanston, Illinois for the 2002-2003 academic year.

**Richard C. Holz** participated in an ad-hoc Review for the Physical Biochemistry Study Section, National Institutes of Health, Washington, DC, 1 March 2002.

#### Department of Geology

##### Student Activities

**Jason Kneedy** has been selected by the AAPG Grants-in-Aid Committee to receive a Classen Family Grant in 2003. Jason is a graduate student working with **James Evans**. His research examines the effects of coal fractures on methane production in the Ferron Delta system, central Utah..

#### Department of Biology

**Brett A. Adams** gave a talk titled “AGS Protein and RGS Proteins in Ca<sup>2+</sup> Channel Modulation” at the Neuroscience Research Group, University of Calgary School of Medicine, Calgary, Canada, 13 August 2003.

**Dale L. Barnard, Valerie E. Stowell, Joseph K.-K. Li, L.Y. Lee, D.F. Smea, and Robert W. Sidwell** presented a poster titled “Identification of Potential New Targets for Arenavirus Chemotherapy” at the American Society for Microbiology Biodefense Research Conference “Future Directions for Biodefense Research: Development of Countermeasures,” Baltimore, Maryland, 9–12 March 2003.

**Maggie Buccambusco, James Liang-Yen Lee, Garry T. Miller, Joseph K.-K. Li, Valeria Stowell, Dale Barnard, and Robert Sidwell** presented a paper titled “Identification of Potential New Targets for Arenavirus Chemotherapy” at the 2003 Intermountain ASM Regional Meeting, Tooele, Utah, 29 March 2003.

**James Cane** gave a seminar titled “Bees for Seeds” to the 2nd Intermountain Native Plant Summit, Idaho State University, Boise, Idaho, 5 April 2003.

**Christelle Guedot, Jordi Bosch, and William P. Kemp** presented a poster titled “Improving Nest Location of *Megachile rotundata* in Commercial Alfalfa Fields” at the meeting of the Wyoming Alfalfa Seeds Grower Association, Powell, Wyoming, 12 February 2003, and at the meeting of the Montana Alfalfa Seed Growers Association, Billings, Montana, 13 February 2003.

#### *Presentations & Meetings—*

**Joseph K.-K. Li** gave an invited presentation titled “Is SARS An Imminent Epidemic or a Self-limiting Disease?” at the 50th Annual Conference of the Association of International Educators, Salt Lake City, Utah, 27 May 2003. He also served as a panelist in a session titled “How Does SARS Affect International Education and Global Exchanges of Scholars and Students?”

**Joseph K.-K. Li** gave a presentation titled “Bluetongue Viral Non-structural Proteins, NS2 and NS1, Exhibit Differential Control of Infectious Bluetongue Virus Progeny Production” at the 8th International Symposium on Double-stranded RNA Viruses in Il Ciocco, Castelvecchio Pascoli, Lucca, Italy, 13–18 September 2003. He also participated in the roundtable discussion on “Past and Present Studies of Rotavirus Vaccines.”

**Dina Mandoli, Richard Olmstead, Brent Mishler, Jeff Boore, Alan Smith, Karen Renzaglia, Paul G. Wolf, Michael Donoghue, and Charles O’Kelley** presented a poster titled “Toward Resolution of the Fuzzy Nodes in Green Plant Phylogeny” at the Plant Genome Conference, Kew Gardens, England, 11–12 September 2002.

**Dina Mandoli, Richard Olmstead, Brent Mishler, Jeff Boore, Alan Smith, Karen Renzaglia, Paul G. Wolf, Michael Donoghue, and Charles O’Kelley** presented two posters titled “Making BAC Libraries from Algae, Non-seed and Seed Plants: Fundamental Public Resources for Plant Science Toward Resolution of the Fuzzy Nodes in Green Plant Phylogeny” and “Toward Resolution of the Fuzzy Nodes in Green Plant Phylogeny” at the following

meetings: Plant Genetics, Snowbird, Utah, 22–26 October 2002; Plant and Animal Genome Conference XI, San Diego, California, 11–14 January 2003; Third International Conference on the Comparative Biology of the Monocotyledons and the Fourth International Symposium on Grass Systematics and Evolution, Santa Clara, California, 31 March–5 April 2003; Annual Meeting of the Phycological Society of America and The Society Protozoologists, Glenden Beach, Oregon, 14–19 June 2003; and the Annual Meeting of the American Society for Plant Biologists, Honolulu, Hawaii, 22–31 July 2003.

**Joseph R. Mendelson III** gave a seminar titled “Evolutionary Natural History of Mesoamerican Toads” to the Department of Zoology, Southern Illinois University, Carbondale, Illinois, 6 March 2003.

**Joseph R. Mendelson III and Karen R. Lips** presented a talk titled “Evidencia Directa de Declinaciones de Poblaciones de Anuros en Mexico y Guatemala” at the Annual Meeting of RANA (Research and Analysis Network for Neotropical Amphibians), Rio de Janeiro, Brazil, 20 June 2003.

**Joseph R. Mendelson III and Karen R. Lips** presented a talk titled “Status Report on Declining Amphibians in Northern Mesoamerica” at the Joint Meeting of the American Society of Ichthyologists and Herpetologists, The Herpetologists’ League, and the Society for the Study of Amphibians and Reptiles, Manaus, Brazil, 1 July 2003.

**Frank J. Messina** gave a seminar titled “Host Plants As Habitats: Effects of an Experimental Host Shift on Behavioral and Life History

Traits in a Seed Beetle” to the Department of Biology, University of Rochester, Rochester, New York, 4 April 4 2003.

**Frank J. Messina** gave a seminar titled “Modification of Insect Behavior Following a Shift to a Novel Host Plant” to the Evolutionary Ecology group, University of Toronto, Toronto, Canada, 7 April 2003.

**Drauzio E. N. Rangel, Gilberto U. L. Braga, Anne J. Anderson, and Donald W. Roberts** presented a poster titled “Variability in Response to Heat Among Strains of *Metarhizium anisopliae* Isolated from Sites at Latitudes from 61°N to 54°S” at the 36th Annual Meeting of the Society for Invertebrate Pathology, Burlington, Vermont, 26–30 July 2003.

**Sweta Rao, Dane Hansen, and Timothy A. Gilbertson** made a presentation titled “Chloride Channels in Taste Cells: Multiple Subtypes and Functions” at the “The Biology of Chloride” symposium, Woods Hole, Massachusetts, 3–7 September 2003.

**Vijendra Singh** gave an invited presentation titled “The Immunology of Autism: Implications for Treatment” at a special conference on Biomedical Aspects of Autism Spectrum Disorders sponsored by the Hardy Healthcare Associates of Boston, Massachusetts, Salt Lake City, Utah, 11–12 April 2003.

**Vijendra Singh** gave an invited presentation titled “Autoimmunity Treatments in Autism” at a conference sponsored by the Center for Autistic Spectrum Disorders (CASD), Austin, Texas, 30 May – 1 June 2003.

**Vijendra Singh** gave an invited presentation titled “Autoimmune Autistic Disorder (AAD): Identification and Treatment” at the First Calgary Autism Conference on Biomedical Treatments for Autism and PDD, Calgary, Canada, 16–17 August 2003.

**Paul G. Wolf, Carol Rowe, Robert Sinclair, and Mitsuyasa Hasebe** presented a poster titled “Complete Nucleotide Sequence of the Chloroplast Genome from a Leptosporangiate Fern, *Adiantum capillus-veneris* L” at the Annual Meeting of the Botanical Society of America, Mobile, Alabama, 13–17 July 2003.

The following papers were presented at the 2003 Aquatic Sciences Meeting of the American Society of Limnology and Oceanography, Salt Lake City, Utah, 8–14 February 2003:

**Michelle A. Baker, Robert O. Hall, Wayne A. Wurtsbaugh.** “Nitrate Uptake During Snowmelt in a Mountain Stream-Lake Ecosystem.”

**Amy M. Marcarelli, Wayne A. Wurtsbaugh, Michelle A. Baker.** “A Comparative Study Of Nitrogen-Fixation Rates in Oligotrophic Lakes and Streams of the Sawtooth Mountains, Idaho.”

The following posters were presented at the 47th Annual Meeting of the Biophysical Society, San Antonio, Texas, 1–5 March 2003:

**Roger A. Bannister and Brett A. Adams.** “AGS-1 Promotes Tonic Inhibition of N-type Calcium Channels.”

**Ulises Meza, Roger A. Bannister, and Brett A. Adams.** “Differential Modulation of CaV2.3 Splice-variants by Neurokinin 1 Receptors.”

**Roger A. Bannister, Karim Melliti, and Brett A. Adams.** “Reconstituted Slow Muscarinic Inhibition of CaV1.2.”

The following presentations were made at the Third International Symposium on Monocot Systematics and Evolution, Ontario, California, 31 March – 4 April 2003:

**Mary E. Barkworth and Jesús Valdes-Reyna** presented a poster titled “From Regional to Global Without Being Colonial: Expanding the Web Site for the Manual of Grasses for North America.”

**Joy Everett, Randall Bayer, Surrey Winifred, Laurel Jacobs, Mirta Arriaga, Mary E. Barkworth, Alexandru Sabin-Badarau, Maria Amelia Torres, Francisco Vasquez Pardo, and Neil Bagnall** presented a paper titled “Systematics of the Tribe Sipeae Based on Molecular Data.”

The following were presented at the 47th Annual Meeting of the Biophysical Society, San Antonio, Texas, 1–5 March 2003:

**Margaret S. Dice, Jennifer L. Abbruzzese, J. T. Wheeler, James R. Groome, Peter C. Ruben** gave a talk titled “Sodium Channel Deactivation Is Altered in Paramyotonia Congenita Mutations T1313M and R1448C.”

**Yuriy Y. Vilin, Isabelle J. McCollum, Esther Fujimoto** presented a poster titled “The S4 Voltage Sensors Have Differential Role in Kinetics of Slow Inactivation in hNav1.4 Channels.”

The following presentations were made at the 25th Annual Meeting of the Association for Chemoreception Sciences, Sarasota, Florida, 9–13 April 2003:

**Catherine A. Burks, Dane R. Hansen, Sweta Rao, Weihong Lin, Sue C. Kinnamon and Timothy A. Gilbertson.** “Rat Taste Buds Express Multiple Members of the

KCNK Family of Two-pore Domain Potassium Channels.”

**Timothy A. Gilbertson, Wei Chen, Sweta Rao and Dane R. Hansen.** “Identification of Natriuretic Hormone Responsive Elements in Taste Cells: Implications for the Regulation of Salt & Water Taste.”

**Dane R. Hansen, \*David O. Hoyal, Christine E. Foley, \*Jonathan Guenter, \*Duane J. Johnson, and Timothy A. Gilbertson.** “Functional Implications of Differences in Potassium Channel Expression Among Lingual Taste Buds.”

**Jeffrey T. Klein, Catherine A. Burks and Timothy A. Gilbertson.** “Characterization of Amiloride-insensitive Sodium Salt Responses Using Patch Clamp Recording.”

**Kristina J. Spray and Ilene L. Bernstein.** “Characterization of Efferent and Afferent projections of CTA-induced FLI cells in iNTS.”

The following talks were given at the Annual Meeting of the Society for the Study of Evolution, Chico, California, 19–24 June 2003:

**Stephen J. Arnold, B.S. Barker, P.C. Phillips, Michael E. Pfrender.** “Evidence That Selection Stabilizes the G-matrix.”

**R.A. Watts, C.A. Palmer, R.C. Feldhoff, P.W. Feldhoff, L.D. Houck, A.G. Jones, Michael E. Pfrender, S.M. Rollmann, and Stephen J. Arnold.** “Patterns of Selection Across Multiple Levels of a Pheromone Signaling System.”

The following posters were presented at the Gordon Research Conference on Ecological and Evolutionary Functional Genomics, New London, New Hampshire, 3–8 August 2003:

**Darren J. Bauer, Michael E. Pfrender, John K. Colbourne, Michael Lynch, Joseph R. Shaw, Celia Y. Chen, Jennifer C. Davey, Carol L. Folt, Joshua W. Hamilton, Sharon Isern, W. Kelley Thomas.** “Daphnia: An Emerging Model System for Ecological And Evolutionary Genomics.”

**Michael E. Pfrender, Darren J. Bauer, W. Kelley Thomas, John K. Colbourne, Michael Lynch, Joseph R. Shaw, Celia Y. Chen, Jennifer C. Davey, Carol L. Folt, and Joshua W. Hamilton, Sebastian Lourido, Sharon Isern.** “The Daphnia Genomics Consortium (Dgc): Developing Tools for Ecological and Evolutionary Genomics.”

The following presentations were made at the 51st Annual Meeting of the North American Benthological Society in Athens, Georgia, 27–31 May 2003. (USU Students indicated with asterisk):

**\*Chris D. Arp, Michelle A. Baker, and Robert O. Hall.** "Spatial Patterns of Transient Storage and Nitrate Uptake Along a Stream Reach Flowing into a Mountain Lake."

**Michelle A. Baker, Robert O. Hall, Jr., Wayne A. Wurtsbaugh, Maura M. Bozeman, and Chris D. Arp.** "Dissolved Nitrogen Dynamics in a Coupled Stream-Lake Ecosystem During Snowmelt Quantified Using 15-N Nitrate."

**\*Maura M. Bozeman, Michelle A. Baker, and Robert O. Hall, Jr.** "Relationship Between Ecosystem Metabolism and Nitrogen Biogeochemical Gradients in a Stream-Lake-Stream Network."

**Robert O. Hall, Jr., Michelle A. Baker, Wayne A. Wurtsbaugh, Ben Koch, and Chris D. Arp.** "Storage of Nitrogen-15 Nitrate During Snowmelt in Two Mountain Streams Separated by a Lake."

**\*Julia Nielsen, \*Lisa Jeffs, and Michelle A. Baker.** "Dissolved Organic Carbon Quality and Distribution within the Sediments of a Coupled Stream-Lake Ecosystem."

The following posters were presented at the Ecological Society of America meeting, Savannah, Georgia, 3–8 August 2003:

**Toby D. Hooker, John M. Stark, and Ursula Norton.** "Plant Phenology Effects on Soil Microbial C and N Cycling in a Semiarid Ecosystem."

**Bertrand H. LeMasson, James W. Haefner, Mark Bowen, and Kathy Frizzell.** "Parameter Estimation for the Behavioral Algorithms of a Fish Movement Model."

**T. A. Scott Newbold and James A. MacMahon.** "Prey Specificity and Diet Selection in a Variable Environment: Desert Horned Lizards (*Phrynosoma platyrhinos*) and Ants."

**Julie P. Rieder and E. W. Evans.** "Patterns of Yellow Starthistle (*Centaurea solstitialis*) Emergence, Establishment, and Fecundity: The Influence of Vegetation Cover."

**Center for Atmospheric & Space Sciences**

**Larry Gardner** presented a poster titled "Theoretical Investigation of High-Latitude Outflow for Ions and Neutrals" at the Coupling, Energetics, and Dynamics of Atmospheric Regions (CEDAR) Meeting, Longmont, Colorado, 15–20 June 2003.

**Ludger Scherliess** presented an invited tutorial paper titled "Data Assimilation for the Space Environment" at the Geospace Environment Modeling Program (GEM) 2003

Meeting, Snowmass, Colorado, 22–27 June 2003.

**Ludger Scherliess** served as an organizer of a session on "Data Assimilation for the Ionosphere-Magnetosphere-Thermosphere System" for the International Union of Geodesy and Geophysics (IUGG) 2003 Meeting, Sapporo, Japan, 30 June – 11 July 2003.

**Ludger Scherliess and Robert W. Schunk** presented a paper titled "The use of Equatorial Electric Fields in GAIM" at the Global Ionospheric Forecasting Techniques (GIFT) Workshop, Longmont, Colorado, 15–20 June 2003.

**Ludger Scherliess, Robert W. Schunk, Jan J. Sojka, and Donald C. Thompson** presented a paper titled "Initial Validation of 3-D Ionospheric Plasma Densities in GAIM" at the European Geophysical Society (EGS) Meeting, Nice, France, 6–11 April 2003.

**Robert W. Schunk, Ludger Scherliess, Jan J. Sojka, Donald C. Thompson, David N. Anderson, Mihail Codrescu, Cliff Minter, Timothy J. Fuller-Rowell, Roderick A. Heelis, Marc Hairston, and Bruce M. Howe** presented a paper titled "Global Assimilation of Ionospheric Measurements (GAIM)" at the American Meteorological Society Meeting (AMS) Space Weather Week, Boulder, Colorado, 20–23 May 2003; and at the Coupling, Energetics, and Dynamics of Atmospheric Regions (CEDAR) Meeting, Longmont, Colorado, 15–20 June 2003.

**Department of Chemistry & Biochemistry**

**Cheng-Wei T. Chang** presented a poster titled "Unusual Sugars and Drug Development" at Gordon Conference, Carbohydrate Division, Tilton, New Hampshire, 19–20 June 2003.

**Cheng-Wei T. Chang** presented a seminar titled "Unusual Sugar for Glyco-diversification and New Drug Development," San Francisco State University, San Francisco, California, 4 August 2003.

**Cheng-Wei T. Chang** presented a seminar titled "Synthetic Glyco-diversification and New Drug Development" at the Department of Chemistry at New York University, New York, New York, 8 September 2003.

**Alvan C. Hengge** presented a seminar titled "Altered Hydrolysis Mechanisms for a Metal-Complexed Phosphate Monoester and Diester" at the International Isotope Effects Conference, Uppsala, Sweden, 22–27 June 2003.

**Ikenna Onyido, Krzysztof Swierczek, and Alvan Hengge** presented a poster titled "The

Transition State for Thiophosphoryl Transfer from Aryl Eimethylphosphinothioates to Oxygen Nucleophiles in Aqueous Solution" at the 39th IUPAC Congress and 86th Conference of the Canadian Society for Chemistry, Ottawa, Canada, 10–15 August 2003.

The following posters and presentations were made at the 226th American Chemical Society National Meeting, New York, New York, 7–11 September 2003.

**Cheng-Wei T. Chang, Bryan Elchert, Yu Hui, Jinhua Wang, Jie Li, Ravi Rai, and Jon Takemoto.** "Synthetic Glycorandomization of Ring III Pyranose of Pyranmycin."

**Cheng-Wei T. Chang, Bryan Elchert, Yu Hui, Jinhua Wang, John Wennergren, Ravi Rai, Jon Takemoto, and Mekki Bensaci.** "Novel Trehalose-based Compounds against Mycobacterium, Synthesis and Antibacterial Studies."

**Tim Humphry, Marcello Forconi, Nick Williams, and Alvan Hengge.** Poster titled "Alteration of the Mechanisms of Phosphate Ester Hydrolysis by Complexation to a Dinuclear Metal Center."

**Subashree Iyer, Jarod Younker, Przemyslaw Czyryca, and Alvan Hengge.** Poster titled "Synthesis and Evaluation of Aryloxymethyl and Aryloxyethyl Phosphonates as Inhibitor of Phosphatases."

**Jamie Purcell and Alvan Hengge.** "Mechanistic Studies of Phosphoryl and Thiophosphoryl Group Transfer."

**Krzysztof Swierczek and Alvan Hengge.** "Comparison of Phosphonothioic Acids with Phosphonic Acids as Inhibitors of Phosphatases."

**Jarod Younker and Alvan Hengge.** "Mechanistic Study of Aryl Aryl Sulfate Diesters."

**Department of Computer Science**

**Xiaojun Qi** gave presentations titled "Predication-Based Compression Ratio Boundaries for Medical Images" and "Object Contour Matching Using the Biorthogonal Wavelet Transform" at the Fifth International Conference on CVPRIP (Computer Vision, Pattern Recognition, and Image Processing), Cary, North Carolina, 26–30 September 2003.

**Nelson Dinerstein** presented two papers titled "Neural Interval Arithmetic," and "Automatic Construction of Multi-Module Neural Network Systems for an Artificial Brain" at the IEEE EIT 2003 Conference, Indianapolis, Indiana, 5–6 June 2003.

**Yuya Sasaki & Nicholas Flann** gave a presentation titled “Multi-Agent Reinforcement Learning for Traffic Policy” at the Third International Workshop on Computational Intelligence in Economics and Finance, Research Triangle Park, North Carolina, 26–30 September 2003.

**Department of Mathematics & Statistics**

**Zhi-Qiang Wang** presented a talk titled “Symmetry of Extremal Functions for Weighted Sobolev Inequalities” at the University of Utah, Salt Lake City, Utah, 25 March 2003.

**Ian Anderson** gave an invited address titled “Nonlinear Superposition Principles for Exterior Differential Systems” at a workshop titled “Differential Invariants and Invariant Differential Equations” at the Banff International Research Station, Banff, Calgary, Canada, 19–24 July 2003. (The video of Ian’s presentation: <http://www.pims.math.ca/birs/videos/2003.html>).

**LeRoy B. Beasley** gave a contributed talk titled “Linear Operators Preserving the Grassmanian over  $M_{m,n}(Z^+)$ ,” 2003 Big Sky Discrete Math Conference at University of Montana, Missoula, Montana, 12 September 2003.

**Adele Cutler** gave a presentations titled “Visualizing Random Forests” and “Statistical Methods for Spot Detection with Macroarray Data” at Interface 2003, University of Utah, Salt Lake City, Utah, 13-14 March 2003.

**Adele Cutler** gave an invited presentation titled “Graphics for Forests” at Distributed Statistical Computing 2003, Vienna, Austria, 20-22 March 2003.

**Adele Cutler** gave an invited presentation titled “Graphics for Forests” at 2003 AMS-IMS-SIAM Summer Research Conference: Machine Learning, Statistics and Discovery, Snowbird, Utah, 22–26 June 2003.

**Xiaofeng Ren** gave a lecture titled “Lamellar and Wriggled Lamellar solutions of the Diblock Copolymer Problem” and “Localization Behavior in Reaction-Diffusion Systems and Applications to the Natural Sciences,” at Banff International Research Station, Banff, Calgary, Canada, 15 August 2003.

**Xiaofeng Ren** gave lectures titled “Soliton-Stripe Patterns in Charged Monolayers” and “Soliton-Stripe Patterns in Smectic Films,” Institute of Mathematical Sciences, Chinese University of Hong Kong, Hong Kong, China, 15 September 2003.

**Seok-Zun Song** (Visiting Professor) gave a contributed talk titled “Separability and Rank Preservers of Boolean Matrices,” 2003 Big Sky Discrete Math Conference, University of Montana, Missoula, Montana, 12 September 2003.

**Zhi-Qiang Wang** gave a Partial Differential Equations (PDEs) seminar titled “Symmetry and Weighted Sobolev Inequalities,” University of Utah, Salt Lake City, Utah, 25 March 2003.

**Zhi-Qiang Wang** gave a colloquium talk titled “Minimax Methods, Invariant Sets, and Nodal Solutions to Nonlinear Elliptic PDEs,” University of Giessen, Giessen, Germany, 12-20 July 2003.

**Zhi-Qiang Wang** gave an invited lecture titled “Minimax Methods, Invariant Sets, and Nodal Solutions to Nonlinear Elliptic PDEs, at a conference titled “Mini-symposium on Nonlinear Elliptic PDEs, EquaDiff 2003,” Hasselt, Belgium, 20-22 July 2003.

**Zhi-Qiang Wang** co-organized a summer workshop titled “Nonlinear Analysis and Applications to PDEs,” and gave a series of lectures (eight hours) titled “Minimax Methods, Invariant Sets, and Nodal Solutions to Nonlinear Elliptic PDEs, A Summer Workshop on Nonlinear Analysis and Applications,” Morningside Center of Mathematics, Beijing, China, 3-22 August 2003.

**Department of Physics**

**W. Farrell Edwards and Eric Held** presented a paper titled “Hybrid Electrostatic/Magnetic Confinement of Plasmas Near Stationary States,” at the Innovative Confinement Concepts Conference, Seattle, Washington, 27-28 May 2003.

**T.-C. Shen** gave a presentation titled “Controlled Coupling of Donor Atom-Wave Functions in Silicon” at the Quantum Computing Program Review, Nashville, Tennessee, 20 August 2003.

**Charles G. Torre** presented a talk titled “Binary Black Holes and Boundary Value Problems of Mixed Type” at the 19th Pacific Coast Gravity Meeting, University of Utah, Salt Lake City, Utah, 28 February 2003.

***Science Scene — Now Online on our Website  
at <http://www.usu.edu/science/>***

Some of you mentioned that you would prefer receiving *Science Scene* in an electronic format, while others still prefer to receive their copy by regular mail.

**We have *automatically* switched everyone to view *Science Scene* on our website *unless you contacted us*.  
(We’ll e-mail the College when it appears on our website)**

***Please e-mail [colette.yates@usu.edu](mailto:colette.yates@usu.edu)  
if you would prefer a paper copy.***

**Department of Biology**

**Michelle A. Baker.** 2002. Improving Quantitative Understanding Using Spreadsheet Models. *Ecology* 83(12) 3524-3525.

**Mary E. Barkworth, Kathleen M. Capels, Sandy Long, Michael B. Piep.** 2003. Flora of North America, Volume 25. Poaceae, Part 2. Oxford University Press, New York. 783 pp.

**James H. Cane.** 2003. Annual Displacement of Soil in Nest Tumuli of Alkali Bees (*Nomia melanderi*) (Hymenoptera: Apiformes) Across a Washington Landscape. *Journal of Kansas Entomological Society* 76(2):172-176.

**Clifford N. Dahm, Michelle A. Baker, Douglas L. Moore, and James R. Thibault.** 2003. Coupled Biogeochemical and Hydrological Responses of Streams and Rivers to Drought. *Freshwater Biology* 48:1219-1231.

**S. M. Dunham, A. Kretzer, and Michael E. Pfrender.** 2003. Characterization of the Extent and Distribution of Pacific Golden Chanterelle (*Cantharellus formosus*) Individuals Using Co-dominant Microsatellite Loci. *Molecular Ecology* 12:1607-1618.

**Timothy A. Gilbertson.** 2003. The Lure of Dietary Fat: Are Taste Buds Partly to Blame? *ChemoSense* 5(2):1-6.

**Timothy A. Gilbertson and John D. Boughter Jr.** 2003. Taste Transduction: Appetizing Times in Gustation. *NeuroReport* 14:905-911.

**Timothy A. Gilbertson and Robert F. Margolskee.** 2003. Molecular Neurobiology of Gustatory Transduction In Handbook of Olfaction and Gustation (2nd Ed.), RL Doty, ed. Marcel Dekker Inc., New York. Chapter 34: pp. 707-730.

**James R. Groome, Esther Fujimoto, and Peter C. Ruben.** 2003. Charged Residues in the DIII-IV Linker Regulate Deactivation in Voltage-gated Sodium Channels. *Journal of Physiology* 548:85-96.

**Charles T. Hanifin, Edmund D. Brodie III, and Edmund D. Brodie, Jr.** 2003. Tetrodotoxin Levels in Eggs of the Rough-skin Newt, *Taricha granulosa*, are Correlated with Female Toxicity. *Journal of Chemical Ecology* 29(8):1729-1739.

**Yang Ju Im, Jolanta Idkowiak-Baldys, Kevin Thevissen, Bruno P. Cammue, and Jon Y. Takemoto.** 2003. IPT1-Independent Sphingolipid Biosynthesis and Yeast Inhibition by Syringomycin E and Plant Defensin DmAMP1. *FEMS Microbiology Letters* 223:199-203.

**Frank J. Messina and James D. Fry.** 2003. Environment-dependent Reversal of a Life History Trade-off in the Seed Beetle *Callosobruchus maculatus*. *Journal of Evolutionary Biology* 16:501-509.

**Robert Minckley, James Cane, Linda Kervin, and Douglas Yanega.** 2003. Biological Impediments to Measures of Competition among Introduced Honey Bees and Desert Bees. *Journal of Kansas Entomological Society* 76(2):306-319.

**Daniel G. Mulcahy, Joseph R. Mendelson III, Kirk W. Setser, and Eric H. Hollenbeck.** 2003. *Crotalus cerastes* Natural History Notes: Predator/ Prey Weight-Ratio. *Herpetologica Review* 34(1):64.

**John D. Shaw, Hiroko Hama, F. Sohrabi, Daryll B. DeWald, and Beverly Wendland.** 2003. PtdIns(3,5)P2 Is Required for Delivery of Endocytic Cargo into the Multivesicular Body. *Traffic* 4(7):479-90.

**Vijendra K. Singh.** 2003. Cytokine Regulation in Autism. In: *Cytokines and Mental Health*, edited by Z. Kronfol. Chapter 16, pp. 369-383. Kluwer Academic Publishers, Boston, Massachusetts.

**Vijendra Singh and Ryan Jensen.** 2003. Elevated Levels of Measles Antibodies in Children With Autism. *Pediatric Neurology* 28:292-294.

**Craig A. Steele, Edmund D. Brodie, Jr., and James G. MacCracken.** 2003. Relationships Between Abundance of Cascade Torrent Salamanders and Forest Age. *Journal of Wildlife Management* 67:(2)447-453.

**Vincent J. Tepedino.** 2003. What's in a Name? The Confusing Case of the Death Camas Bee, *Andrena astragali* Viereck and Cockerell (Hymenoptera: Andrenidae). *Journal of the Kansas Entomological Society* 76(2):194-197.

**Jesús Valdes-Reyna and Mary E. Barkworth.** 2002. Flora de Veracruz, Fasc. 127. Poaceae II, Pooideae: Tribu Stipeae. Instituto de Ecología, A.C., Xalapa, Veracruz, Mexico. 28 pp.

**Richard S. Vetter, Alan H. Roe, Robert G. Bennett, Craig R. Baird, Lynn A. Royce, William T. Lanier, Arthur L. Antonelli, and Paula E. Cushing.** 2003. Distribution of the Medically-implicated Hobo Spider (Araneae: Agelenidae) and a Benign Congener, *Tegenaria deullica*, in the United States and Canada. *Journal of Medical Entomology* 40(2):159-164.

**Carol D. von Dohlen and David A. J. Teulon.** 2003. Phylogeny and Historical Biogeography of New Zealand Indigenous Aphidini Aphids (Hemiptera, Aphididae):

An Hypothesis. *Annual Entomological Society of America* 96(2):107-116.

**Becky L. Williams, Edmund D. Brodie, Jr., and Edmund D. Brodie III.** 2003. Coevolution of Deadly Toxins and Predator Resistance: Self-Assessment of Resistance by Garter Snakes Leads to Behavioral Rejection of Toxic Newt Prey. *Herpetologica* 59(2):155-163.

**Paul G. Wolf, Carol A. Rowe, Robert B. Sinclair, and Mitsuyasu Hasebe.** 2003. Complete Nucleotide Sequence of the Chloroplast Genome from a Leptosporangiate Fern, *Adiantum capillus-veneris* L. *DNA Research* 10(2):59-64.

**Department of Chemistry & Biochemistry**

**Irina Catrina and Alvan Hengge.** 2003. Comparisons of Phosphorothioate with Phosphate Transfer Reactions for a Monoester, Diester and Triester: Isotope Effect Studies. *Journal of the American Chemical Society* 125: 7546-7552.

**Cheng-Wei T. Chang, Yu Hui, Bryan Elchert, Jinhua Wang, Jie Li, and Ravi.** 2002. Pyranmycins, a Novel Class of Aminoglycosides with Improved Acid Stability: the SAR of D-pyranoses on Ring III of Pyranmycin. *Organic Letters* 4:2603-4606.

**C. Leriche, X. He, Cheng-Wei T. Chang, H.-W. Liu.** 2003. Reversal of the Apparent Regiospecificity of NAD(P)H-Dependent Hydride Transfer: The Properties of the Difluoromethylene Group, A Carbonyl Mimic. *Journal of American Chemical Society* 125: 6348-6349.

**Jie Li, Jinhua Wang, Yu Hui, Cheng-Wei T. Chang.** 2003. Exploring the Optimal Site for Modification of Pyranmycin with the Extended Arm Approach. *Organic Letters* 5: 431-434.

**Krzysztof Swierczek, Arti Pandey, John Peters and Alvan Hengge.** 2003. A Comparison of Phosphonothioic Acids as Phosphatase Inhibitors. *Journal of Medicinal Chemistry* 46: 3703-3708.

**Department of Computer Science**

**Steven Clyde and A. Crane.** 2003. "Design-n-Code Fests" as Capstone Projects for an Object-oriented Software Development Course, *Journal of Computer Science Education*.

**Xiaojun Qi.** 2003. Object Contour Matching Using the Biorthogonal Wavelet Transform. *Fifth International Conference on CVPRIP* (Computer Vision, Pattern Recognition, and Image Processing), pp. 668-671.

**Xiaojun Qi.** 2003. Predication-Based Compression Ratio Boundaries for Medical Images. *Fifth International Conference on CVPRIP* (Computer Vision, Pattern Recognition, and Image Processing), pp. 716-719.

**Department of Geology**

**James P. Evans, Dawn C. Martindale, and Richard D. Kendrick Jr.** 2003. Geologic Setting of the 1884 Bear Lake, Idaho, Earthquake: Rupture in the Hanging Wall of a Basin and Range Normal Fault Revealed by Historical and Geological Analyses. *Seismological Society of America Bulletin* 93(4).

**Craig B. Forster, James P. Evans, H. Tanaka, H. Nohara, and R. Jeffreys.** 2003. Hydrologic Properties and Structure of the Mozumi Fault, Central Japan. *Geophysical Research Letters* 30(6) Artical No. 8010.

**K. Jill Hammond and James P. Evans.** 2003. Geochemistry, Mineralization, Structure, and Permeability of a Normal-fault Zone, Casino Mine, Alligator Ridge District, North Central Nevada. *Journal of Structural Geology* 25(5): 717-736.

**Richard Heermance, Zoe K. Shipton, and James P. Evans.** 2003. Fault Structure Control on Fault Slip and Ground Motion during the 1999 Rupture of the Chelungpu Fault, Taiwan. *Seismological Society of America Bulletin* 93:1034-1050.

**Matthew A. Pachell, James P. Evans, W. Lansing Taylor.** 2003. Kilometer-scale Kinking of Crystalline Rocks in a Transpressive Convergent Setting, Central Sierra Nevada, California. *Geological Society of America Bulletin* 115(7): 817-831.

**Department of Mathematics & Statistics**

**LeRoy B. Beasley, Gi-Sang Cheon, Youg-Bae Jun, and Seok-Zun Song.** 2003. Fuzzy Implicative LI-Ideals in Lattice Implication Algebras. *Scientiae Mathematicae Japonicae* 9:281-292

**LeRoy B. Beasley and Steve Kirkland.** 2003. A Note on K-Primitive Directed Graphs. *Linear Algebra and its Applications* 373:67-74.

**LeRoy B. Beasley, Sang-Gu Lee and Yu-Ho Lee.** 2003. A Characterization of Strong Preservers of Matrix Majorization. *Linear Algebra and its Applications* 367C:341-346.

**Istvan Berkes, Lajos Horvath and Piotr Kokoszka.** 2003. Estimation of the maximal moment exponent of a GARCH(1,1) sequence. *Econometric Theory* 19:565-586.

**Istvan Berkes, Lajos Horvath and Piotr Kokoszka.** 2003. Asymptotics for GARCH squared residuals. *Econometric Theory* 19:515-540.

**Istvan Berkes, Lajos Horvath and Piotr Kokoszka.** 2003. GARCH models: Structure and estimation. *Bernoulli* 9:201-227.

**Rustum Choksi and Xiaofeng Ren.** 2003. On the Derivation of a Density Functional Theory for Microphase Separation of Diblock Copolymers. *Journal of Statistical Physics* 113:151-176.

**Liudas Giraitis, Remigijus Leipus, Piotr Kokoszka and Gilles Teyssiere.** 2003. Rescaled variance and related tests for long memory in volatility and levels. *Journal of Econometrics* 112:265-294.

**Lajos Horvath and Piotr Kokoszka.** 2003. A bootstrap approximation to a unit root test statistic for heavy-tailed observations. *Statistics and Probability Letters* 62:163-173.

**Xiaofeng Ren and Juncheng Wei.** 2003. On Energy Minimizers of the Di-block Copolymer Problem. *Interfaces and Free Boundaries* 5:193-238.

**Xiaofeng Ren and Juncheng Wei.** 2003. Triblock Copolymer Theory: Ordered ABC Lamellar Phase. *Journal of Nonlinear Science* 13:175-208.

**Xiaofeng Ren and Juncheng Wei.** 2003. On the spectra of 3-D lamellar solutions of the diblock copolymer problem. *SIAM Journal on Mathematical Analysis* 35:1-32.

**Seok-Zun Song and LeRoy B. Beasley.** 2003. Linear Operators that Preserve Commuting Pairs of Nonnegative Real Matrices. *Linear and Multilinear Algebra* 51:279-283.

**Zhi-Qiang Wang.** 2003. Positive Solutions to a Class of Quasilinear Elliptic Equations on  $\mathbb{R}^N$  (with Antonio Ambrosetti). *Discrete and Continuous Dynamical Systems* 55-68.

**Zhi-Qiang Wang.** 2003. Hardy Inequalities with Boundary Terms (with Meijun Zhu). *Electron. J. Differential Equations* 43,8.

**Zhi-Qiang Wang.** 2003. Caffarelli-Kohn-Nirenberg Inequalities with Remainder Terms (with Michel Willem). *Journal of Functional Analysis* 203, 550-568.

**Zhi-Qiang Wang.** 2003. Positive Solutions Having Prescribed Symmetry for Nonlinear Elliptic Problems. *Proceedings of summer workshop in Variational Methods and Applications* (Beijing, 1999). Edited by Haim Brezis, Shujie Li, Jiaquan Liu, and Paul Rabinowitz.

**Zhi-Qiang Wang.** 2003. Standing Wave Solutions with a Critical Frequency for Nonlinear Schrodinger Equations, *Topological methods, Variational Methods and their Applications, Proceedings of ICM-2002 satellite meeting in Nonlinear Functional Analysis*, Edited by Haim Brezis, Kungching Chang, Shujie Li, and Paul Rabinowitz (with Jaeyoung Byeon). *World Scientific* 45-52.

**Zhi-Qiang Wang.** 2003. Symmetry and Weighted Sobolev Inequalities, *Topological methods, variational methods and their applications, Proceedings of ICM-2002 satellite meeting in nonlinear functional Analysis*, Edited by Haim Brezis, Kungching Chang, Shujie Li, and Paul Rabinowitz. *World Scientific* 241-248.

**Department of Physics**

**J. C. Kim, Jeong-Young Ji, Jeff. S. Kline, John R. Tucker, and T. -C. Shen.** 2003. The Role of Antiphase Boundaries During Ion Sputtering and Solid Phase Epitaxy of Si(001), *Surface Science* 538:L471.

**Department of Biology**

**Diane G. Alston**

US Department of Agriculture  
1 September 2003 to 31 August 2007, \$116,890  
“Reduced Risk Pest Management Systems for US Tart Cherry Production.”

**Anne J. Anderson, Charles D. Miller, and Joan McLean**

Environmental Protection Agency  
1 May 2003 to 30 April 2006, \$336,000  
“Metal Biosensors: Development and Biometal Testing.”

**Mary E. Barkworth**

National Fish and Wildlife Foundation  
1 April 2003 to 31 March 2004, \$49,920 (plus a \$49,920 non-federal match)  
“Grass Identification Resources for North America.”

**Edmund D. Brodie, Jr.**

National Geographic Society  
1 October 2003 – 30 September 2004, \$18,735  
“Skin Toxins of Newts in Island Populations (Alaska and British Columbia).”

**Edmund D. Brodie, Jr. and Edmund D. Brodie III**

National Science Foundation  
15 September 2003 to 14 September 2006, \$450,000  
“Independent Evolutionary Origins of Tetrodotoxin Resistance as a Test of the Geographic Mosaic of Coevolution.”

**Ronda Callister, Kimberly A. Sullivan, James Powell, Christine Hult**

National Science Foundation  
1 July 2003 to 3 June 2008; \$2,998,953  
“ADVANCE-US: Applying a Business Model to a University to Improve Recruitment and Retention of Women Faculty in Science and Engineering.”

**Daryll B. DeWald, Juan N. Franco, Marie K. Walsh**

US Department of Agriculture  
1 September 2003 to 31 August 2006, \$67,500  
“The Utah State University Multicultural Scholars Program.”

**E. W. “Ted” Evans**

US Department of the Interior/Bureau of Land Management  
1 July 2003 to 30 June 2005, \$13,000  
“Biological Control of Noxious Weeds in Utah.”

**Timothy A. Gilbertson**

Eli Lilly Company  
2003 to 2004; \$25,000 (renewal)  
“Characterization of Bitterness in Pharmaceutical Compounds.”

**Timothy A. Gilbertson**

National Institutes of Health  
1 April 2003 to 31 March 2004, \$61,269  
“Chemoreception: From Molecules to Networks.”

**Timothy A. Gilbertson**

National Institutes of Health (National Institute on Deafness and Communication Disorders)  
1 April 2003 to 30 March 2008, \$1.3 million  
“Taste Transduction and Its Regulation.”

**Charles P. Hawkins, David Tarboton, Yong Cao, Michelle A. Baker, John Schmidt, Jonathan Higgins, Mary Lammert, and R. Jan Stevenson**

US Environmental Protection Agency  
1 January 2003 to 31 December 2006, \$853,515  
“Testing Watershed Classifications Relevant to Bioassessment, Conservation Planning, and Watershed Restoration.”

**Jay B. Karren**

US Department of Agriculture  
1 January to 31 December 2003, \$22,151  
“Cooperative Agricultural Survey (CAPS) and Homeland Security.”

**Joseph R. Mendelson III**

California Department of Parks and Recreation  
May 2003 to April 2004, \$39,708  
“Scientific Study of the Flat-tailed Horned Lizard at Ocotillo Wells State Vehicular Recreation Area (California).”

**Karen Mock, Joseph R. Mendelson III, and Charles Drost**

US Bureau of Reclamation  
1 June 2003 to 31 December 2006, \$65,273  
“Population Status and Viability of Leopard Frogs (*Rana pipiens*) in Grand Canyon and Glen Canyon.”

**Peter C. Ruben**

Muscular Dystrophy Association  
1 July 2003 to 30 June 2004, \$75,000  
“Sodium Channel Deactivation in Non-dystrophic Myotonia.”

**John M. Stark**

USU Community/University Research Initiative (CURI) Award  
July 2003 to 30 June 2004, \$24,500  
“Cheatgrass Invasion in Utah Rangelands: Changes in Soil Carbon and Nitrogen Cycling.”

**Jon Y. Takemoto and Bradley R. Kropp**

USU Community/University Research Initiative (CURI) Award  
1 July 2003 to 30 June 2004, \$24,000  
“Man-Made Bacterial Snow-Biological Impact at Utah Ski Venues.”

**Carol D. von Dohlen**

US Department of Agriculture  
1 July 2003 to 30 September 2004, \$40,000  
“Molecular Characteristics of Bacterial Endosymbiont Diversity in Hemlock Woolly Adelgid (*Adelges tsugae*).”

**Department of Chemistry & Biochemistry**

**Cheng-Wei T. Chang**

Department of Defense Research Award, DARPA  
01 April 2003 to 28 February 2007, \$283,747  
“Development of General Antibiotics Against Known and Unknown Pathogens.”

**Cheng-Wei T. Chang**

New Investigator Matching Grants, National Foundation of Infectious Disease  
01 May 2003 to 31 December 2003, \$4,000  
“Synthetic Approaches for Rational-based Glyco-diversifications of Pyranmycins”

**Cheng-Wei T. Chang**

Utah State University Community University Research Initiative Grant (CURI)  
01 July 2003 to 30 June 2004, \$25,000  
“Development of Novel Library of Antibiotics Against Infectious Diseases.”

## Grants, Continued—

### Cheng-Wei T. Chang

Frontier Scientific Inc. Research Grant  
01 September 2003 to 31 August 2004, \$30,000

### Philip J. Silva

Utah State University Community University Research Initiative  
(CURI)  
1 July 2003 to 1 July 2004, \$24,500  
“Investigations into Wintertime Particulate Formation.”

### Department of Computer Science

### Steven Clyde

Drysdale, Inc.  
1-year, \$23,677  
“Development of Electronic Blueprint Distribution and Coordination  
System (Phase 1)”

### Steven Clyde

Task Force for Child Survival and Development  
6-months, \$22,721.30  
“Integration Case Studies and De-duplication Strategies For Child-  
Health Care Systems.”

### Department of Mathematics & Statistics

### Ronda Callister, Kimberly A. Sullivan, James Powell, Christine Hult

National Science Foundation  
1 July 2003 to 3 June 2008; \$2,998,953  
“ADVANCE-US: Applying a Business Model to a University to  
Improve Recruitment and Retention of Women Faculty in Science and  
Engineering.”

*Science Scene, an internal newsletter for Utah State University Administration, College of Science faculty and staff, is published regularly throughout the school year. It's purpose is to inform our College of current events and the activities of our faculty, providing a forum for peers to follow one another's careers and professional development. Editor & Layout—Colette Yates. A special thanks to our departmental newsletter representatives—Liz Allred, Biology; Geri Child, Chemistry and Biochemistry; Tracy Pace, Computer Science; Lori Hirschi, Geology; Linda Blauer, Mathematics & Statistics; Karalee Ransom, Physics; and Melanie Oldroyd, Center for Atmospheric & Space Sciences.*

*—Deadline for submissions to the Dean's Office is the 3rd Monday of each month—*

**Utah State**  
**UNIVERSITY**

College of Science  
Office of the Dean  
0305 Old Main Hill  
Logan, UT 84322-0305

ADDRESS CORRECTION REQUESTED



