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June 2008**

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National Science Foundation (NSF) Career Award

Chulsung Bae, assistant professor of chemistry in the UNLV College of Sciences, has received a five-year, \$450,000 Early Career Development Award (CAREER) from the National Science Foundation for his research on fuel cells technology, considered critical for meeting energy needs in the twenty-first century.

The official UNLV press release reads:

UNLV CHEMISTRY PROFESSOR RECEIVES PRESTIGIOUS NSF GRANT FOR FUEL CELL RESEARCH

NEW GRANT IS LATEST BOOST TO UNLV'S GROWING PORTFOLIO OF ALTERNATIVE ENERGY RESEARCH

Chulsung Bae, assistant professor of chemistry in the UNLV College of Sciences, has received a five-year, \$450,000 Early Career Development Award (CAREER) from the National Science Foundation for his research on fuel cells - technology considered critical for meeting energy needs in the twenty-first century.

Each year NSF recognizes outstanding scientists who, early in their careers, show exceptional potential for leadership at the frontiers of knowledge. The CAREER award is the highest honor bestowed by the United States Government on scientists and engineers beginning their independent careers.

“This individual honor recognizes Bae’s impressive accomplishments and his outstanding future in alternative energy research,” said Ron Yasbin, Dean of the UNLV College of Sciences. “Chulsung and his UNLV colleagues are at the forefront of fuel cell research and this award further underscores our role in addressing this issue of critical global concern.”

Full text: <http://publicaffairs.unlv.edu/news-PublicAffairs.html?id=615>

U.S. Department of Agriculture (USDA) Grant to Study Plant Drought Stress

A report from the U.N. Food and Agriculture Organization indicates that food prices worldwide have increased by 80 percent since 2005. People in developing countries, in the number of billions, spend up to 75 percent of their income on food. Skyrocketing food prices will lead to 100 million underfed people worldwide this year. On April 29, the United Nations Executive Board called for donations of \$775 million in emergency funds to feed these people. In 2007 associate professor Jeff Shen, School of Life Sciences, received a \$295,000 grant from the U.S. Department of Agriculture (USDA) to study the mechanism by which a hormone, namely gibberellin, regulates plant growth and development. This research will ultimately contribute to alleviating the food and fuel crises by increasing biomass and food production.

Another approach to increasing biomass and food production is to study how plants respond to drought, the major culprit behind crop losses worldwide, with billion dollar losses in the United States. The USDA recently announced a second award to Jeff Shen and his collaborator, Dr. Paul Rushton at the University of Virginia, a grant in the amount of \$343,900 to study plant drought stress. The UNLV portion of this award is about \$140,000. Dr. Shen and his collaborator will study a group of proteins in rice and soybeans, called WRKY transcription factors, for their roles in stress responses. The goal of this project is to identify all WRKY genes that regulate drought responses in rice and soybeans, and to develop a bioinformatics tool to identify similar genes in other crop plants. Specifically, the scientists will study which WRKY genes regulate responses to water stress by employing an oligo array containing WRKY genes from over 30 plant species. They are also going to develop bioinformatics tools to address: (1) whether related WRKY genes regulate water stress responses; and, (2) whether drought responsive WRKY genes share drought responsive promoter elements, the key DNA sequences that govern “when, where and how much” a given gene is activated. This study involves several key technologies such as Chromatin Immunoprecipitation (ChIP), gene inactivation (knockdown and knockout), gene excitement (overexpression) and those used in drought tolerance assessments.

This work will help enhance economic opportunities for agricultural producers and enhance protection of the Nation’s food supply. Dr. Shen hopes that their research will contribute to relieving the hunger of those million people in the world, and to helping decrease fuel prices.

Advanced Light Source (ALS) and Department of Energy (DOE) Energy Efficiency and Renewable Energy (EERE) Hydrogen Program Awards

Associate professor of chemistry Clemens Heske's proposal for an Approved Program (AP) at the Advanced Light Source, Lawrence Berkeley National Laboratory, entitled "Understanding and Improving Surfaces and Interfaces in Devices for Energy Conversion" was approved. The approval guarantees 7% of available beamtime at the undulator beamline 8.0 for the next three years. As the ALS writes in their AP guidelines, "The criterion is established that for an AP to come into existence, the science must be well above that of the general user program. AP status is not an entitlement based on prior history. AP status creates a direct partner to the ALS strategic mission of promoting world-class science, and helps to justify the existence of the ALS. "

In addition, Heske has received funding for a new project on photoelectrochemical hydrogen production (PEC), entitled "Advanced Characterization of Semiconductor Electrodes for Photoelectrochemistry." This project is funded through the National Renewable Energy Laboratory (NREL) as part of the DOE EERE Hydrogen Program, and provides \$200,000 for one year. It is based on the earlier (and currently no-cost extended) Solar Hydrogen Generation Research (SHGR) project/earmark organized by the UNLV Research Foundation, with the support of Bob Perret, who is also a member of the College of Sciences Advisory Board.

Commencement Highlights

Kyle George was selected by UNLV President David Ashley as an Outstanding Graduate, and honored at the May 17, 2008 commencement ceremony. Each semester, the UNLV Commencement Committee puts out a call to campus to nominate graduating students, both undergraduate and graduate, who have gone above and beyond to achieve great things at UNLV.

Kyle was also selected to deliver a commencement address, and the text is provided below.

Spring Commencement, 2008

Good afternoon everyone. My name is Kyle George, and I am a chemistry major in the College of Sciences. Initially, I struggled with writing this and had a difficult time trying to sum up 4 years, or 5 to 6 years for us science majors of UNLV into five minutes. How can I talk about the highs and the lows...the ups and the downs of 28,000 students when we are all unique? In the end, however, I realized that this uniqueness is the very thing that describes the UNLV experience. Although every piece an artist produces is one of a kind, most of his work will bear a style that is distinctly his. So too are the alumni of UNLV. In the last few years, I have learned that despite our differences, we UNLV students are pretty much all the same. We can text at 90 words a minute, but only type 30 words a minutes. We will travel miles for free food, but complain about having to park two blocks away from our classes. We will watch "just one more TV show", and then complain that we didn't have enough time to study for the exam. And of course, only here at UNLV do we leave town for spring break when the rest of the college world comes TO Vegas. Although we have separate lives, we are united by the bond of our common experiences, and that has shaped the character of the men and women who sit here today.

As Las Vegas goes, so too does UNLV. Vegas was founded in the middle of a vast desert, an oasis in a sea of sand. UNLV was founded as an academic island in what I jokingly call a sea of philistines. Vegas now overshadows that little city up north, as has UNLV outgrown our counterpart. Vegas has The Mob, UNLV has parking enforcement. It is no coincidence that we are so closely tied to each other. For fifty years, UNLV has produced Las Vegas' top executives, captains of industry and community leaders, and will continue to do so for the next fifty years. In the years to come, the very people sitting next to you will leave their own marks on history, be it within their chosen field, our city, our state or beyond.

Fifty years! In the forest of schools that is collectively academia, we are but a sapling, but even in our infancy, we stand taller than many institutions that may be older, better funded and "*more established*" than we. I believe that we are fortunate to have attended UNLV at this major crossroads in its history. As we celebrate our golden anniversary and we look towards the century mark, we are moving towards a future where UNLV is known not only for its Hotel and hospitality tracks, but its law, engineering and science programs. We are already at the vanguard of alternative energy research, and can boast some of the top minds and talent in this arena. As UNLV transitions into its role as a research extensive university, our academic reputation can only continue to grow, and as this reputation grows, so too does the value of the degrees we have earned.

Yet, our role in the growth of our alma mater does not end at graduation. As alumni, it is incumbent upon us to provide input that helps shape the university's future. If we are to model ourselves after

the most successful universities and colleges, you will notice that an active alumni association is common to all these institutions. So too must we be active. Most of us sitting here have been beneficiaries of the generosity of donors in one way or another. We may have been recipients of scholarships funded by alumni or the alumni association. We may have been taught by professors funded by endowments or gifted chairs. At the very least, each and every one of us has used facilities donated to the university by generous donors. Their names form the backbone of UNLV and collectively read like the history of our great city and state: Greenspun, Mack, Rogers, Harrah, Fulton, Hughes, Wynn, Bigelow, Boyd and Beam. These donors have invested in our future, and we owe them a debt of gratitude.

Over the past few years, we have all sacrificed to sit here today. To some, the cost of attending college was high: financially, mentally and emotionally. We may have sacrificed vacations for internships, job opportunities for a good class schedule, or personal relationships for good grades. Yet, today, this auditorium is filled with those who stuck by us, who supported through the years. And as we come together to celebrate your accomplishments... our accomplishments, we must remember to give credit to those who stood by us, for without them, we could not have done it alone. Mothers, fathers, husbands, wives, boyfriends girlfriends, family and friends, should all be recognized for the role they played in having us here today.

So too should we recognize the administrators, faculty and staff who have worked on our behalf. They have worked to provide services despite diminishing support from our governments, an increasingly decimated US Department of Education, and ever-shrinking budgets. We make do with what we have, because that is the spirit of our founders who settled on these meadows in the middle of a harsh desert, the spirit of those who said that the little town of Las Vegas deserved its own university, the spirit of those who paved the way for us to stand here today... **LADIES AND GENTLEMEN, THE SPIRIT OF LAS VEGAS ITSELF.**

As we look back on our time at UNLV, let us remember this moment as a symbol of what our dedication can bring. Let us carry our heads proud, as we bear the mantle of UNLV alumni. Let us show the world that an education forged in the valley of Las Vegas stands shoulder to shoulder with those cultivated on the coasts of the Atlantic and the Pacific. As we go forth as graduates of UNLV, let us remember to comport ourselves in a manner befitting the men and women of the scarlet and gray! But most importantly, let us show the world who we are, the **REBELS OF THE UNIVERSITY OF NEVADA – LAS VEGAS.**

President Ashley also recognized a husband and wife as outstanding graduates, Jeffery Halsell, Ed.D. in Educational Leadership; and Nita Tallent-Halsell, Ph.D. in Life Sciences. President Ashley noted, "Jeffery and Nita Halsell are husband and wife outstanding graduates. Both Jeffery and Nita earned undergraduate, master's, and now doctoral degrees from UNLV. Jeffery is a current senior administrator for Clark County School District specializing in student and program assessment. Nita currently serves as a research scientist for the Environmental Protection Agency, with a specialization in invasive plants. During their time at UNLV, Jeffery and Nita have demonstrated superior scholarship and a strong commitment." Nita and Jeff kindly agreed to respond to a few questions about their lives in Las Vegas and at UNLV with us.

Tell me a little about your life before coming to UNLV - where you grew up, your family life, what interests did you have, academically and other wise? How did you end up attending UNLV?

Both Nita and Jeff have led lives filled with adventure and challenge. Nita was born in Arkansas but spent the majority of her childhood and adolescence abroad. With her father working as an Engineer for Raytheon Corporation, Nita was fortunate enough to spend her youth in countries such as Saudi Arabia, Germany, and Austria. Living on the Red Sea in Saudi Arabia between 1967 and 1979 enabled Nita to realize her life's work. It was while spending her days playing on the beach and snorkeling in the Red Sea that Nita decided, at age 10, that she was going to be a biologist. That decision has remained with her throughout her life.

Jeff spent the majority of his childhood and adolescent in western Ohio before moving to a rural community in Tennessee, where he graduated from high school in 1976. While always interested in entering the field of education, Jeff decided shortly after graduation to join the United States Air Force. It was the Air Force that eventually brought Jeff to Nellis Air Force Base and the Las Vegas area in 1980. While Jeff enjoyed the excitement and travel associated with being a member of the Armed Forces, he left the Air Force in 1983 to work in the Las Vegas area for EG&G Special Projects, a Department of Defense contractor. Although Jeff enjoyed the challenge of working in the defense industry during the Cold War era, his work required frequent travel that often took him away from his family for extended periods. Therefore, in 1989 Jeff left a promising career in the defense industry to pursue his undergraduate degree in secondary education.

Nita, her parents Robert and Evelyn Tallent, two sisters, and brother returned to the United States in the late 1970's and settled in New Hampshire, where Nita began her academic career at St. Anslem's College. In 1985, when Nita's father transferred to Las Vegas to take a position at the Nevada Test Site, Nita and her young son Jeremiah soon followed and Nita continued her study of biology at UNLV. An added benefit of their relocation was that Nita met and married Jeff Halsell. A readymade family was formed with their union as Jeremiah was joined by Jeff's children Jessecca and Adam. Together, Jeff and Nita later welcomed a teenage foster daughter, Carey. Their lives were filled with school activities, sports and exploring the outdoors. All the while Nita and Jeff attended UNLV to earn undergraduate, masters, and now their doctorates. Nita earned her Bachelor of Science degree in Biological Sciences in 1989, with Jeff earning his Bachelor of Arts degree in Secondary Education in 1994. Nita followed with her Masters Degree in Biology in 1998 and Jeff with his Masters Degree in Educational Leadership in 1999. It was only when their youngest son graduated from high school in 2001 that Jeff and Nita decided to pursue their doctorates, Nita

continued to work as a research scientist with the U.S. Environmental Protection Agency (EPA) and Jeff worked as a statistician for the Clark County School District. And now, in 2008, Jeff Halsell and Nita Tallent-Halsell have both earned their doctoral degrees in Educational Leadership and Biological Sciences, respectively.

Concurrent with their academic progress their careers were also forming. Nita was hired by the EPA as a field biologist immediately after she received her undergraduate degree in 1989, to support research in Alaska following the Exxon Valdez oil spill. That project was the first of many research projects that took Nita throughout the United States and into Eastern Europe. Her work has included the study of water quality in New England lakes, forest health in the Pacific Northwest, rangeland grazing in the Colorado Plateau and amphibian decline in Sequoia and Yosemite National Parks. Following a similar path, Nita's masters research concentrated on the impact of dams on native riparian woodlands at Lake Mohave.

Jeff went to work in 1994 as a Mathematics Teacher at Brown Jr. High School, which was consequently the same school his children attended. In 1996 Jeff changed school locations and began teaching mathematics at Basic High School, again the same school his children attended. After his last child graduated from high school Jeff spent a few years teaching mathematics at Coronado High School before taking a position in the Clark County School District Assessment and Accountability Department.

Please tell me about your research, including how you became involved in this field? What are the possible benefits/outcomes of your research?

Nita was fortunate to have earned a position with the EPA immediately after completing her undergraduate degree. However, she always wanted to know more. With every project she wanted to better understand the fundamental scientific principles and analytical techniques intricate to the studies. In particular, she was interested in the study of interactions among plants and their environment (plant ecology). Especially interesting to her was how the distribution of plants around the world by humans has changed ecosystems. Although she initially planned to conduct her doctoral studies in Nevada, her interest was diverted when the opportunity to study the impact of the invasion of a common garden plant, the butterfly bush, on New Zealand floodplains arose. The EPA permitted her multiple leave of absences to travel seven times between her home in Nevada and the South Island of New Zealand where she conducted field and shade house experiments between April 2004 and May 2007. With a loan from her retirement plan, scholarships from the International Study Program, a grant from Graduate and Professional Student Association, assistance from Landcare Research New Zealand and much financial and moral support from her husband Jeff she was able to complete a survey of several floodplains, an experiment where native plants were transplanted into dense thickets of butterfly bush and a shade house experiment. Her research has provided guidance to New Zealand and United States land managers on how to manage butterfly bush escapes from gardens in to natural areas and disrupts the establishment of native trees and shrubs.

Jeff's research focus was a comparison of academic achievement for schools enrolling like populations. Current legislation designed to eliminate the academic achievement gap between discrete populations of students requires a standardized approach to measure and exact sanctions

upon schools not achieving predetermined academic success, regardless of population served. Jeff's research used the Two-Step Cluster Analysis procedure to identify homogeneous subgroups of schools, relative to populations served, and then used Analysis of Variance to determine which schools demonstrate statistically significant achieved above or below the subgroup universal mean.

What are your favorite/most important memories of UNLV and Las Vegas? People you have met, places you enjoy, classes you took...

We have so many wonderful memories of UNLV and its campus because it is where we have studied and Nita has worked for more than 25 years. Nita spent hours in White Hall attending lectures and working in the Walker Plant Science Lab while Jeff spent the majority of his time with Dr. Robert McCord at the William D, Carlson Education Building. As an undergraduate Nita worked for the food concessionaire and in various biology labs while our son Adam attended the UNLV day care when it was housed in the Carlson Education Building. They would follow the large green shoeprints painted on the sidewalk from the Lily Fong building to the Chemistry building to the Biology Atrium. All four of our children enjoyed afternoons at the Marjorie Barrick Museum of Natural History Museum and the UNLV Arboretum. We have attended plays, musical performances, and art exhibits at the many theatres and galleries located at UNLV. We have attended many university sporting events, cheering the Rebels at basketball, football, and soccer games.

Nita has fond memories of classes taught by her advisor Dr. Lars Walker in addition to those taught by Drs. Stan Smith, Robert Dodge, Penny Amy, L. Storm and many, many others. Jeff spent many classroom hours enjoying instruction from professors such as Dr Robert McCord, Dr. Chad Cross, Dr, James Crawford, and many others. Nita was active in the Biological Sciences Graduate Student organization and the Graduate and Professional Student Association. We continue to be inspired by the new Lied Library and the massive growth that has occurred during our time here.

Nita's time at UNLV has not ended. In addition to continuing her career as an Environmental Scientist with the EPA, she hopes to teach at UNLV. After teaching the *Introduction to Environmental Science* class for several semesters she now embraces the love of teaching and hopes to have the opportunity to teach other science courses in the future. UNLV has provided us an incredible home that has sheltered and nourished our minds and souls. Every building has added another room in our mansion.

What would people be surprised to know about you?

That I am so passionate about UNLV. Although I work on campus for the EPA, I just can't imagine spending my days any where else. Perhaps how academically non-traditional we have both been. While not intentional, we appear to have taken turns attending UNLV while supporting and raising our family. It is only in our final degree program that we were able to attend at the same time and consequently complete in the same academic year. While it has been a long and often time's difficult struggle, we are proud of ourselves for completing and grateful to UNLV for providing the opportunity.

Alumna Of the Year

Hiba Risheg (Class of 1997, B.S., Biological Sciences) is the 2008 College of Sciences Alumna of the Year. Hiba was profiled in the Summer 2007 *UNLV Magazine* (<http://magazine.unlv.edu/Issues/Summer07/32inthegenes.html>) and discussed her life growing up in Las Vegas, her years and UNLV, and her scientific career, including a recent genetic discovery of great importance. Hiba visited the College of Sciences recently and spoke to a group of high school science students, our own students, and offered a seminar on her genetic research.



Hiba is one of a long line of Rebels. Her mother, Samira Risheg, earned three degrees: 1985, B.S., Hotel Administration; 1996, M.S., Special Education; and 2003 Ed.D., Education Leadership. Her father, Mohammed H. Risheg, also has three degrees: 1985, B.S.-B.A., Economics; 1986, M.B.A., and 2001 M.Ed., Special Education. He taught statistics and economics as an adjunct faculty member and worked for the Center for Business and Economic Research (Hiba's first job was at the center as a data entry person). Two of Hiba's uncles earned degrees at UNLV the same year: Khalil Risheg, 1984, B.S., Electrical Engineering; and Munzer Risheg, 1984, B.S., Civil Engineering.

In March, 2007 Hiba was credited with discovering the gene that causes a form of mental retardation called FG syndrome. It's a breakthrough for scientists and families who have been searching for the gene responsible for the condition for more than 40 years. "Dr.

Risheg's finding will allow a diagnostic test to be developed. It will also allow clinical geneticists to more clearly define the FG syndrome and determine its incidence," stated Dr. Roger Stevenson, Director of the Greenwood Genetic Center in North Carolina. Mental retardation affects 2-3% of the general population and there is a well-recognized excess of affected males. Current estimates indicate that 10-12% of all cases of mental retardation are likely due to genes on the X chromosome. So far, over 60 of these X-linked genes have been implicated as causing mental retardation. Although FG syndrome is considered by some investigators to be a common X-linked mental retardation condition, studies to determine the actual prevalence are not available. The discovery was the result of close collaboration between the Center's Molecular Diagnostic Laboratory under the direction of Dr. Michael Friez and the Center for Molecular Studies of the JC Self Research Institute headed by Dr. Charles Schwartz.

With the causative gene isolated, the syndrome can be better defined and diagnostic testing can be offered. All the families that are known to have FG were invited to Greenwood Genetic Center to be re-evaluated and tested this spring. Their blood samples will be important as scientists begin studies on how the mutation alters gene function and affects the protein.

Nevada Governor's Cup and Tri-State Donald W. Reynolds Cup Competitions

An undergraduate team from UNLV took first place in Nevada's 2008 Donald W. Reynolds Governor's Cup collegiate business plan competition, aimed at helping young entrepreneurs develop a startup company. The Governor's Cup is intended to encourage college students to develop commercially viable business models using technology being developed in universities. The Waste-Alternative Transformation Technologies, LLC (WATTs) team, which won a \$20,000 prize to help launch their new business, includes Keeton Little, a business major, Josh Beilin, a hotel management major, and Kyle George, a chemistry major. The group's faculty advisor is Dr. Janet Runge, management professor and program coordinator for the UNLV Center for Entrepreneurship.

The WATTs team also competed in the first Tri-State Donald W. Reynolds Cup business plan competition, held in Las Vegas on May 15, 2008. The Tri-State competition, involving similar student efforts from Oklahoma, Arkansas, and Nevada, represents the pinnacle of these three statewide business plan competitions where the top two teams (undergraduate & graduate) from each state compete for cash awards totaling \$90,000. A second place finish in this competition netted the WATTs team an additional \$ 15,000.

Waste-Alternative Transformation Technologies (WATTs) is a Limited Liability Company formed in the state of Nevada in 2008. WATTs was developed to provide a holistic approach to the waste management and energy issues facing modern urban communities. WATTs has identified opportunities for revolutionizing the waste management industry by capitalizing upon the energy stored in waste. WATTs was founded to compete in the lucrative energy and waste management sectors by creating a synergistic model that fuses the two diverse industries into a unique hybrid. By opening facilities to accept Municipal Solid Waste (MSW), WATTs will generate revenue based on the "tipping fees" that landfills charge to receive trash from municipalities and private trash collection services. WATTs will then utilize the collected trash to produce several energy related products which in turn will be sold.

WATTs intends to open its first location in Elko, NV. Several factors were evaluated when selecting this site, including proximity to large population centers, and accessibility from major railroad lines and interstate highways. Elko satisfies all these requirements, and because of the relatively small population of the city, affords the opportunity to streamline operational processes before expanding services to other cities.

WATTs believes that it can stimulate interest in environmentalism by educating the public. To do so, the company has reserved 5% of profits to create several measures geared towards such an education program. This money will be directed toward education programs in schools, from the kindergarten level all the way up to college level. An additional 5% will be used to fund programs that promote clean water initiatives in Africa, where over 50% of the population does not have access to potable water. A significant percentage of health problems on the continent can be traced to contaminated drinking water, and a commitment to save lives begins with clean water.

Mission Statement

Recognizing our role as citizens of a global community, Waste–Alternative Transformation Technologies seeks to create both a positive and permanent impact on the planet by advancing innovative green technologies.

The WATTs Vision

Common corporate doctrine preaches that profit is its own primary mission, outweighing all other social and moral obligations. Although profits are a fundamental component of the free market economy, corporate entities are themselves members of communities and are therefore beholden to the same inherent social standards to which we hold other citizens. WATTs was founded to challenge that traditional, myopic viewpoint by bringing social responsibility to the vanguard of our business model, while still maintaining an emphasis on profit.

WATTs is committed to creating a corporate environment that promotes innovation and technology applications that leave a lasting, positive impact on the environment and our future. We believe that by developing a successful model that satisfies the profit motive and is environmentally focused, we will serve as the model and inspiration for future “green” enterprises.

WATTs’ management team was specifically designed to not only enhance the strengths but also to minimize any weaknesses in their business model. By drawing executives and advisors from diverse backgrounds, they hope to foster innovation and ingenuity while adhering to financially disciplined practices that will best grow the business.

Management Team

Keeton Little is an undergraduate student of UNLV’s Honors College and will be receiving a BA in Economics from the College of Business in May 2008. He has gained leadership experience through two years of service as the student government’s Vice President Pro Tempore. For the last three years Keeton has also worked with the American Cancer Society as a Co-Chair of the Nevada chapter and as Nevada’s State Ambassador. In this position, he has lobbied congress in Washington, D.C., and organized community service projects and non-profit organizations. Keeton has interned at Merrill Lynch and will be attending the M.Sc. of Economics program at the London School of Economics in the Fall 2008.

Josh Beilin is an undergraduate student at UNLV’s College of Hotel Administration, and will be receiving a BS in Hotel Administration with a focus on Beverage Management in May 2008. Josh is the co-founder and Vice President of Two Kings Neckwear, Inc., a family-owned neckwear company with a retail location at the Hard Rock Hotel & Casino in Las Vegas. Two Kings Neckwear maintains a charitable focus, donating a fraction of the proceeds of each sale towards a variety of charities, including the Natural Resources Defense Council.

Kyle George is an undergraduate student in the Department of Chemistry at UNLV’s College of Sciences, and will be receiving a BA in Chemistry in May 2008. Kyle currently works as a Research Assistant, conducting materials research in energy-related matters, including thin-film solar cells and

devices for the production, storage, and consumption of hydrogen. Kyle previously worked in the Information Technology departments of Merrill Lynch and Morgan Stanley, and was the Campus Director of the Phoenix and Las Vegas branches of TechSkills LLC, a national technology training company. Kyle will be entering the Graduate Program in Chemistry at UNLV in Fall, 2008.

Dr. Clemens Heske is an Associate Professor for Materials Chemistry in the Chemistry Department of the University of Nevada Las Vegas. He received his Dr. rer. nat. (PhD) and his Habilitation from the University of Würzburg, Germany, and joined UNLV in April 2004. He leads an interdisciplinary and collaborative research effort devoted to the optimization of materials for energy conversion. His group collaborates with over 30 national and international partners and performs experiments at UNLV and the Advanced Light Source (ALS), Lawrence Berkeley National Lab. Heske served as the Chair of the ALS Users' Executive Committee in 2006 and currently spearheads the organization of a symposium on thin film solar cells at the 2009 Spring Materials Research Society Meeting in San Francisco. He has published over 85 peer-reviewed publications and given 65 invited presentations at national and international conferences and symposia.

Two articles appeared in the *Las Vegas Review Journal*, summarizing the competitions.

Nevada Governor's Cup

<http://www.lvrj.com/business/18252389.html>

Tri-State Donald W. Reynolds Cup Competition

<http://www.lvrj.com/business/19169124.html>

An article also appeared in the Las Vegas Business Journal

http://www.lvbusinesspress.com/articles/2008/05/27/news/iq_21677459.txt

National Science Foundation (NSF) Research Experience for Teachers Program and NSF Research Opportunity Award

Ms. Sara Kienzle teaches biology and forensic science at Cheyenne High School (North Las Vegas) and will conduct research this summer in the lab of Helen Wing, assistant professor in the School of Life Sciences. Kienzle's research project is funded under the NSF Research Experience for Teachers Program. Helen and Sara prepared the proposal and submitted it through the Research Experience for Undergraduates (REU) Program. Sara's project will focus on the outer membrane protease, IcsP, which is encoded by the *Shigella flexneri* virulence plasmid. Sara will investigate *icsP* expression under a number of environmental conditions that are encountered as *Shigella* passes through the human intestinal tract. Environmental cues tested will include: low pH, physiological osmolarity, low concentrations of oxygen, and increased concentrations of bile salts. The testable hypothesis of this project is, "*Environmental Conditions Encountered by Shigella in the Human Body Lead to Up-Regulation of the Shigella Protease IcsP*" Sara will implement aspects of her research into each unit of the Clark County School District (CCSD) Biology curriculum by creating an overarching theme, "Responses of Living Organisms to Their Environment," throughout the entire year. Three inquiry based labs will meet the following biology objectives for students: demonstrate proper laboratory techniques, design and carry out a controlled experiment, organize/analyze data into charts, graphs, or tables, and use the scientific method to ask questions and find answers. The amount of this award is \$10,000.

Dr. Kudjo Dzantor, is an associate research professor at the Institute of Agricultural and Environmental Research, Tennessee State University (TSU). Dr. Dzantor's research focuses on soil microbiology, environmental chemistry, and the degradation of xenobiotics by plants. Dr. Dzantor will visit the lab of Eduardo Robleto from July 7 to Aug 8. The overall goal of the collaboration is to assess the impact of xenobiotic pollutants on plant microbe interactions. The well studied symbiosis between *Rhizobium meliloti* and alfalfa (*Medicago sativa*) will serve as a model system to explore the effects of soil pollutants. Dr. Dzantor will contribute expertise in the areas of analytical and environmental chemistry, while Dr. Robleto provides expertise in microbial genetics and characterization of soil microbial populations. Dr. Dzantor will acquire training in molecular approaches for investigating plant microbe-interactions. These approaches will be incorporated into Dr. Dzantor's research and teaching curricula upon return to TSU. Both researchers have pledged to a long term collaboration that will result in grant proposals and publications.

Dr. Dzantor serves as a mentor to undergraduates and upon his return will promote the benefits of undergraduate research to undergraduates majoring in life science and chemistry at TSU. Tennessee State University has an undergraduate population of 7,100 students of which 75% are African American. This institution has a modest science and math program with 423 (91% African American) biology, 105 (87% African American) chemistry, 14 (86% African American) physics, and 56 (68% African American) mathematics majors. In addition, Dr. Dzantor will also specifically recruit TSU students for the REU SITE: A Broad View of Environmental Microbiology at UNLV.

Dr. Dzantor's visit is sponsored by the NSF Research Opportunity Award program. The amount of the award is \$15,000.

Honoring Outstanding High School Junior Science and Math Students

The College of Sciences continued its tradition of honoring outstanding high school juniors who excel in mathematics and science. On May 21, 2008 some 31 area high school juniors, nominated by their schools, enjoyed a dinner and program at the Stan Fulton Building. The students received certificates from the College of Sciences and, joined by their teachers, family members, Clark County School District representatives, and UNLV faculty and staff, enjoyed a presentation from assistant professor of mathematics Anton Westveld entitled, "What Statisticians Do." On May 28, 2008 approximately thirty area high school juniors who excel in the sciences, also enjoyed a dinner and program at the Stan Fulton Building. The students received certificates from the College of Sciences and, joined by their teachers, family members, Clark County School District representatives, and UNLV faculty and staff, enjoyed a presentation from assistant professor Ken Nagamine, department of physics and astronomy, on the structure of the universe and galaxy formations.

The College of Sciences also welcomed our alumna of the year, Hiba Risheg (B.S., 1997) and Patricia Mulroy, recipient of this year's Math and Science Education Achievement Award. Hiba was recognized for research accomplishments in discovering the gene that causes a form of mental retardation called FG syndrome. Pat Mulroy, who chairs our Advisory Board, was recognized for her efforts in creating the Las Vegas Springs Preserve and its educational programs.

The staff of the College of Sciences Advising Center coordinates these two dinners and is to be congratulated for providing such welcome and inviting events for area high school students and guests.

“Biotechnology for Nevada”

The College of Sciences has published a brochure designed to introduce our faculty, students, facilities, and research initiatives to prospective biotechnology companies, supporters, and the extended community. Introductory in nature, the brochure highlights the scope and quality of current research efforts, the impressive array of laboratories and equipment on campus, and the collaborative ventures underway.

Printed copies are available from the dean’s office and the full text is available online at:

<http://sciences.unlv.edu/pdf/biotechbrochure2008.pdf>

Innovation Magazine

The 2008 issue of *Innovation Magazine*, *The Research Magazine of the University of Nevada, Las Vegas* includes a number of stories featuring faculty, staff, and students from the College of Sciences.

Geoscience doctoral student Robyn Howley is featured on the cover and is quoted extensively in a story, “Enhancing Graduate Education, Advancing Research.”

“It Was a Very Good Year,” recounts the numerous grants awarded to faculty in the School of Life Sciences in 2007, including Allen Gibbs, Eduardo Robleto, Michelle Elekonich, Stephen Roberts, Jeff Shen, Deborah Hoshizaki, Stan Smith, and Scott Abella.

“Sustainability: Focusing on Quality of Life,” includes a profile of Dale Devitt, professor in the School of Life Sciences and director of the Center for Urban Horticulture and Water Conservation.

Professor Eugene Smith is also profiled in an article on recent recipients of the Harry Reid Silver State Research Award.

A feature on recipients of President’s Research Awards, entitled, “Investment in Research,” includes reports on projects deigned by faculty members Adam Simon, Eugene Smith, and Rod Metcalf: “Exploring the Dynamics of Volcanic Eruptions;” Michelle Elekonich and Stephen Roberts: “Effects on Activity on Aging, Longevity, and Muscle Function;” and Helen Wing, Ernesto Abel-Santos, and Eduardo Robleto” “Support for Graduate Projects Focusing on Microbial Interaction with Plant and Animal Cells.”

“Research and Reputation,” details recognition awarded the colleges of science and engineering for their remarkable growth in faculty publications, as documented in a National Science Foundation (NSF) study. *Science*, the preeminent publication in its field, published a synopsis of this NSF report, which noted that the two UNLV colleges demonstrated the fourth largest growth in scientific publications (99 per cent) from 1992-2001.

Las Vegas Reveals the Riches of Geologic History

The Geological Society of America has published a new field guide for the southwestern United States area surrounding Las Vegas, Nevada, co-authored by geoscience professor Eugene Smith. Las Vegas lies at or near several significant geological localities, including Lake Mead, the boundary between the Colorado Plateau and the Basin and Range, Death Valley, the Mojave Desert, the Colorado River, and Valley of Fire State Park. The book's eleven trip guides provide road logs and analysis of the area's rich geologic record. The guide, prepared in conjunction with the 2008 joint meeting of the GSA Cordilleran and Rocky Mountain Sections, spans ancient to present geology, covers ground from the middle crust to the surface, and includes studies of tectonics, paleontology, volcanism, and glaciation.

Field Guide to Plutons, Volcanoes, Faults, Reefs, Dinosaurs, and Possible Glaciation in Selected Areas of Arizona, California, and Nevada. Ernest M. Duebendorfer and Eugene I. Smith. Geological Society of America Field Guide 11, 2008, 262 pages, ISBN 978-0-8137-0011-3

2008 Wolzinger Family Research Scholarship

Elana Paladino, School of Life Sciences
Graduate Student, Molecular Biology and Genetics
Faculty Advisor: Professor Andrew J. Andres
Expected Date of Graduation: Fall 2010

Tell us a little about your life before coming to UNLV - where you grew up, your family life, what interests did you have, academically and other wise?

My family is originally from the east coast and I was born in Alexandria, Virginia. We moved to San Diego, California when I was 5 years old. My family is very close, and our family would plan summer vacations in various parts of the United States. Originally, we began spending vacations in Las Vegas during the city's family-oriented years of the 1990s. It was like a dream coming to visit this desert oasis. I never wanted to leave, and I was excited when my dad announced that we would move here. I have been a Las Vegan since 1992, and I spent my middle school years at the James Cashman and Grant Sawyer Middle Schools, where teachers ignited my interest in academics.

I was privileged to attend Durango High School from 1994-1998, only three years after it opened. Ms. Mary Pike stimulated my scientific interests with her freshman biology course and I truly enjoyed my literature courses with teachers such as Mr. Sassenberg, Mrs. Noreen, and so many others. I had a passion for academics and hard work such that I became one of three valedictorians by the time I graduated.

I then attended UCLA in Westwood, California, on a full scholarship, and earned a B.A. degree in linguistics and psychology in part because I was drawn to languages and I was also interested in my father's work as a psychiatrist.

How did you end up attending UNLV?

After graduating from UCLA and returning home, I planned to pursue a graduate degree at UNR in speech pathology. I realized that I needed to take several biology and anatomy classes as prerequisites, and I enrolled at UNLV as a non-admitted student in Professor Andy Andres' Cell Biology class. I then realized that I never really wanted to be a speech therapist or pathologist, and Professor Andres' infectious excitement for cell biology and molecular genetics was "contagious." I asked professor Andres for a research position in his lab, and he agreed. This work led me on my current path to earn a Ph.D. in biology from the School of Life Sciences. Most recently, I am proud to have passed my qualifying exam, proving that I am worthy of moving forward in the program.

Please tell me about your research, including how you became involved in this field? What are the possible benefits/outcomes of your research?

I am intrigued with cell and molecular biology and genetics. I think this is due to the fact that the biomedical significance of such research is enormous. We are the scientists whose work forms the foundation for what is known about fundamental cell biology. Using *Drosophila melanogaster*, the fruit fly, as a model organism, I began studying steroid hormone action. Specifically, the intriguing

question of my research is, “How does one, ubiquitous hormone bring about such different physiological responses in each tissue?” To answer this question, we genetically manipulate the larval salivary gland such that we can analyze the effects of hormone-signaling in this specific tissue. Specifically, I am working with a gene named E23 that is “turned on” by the hormone. It is an ABC transporter, and we hypothesize that it is transporting the very hormone we are studying extracellularly.

The implications of this research are tremendous. First, within the field of *Drosophila*, this transporter may help to explain the mechanism of tissue specificity to the hormone. Second, within the broader spectrum, understanding how this transporter works will lead to better insight into how higher metazoan transporters function, especially those specific to pumping steroids outside of cells.

What are your favorite/most important memories of UNLV and Las Vegas? People you have met, places you enjoy, classes you took...

Because I have lived in Las Vegas for such a long time, I have so many fond memories. I have had the pleasure of meeting Senator John Ensign in 1997 or 1998 when he was first running for office, as well as other political leaders in our state such as former governor Kenny Guinn.

Some of my fondest memories come from attending the Las Vegas Stars’ (now 51s) baseball games at Cashman Field with my mom and siblings, and more recently, attending the college baseball games at UNLV with my biology compatriots.

UNLV is a university with so much energy and potential. That is one of the reasons why I decided to stay in the School of Life Sciences for my Ph.D. I am working with a brilliant scientist and educator (Dr. Andy Andres), and I have made so many lasting friendships with students on campus.

I have learned that I really enjoy teaching, and I currently a member of the Teaching and Learning Center’s Graduate Student Professional Development Program in College Teaching. Under the guidance of Dr. Leora Baron, I am learning the essential skills to becoming an effective educator.

How will this scholarship help your studies?

This scholarship is a lasting investment in not only my future but in the future success of UNLV. I am honored to be selected for such a prestigious award, and believe that by offering these endowments, UNLV is achieving the highest standards of research institutions throughout the United States. I am invested in UNLV’s future and plan to use the money from this scholarship to further my research goals by eliminating the burden and worry of finances. I will rigorously set and achieve goals during the funding period, so that I can thrust forward with my research and unravel some of the mysteries of my transporter.

What would people be surprised to know about you?

People will be surprised to know that I never earned an undergraduate science degree. Those closest to me have always associated me with humanities and the social sciences, but I have fooled them. My love is biology and there it will always be.

Users' Meeting of the Advanced Photon Source – Invited Student paper

Ms. Elizabeth Tanis, a second-year graduate student, presented an invited talk on May 8, 2008 at the Users' Meeting of the Advanced Photon Source (Argonne, IL) in a Workshop on Scientific Applications of Nuclear Resonant Scattering. The related experiments were performed at both the Advanced Photon Source and at the European Synchrotron Radiation Facility (Grenoble, France) in Fall 2006.

Abstract: Determination of the lattice dynamics of Sn at high pressure has represented a major experimental challenge and eluded previous attempts. The first successful measurement of the phonon density of states of Sn at high pressures up to 64 GPa using nuclear resonant inelastic x-ray scattering will be presented. The experiments were performed in conjunction with density functional theory calculations and are in excellent agreement. The results of this combined experimental and theoretical study establish reliable phonon density of states of Sn at various high pressures. It makes possible an accurate description of its thermodynamic properties that are of great importance and interest in high pressure research.

Related to this talk is a highlight of APS Science from July 13, 2007 at:
http://www.aps.anl.gov/Science/Highlights/Content/APS_SCIENCE_20070712.php

UNLV Student Attends Arizona REU Program

Denny Scaria a UNLV undergraduate majoring in biology with an emphasis on integrative physiology will be studying at the University of Arizona this summer. Scaria was selected to participate in the REU Programs at Arizona, similar to the program offered here at UNLV. These NSF-funded programs offer undergraduates the opportunity to study with leading scientists and researchers around the nation.

Denny will miss a few people and places at UNLV as he explores the University of Arizona this summer. He placed Lied Library at the top of his list, “My favorite thing about UNLV is the Lied library. I get most of my work done when I am at school and the library is a great place to hang out.” With respect to his classes, Denny mentioned, “My favorite instructor would be Professor Scott Tenney in the English Department. I am in his English 102 class this Spring. This class has taught me a great deal, and has changed my mode of thinking. I also enjoy my Organic Chemistry class with Professor James Worman. The class has never been boring, and the material is taught in a way that relates to practical and real world situations, and Professor Paul Schulte (BIOL 197) with the School of Life Sciences been really helpful throughout the semester.

At the University of Arizona, Denny’s faculty mentor will be Professor Roger Meisfeld and he will engage in research on either lipid metabolism (with Dr. Zamora) or protein metabolism (with Dr. Guoli Zhou) in *Aedes aegypti*.

It is clear that Denny manages to enjoy his learning opportunities, yet he keeps a careful eye on his future, noting that “graduate school and medical school are definitely prospective destinations.”

WHO LET THE BIGDOG OUT? Robot scares some, but is thing of beauty to professor,”

By LAWRENCE MOWER , REVIEW-JOURNAL, May. 11, 2008

Like the dawn of artificial intelligence, the arrival of the BigDog robot -- the most advanced robot on the planet -- creeps people out. On YouTube, where videos of the robot performing maneuvers that would dislocate the joints of man or beast have become an Internet sensation, the majority of comments fall into the "good God that robot is scary as hell" category.

You can credit UNLV assistant professor David Lee for that.

A mad scientist or villain the mild-mannered 34-year-old Lee is not. But it was his calculations and modeling related to goats and other four-legged animals that led to the lifelike manner of the robot. Lee was a doctoral student in biomechanics at the University of Utah five years ago when he got the call from Harvard University and the advanced robotics company Boston Dynamics to work on the BigDog project. Five years later, the Defense Department-sponsored project is stretching the boundaries of people's perceptions of robots. BigDog is so lifelike that it makes Asimo, the cute humanoid robot Honda Motor Company made famous by its ability to perform dance routines, look like an expensive child's toy.

Full Text: <http://www.lvrj.com/news/18841479.html>

“With that pay, no way, many would-be graduate students tell UNLV, Las Vegas Sun, By *Charlotte Hsu*, May 11, 2008

“A recipe for poverty,” one student called it. Not something to flaunt, professors agree.

The scant pay UNLV gives its best graduate students to teach and research seems contrary to administrators’ stated goal of transforming their institution into a premier university.

For nine months of work, UNLV doctoral candidates typically get \$12,000. Master’s students get less.

Faculty members say those skimpy sums are part of the reason UNLV often loses to other universities in the tussle for the nation’s best graduate students. Some schools pay twice as much as UNLV does. And in academia, where the reputation of a university rises and falls with the quality of the researchers and scholarship it produces, UNLV’s funding situation is bad news.

The problem is so acute that fixing it tops a list of priorities that emerged from a yearlong planning process at UNLV, President David Ashley said.

As a result, he added, administrators are looking to set aside more money for graduate stipends in the next biennium, even in the face of a budget crunch. Departments could use the extra dollars to raise the number of scholars they fund or to boost scholars’ pay.

About one in four faculty members who work with graduate students signed a petition asking Ashley to devote \$4 million to \$5 million more per year to graduate pay, said geoscience Associate Professor Andrew Hanson, who has been gathering signatures for about three months.

“Without such funding, graduate education at UNLV will suffer and decline instead of improving and growing as we believe it should,” the petition states.

Donna Weistrop and David B. Shaffer Scholarship

Professor emeritus Donna Weistrop and her husband, offer an annual scholarship to a qualified graduate students majoring in one of the following physical sciences: physics, astronomy, chemistry, or geoscience. A faculty committee selects the deserving student. This year's recipient, Janice Morton, offer this information on her life and career at UNLV.

Janice Morton, Ph.D. Student, Geoscience Department

I grew up in rural northeastern Kansas and spent summers on my grandparents' farm. I am the oldest of seven children (five boys and two girls). I met my husband at school in Atchison, Kansas and we first moved to Denver, Colorado and later to Las Vegas. As you can tell, I am a nontraditional student. I have two daughters. Now that the girls are older and in college, we are usually together as a family during holidays and school breaks. This works out well for me as then I can concentrate on my own studies. My research interests center around soil development and soil quality and how future climate change may affect arid soils. I am particularly interested in prevention of desertification caused by rangeland mismanagement. For recreation, I love to hike in natural parks and recreation areas, travel, and read (I'm addicted to British mysteries).

I initially came to UNLV to finish my bachelor's degree. At that time, my daughters were in elementary and middle school. I worked part time, went to school part time, and took care of my family. I came back to UNLV for my graduate studies (after discussion with my husband) and obtained my Master of Science in Health Physics with an Environmental Emphasis. As one of my electives, I took a soil science class from Brenda Buck. I was hooked and I took a second soils class from her the following year. Brenda served on my master's committee and was instrumental in my acceptance into the Geoscience Ph.D. program, with a soil science emphasis.

I have always been interested in environmental science. I have studied archaeology, environmental health physics, and soil science because I enjoy learning about how humans interact with their environment. My grandparents were totally reliant upon the land to provide their livelihood. There are many people throughout the world in this same situation. This makes understanding and managing soils very important. Mismanagement of soil resources has led to land degradation and desertification in many parts of the world. This is especially prevalent in arid lands. Research into soil development and soil quality in arid lands and arid land management can help us to learn how to prevent or even reverse land degradation.

Some of my most memorable times at UNLV took place as an undergraduate. There were several nontraditional students in my department and we supported each other. I have enjoyed several very interesting classes, and Near East Prehistory from Dr. Simmons in Anthropology and Soils Applications of the Paleolithic and Neolithic with Dr. Buck are among my favorites. In Soils Applications class, very few of the students had any soils experience and we went out to Death Valley on a class field trip. We dug soils pits and learned how to describe soils. Brenda divided us into groups and each group dug a pit on a different terrace. My group had the lowest terrace and consequently the greatest amount of calcium carbonate buildup. My first experience of digging a soil pit is with a rock pick. It was very hard work but very cool, also.

I will use this scholarship to support my ongoing research and to pay for soils analyses. Our soils lab is still in the developmental stages and we do not have all the needed equipment yet to perform soil chemical analyses.

Being a nontraditional student is not easy and sometimes uncomfortable and I certainly don't fit in among the other students. I decided to pursue my Ph.D. because I felt it would help me accomplish my goals of helping others protect the land.

Faculty Publications

Professor Michael Wells, chair of the geoscience department, is co-author of “The Role of Mantle Delamination in Widespread Late Cretaceous Extension and Magmatism in the Cordilleran Orogen, Western United States,” *Geological Society of America Bulletin*, Volume 120, Issue 5 (May 2008), pp. 515–530. This publication is the most downloaded article in the current issue.

Abstract: Extension during plate convergence and mountain building is widely recognized, yet the causes of synconvergent extension remain controversial. Here we propose that delamination of lithospheric mantle, aided by decoupling of the crust from the mantle via a reduction in the viscosity of the lower crust through heating, incursion of fluids, and partial melting, explains many enigmatic yet prevalent aspects of the metamorphic, magmatic, and kinematic history of the Sevier-Laramide orogen of the western United States during the Late Cretaceous. Extension, heating, anatexis, magmatism, and perhaps rock uplift were widespread during a restricted time interval in the Late Cretaceous (75–67 Ma) along the axis of maximum crustal thickening within the Mojave sector of the Sevier orogen, and to a lesser extent within the interior of the Idaho-Utah-Wyoming sector to the north; similar processes may have been active in the Peninsular Range, Sierran, western Mojave, and Salinian segments of the Mesozoic Cordilleran arc. These processes are viewed as predictable consequences of the thermal, rheological, and dynamic state of the overlying crust following delamination of mantle lithosphere beneath isostatically compensated mountain belts. The proposed delamination would have occurred immediately prior to eastward propagation of low-angle subduction of the Farallon plate during the inception of the Laramide orogeny. Following delamination, extension and anatexis of the North American crust were aided locally by egress of slab-derived fluids from the low-angle Farallon slab. We suggest that lithospheric delamination may have aided in the shallowing of the slab to achieve low-angle subduction geometry. Delamination has been proposed to be common in areas of thickened continental lithosphere in the terminal phase or late in orogenesis. The Late Cretaceous delamination event proposed here for the Sevier-Laramide orogen occurred during protracted plate convergence and was synchronous with, and followed by, continued shortening in the external part of the orogen.

Visitors to Chemistry Department

Assistant professor of chemistry Clemens Heske provided a talk and tour of his laboratory to a group of approximately 20 AP Chemistry students from Basic High School in Henderson. In addition, on Saturday, June 7, 2008, he will provide a tour for members of the Red Burro Racing Team, an amateur bike racing team that plans to visit at 7:00 a.m. that day. With the early arrival time, the racing bikes should be back on the road again before many of us arrive on campus.

SaBR (Systematics and Biogeographic Research)

SaBR (Systematics and Biogeographic Research) is a graduate student-led group at the School of Life Sciences (SoLS). SaBR members are interested in uncovering evolutionary patterns and processes of the Earth's biotas. The group serves as a forum for exchanging ideas, eliciting arguments, learning analytical methods, and incorporating ecological concepts into an explicit historical context. This dynamic group holds weekly meetings where members present their research and lead tutorials on the latest software packages and methodological trends in biogeography, phylogenetic and phylogeographic theory, and population genetics. SaBR is run by graduate students, and the group enthusiastically welcomes all researchers interested in participating in their discussions.

Please visit SaBR's website (URL below) for additional information about the group.

<http://complabs.nevada.edu/~jezkovat/sabr/index.html>

The website is designed, and maintained by Tereza Jezkova a Ph.D. candidate in Dr. Brett Riddle's laboratory.

SaBR is an organization conceived, established, and run by students, and represents one more example of the initiative and determination of graduate students in the School of Life Sciences to advance the educational and research missions of our academic unit.

Revised Bylaws

The revised College of Sciences Bylaws are available at:

http://sciences.unlv.edu/pdf/2008_COS_Bylaws.pdf

In Memoriam

”Educator Donald Baepler dies: Ex-UNLV president was acting president of medical examiners board,” by Lawrence Mower and Annette Wells, *Las Vegas Review Journal* , May 28, 2008.

Donald H. Baepler, secretary-treasurer and acting president of the Nevada State Board of Medical Examiners, died Monday morning after being diagnosed with lung cancer last year. He was 75. Baepler, an ornithologist by education, also served as president of the University of Nevada, Las Vegas and chancellor of the Nevada System of Higher Education during the late 1960s and throughout the 1970s.

"I would describe him as a Renaissance man," medical board Executive Director Tony Clark said. "He knew a lot -- a lot -- about the practice of medicine. And he could talk about the stock market, and politics, and the university system, and education in general. You name it, and Don knew something about it."

Clark said Baepler's passing won't affect the board's investigations into whether to suspend or revoke the licenses of several Las Vegas Valley doctors linked to an outbreak of hepatitis C at endoscopy clinics. Baepler was named acting president of the board after President Javid Anwar and Vice President Sohail Anjum recused themselves from their positions because of conflicts.

Gov. Jim Gibbons is responsible for appointing a replacement for Baepler on the nine-member board, Clark said. "He (Baepler) brought a great sense of integrity and decency to the medical board," said Don Havins, chief executive officer of the Clark County Medical Society. "He was quite dedicated." Even though he was battling lung cancer, Baepler continued his duties as treasurer of the medical board, Havins said. During the board's last meeting, Baepler listened in from his home phone. "He sounded good on the phone," Havins said. "His voice sounded quite strong." Even last week, Baepler tried to answer a Review-Journal question for a story. Eventually, Baepler said he couldn't speak and hung up.

Betts Baepler said her husband kept working right until the end. "All he would say is, 'If I could just get my throat to stop hurting,'" she said. "All last week he was making phone calls and meeting with people. He wasn't going to give up." Havins said Donald Baepler "smoked like a chimney" and could often be seen smoking during medical board meeting breaks.

Baepler oversaw a period of transformation at UNLV. As acting president of the school from 1968 to 1969, Baepler persuaded the Board of Regents to change the name of Nevada Southern University to UNLV. He later assumed the permanent post at the university in 1973, overseeing the creation of the graduate school and the construction of Artemus W. Ham Hall and the Paul McDermott Physical Education Complex.

When he was the university's vice president, Baepler was instrumental in wooing coach Jerry Tarkanian to the school in 1973, according to "UNLV: A History," by UNLV professor Eugene Moehring. With Tarkanian leading the UNLV basketball team, the Runnin' Rebels would go on to have four Final Four appearances and win one national championship.

Baepler resigned in 1978 to serve as university system chancellor until 1980. Afterward, he went on to found the Harry Reid Environmental Research Center at UNLV and direct the Barrick Museum of Natural History. He was a "very smart man -- one of the smartest I've ever met," said Larry Lessly, who had been friends with Baepler since 1976, when Lessly was vice chancellor for legal affairs for the university system.

"He was one of the guys who could accomplish more in an hour at 7:30 in the morning than most people could in an entire day," Lessly said. Baepler is the second UNLV president to die this year. Donald C. Moyer, president between 1965 and 1968, died in April. Betts Baepler said an upcoming service for her husband would not be open to the public.

Chemistry Seminar

On Friday, May 16, 2008 Professor Kevin Plaxco, Department of Chemistry, University of California - Santa Barbara presented a seminar entitled "Better Living Through Biosensors."

Abstract: The ideal sensor will be sensitive, specific, versatile, small enough to hold in your hand, and selective enough to work even when faced with complex, contaminant-ridden samples. Given the affinity, specificity and generalizability of biomolecular recognition, biosensors have been widely touted for their potential to meet these challenging goals. To date, however, the translation of protein- and DNA-binding events into convenient, highly selective sensing platforms has proven problematic. We have solved this problem by employing the ligand-induced folding of proteins, peptides and DNA as a robust signal transduction mechanism. Our folding-based sensors are rapid (minutes to seconds), sensitive (micromolar to femtomolar), fully electronic, and generalizable to an enormous range of protein, nucleic acid and small molecule targets. The sensors are also reagentless, greater than 99% reusable, and selective enough to be employed in (and re-used from) blood, soil and other grossly contaminated materials. Because of their sensitivity, background suppression, operational convenience and impressive scalability folding-based biosensors appear ideally suited for electronic, on-chip applications in pathogen detection, proteomics and genomics.

Mathematical Colloquium

On Friday, May 2, 2008, Dr. Kaushik Ghosh (UNLV) offered a seminar entitled "Joint Modeling of Longitudinal Data and Informative Dropout in the Presence of Multiple Changepoints."

Abstract: In longitudinal studies of patients with the Human Immunodeficiency Virus (HIV), objectives of interest include modeling of individual-level trajectories of HIV Ribonucleic Acid (RNA) as a function of time. Empirical evidence suggests that individual trajectories often possess multiple points of rapid change, which may vary from subject to subject --- both in number and in location. Presence of such changepoints make the modeling of individual RNA levels difficult, since usual methods become unsuitable.

In this talk, we present a new robust multiple-changepoint model for longitudinal data as well as from informative dropouts, which are common in such studies. A Dirichlet process prior is used to model the distribution of the changepoints. The Dirichlet process leads to a natural clustering, and thus, sharing of information among subjects with similar trajectories. A fully Bayesian approach for model fitting and prediction is implemented using the Gibbs sampler on the ACTG 398 clinical trial data.

On Friday May 9, 2008 Dr. Long Chen, UC-Irvine offered a talk entitled, "High Order Finite Volume Methods for Second Order Elliptic Equations."

Abstract: Finite volume methods are an important class of discretization methods since the conservation law is locally preserved, and its capability of discretizing complex geometry domains. However it is limited by low order approximation since most finite volume methods use piecewise constant or linear function space. In this talk, a new class of high order finite volume methods for second order elliptic equations is developed by combining high order finite element methods and a linear finite volume method. Our new method is modified from a hierarchical basis finite element method.

On Monday, May 12, 2008, the Center for Applied Mathematics and Statistics (CAMS) hosted Vincent J. Ervin, Department of Mathematical Sciences, Clemson University, who offered a talk entitled, "Coupled Fluid Flow with Flow through a Porous Media."

Abstract. In this presentation we will discuss the mathematical formulation for fluid flow coupled with flow through a porous media. Degenerate boundary conditions (flow rates specified) will be considered. Existence and uniqueness results for the solution of the continuous and discrete variational formulations will be shown.

Upcoming Seminars

The College of Sciences has established a listserv to better publicize and promote scientific seminars offered throughout the academic year. For more information on upcoming seminars and to subscribe to the listserv, please visit: <http://cmse.unlv.edu/seminar/>.

Submit Your News Stories

The College of Sciences E-Newsletter is published on or about the first of each month. Please submit news items via email by the fifteenth of each month, for consideration. You may send your submissions to: Bill Brown, Director of Planning and Communication (william.brown@unlv.edu).