ACS Chemistry for Life®

The Capital CHEMIST

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Dr. Daniel Glavin, NASA, to Speak at December Dinner Meeting

Dr. Daniel Glavin, NASA, will speak at the CSW Dinner Meeting on December 8, 2011. His talk is titled, "Exploration of Potential Habitable Environments on Mars with the Mars Science Laboratory Rover."

Dr. Glavin is an Astrobiologist working in the Planetary Environments Laboratory at NASA Goddard Space Flight Center. He received his B.S. in Physics from the University of California, San Diego in 1996. In 1998, he was awarded a NASA Specialized Center for Research and Training (NSCORT) Fellowship for graduate research in Dr. Jeff Bada's laboratory at the Scripps Institution of Oceanography in San Diego, CA. For his Ph.D. thesis he worked on the analysis of amino acids in meteorites and micrometeorites to understand the potential role that asteroids and comets could have played in the delivery of prebiotic compounds needed for the origin of life on Earth, and potentially other planets in our solar system. After receiving his Ph.D. in Earth Science in 2001, Dr. Glavin worked as a post-doctorate research scientist for Dr. Guenter Lugmair at the Max Planck Institute (MPI) for Chemistry in Mainz, Germany where he investigated the Mn-Cr isotope systematics in meteorites. In recognition of his research on meteorites and discovery of amino acids in samples returned from Comet Wild 2 by NASA's Stardust mission, Glavin was awarded the 2010 Nier Prize by the Meteoritical Society. Glavin is currently leading the optimization of the wet chemistry experiment on the Sample Analysis at Mars (SAM) instrument aboard the Mars Science Laboratory rover mission that will land on Mars in August 2012. SAM, a microwave oven-sized mass spectrometer, will analyze surface samples collected on Mars to look for water, organic compounds, and other biologically important elements required for life as we know it.

Speaker abstract located on page 3

Douglas H. Errett, St. Albans School, Receives CSW 2011 Schubert Award

The recipient of the 2011 Leo Schubert Memorial Award for outstanding teaching of high school chemistry is Douglas H. Errett, Honors Chemistry Master at the St. Albans School in Washington, D.C. He joined the faculty at St. Albans in 2002 as a Lower School Science Teacher, and he moved to the upper school in 2006.

After graduating from the Pennsylvania State University in 1988 with a B.S. in Earth Science, Mr. Errett was a Middle School science teacher at the Green Vale School in Old Brookville, New York. In 1991 he elected to further his education and studied Geology at The Ohio State University, earning his M.S. degree in the specialty of Hydrogeology and Geochemistry in 1993. He accepted a position at ENVIRON Corporation in Arlington, Virginia as a Senior Associate Hydrologist, where he remained until 2002, when he returned to the teaching profession.

Mr. Errett has contributed to a wide variety of activities at St. Albans, developing the seventh grade science curriculum in Physics and Chemistry, the revised Honors Chemistry curriculum for 10th grade, and elective courses in Geology and Environmental Science. He has led workshops for other faculty on implementing technology in the classroom, and he was responsible for the development

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Editor, Business Manager
Jessica L. Rasmussen (Pullen)
Voice: 202-659-2650
Email: csw@acs.org

Publisher
Chemical Society of Washington

Business Staff
Zory Glaser, Chair
CSW Publications Committee
202-659-2650

Advertising Manager
MBO Services
PO Box 1150, Marshfield, MA 02050-1150
781-837-0424 voice
www.mboservices.net

CSW Correspondence
Kristy A. Martin, Administrator
CSW, 1155 16th Street, NW, O-218
Washington, DC 20036
202-659-2650 voice
email: csw@acs.org

http://csw.sites.acs.org

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THE CHEMICAL SOCIETY OF WASHINGTON PRESENTS:
1106th Dinner Meeting

Thursday, December 8, 2011 6:00 p.m. Social (Open Bar)
NASA Goddard Space Flight Center 6:30 p.m. Dinner
Barney & Bea Recreation Center 7:30 p.m. Awards Ceremony
10000 Good Luck Road 8:00 p.m. Speaker, Dr. Daniel Glavin
Greenbelt, MD 20771

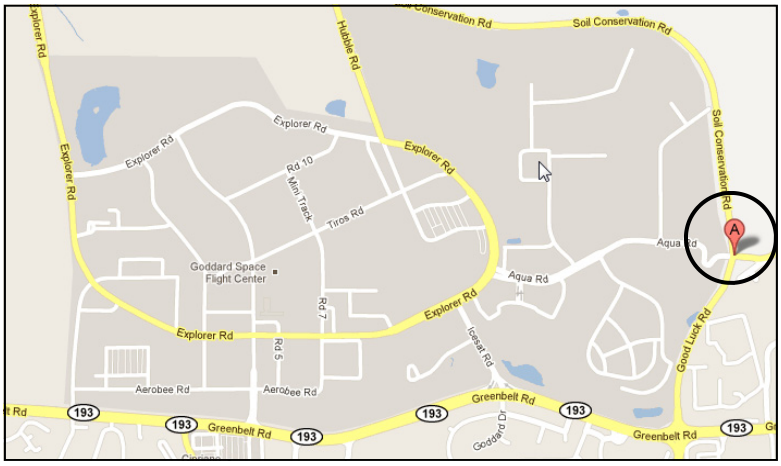
COST $28.00 Members & guests, $14 Students

Menu: Roasted turkey breast and prime rib, baked potatoes, oven roasted vegetables, tossed salad, rolls with butter, holiday desserts, coffee, and tea

Reservations: Make reservations by **Monday, December 5, 2011, 12:00 noon,** to the CSW office: csw@acs.org or 202-659-2650. Please designate the names in your party. The public is invited to attend. You may attend the talk only, but reservations are required. **Those who make a reservation, but are unable to attend, should send a check for the cost of their meal to the CSW office.**

Please note: EVERYONE, including those only attending the awards ceremony and/or lecture, MUST make a reservation with the CSW office by the deadline so their names are on the security list. Unfortunately, no walk-ins will be permitted. Thank you for your understanding.

Directions: From I-95/495 (Washington Beltway), take Exit 22A to the Baltimore-Washington Parkway (north toward Baltimore). From the Baltimore-Washington Parkway, take the exit for Greenbelt Road (Route 193); this exit is just a short distance from the Beltway. Turn left at the traffic light onto Greenbelt Road. Drive past the main gate of Goddard Space Flight Center (on the left) and Shopping Center with K-Mart (on the right). Go to the second traffic light, and turn left onto Good Luck Road. After less than 0.5 miles, turn left at the first traffic light (it has a left turn lane), into the gate (No. 13) for the Goddard Recreation Center. The gate has the number 13 on it. There will be a security guard stationed just inside the gate who will check the names in your party against the attendance list.



Speaker Abstract, "Exploration of Potential Habitable Environments on Mars with the Mars Science Laboratory Rover"

The search for evidence of life on Mars and elsewhere will continue to be one of the primary goals of NASA's robotic exploration program over the next decade. NASA and ESA are currently planning a series of robotic missions to Mars with the goal of understanding its climate, resources, and potential for harboring past or present life. NASA's next mission, the Mars Science Laboratory (MSL) rover, will land on Mars at Gale Crater, whose rocks are thought to have at least in part formed by aqueous processes. To find out if Gale Crater was once capable of supporting life, the MSL rover will carry the biggest, most advanced suite of instruments for scientific studies ever sent to the martian surface. MSL will analyze dozens of samples scooped from the soil and drilled from rocks. The rover's onboard laboratory will study rocks, soils, and the local geologic setting in order to detect chemical building blocks of life (e.g., forms of carbon) on Mars and will assess what the martian environment was like in the past. One instrument on MSL called Sample Analysis at Mars, or SAM, will provide the most sensitive measurements of the organic composition of rocks and regolith samples ever carried out *in situ* on Mars. SAM consists of a gas chromatograph (GC), quadrupole mass spectrometer (QMS), and tunable laser spectrometer to measure volatiles in the atmosphere and released from rock powders heated up to 1000°C. The measurement of organics in solid samples by SAM will be accomplished by three experiments: (1) evolved gas analysis by pyrolysis heating and mass spectrometry to identify alkane fragments and simple aromatic compounds; (2) pyrolysis GCMS to separate and identify complex mixtures of larger hydrocarbons; and (3) chemical derivatization and GCMS to extract less volatile compounds including amino and carboxylic acids that are not detectable by the other two experiments. In this talk, I will give an overview of the MSL mission and scientific goals and discuss the current analytical capabilities and strategies for the detection of organics using the Sample Analysis at Mars (SAM) instrument suite.

It's easy to become a CSW volunteer!

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IYC Closing Ceremony to Take Place in Brussels

It was in 1911 that Ernest Solvay laid the cornerstone of modern science by gathering prominent scientists for a new type of scientific dialogue. All the participants could express themselves to open a scientific dialogue that would accelerate scientific progress. His vision included the establishment of the International Institute of Physics, which a year later was followed by an International Institute of Chemistry. Also in 1911, he supported the creation of IACS which will later develop into IUPAC.

Under the patronage of the Chemical and Pharmaceutical Industry, the celebration will blend the past and present, academic, and industrial, social and political, to celebrate and echo the motto of the IYC: *Chemistry—our life, our future.*

After an opening address by his Royal Highness, Prince Phillipe of Belgium and a recap by IUPAC President, Professor Nicole Moreau, of the main exhilarating events of the IYC in the world, a team of young people/ scientists will open a debate and introduce their expectations from the lifesciences and chemistry, industry and governments, to build a better world in 2050. Eminent players from academia will share their views how chemists and chemistry are the "solutions providers" to the major challenges facing mankind, and a round table composed of scientists, politicians, CEOs from Industry and NGOs will build on and debate interventions. The closing event will also emphasize how important chemistry is for the economy and society throughout the world. The event will take place at the Square Brussels Meeting Centre.

For more information, visit http://iyc2011.conceptum.eu.
Article courtesy of www.chemistry2011.org.

Nominations Sought for 2012 Presidential Green Chemistry Challenge Awards

WASHINGTON – The U.S. Environmental Protection Agency (EPA) is accepting nominations for the Presidential Green Chemistry Challenge Awards. Green chemistry is the design of chemical products and processes that reduce both the use and generation of chemicals that are hazardous to the environment and people's health. Nominations are due to the agency by December 31, 2011.

"These presidential awards recognize technologies that create safer and more environmentally friendly chemicals, manufacturing processes, and products," said Steve Owens, assistant administrator for EPA's Office of Chemical Safety and Pollution Prevention. "Green chemistry is driving innovation to safer chemicals and helping to create new jobs in a greener economy."

The 2012 Presidential Green Chemistry Challenge Awards mark the 17th year of the program. This year EPA is encouraging nominations for technologies that will provide safer alternatives to priority chemicals, such as diisocyanates, phthalates, bisphenol A, certain flame retardants, formaldehyde, lead and mercury.

Throughout the first 16 years, EPA received more than 1,400 nominations and presented awards to 82 entrants. Winning technologies alone are responsible for reducing the use or generation of more than 199 million pounds of hazardous chemicals, saving 21 billion gallons of water, and eliminating 57 million pounds of carbon dioxide releases to the air.
More information on how to submit entries: http://www.epa.gov/greenchemistry

Courtesy of www.epa.gov.

Happy Holidays From CSW!

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ACS Chemistry for Life™

December 1: How to Secure and Nurture a Vibrant Chemistry Career in the 21st Century

December 8: Welcoming 2012: The Chemistry of Fireworks

December 15: Chemicals & the Economy Year-end Review and Outlook

December Anniversaries in Chemistry

December 3, 1886: One hundred and twenty-five years ago on this date, Karl Manne Georg Siegbahn, a researcher on x-ray spectroscopy, was born. In 1924, he received the Nobel Prize in Physics for his discoveries and research in the field of x-ray spectroscopy.

December 6, 1836: One hundred and seventy-five years ago on this date, Charles F. Chandler was born. He was a researcher in sugar, petroleum, and illuminating gas industries and a founder of the ACS.

December 6, 1863: One hundred and twenty-five years ago in 1886, Charles M. Hall discovered a method of extracting aluminum electrolytically from bauxite in his garage as Paul Louis Toussaint Héroult discovered the same process for isolating aluminum, which is called the Hall-Heroult process. He was born on this date.

December 7, 1810: One hundred and seventy-five years ago on this date, Theodor Schwann named and investigated pepsin. He coined the word metabolism, and discovered the striated muscle of the upper esophagus and the myelin sheath of peripheral axons, called Schwann cells. He was born on this date.

December 11, 1911: One hundred years ago on this date, Marie Curie gave her Nobel Lecture, "Radium and the New Concepts in Chemistry," when she was awarded the Nobel Prize in Chemistry in recognition of her services to the advancement of chemistry by the discovery of the elements radium and polonium, and by the isolation of radium and the study of its nature and compounds. In 1903, she and her husband Pierre shared the Nobel Prize in Physics in recognition of the extraordinary services they have rendered by their joint researches on the radiation phenomena discovered by Professor Henri Becquerel.

December 24, 1936: Seventy years ago on this date, Corning, Inc., was incorporated.

December 25, 1761: Two hundred and fifty years ago on this date, William Gregor was born. In 1791, he discovered titanium (Ti, 22) and analyzed minerals.

December 26, 1838: One hundred and twenty-five years ago in 1886, Clemens A. Winkler discovered germanium (Ge, 32). He did analyses of gases and was born on this date.

Additional historical events can be found at Dr. May's website, http://faculty.cua.edu/may/Chemistrycalendar.htm

CSW To Recognize Researchers and High School Teachers for 2011 Project SEED Participation

At the December 8 dinner meeting, CSW will honor the 2011 chemistry sponsors and mentors with an evening dinner and lecture in appreciation of their efforts in allowing high school students to participate in Project SEED. Without these volunteers serving as sponsors and mentors, this program would not be possible.

The high school teachers who sponsored students for the 2011 program:

- Mark Agnew, Rockville High School
- H. Kauffman, Thomas Jefferson HS for Science & Technology
- David Richards, Dunbar Senior High School
- Gideon Sanders, McKinley Technical High School
- Marta Walter, High Point High School

The scientists who served as mentors for the 2011 program were:

- Jennifer Giaccai, Smithsonian
- Lystranne Maynard-Smith, Howard University
- Andrei Vedernikov, University of Maryland
- Shiow Wang, USDA
- Tim Warren, Georgetown University
- Richard Weiss, Georgetown University

The CSW Board of Managers appreciates the effort of these individuals in making the 2011 program for Project SEED a success and encourages them, and others, to volunteer for the 2012 program.

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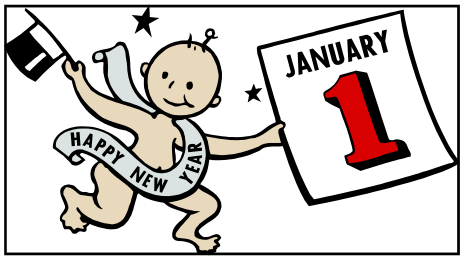
SEARCHING FOR THAT SPECIAL JOB?

There are many companies and organizations searching for chemical and biochemical personnel to fill important jobs in their organizations.

- Companies for laboratory and management positions
- Universities & Colleges for teaching positions and laboratory personnel
- Hospitals for technical and research personnel

There are several web sites that may help you search for these open positions.

- www.mboservices.net
- http://membership.acs.org/W/WashDC/career.html



Advertisers in this Issue:

Shubert Award Winner, cont. from page 1

and implementation of the school's Chemical Safety Plan.

One of Errett's colleagues said his decision to return to teaching was, "lucky for us at St. Albans," adding that, "he is simply one of the finest science teachers I have encountered in twenty-five years." Errett is described as "an outstanding colleague and a true professional. In short, Doug is a model teacher." Other comments from his colleagues include the observation that "Mr. Errett has always made himself available to students requiring extra help," and further remark that "Mr. Errett never rests in his comfort zone, perhaps because of his genuine enthusiasm for the subject." His approach to teaching clearly has the students in mind, as shown by another comment from one of his colleagues. "It is exhilarating to see students who once seemed uninterested in science demonstrate overt enthusiasm for high school chemistry. What a testimonial to the methods and personality of the teacher who can achieve that!"

The Chemical Society of Washington is pleased to recognize Mr. Errett's outstanding contributions to teaching high school chemistry by naming him as the 2011 recipient of the Leo Schubert Memorial Award.

At the November Dinner Meeting, CSW recognized our 50-year members. Back row: Kermit Way, Kenner Rice, Donald Clagett, Fred Carson, William Walters, Kenneth Scott. Front Row: Walter Staruszkiewicz Jr., Paul Jennings, Joseph Horodniak, Joseph Weiss.

CSW Calendar of Events

December Dinner Meeting
Location: NASA Goddard
Speaker: Dr. Daniel Glavin
December 8, 2011

January Dinner Meeting
ACS Headquarters, Washington, DC
Speaker: Dr. Tina Bahadori
January 12, 2012

February Dinner Meeting
University of Maryland
Speaker: Dr. Jonathan Deeds
February 9, 2012

2011 Nobel Prize in Chemistry Awarded for Quasicrystals

Quasicrystals that were not supposed to exist were discovered by Daniel Shechtman of the Technicon Institute of Haifa, Israel. While examining the electron diffraction pattern of a rapidly solidified alloy of aluminum and manganese on April 8, 1982, he found that the atoms were not packed in symmetrical patterns that were repeated periodically in the crystal—as was found with crystals previously. He had prepared the first quasicrystal. Aperiodic mosaics that are found in medieval Islamic mosaics of the Alhambra Palace in Spain and the Darb-I-Imam Shrine in Iran help to understand the appearance of quasicrystals at the atomic level. The patterns are regular but never repeat themselves. In the course of defending this very controversial discovery, he was asked to leave his research group. As more examples of quasicrystals were found in the laboratory and in mineral samples from a Russian river, the concept of quasicrystals was accepted, leading to awarding of the 2011 Nobel Prize in Chemistry to Daniel Shechtman. Who said that there is nothing new under the sun?

Contributed by Dr. Leopold May, Catholic University