


Spring 2012

## HRC eNews – 2012 Spring

Megan M. Iudice

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

Follow this and additional works at: [https://digitalscholarship.unlv.edu/hrc\\_pubs](https://digitalscholarship.unlv.edu/hrc_pubs)

 Part of the [Environmental Sciences Commons](#), [Higher Education Administration Commons](#), [Nuclear Commons](#), and the [Radiochemistry Commons](#)

---

### Repository Citation

Iudice, M. M. (2012). HRC eNews – 2012 Spring. In Megan Iudice, 1-7.

Available at: [https://digitalscholarship.unlv.edu/hrc\\_pubs/8](https://digitalscholarship.unlv.edu/hrc_pubs/8)

This Newsletter is protected by copyright and/or related rights. It has been brought to you by Digital Scholarship@UNLV with permission from the rights-holder(s). You are free to use this Newsletter in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/or on the work itself.

This Newsletter has been accepted for inclusion in Publications (HRC) by an authorized administrator of Digital Scholarship@UNLV. For more information, please contact [digitalscholarship@unlv.edu](mailto:digitalscholarship@unlv.edu).

### ANNOUNCEMENTS

After 22 years of service, **Ruby Bynum** retired from the Harry Reid Center/UNLV in March 2012. A farewell reception was held on Thursday, March 22<sup>nd</sup>.

**Paul Seidler** has received an appointment from President Obama to serve as a member of the Senior Executive Service. His position in the Environmental Management Program as an EM-3 is the highest level appointee, reporting to David Huizenga EM-1. The program represents about \$6 billion of the Department of Energy's (DOE) annual budget and is responsible for the safe clean-up of the cold war nuclear weapon complex. Paul will be responsible for Congressional affairs, policy, media and all external relations including management of advisory boards and the Citizen Advisory Boards. He does intend to return to UNLV at the end of the President's first term and is excited to continue developing the accelerator facility and research programs to create economic growth and diversification.

### ACCOMPLISHMENTS


**Dr. Oliver Hemmers** and **Dr. Allen Johnson** represented HRC and UNLV's Clean Energy programs at the annual [Young Professionals in Energy \(YPE\) Summit](#) in Las Vegas, held April 23-25, 2012. The booth, entitled "Clean Energy Education and Research are Hot in Nevada," also featured UNR and DRI, and was in cooperation with the Nevada Institute for Renewable Energy Commercialization (NIREC), whose aim was to highlight the Nevada System of Higher Education's (NSHE) capabilities in clean energy.

**Dr. Oliver Hemmers** was interviewed for an article recently appearing in Nevada Business Magazine, titled "[Alternative Energy, Still Energetic?](#)"

The UNLV Accelerator Program, including **Paul Seidler** and **Robert O'Brien**, was recently featured on 8 News Now, KLAS-TV story as

### Contact

HRC eNews is a monthly 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 Iudice](#).

 [Forward this to a friend](#)

\*|IFNOT:ARCHIVE\_PAGE|\*

 [View email in a browser](#)

\*|END:IF|\*

part of their I-Team Game Changer series, "[Game Changers: Education Plays Role in Nevada's Economic Health.](#)"

**Dr. Denis Beller** attended a two-week Nuclear Criticality Safety course at the Los Alamos National Laboratory and at the Device Assembly Facility at the Nevada National Security Site (aka NTS). The course, which was sponsored by the DOE/NNSA Nuclear Criticality Safety Program, involved education and training about nuclear criticality accidents in the U.S. and Russia and how to prevent them in the future. The second week included hands-on exercises putting together sub-critical assemblies of highly-enriched (or weapons-grade) uranium as well as remote assembly of the critical machine known as "Flattop."

The Harry Reid Center and several political science students were chosen to volunteer as assistants with President Barack Obama's visit to the UPS refueling station in Southern Nevada in January.

**Kathy Lauckner** was particularly interested in helping with the visit because of its energy theme and the alternative-fueled shipping and delivery trucks that were displayed.

**Dr. Ken Czerwinski** received additional funding from Idaho National Laboratory for the project titled *Speciation Behavior of Americium Under Recycling Conditions* in the amount of \$60,000. The project has been extended until September 30, 2012.

**Dr. Al Sattelberger** has been elected Chair of the Chemistry Section of the American Association for Advancement of Science (AAAS). AAAS is an international non-profit organization dedicated to advancing science around the world by serving as an educator, leader, spokesperson and professional association. Dr. Sattelberger has graduate faculty status in the Radiochemistry program and is a member of the solid phase sub- group, specifically low-valent technetium synthesis.

#### **Solid Phase Sub-Group, Radiochemistry Program**

Front Row: Dr. Paul Forster, Dr. Alfred Sattelberger, Dr. Eunja Kim, Dr. Daniel Rego

Back Row: Vanessa Sanders, Maryline Ferrier, William Kerlin, Bradley Childs, Dr. Ken Czerwinski, Edward Mausolf, Erik Johnstone, Dr. Phil Weck and Dr. Frederic Poineau



Researchers from the Pacific Northwest National Laboratory (PNNL) recently utilized the HRC Transmission Electron Microscope

(TEM) facility to further their research on the environmental chemistry of plutonium. The collaborative work with Dr. Edgar Buck at PNNL appeared in the March 2012 issue of [PNNL news](#).

UNLV Nuclear Engineering Ph.D. candidate **Kimberly Clark** prepared a presentation for the NNSA Nuclear Criticality Safety Program (NCSP) FY11 Accomplishments Technical Seminar at Oak Ridge National Laboratory, TN, on March 13 and 14, 2012, based on the completed Los Alamos National Lab (LANL)-sponsored research project and her current doctoral dissertation work as an intern at LANL. The presentation was given by Dr. William Myers and entitled, "Comparison of MCNP-based Transport Codes for Subcritical Calculations." **Kimberly Clark**, Avneet Sood, William Myers, Jesson Hutchinson, **Denis Beller**.

**Dr. Denis Beller** attended a US DOE Material Protection, Control, and Accounting Technologies (MPACT) Working Group meeting at Savannah River National Laboratory, Georgia, March 13-15, 2012 and gave a presentation based on UNLV research sponsored by Pacific Northwest National Laboratory and the DOE Nuclear Energy University Program (via Idaho National Laboratory). The presentation was entitled, "Update on ultra-Depleted Uranium (uDU)-based Fast Fission Detector." Janelle Droessler, David Hatchett, and **Denis Beller**.

**Dr. Denis Beller** attended the 2012 Nuclear and Emerging Technologies for Space conference in The Woodlands, TX, March 21-23, 2012, to develop collaborations for future research in space nuclear power and propulsion and in space radiation transport and effects. While there he also met with leaders and directors from the Center for Space Nuclear Power, Aerojet Corporation, NASA Glenn, and NASA Marshal.

**Dr. Denis Beller** submitted a letter of interest on March 2, 2012 to the NSHE Nevada Space Grant Consortium for the FY 2012 NASA Cooperative Agreement Notice (CAN) for the Experimental Program to Stimulate Competitive Research (EPSCoR): "SAFE Space Nuclear Rocket Testing in Nevada," PI Research professor **Denis Beller**. UNLV collaborators included professors Mohamed Trabia, Brendan O'Toole, Yi-Tung Chen, and William Culbreth; UNR collaborator Prof. Chanwoo Park; DRI collaborator research professor Clay Cooper; NASA/Industry collaborators Marshall Space Flight Center, Glenn Research Center, Aerojet Corporation, Center for Space Nuclear Research, and Los Alamos National Laboratory.

**Maryline Ferrier** passed her qualifying exam on March 23, 2012.

**Keri Campbell** and **Maryline Ferrier** were selected to participate in the DOE sponsored Radiochemistry Fuel Cycle Summer School at

UNLV for summer 2012 as TA's. Twelve students from various universities will be selected to participate in the summer school, in its third year at the radiochemistry program.

Several students in the radiochemistry program have been selected to participate in summer internships at national laboratories and industry. Congratulations to: **John Despotopoulos, Jeff Rolfes** and **Marc Fitzgerald**, Lawrence Livermore National Laboratory (LLNL); **Audrey Roman** and **Balazs Bene**, Los Alamos National Laboratory (LANL); **Edward Mausolf**, TerraPower.

**Dr. Ken Czerwinski** was recently awarded \$10,000 from Lawrence Livermore National Laboratory for the project titled *Natural Uranium Oxide Samples*.

Louisiana State University's National Center for Biological Research and Training (NCBRT) has partnered with the UNLV Harry Reid Center to establish an NCBRT Distribution Center at UNLV. Beginning in mid-May LSU will be shipping training materials and support equipment to the UNLV Harry Reid Center. The UNLV HRC will be responsible for shipping NCBRT training materials, manuals and specialized equipment to various training locations throughout the western United States. This project is the first step in building a future collaborative partnership between LSU and the UNLV Harry Reid Center.

Dr. O'Toole in Mechanical Engineering and **Robert O'Brien** of HRC were awarded a Collaborative Team Award through the Faculty Opportunity Awards Program. The title of the project is "Exploring the Near Space Environment with High Altitude Balloon Sensors (HABS)." They will be hiring students and designing and building a data collection system to be flown aboard a high altitude balloon. The initial data collection will include high quality images, air sample monitoring and radiation level measurements. The ultimate goal of the project is to get a tested and robust sensor project aboard a NASA launch as well as applying for outside funding. Some of the launches will be flown in coordination with a group in the Department of Physics at UNLV.

Radiochemistry is very excited to announce that the U.S. Departments of Homeland Security and Defense, acting through the Medical University of South Carolina (MUSC) and the South Carolina Universities Research and Education Foundation (SCUREF), have offered the Nuclear Forensics Graduate Fellowship to three of UNLV students, **Marc Fitzgerald, Derek McLain** and **Jeff Rolfes**, in recognition of their academic accomplishments.

Students in the UNLV American Nuclear Society Student Section successfully organized and executed the American Nuclear Society

(ANS) Student Conference on UNLV's campus on April 12-15, 2012. Over 500 professionals, undergraduate and graduate students from universities across the country attended the conference and job fair. The event was sponsored by several nuclear based companies and national laboratories and included several events such as student technical presentations, workshops, tours, a career fair, socials and more! Congratulations to the organizers **Sherry Faye, Vanessa Sanders, Keri Campbell, Janelle Droessler, Maryline Ferrier, Daniel Lowe, Corey Keith, Audrey Roman, Balazs Bene, Wes Boyd, Robert O'Brien, Athena Gallardo and Kim Clark** for planning a successful event! The event was supported by the Radiochemistry PhD Program, the Department of Health Physics, and the Department of Nuclear Engineering with members from each group serving as volunteers. Watch the [interview with Sherry Faye](#) featured on KTNV, Action News 13.

#### Recent Publications:

**Dr. Longzhou Ma**, along with coauthor graduate students of Mechanical Engineering, UNLV, and former postdocs, published "Time-Dependent Fatigue Crack Propagation Behavior of Two Solid-Solution-Strengthened Ni-Based Superalloys—INCONEL 617 and HAYNES 230" in a high-ranked journal: *METALLURGICAL AND MATERIALS TRANSACTIONS A*, VOLUME 43A, FEBRUARY 2012: 491-504. This work was funded by NEUP 2009 to study the fatigue crack propagation of alloys 617 and 230, which has been considered as prime candidate and backup material respectively used for heat exchange components in the future gas-cooled reactor of the NGNP (next generation nuclear plant) system. This article presented the effects of hold time on fatigue crack propagation behavior of two alloys, identified the time-dependent fatigue crack propagation process, discussed carbides effects on cracking rate, measured the thermal activation energy associated with environment-induced cracking mechanism, and discussed the SAGBOE (stress assisted grain boundary oxygen embrittlement) mechanism. A general model was adapted to describe the fatigue crack propagate rates under cycle/time-dependent conditions.

The results of joint research between HRC (**Drs. Hartmann & Ma**) and the Environmental Protection Agency (EPA, Dr. Rogers) was published: K.R. Rogers, K. Bradham, T. Tolaymat, D.J. Thomas, **T. Hartmann, L. Ma**, A. Williams: *Alterations in physical state of silver nanoparticles exposed to synthetic human stomach fluid*. *Science of the Total Environment* 420, 334-339, (2012). Hereby citrate-stabilized AgNPs were exposed to synthetic human stomach fluid and changes in size, shape, zeta potential, hydrodynamic diameter and chemical composition were determined using surface plasmon resonance, high resolution transmission electron microscopy/energy dispersive X-ray spectroscopy, dynamic light

scattering, and X-ray diffraction combined with Rietveld structure refinement.

**Mausolf, Edward; Droessler, Janelle; Poineau, Frederic; Hartmann, Thomas; Czerwinski, Kenneth**, 2012, "TPP-TcO<sub>4</sub> Immobilization", *Radiochim. Acta*, vol. 100, pp. 1-4.

Synthesis and Characterization of Th<sub>2</sub>N<sub>2</sub>(NH)<sub>3</sub> Isomorphous to Th<sub>2</sub>N<sub>3</sub>, **Silva, Weck**, Yeaman, Hunn, **Cerfice, Sattelberger, Czerwinski**, *Inorganic Chemistry*.

On the structure of B-Molybdenum Dichloride, **Poineau, Johnstone, Weck, Kim**, Conradson, **Sattelberger, Czerwinski**, *Inorganic Chemistry*.

Crystal and Electronic Structures of Neptunium Nitrides Synthesized Using a Fluoride Route, **Silva, G. W. Chinthaka; Weck, Philippe F.; Kim, Eunja**; Yeaman, Charles B.; **Cerfice, Gary S.; Sattelberger, Alfred P.; Czerwinski, Kenneth R.**, *Journal of the American Chemical Society* (2012), 134(6), 3111-3119.

## EVENTS

The Harry Reid Center sponsored the Fourth Integrated Symposium on Collaborative Research Initiatives Between National Security Technologies, LLC and the University of Nevada, Las Vegas on February 28, 2012, to explore more in-depth collaborations between the Nevada National Security Site and UNLV. The event was expected to draw between 50 and 75 scientists and engineers from both institutions and focused on how to exploit the strengths of each institution to increase research and applied science and engineering sponsorships. This is the fourth in a series of symposia between the two organizations meant to foster discussion between attendees. The symposium featured 18 speakers, 9 from each organization. The next symposium, planned for late spring or summer, will focus on existing collaborations and will explore the accomplishments of those efforts.

HRC hosted visitors from LANL, NASA Glenn, and NASA Marshall on March 9<sup>th</sup> and discussed potential space nuclear power research at UNLV with faculty and others in the HRC and the College of Engineering.

**Erik Johnstone, Balazs Bene, Bradley Childs, Audrey Roman, Sherry Faye** and **Ralf Sudowe** presented at the MARC IX conference in Kona, Hawaii March 26-30, 2012.

**Dr. Ken Czerwinski** was asked to chair a session at the Spring ACS conference in San Diego, CA, March 27-30, 2012. Also giving

presentations at the ACS conference were **Edward Mausolf, Dr. Thomas Hartmann** and **Dr. Frederic Poineau**.

[The Las Vegas Science Festival](#) was held the week of April 30 - May 4, 2012. Local scientists shared their love of science, technology, math and engineering in local schools. The week-long festival offered something for everyone - families, adults, school groups, and kids.

## NEW FACES

FAME-Tech group of Dr. Kris Lipinska welcomed **Michael Wolverson**, a new research scientist. Dr. Wolverson received a Ph.D. in applied physics from the University of Arkansas at Little Rock in 2011.

**Professor Saadi M Dhafer Al-Nuzal** from Al-Mustansiriya University will be joining the radiochemistry program through the Iraq Science Fellowship Program as a visiting professor for six months beginning in May, 2012. Dr. Saadi will be researching technetium chemistry as it relates to radiopharmaceuticals.

---

\*|IFNOT:ARCHIVE\_PAGE|\* \*|LIST:DESCRIPTION|\* \*|END:IF|\*

 [Update subscription preferences](#)  [Unsubscribe](#)

---

\*|IFNOT:ARCHIVE\_PAGE|\* \*|HTML:LIST\_ADDRESS\_HTML|\* \*|END:IF|\*

\*|IF:REWARDS|\* \*|HTML:REWARDS|\* \*|END:IF|\*