

Spring 2010

## HRC eNews – 2010 Spring

Megan K. Svarz

*University of Nevada, Las Vegas*, [megan.svarz@unlv.edu](mailto:megan.svarz@unlv.edu)

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# UNLV | HARRY REID CENTER

HRC eNews — 2010 Spring

## .....ACCOMPLISHMENTS/ANNOUNCEMENTS:.....

Thank you for all who participated in Bring Your Child to Work Day! The museum was filled with children in the hundreds listening to stories, painting masks, and learning about Nevada wildlife! Congratulations, museum staff, on a successful event!

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**Paula Garrett** has two photographs in the current issue of *Orchid Digest*. The article is about native orchids in Nevada. The arboretum at UNLV has given several tours of the native orchids for the public over the years. You can find an excerpt at <http://www.orchiddigest.com/orchiddigest-74-2.html#3> or <http://www.orchiddigest.com/current.html>.

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The radiochemistry program is hosting its first-ever summer school — The Nuclear Fuel Cycle. Twelve undergrad students will be coming from universities across the U.S., including University of Oregon, Texas Southern, Renneslaer, Purdue, and MIT. Students were required to apply for the program and were admitted based on their rankings within the pool. Twenty-three qualified students applied.

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HRC faculty, staff, and students organized, executed, and participated in the 2010 Topical Meeting of the American Nuclear Society Radiation Protection and Shielding Division. RPSD 2010 took place April 19–23 at the Palace Station Casino/Hotel. Members of the Organizing Committee who are from the HRC included:

- Dr. Anthony Hechanova, general chair
- Dr. **Denis Beller**, co-chair
- **Steven Curtis**, co-chair
- Brittany Presley, publications chair
- **Jamie Warburton**, liaison, UNLV Student Section of the ANS (organized activities of more than 20 student volunteers)
- **Sherry Faye**, liaison, UNLV Student Section of the ANS (organized activities of more than 20 student volunteers)

The conference featured honorary chair Dr. John Ruckdeschel, director/president/CEO of the Nevada Cancer Institute, and prominent professionals from several disciplines related to radiation modeling and shielding, nuclear medicine, and cancer therapy. It also included daily tours of the Harry Reid Center, an evening tour/reception at Varian Medical and Security Technologies (a conference sponsor), a tour/luncheon at the Atomic Testing Museum, and a tour of the Nevada Test Site. Other sponsors included Los Alamos National Laboratory, the ANS Radiation Protection and Shielding Division, UNLV HRC, and TechSource Inc.; exhibitors included Oak Ridge National Laboratory and Transpire Inc.

Advance reservations were made by more than 200 scientists, engineers, physicians, and medical physicists from 18 nations and 30 states; however, the volcano in Iceland forced many

from Europe to cancel their travel plans. In spite of the volcano, the conference was well attended and included many presentations of important technical research and development.

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The Nuclear Materials Group (lead: Dr. Thomas Hartmann) has established a formal collaboration with the Bigelow Aerospace Advanced Space Studies (BAASS). This collaboration provides analytical assistance to BAASS for characterizing solid phases and precipitates.

The Nuclear Materials Group contributed to a joint publication with INL researchers:

D.E. Burkes, J.R. Kennedy, T. Hartmann, C.A. Papesch, D. Keiser Jr.: "Phase Characteristics of a Number of U–Pu–Am–Np–Zr Metallic Alloys for Use as Fast Reactor Fuels," *Journal of Nuclear Society*, 396(1), 49-56.

Abstract

Metallic fuel alloys consisting of uranium, plutonium, and zirconium, with minor additions of americium and neptunium, are under evaluation for potential use to transmute long-lived transuranic actinide isotopes in fast reactors. A series of test designs for the Advanced Fuel Cycle Initiative (AFCI) have been irradiated in the Advanced Test Reactor (ATR), designated as the AFC-1 and AFC-2 designs.

A link to the article may be found here: <http://tinyurl.com/282eb74>

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*The New York Times* just broke the story on the discovery of element 117:

<http://www.nytimes.com/2010/04/07/science/07element.html>. The article identifies UNLV as one of the collaborators on the experiment. The UNLV role was 100 percent funded by the TRP and managed by the HRC. Press releases from LLNL and UNLV will be forthcoming. The paper was accepted for publication in PRL and should come out before the end of April.

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The HRC has partnered with the School of Life Science, Infomatics, and the GIS Laboratory to research the sensitive butterfly species located on Mount Charleston. The award is for approximately \$480,000, with work commencing soon. HRC employees

**Scott Page, Amy Smiecinski, Rebecca Paulson, Gretchen Andrew, Haroon Stephen, and Paula Garrett** will be involved with the project.

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**Leisa Rodriguez** was nominated for the 2009–10 President's Professional Staff Member of the Year award. The nomination is considered an honor and is a mark of distinction for a job well done. Congratulations on the nomination, Leisa!

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**Ken Czerwinski** received funding for several projects, including:

- Radiochemistry Fuel Cycle Summer School — June 7 through July 16, 2010. The program is sponsored by the Department of Energy. UNLV awarded \$250,000.
  - Radiochemistry Nuclear Forensics Summer School — May 24 through June 18, 2010. The program is sponsored by the Department of Homeland Security and organized by Los Alamos and Lawrence Livermore National Labs as well as UNLV. UNLV awarded \$155,000.
  - "Production and Characterization of the Fe-Tc Alloys" by the Pacific Northwest National Lab — \$50,000.
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**Oliver Hemmers** is the lead PI on a NASA grant titled "Gravity Insensitive Solid-Gas Sorption Climate Control System." Co-PIs Drs. Chen and Ma are working with Boulder

City-based company Rocky Research on developing and modeling a gravity-insensitive and low-noise space cooling system for human space flight as well as space and lunar stations — \$750,000.

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**Denis Beller's** proposal to Idaho National Lab for a summer visit was approved late last month. The proposal was for a Faculty-Student Research Team (FSRT) to support his recently awarded proposal titled "Development and Validation of an ATR-C Radiation Transport Model." ATR is the Advanced Test Reactor, a real high-power critical nuclear reactor at INL, and ATR-C (Critical) is the zero-power version of it that is used to verify criticality safety before experiments are inserted into the ATR.

INL uses this program to bring teams of a faculty member and at least two students to Idaho to conduct research and to introduce the students to INL for potential future jobs. The INL visit will be for 10 weeks, and the funding will provide half-time salary for Denis and salary and limited travel for a doctoral student and an undergraduate. Doctoral student Kimberly Clark has agreed to join Denis to begin developing the nuclear criticality benchmark model of the ATR-C. The project will provide about \$62,519 in funding for this summer and is anticipated to start before June 1. This is another addition to the HRC's growing Nuclear Criticality Safety program.

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Two senior design teams have started projects to develop radiation detectors in support of the Materials Protection, Accounting, and Control for Transmutation campaign of the Department of Energy's Fuel Cycle R&D Program. One will design, fabricate, construct, and test a fission chamber neutron detector system for measuring fast neutrons emitted by used nuclear fuel assemblies in a recycling plant. The other team will design, fabricate, construct, and test a scanning alpha-particle spectrometer for assessing the purity and uniformity of fissionable deposits on thin metal foils.

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The HRC, in cooperation of the UNLV Department of Civil and Environmental Engineering, has been awarded a \$298,000 contract with the Nevada Department of Environmental Protection's Bureau of Safe Drinking Water to conduct a statewide assessment of public drinking water wells and to investigate the vulnerability of these sources to contamination. Participants include Dr. Craig Palmer and Scott Page from HRC, Dr. **Haroon Stephen** from the UNLV GIS Core Laboratory, and Dr. **Jaci Batista** from Civil Engineering Department. Civil Engineering graduate students John Swatzell, Arjun Venkatesan, Christine Cobb, and Regina Davis will conduct the field investigations.

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The museum's last exhibition was mentioned in the art blog, Curated:  
<http://www.curatedmag.com/news/2010/02/17/free-range/>

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**Melanie Coffee** has been accepted into the Museum Studies Graduate Program at the University of Leicester.

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**Aurore Giguet** is now a peer reviewer for the American Association of Museums — Museum Assessment Program.

.....EVENTS:.....

**Barrick Museum Lecture Series Will Spotlight Current and Emerging Renewable**

## **Energy Research with Nevada System of Higher Education Faculty**

Researchers from each of the three partner universities and local experts will spotlight current and emerging research in the areas of alternative energy, hydrogen and biofuel production, and urban sustainability.

Each lecture is free and open to the public and will be held from 7:30 to 8:30 p.m. in the Barrick Museum Auditorium at UNLV. The lineup for April is included below. For more information, please visit <http://barrickmuseum.unlv.edu>.

### **April 6**

#### **The Copenhagen Protocol: The View From Las Vegas — Problems, Possibilities, and Shifting Paradigms in Sustainable Urbanism**

Robert Dorgan — Associate Professor, School of Architecture, UNLV

The rapidly growing city of Las Vegas, Nev. — with more than 2 million residents, 40 million annual tourists, and an acute desert climate — provides one of the most compelling design laboratories in the world. This lecture re-examines well-known strategies of sustainable urbanism in practice today and explores the unique ways in which these strategies are practiced in the Las Vegas Valley.

### **April 13**

#### **Biological, Chemical, and Engineering Research to Study the Viability for an Algal Biofuel Economy in Southern Nevada**

Jian Ma — Research Assistant Professor, College of Engineering, UNLV

Biofuels derived from algae have the potential move the nation ever closer to energy independence. Biofuels from microalgae have many merits, such as significant high oil productivity, CO<sub>2</sub> recycling, and nonfood-based feedstock sources. Join us as we discuss the research behind the technical challenges of this new resource and look ahead to the potential of long-term production.

### **April 20**

#### **Making Your World Better Through Ground Source Heat Exchange**

Gregory P. DeSart — President/Owner, Geotechnical and Environmental Services Inc. A Ground Source Heat Exchange (GSHE) system is a heating and/or air-cooling system that uses the Earth's ability to store heat in the ground and water thermal masses. The presentation will discuss the different types of GSHE as well as the pros and cons, the benefits of GSHE, payback, determining if GSHE is right for a project, local projects in which GSHE was installed, and what the stimulus package has set aside for GSHE, as well as tax credits and incentives.

### **April 27**

#### **Hydrogen: Fuel of the 21st Century?**

Dr. Paul M. Forster — Assistant Professor, Department of Chemistry, UNLV

There are serious environmental and political reasons to move away from fossil fuels. One option receiving serious consideration is hydrogen. This talk will summarize the technical challenges associated with using hydrogen. Specifically, it will explore the production, distribution, storage, and combustion of hydrogen as a fuel, focusing on vehicular applications.

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Scott Page and Paula Garrett will lead their third birding-focused field trip May 22, 2010, at Corn Creek Field Station at Desert National Wildlife Refuge just north of Las Vegas. Bring your binoculars, lunch, water, and comfortable walking shoes. A limited number of binoculars, spotting scopes, and field guides will be provided. Be prepared to walk approximately one mile over trails at the refuge. Travel will be in a comfortable motor

coach. You may register with a credit card online by visiting <http://edoutreach.unlv.edu> or over the phone by calling 895-3394 between 8 a.m. and 5 p.m., Monday through Friday.

Course code: 101EX1128

Date/time: Saturday, May 22, 7 a.m. to 3 p.m.

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Opening Reception and Lecture

March 19

Artists Lecture, 6 to 7 p.m.; Artists Reception, 7 to 8 p.m.

The Art of Nature: Images from the Wildlands of Southern Nevada

Sharon K. Schafer is an accomplished fine artist and photographer. Through her photographs, paintings, and field sketches, Schafer invites us to explore the stunning natural beauty of Southern Nevada's wildlands. Southern Nevada is a land of great contradictions and contrasts. It is at once austere, enchanting, and secretive. It is a land of mystery ... a land of contrasts and contradictions ... a land of great beauty and little rain. A glimpse of the hidden beauty and grace of nature can change a viewer. By looking at these images, I hope the viewer comes away with a different perspective — no longer seeing the public lands of Southern Nevada as a desert wasteland but rather as a place of unparalleled natural beauty and diversity that is deserving of our care and concern. Schafer now resides in Boulder City, Nev., where she owns and operates Skydance Studio. The studio specializes in beautifully artistic yet scientifically accurate images that appeal to the art collector and the environmental educator alike.

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Free Yoga Tuesdays

We're happy to announce that our yoga series is starting up for the spring semester. As always, the classes are free and open to the public. The classes are held in our exhibit hall from 12:10 to 12:50 p.m. every Tuesday, Jan. 26 through May 18. All you need to do is bring your own mat, comfortable clothing, and some water. No reservations required.

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Tuesday March 23, from 10 a.m. to 2 p.m. in the museum exhibit room. Come down to the Barrick Museum, where you can partake in the modern-day "bloodletting" by donating a unit of blood. Not only will you be helping out your community, but you can also have your blood type and cholesterol tested for FREE! If anyone wants to make an early appointment, they can visit [www.bloodhero.com](http://www.bloodhero.com) and enter the sponsor code UNLV to find us specifically. Walk-ins are welcome. If there are any questions, please contact Lisa Anderson at ext. 51442 or e-mail her at [lisa.anderson@unlv.edu](mailto:lisa.anderson@unlv.edu).

**.....NEW FACES:....**

Billie Drake started in April, providing part time assistance with financial/accounting-related duties.

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Student worker Amara Collins is the friendly new face tending the lobby front desk. She joined us mid-March.

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Denise Kelly, a new 1,000-hour appointment employee started on Feb. 22. She will be assisting Hallie and Leisa with accounting functions.

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In February, we welcomed a new postdoctoral scholar, Dr. Dan Koury. Dan received his master's and doctoral degrees in physics from UNLV. His undergraduate work was at Florida

Southern College. He is originally from Holbrook, in the White Mountains of northern Arizona.

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Varun Bandrupalli (graduate student) and Christopher Mason (undergraduate) were recently hired to assist on NPS database projects being worked on by the CERP group.

**.....OF INTEREST.....**

The UNLV Arboretum was recently mentioned in *The View* newspaper:

<http://www.viewnews.com/2010/VIEW-Mar-30-Tue-2010/SEast/35018270.html>

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Call for Proposals — Nevada Renewable Energy Consortium Lecture Series

Renewable Energy Workforce Training and Education Project Proposals are invited for public presentations for our inaugural spring/summer lecture series. The project will fund speakers from both outside and within the campus communities. The project will award a \$300 stipend to any colleague who makes a presentation.

The Renewable Energy Workforce Training and Education Project, in partnership with UNLV's Renewable Energy Minor and Urban Sustainability Programs, strives to advance the education of undergraduate and graduate students as well as the public. Lectures can address such biofuels, geothermal, wind, and solar energy topics as research, technological advances, policy development, and community and implementation issues, or any topic that you feel would benefit college students and members of the work force. The lectures will normally be limited to an hour, taking place in the Marjorie Barrick Museum Auditorium with a capacity of 150. Each lecture will be filmed for UNLV's institutional repository. We will reimburse for transportation and lodging and will offer a modest honorarium for committee-approved speakers.

Please contact Aurore Giguet in the Marjorie Barrick Museum (702-895-1402, [Aurore.Giguet@unlv.edu](mailto:Aurore.Giguet@unlv.edu)) and request a copy of the two-page application form or go to <http://barrickmuseum.unlv.edu/faculty>. Send the completed form along with a current CV of your speaker to Giguet via e-mail or campus mail to arrive by March 5, 2010. While a nonuniversity presenter must be nominated by a university system staff member, university system participants may use self-nomination and need not include a budget.

Send proposals (with CV) to [Aurore.Giguet@unlv.edu](mailto:Aurore.Giguet@unlv.edu), by Campus Mail M/S 4012, or by USPS to Marjorie Barrick Museum, 4505 S. Maryland Parkway, Box 454012, Las Vegas, NV 89154-4012. Deadline: Friday, March 5, 2010.

**.....CONTACT.....**

HRC eNews is a quarterly electronic newsletter to keep individuals informed about developments at the Harry Reid Center for Environmental Studies, located on the campus of the University of Nevada, Las Vegas. Current and past issues of HRC eNews are available online.

Editor: Megan Svarz, 702-895-5883, [megan.svarz@unlv.edu](mailto:megan.svarz@unlv.edu).