

Chesapeake Chemist

*Maryland Section
American Chemical
Society*



2011 Braude Award Recipient

“Salt in Stormwater: Multiple Impacts on Retention Pond Soils”

~ Ryan Casey, Ph.D. ~

Towson University

Wednesday, November 2nd, 6:00 – 8:30 pm

Burkshire Marriott, Towson, MD

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Wednesday, November 2nd, 6:00 – 8:30 pm

Burkshire Marriott

10 West Burke Avenue

Towson, MD 21204

6:00 – 6:30 pm	Registration / Networking / Light Refreshments
6:30 – 7:15 pm	Dinner
7:15 – 7:30 pm	Braude Award Presentation
7:35 – 8:30 pm	“Salt in Stormwater: Multiple Impacts on Retention Pond Soils” by Dr. Ryan Casey
Price	\$20 for members/nonmembers, \$10 for students
RSVP (by October 28th)	contact-us@mdchem.org

Directions to Burkshire Marriott Conference Center (10 West Burke Avenue, Towson, MD)

- From the Baltimore beltway, I-695, follow to exit 27, Dulaney Valley Road
- The Burkshire is on the right side as you enter Burke Ave. (18-story building). Meeting attendees should proceed to the right lane. Turn right into the Burkshire’s parking entrance. Turn the corner and make an immediate right into the P2 parking garage.
- Look for signs posted in the lobby and by the elevators to locate the dining room
- For more information, visit <http://www.marriott.com/hotels/fact-sheet/travel/bwibu-towson-university-marriott-conference-hotel/>

“Salt in Stormwater: Multiple Impacts on Retention Pond Soils”

The use of sodium chloride as a deicing agent has been a common practice since the mid-1900s and its use has increased drastically in recent decades. Municipalities in the United States apply 8-12 million tons of road salt to impervious surfaces annually. Urban and suburban landscapes often contain stormwater ponds as best management practices designed to alleviate some of the physical disturbance that runoff from impervious surfaces would otherwise cause in aquatic systems. By design, these ponds receive high loads of stormwater and associated contaminants. Recent work in our laboratory has shown that road salt can persist in stormwater ponds year-round, serving as a continual source of elevated ion transport to surface waters. We have also shown that road salt inputs can influence the cation exchange properties of retention pond soils, potentially promoting the release of adsorbed trace metals into the aqueous phase. We have also quantified decreased hydraulic conductivity in stormwater pond soils containing the highest adsorbed sodium concentrations, presumably due to collapse of soil microstructures following salinization. Thus road salt application has the potential to disrupt core functions in stormwater ponds including the capacity for infiltration and the ability to retain trace metals from runoff.

Speaker Biography



Ryan Casey, Ph.D.
Towson University

Dr. Ryan Casey earned a BS in Chemistry from Virginia Tech in 1995. He then moved to Clemson University where he earned a PhD in Environmental Toxicology in 1999 after studying the fate of nitrogen and phosphorus in golf course runoff passing through a riparian wetland. Dr. Casey started at Towson University as an Assistant Professor in 2000 where he continued his research involving nutrients in stormwater, but this time in an urban context. Following the initiation of several critical collaborations with faculty in Biology and Geosciences, Dr. Casey’s research emphasis switched from nutrients to trace metals in stormwater. At the same time, Dr. Casey was involved in establishing the Urban Environmental Biogeochemistry Laboratory at Towson University. Research in the Casey laboratory has focused on trace metal speciation and impacts on sediment quality in stormwater ponds. Most recently this laboratory has also evaluated the fate of deicing salts in stormwater pond systems along with the influence of road salt on trace metal bioavailability and cation exchange processes in retention pond soils. Since arriving at Towson, Dr. Casey has served as PI or co-PI on over \$2.6 M in extramural funding and has been an author on 16 peer-reviewed publications. Dr. Casey teaches three different environmental chemistry courses targeted toward undergraduate non-science majors, upper level Chemistry majors and Environmental Science graduate students. He also teaches an upper level course in Toxicology and routinely teaches general chemistry.

Recent Activities

The 66th Annual Remsen Award Presentation

The 66th annual Remsen award was presented to Graham R. Fleming, Vice Chancellor for Research and Professor of Chemistry at the University of California at Berkeley, on October 2nd at Remsen Hall, Johns Hopkins University. Dr. Fleming gave the Remsen Lecture summarizing his work on the principals of photosynthetic light harvesting to over 120 students, faculty and local section members. The lecture was moderated by Professor Arthur Bragg of Johns Hopkins University. After the lecture, a plaque was presented by Remsen Award Committee Chair, Dr. Dana Ferraris.



Morgan State University's Chem Club activities

Morgan's Chem Club has had several excellent speakers so far this fall. In September Evelyne Ntam, a Morgan grad currently in pharmacy school, spoke about that career. Dr. Takashi Tsukamoto, Johns Hopkins Brain Science Institute, discussed process of discovering new drugs, using the anti-HIV drugs as an example (photo below). A representative of the University of Maryland School of Pharmacy outline admission to that school, and Morgan State students who have done internships discussed their experiences at yet another meeting.

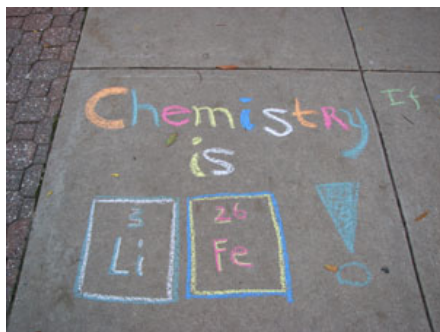
The week before midterms Chem Club held a tutoring/study session, and after midterms we had a very successful Rock Band/Dance Central party using those video "games" (photo below). Chem Club entered a banner for Homecoming, approaching the theme of "Morgan Forever, Forever Morgan" from a chemistry slant.

Chem Club had National Chemistry Week announcements run on the electronic sign in the Student Center and on the university's daily e-mail announcements. Brittany Fisher, president, made a periodic table of candy, placing the candies labeled as the elements on an ACS periodic table blanket. This was displayed during Shadow Day when high school students check out the campus; students who could answer questions about the periodic table correctly were given the relevant candy. We also had a table in the science complex lobby showing interested students how to check for starch with iodine.



UMBC Chapter Celebrated National Chemistry Week

The UMBC chapter celebrated National Chemistry Week with a bake sale, featuring the periodic table of cupcakes, UMBC beaker mug sales, t-shirt sales, a guessing contest (winner won a periodic table blanket) and a poster about why you shouldn't dump your unwanted/expired drugs down the sink or toilet. We raised money for Pennies for PUR with these events. On October 26, we are having a "Pie-A-Professor" event which will also raise money for Pennies for PUR.



Chemistry in the Library

The Chemistry in the Library program is a volunteer effort by members of the ACS Maryland Local Section to bring the fun and wonder of chemistry to kids age 6 and up. On October 1st, Ms. Rose Pesce-Rodriguez (US Army Research Laboratory) visited Howard County Library Central Branch and inspired kids and their parents with a variety of hands-on chemistry activities related to 2011 National Chemistry Week theme, "Chemistry—Our Health, Our Future!". They were surprised to learn how much sugar is in sodas.



Announcements

Undergraduate/Graduate Student Travel Grants from the ACS Maryland Section

Undergraduate/Graduate students can apply to receive up to \$500 for travel and expenses to attend a National ACS Meeting. This is open to members of the ACS who are enrolled full time in a college or university in the Maryland Section. Funding will be allocated to support up to 20 students in 2012.

The application should include:

The meeting you plan to attend along with location and dates;

Your ACS membership number;

An estimated budget (cost for travel, registration, lodging, and meals);

A 250 word essay describing your motivation for attending the meeting; A copy of your abstract and the abstract number ACS gave it when your abstract was accepted;

A letter of support from your faculty advisor.

Review of applications will begin November 1st for 243rd ACS National Meeting & Exposition (San Diego, California) but will continue until all funds are utilized.

Please state what would be the most convenient way for the check to be made out, in the event you are awarded a travel grant.

Submit this information to Louise Hellwig by e-mail (Louise.Hellwig@morgan.edu) or mail your application to: Dr. Louise Hellwig, Morgan State University, Department of Chemistry, 1700 Cold Spring Lane, Baltimore, MD 21251.

If you are awarded a travel grant, the following items need to be submitted after the meeting:

Photocopies of receipts totaling the amount of the award.

Trip report summarizing your experience at the meeting and photos of yourself at your poster at the meeting so we can proudly post them on the section website.

2011 Braude Award Recipient Selected

The Braude Award honors people who have had significant impacts on teaching and who are collaborating in their research with students and post-doctoral fellows. The award was endowed by and named for George L. Braude, a chemist with W. R. Grace and the Food and Drug Administration. This year the award goes to Dr. Ryan Casey, Towson University. Dr. Casey has developed a highly productive research program in the field of environmental toxicology, conducting studies of metal transport in waters and organisms in the watersheds of Baltimore County and nearby areas. A large part of Dr. Casey's scholarship activities have involved mentoring of research students, approximately 16 undergraduates and 7 Masters students. He will receive the Braude Award at the dinner meeting Weds. Nov. 2 at the Berkshire Marriott in Towson.

2011 Maryland Chemist Award Recipient Selected

The Maryland Chemist Award was established in 1962 to recognize and to honor, each year, a member of the Maryland Section for outstanding achievement in the fields of chemistry. The achievement, as originally stated, may be in pure or applied chemistry, chemical engineering, or chemical education. This year, the award goes to Dr. Kenneth Karlin, Johns Hopkins University, for his wide-ranging contributions to inorganic chemistry, particularly for his research focusing on coordination chemistry relevant to biological and environmental processes, involving copper or heme (porphyrin-iron) complexes. Dr. Karlin will receive the award early next year.

Science Night Activities Needs YOUR Help!

Over the last two years, we have started helping run Science Night events at some Elementary Schools (ES). These are typically 2-5th graders. It's a great opportunity to interact with students who generally do not have a lot of hands-on science AND their parents. We have 2 planned for this Fall and would like to request MD ACS member help if possible for the second event at:

- Roland Park ES (Baltimore City) – Thursday, December 8th

No prior experience necessary - just plan to bring your enthusiasm for Science! You would receive all the information ahead of time for the 8 experiments and would only help run 1-table with a single experiment at the event with a teacher from the school. We are working with a professor who studies the effectiveness of STEM education on extension activities for the students. If you are interested, please contact MD ACS member Sandra Young via email: (Sandra.k.young26.civ@mail.mil or skyschlee@yahoo.com).

Call for Volunteers – K-12 Educational Outreach

We know that people have limited time. But taking the time to mentor others, as all of us were once mentored by someone, is a truly fulfilling experience. If you have any questions or are thinking about helping out with a future event, please feel free to contact us at (contact-us@mdchem.org).

Plants & People Sundays at the Rawlings Conservatory

The Howard Peters Rawlings Conservatory & Botanic Gardens in Druid Hill Park runs various programs on Sundays. The 2nd (Exploration Station), 3rd (Story Hour), and 4th (Ask a Scientist) Sundays are programs directed towards K-12 students and often include hands-on science activities.

Where: Howard Peters Rawlings Conservatory & Botanic Gardens, 3100 Swan Drive, Baltimore, MD 21217 (by the zoo)

When: Almost every Sunday

For more information, visit their website or call (410) 396-0008 for details on the upcoming Sunday program!! (http://www.baltimorecity.gov/government/recnparks/special_facilities.php#Howard)

Other Educational Outreach Programs

With recognition of the decreasing numbers of trained STEM professionals that are US citizens, the general decline of hands-on activities in Science, Technology, Engineering, and watering-down of Mathematics in many K-12 programs, and many people's general lack of understanding of STEM topics in society, the Department of Defense has coordinated many of their programs into single websites that contain a wide-range of educational outreach programs, internships, and scholarship opportunities available for K-12, undergraduate, graduate students and beyond.

Information on the wide-variety of programs through the **US Army Educational Outreach Program (AEOP)** can be found on their website (<http://www.usaeop.com>).

Information on the wide-variety of programs through the **National Defense Education Program (NDEP)** can be found on their website (<http://www.ndep.us>).

Many of the programs/opportunities that are listed on these two sites are available to students for participation in Maryland locations.

Call for Volunteers for Committee Positions

Interested in how your dues get used and want to work on interesting member programs/projects? If you want to get involved with the Maryland Section Executive Committee and/or with section activities, we want to hear from YOU! The Maryland ACS Executive Committee meets 4 times-a-year to discuss and plan activities. Please feel free to contact any Section officer via e-mail to get more information on various

areas/activities that interested you or that the Section should start or expand in the future. The amount of time to commit is up to you (min. 2 hours per month depending on the activity). We are always looking for individuals with budget/financial, editing, and planning skills. In addition, our Section is needs volunteers for our various committees. We are currently looking to fill positions for:

- Archivist
- Young Chemist Chair
- Women's Chemist Chair

Please contact us at contact-us@mdchem.org

Get Involved, Stay Involved

As you know, the American Chemical Society offers many ways for its members and non-members to get involved at the local, regional and national levels. There are opportunities for everyone, whether you are a student, or just starting your career, or a seasoned professional. Are you interested in getting involved, but don't know where to start? Are you already involved with one or more ACS activities but need help finding resources? Please visit (<http://www.acs.org/getinvolved>) to find a streamlined list of links of helpful procedures and resources specifically geared towards your area of interest.

Alternately, you can contact the Maryland ACS Section directly... Like working with students? Have a talent for encouraging students in science? Have ideas for outreach events? Sign up for our volunteer news. Contact us at contact-us@mdchem.org.

2011 Event Schedule

Event	Date	Time	Location
Braude Award	11/2 (Wed)	6:00 pm	Burkshire in Towson
Women Chemist Program Dr. Judy Cohen	12/7 (Wed)	TBD	Stevenson University
Maryland Chemist Award	2/8/2012 (Wed)	TBD	Burkshire in Towson

If you have any ideas or suggestions about new events please feel free to contact us at contact-us@mdchem.org

November Chemical Anniversaries

Leopold May
The Catholic University of America
Washington, DC

- November 6, 1886 One hundred and twenty-five years ago on this date, Ian M. Heilbron was born. He synthesized naturally occurring compounds, such as vitamins A and D.
- November 8, 1711 Three hundred years ago on this date Mikhail V. Lomonosov was born. He suggested the law of conservation of mass and a theory of heat as a form of motion. Also, he opposed phlogistic chemistry; and was the first to record the freezing of mercury (Hg, 80).
- November 14, 1807 One hundred years and seventy-five years ago in 1836, Auguste Laurent obtained phthalic acid from naphthalene. Four years before this, he discovered anthracene and in 1841, showed that carbolic acid is phenol. Also, he constructed a saccharimeter; evolved the nucleus theory of organic radicals (with Charles F. Gerhardt), and made Laurent's acid. He was born on this date.
- November 20, 1886 One hundred and twenty-five years ago on this date, Karl von Frisch was born. He discovered how bees orient and communicate and shared the Nobel Prize in Physiology or Medicine in 1973 with Konrad Lorenz and Nikolaas Tinbergen for their discoveries concerning organization and elicitation of individual and social behaviour patterns.
- November 29, 1936 Seventy-five years ago on this date, Yuan T. Lee was born. He used specially designed mass spectrometer that could separate and identify reaction products. Fifty years ago in 1986, he shared the Nobel Prize in Chemistry with Dudley R. Herschbach and John C. Polanyi for their contributions concerning the dynamics of chemical elementary processes.
- November 30, 1761 One hundred and fifty years ago on this date, Smithson Tennant was born. In 1803, he discovered iridium (Ir, 77) and osmium (Os, 76) and proved that diamonds are pure carbon.

For more historical facts on chemistry, visit Dr. May's website at <http://faculty.cua.edu/may/ChemistryCalendar.html>.

Job Hunting Corner

Job Hunting?

We don't always have job posts in the Chesapeake Chemist. But if you have a position available locally, you are welcome to send them to contact-us@mdchem.org for posting in the Chesapeake Chemist. If you are job hunting, remember to put your membership to work by using the ACS job bank: (ACS Careers: www.acs.org/careers).

ACS offers special benefits for unemployed members

During these tough economic times it's more important than ever to belong to the American Chemical Society. Unemployed members can tap into a host of valuable benefits and services that help them get back in the workforce. And, members in good standing may qualify for an unemployed member dues waiver, allowing them to renew their memberships and keep their member benefits at no cost. Contact ACS at service@acs.org, 800-333-9511 or 614-447-3671 for complete details.

Other valuable benefits that help ACS member get back in the workforce include:

- Free registration at ACS National Meetings and registration fees at Regional Meetings of just \$25. Meetings offer ACS Career Fairs with on-site interviews.
- Special discounts for ACS/Harvard courses, ACS ProSpectives and Short Courses, and the ACS Leadership Development System.
- Membership in the ACS Network, your online resource to connect and communicate with friends, colleagues, and potential employers
- Free Guidance from ACS Career Consultants – ACS mentors offer resume reviews, job search strategies, and interview tips that make you stand out from the rest.
- Free access to InterviewStream, an online tool that will sharpen your interview skills
- Members-only access to the ACS Salary comparator.
- And more!

Contact ACS customer service today at service@acs.org, 800-333-9511 or 614-447-3671 today and let us know how we can help.

REMINDER: Receiving the Chesapeake Chemist

Hopefully, if you are reading the Chesapeake Chemist this month, you are receiving it via e-mail from us. We went to electronic only mailings to our MD ACS membership in October 2006. Please remember that we are dependant on the National ACS records for your correct, current e-mail.

Changing your e-mail address? Moving out of the MD ACS area? E-mail changes can be updated either by:

- E-mailing us at contact-us@mdchem.org – give us your member #, full name, and e-mail changes and we can ensure that your records are updated with National ACS.
- **Contacting the National ACS membership division: 800-333-9511 (US only)** or service@acs.org

To ensure that you receive the Chesapeake Chemist, please add the MD ACS e-mail (contact-us@mdchem.org) to your accepted e-mail address list IF you have a spam filter.

If you are a member who currently doesn't receive the Maryland ACS Chesapeake Chemist but download it from our website, it is possible that National ACS does not have your e-mail address on file. If you want to receive the Chesapeake Chemist via e-mail, please e-mail us at contact-us@mdchem.org – give us your

member #, full name, and e-mail address and we can ensure that your records are updated with National ACS.

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