



The Crucible

www.pittsburghacs.org

Volume: CII No.6

February 2017

WCC's Adopt-A-Vet Valentines Drive



Join with the Women Chemists Committee and the University of Pittsburgh ACS Student Affiliates, as we look to bring a little cheer to the patients at the VA Hospital in Oakland. Last year we delivered 300 stockings for Christmas, and 350 was the goal for this year! Due to unforeseen circumstances, we were not able to complete the stocking delivery, so we have made arrangements to show our love for the vets for Valentines Day.

If you would like to contribute another way, feel free to reach out to any of the executive committee or send a check made payable to "WCC" to the following address: Dr. Michelle Ward / 219 Parkman Avenue, Room 107 / Pittsburgh, PA 15260.

You can adopt an outpatient or inpatient veteran (as the inpatient vets often have dietary restrictions we are making two different versions of the gifts). We take care of all the purchasing, assembling, and delivery of the gifts. Please consider contributing to this event and bringing a little love to those we owe so much to.

To donate visit our website: <http://www.pghwcc.org/events.html#vet>

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Society for Analytical Chemists of Pittsburgh



**February Meeting
Monday, February 6, 2017**

**8:00 PM - Duquesne University
Power Center Ballroom Section C**

“Tunable Solid Phase Materials Using Ionic Liquid Chemistry”

**Isiah M. Warner, Ph.D.
Louisiana State University**

Abstract: My research group has been exploring the analytical applications of room-temperature ionic liquids (RTILs) for several years. Recently, we have extended the range of these materials to include analytical applications of similar solid phase materials, i.e. organic salts with melting points of “frozen ionic liquids” (25 °C to 100 °C) and solid phase materials with melting points up to 250 °C. To contrast these new materials with RTILs, we have created the acronym, GUMBOS (Group of Uniform Materials Based on Organic Salts). These GUMBOS have the tunable properties frequently associated with RTILs, including tunable solubility, melting point, viscosity, thermal stability, and functionality. Thus, when taken in aggregate, these properties allow the production of solid phase materials which have a wide range of applications in measurement and materials science. In this talk, I will highlight the applications of GUMBOS which we have recently explored for measurement and materials science, including GUMBOS for production of nanoGUMBOS. In regard to nanoGUMBOS, we believe that our methodology represents an extremely useful approach to production of nanomaterials since our materials are designed and assembled for specific uses, rather than adapted for use as is done for many nanomaterials. Selected applications, including sensor applications and cancer therapy, will be highlighted in this talk.

Biography: Isiah M. Warner received a B.S. in chemistry from Southern University in 1968 and a PhD from the University of Washington in 1977. He is currently Vice President for Strategic Initiatives, Philip W. West Professor of Chemistry, Boyd Professor of the Louisiana State University system, and an HHMI Professor. His research expertise is in the general area of fluorescence spectroscopy, where he has focused for more than 35 years. More recently, his research has focused in the area of ionic liquid chemistry applied to solid phase materials for applications in materials chemistry and nanomaterials. Professor Warner has also conducted educational research that focuses on mechanisms for maintaining and enhancing student education in science, technology, engineering, and mathematics (STEM), with a particular focus on encouraging a diverse population of students to pursue terminal degrees in STEM. Dr. Warner has recently been honored with induction into the American Academy of Arts and Sciences (2016), 2016 SEC Professor of the Year, 2014 Stanley C. Israel Regional Award for Advancing Diversity in the Chemical Sciences, 2014 American Chemical Society (ACS) Henry Hill Award for Outstanding Contributions to Professionalism, 2013 ACS Award in Analytical Chemistry, 2003 ACS Award for Encouraging Disadvantaged Students into Careers in the Chemical Science, and a 1997 Presidential Award (President Clinton) for Excellence in STEM Mentoring. Professor Warner has more than 350 refereed publications and twelve pending or awarded patents. He has chaired sixty (60) doctoral theses and is currently supervising ten (10) others.

**No SACP March Meeting due to Pittcon® 2017 Conference and Exposition
Pittcon 2017 will be held in Chicago, Illinois at the McCormick Place March 5-9, 2017**

Dinner Reservations: Please email the SACP Administrative Assistant, Julianne Diddle at diddle@pittcon.org by Tuesday, January 31, 2017 to make dinner reservations. Should you not have email, please call 412-825-3220, ext 204. Dinner will cost \$10 (\$5 for students) and checks are to be made out to the SACP. If you have any dietary restrictions, please let Julianne know when you leave message. **Parking:** Duquesne University Parking Garage entrance is on Forbes Avenue. Upon entering the garage, you will need to get a parking ticket and drive to upper floors. Bring your parking ticket to the dinner or meeting for a validation sticker. Please contact Duquesne University, if any difficulties should arise.



JOB SEARCHING FOR CHEMICAL TECHNICIANS

Presented by

The Society for Analytical Chemists of Pittsburgh
The American Institute of Chemical Engineers, Pittsburgh Chapter
The American Chemical Society, Pittsburgh Section
The Spectroscopy Society of Pittsburgh

Friday, February 10, 2017

Pre-Registration is Required for this Free Event

HARBOR GARDENS, STUDENT SERVICES AREA CONFERENCE ROOMS
Bidwell Training Center, 1650 Metropolitan Street, Pittsburgh, PA 15233
412-323-4000

FREE ON STREET PARKING IS AVAILABLE

PROGRAM

- 8:30 A.M. Registration
- 9:00 A.M. **MANAGING AN EFFECTIVE JOB SEARCH**
Daniel J. Eustace, Ph. D.
Career Consultant, American Chemical Society
- 11:30 A.M. **OVERVIEW OF THE LOCAL JOB MARKET**
Joseph D. Jolson, Ph. D.
Career Consultant, American Chemical Society
- 12:00 Noon **INFORMAL LUNCH WITH QUESTION AND ANSWER SESSION**
- 1:30 P.M. CLOSE

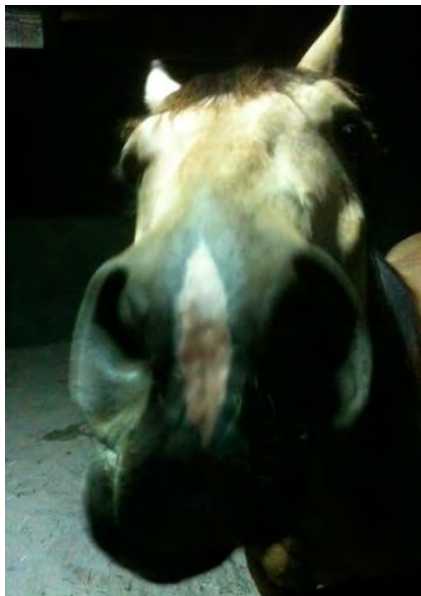
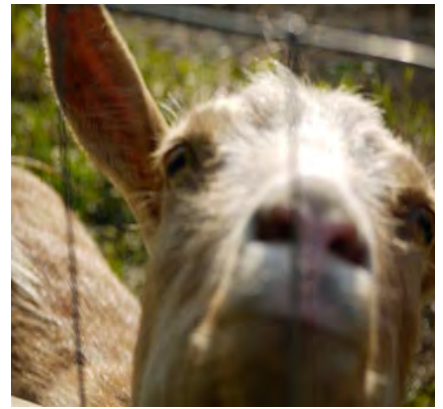
If you have a resume, bring it to the workshop

To Pre-Register for the Job Searching for Chemical Technicians Workshop
Send an email to Karen Johnson (412-323-4000 Ext. 161)

at:

kjohnson@manchesterbidwell.org

Your email must include your full name, complete contact information including address, phone number and email address.

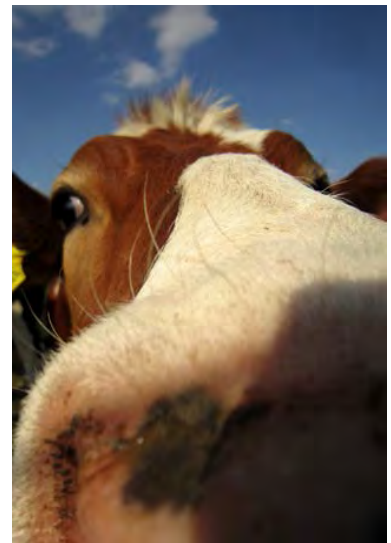


Do you smell that???

Save the Date

Tripartite

Saturday May 20, 2017





JOB SEARCHING FOR CHEMICAL PROFESSIONALS

Presented by

The Society for Analytical Chemists of Pittsburgh
The American Institute of Chemical Engineers, Pittsburgh Chapter
The American Chemical Society, Pittsburgh Section
The Spectroscopy Society of Pittsburgh

Saturday, February 11, 2017

Pre-Registration is Required for this Free Event

**Room 150, Ashe Auditorium, Chevron Science Center, University of Pittsburgh
219 Parkman Ave. (off Bigelow Blvd.)**

Parking at Soldiers and Sailors Garage and Lunch Provided.

PROGRAM

- | | |
|------------|---|
| 8:30 A.M. | Registration |
| 9:00 A.M. | Welcome and Introduction |
| 9:30 A.M. | MANAGING AN EFFECTIVE JOB SEARCH
Daniel J. Eustace, Ph.D.
Career Consultant, American Chemical Society |
| 12:10 P.M. | OVERVIEW OF THE LOCAL JOB MARKET
Joseph D. Jolson, Ph. D.
Career Consultant, American Chemical Society |
| 12:30 P.M. | Networking Lunch |
| 1:00 P.M. | Resume Review and Personal Consultation |
| 4:00 P.M. | Close |

Bring your parking ticket for validation and your resume to participate in the afternoon program
(Undergraduates without a resume may participate in the afternoon group resume review)

To Pre-Register for the Job Searching for Chemical Professionals Workshop
Send an email to Evon L. Nigro

at:

nigro@pitt.edu

Your pre-registration must be received by Monday, February 6, 2017 and include your full name and complete contact information including address, phone number, email address and whether or not you expect to participate in the resume review. Academic registrants - please include university affiliation and university department. Let us know when you expect to complete your B.S., M.S., Ph.D., post-doc, or other assignment.



The Spectroscopy Society of Pittsburgh



February Meeting Wednesday, February 15, 2017

- 5:30 PM** Technology Forum Speaker's Presentation, Power Center Ballroom Section C
5:30 PM Social Hour – Power Center Fides Shepperson Suite
6:45 PM Dinner – Power Center Ballroom Section C
8:00 PM Business Meeting – Power Center Ballroom Section C
8:15 PM Technical Program Speaker's Presentation – Power Center Ballroom Section C

TECHNOLOGY FORUM

“Virtual Reality and the Future of Chemistry Education”

Jessie Schell
Schell Games, CEO

Chemistry, the most concrete of all sciences, can ironically be difficult for students because its concepts are so abstract. And while the idea of lab work in chemistry classes is incredibly inspiring to students, but the realities of lab work are often confusing, dull, and dangerous. In this talk, Jesse Schell will show how Schell Games is making use of Augmented and Virtual Reality to turn molecular structure and chemistry lab work into safe, fun, concrete hands-on activities that can lead students to the magic of chemistry and the mindset of a true scientist.

Bio on Page 8

TECHNICAL PROGRAM - 8:15 PM

“Neuronal Imaging and Single Molecule Electrochemistry with Fluorescence - Enabled Electrochemical Microscopy”

Bo Zhang
Chemistry Department, University of Washington

In this talk, I will present a new electrochemical technique developed in my laboratory at the University of Washington and its use in the study of neuronal activity and fundamental electrochemistry of single redox molecules. My group has developed Fluorescence-Enabled Electrochemical Microscopy (FEEM) as a powerful technique to study highly dynamic redox events. The central idea of FEEM is the use of a bipolar electrode to couple a redox reaction of interest, such as oxidation of dopamine, to a fluorogenic redox reaction so that one can use fluorescence microscopy to monitor electrochemical kinetics. Here, the oxidation or the reduction of a redox molecule on one pole of the bipolar electrode results in the generation of a fluorescent product on the other pole of the same electrode. The development and use of very large and uniform electrochemical arrays containing >106 ultramicroelectrodes and nanoelectrodes allows one to image complex,

Continued on Page 8

Dinner: Please register on-line at <http://www.ssp-pgh.org> to make dinner reservations **NO LATER THAN Friday, February 10, 2017 at noon**. Dinner will cost **\$10 (\$5 for students)** and checks must be made payable to the SSP. Please check the SSP Website for this month's Entrées. If you have any dietary restrictions, please indicate them when you RSVP. **Parking Instructions:** The Duquesne University Parking Garage is located on Forbes Avenue. Upon entering the garage, receive parking ticket and drive to upper floors. Pick up a parking chit at the registration desk upon entering the Power Center.



Spectroscopy Society of Pittsburgh

2017 Continuing Education 'Lab' Tour – Enhanced Experience at the National Aviary



WHEN: Saturday, April 1, 2017
10:00 am -12:00 pm

WHERE: **National Aviary**
Allegheny Commons West
700 Arch Street
Pittsburgh, PA 15212

Space is limited to the first 50 SSP/SACP members to register. Each member may bring ONE guest.

Lunch Reception: 12:30 PM at Old Town Buffet (860 Saw Mill Run Blvd, Pittsburgh, PA 15226)

Registration Deadline: March 28, 2017

Registration Fee: \$10/person (Make check payable to SSP)

Parking: Limited free parking space at Aviary

Parking reimbursement: only parking meter receipt is acceptable

2017 SSP Continuing Education 'Lab' Tour Registration Form

Member Name _____ Guest Name _____

Member Email _____ Member Telephone _____

Mailing Address _____

Are you coming to lunch? ___Yes ___No Is your guest coming to lunch? ___Yes ___No

Mail registration form with payment check (payable to SSP) to:

Ms. Amy Bovino

SSP-Continuing Education Committee

300 Penn Center Blvd, Suite 332

Pittsburgh, PA 15235

Toward A 'Smart' Patch That Automatically Delivers Insulin When Needed

"H2O2-Responsive Vesicles Integrated with Transcutaneous Patches for Glucose-Mediated Insulin Delivery"

ACS Nano

Treatment for certain diabetes cases involves constant monitoring of blood-glucose levels and daily insulin shots. But scientists are now developing a painless "smart" patch that monitors blood glucose and releases insulin when levels climb too high. The report on the device, which has been tested on mice, appears in the journal *ACS Nano*.

People with Type 1 diabetes don't make insulin — a hormone that regulates blood glucose, or sugar. Those with Type 2 diabetes can't use insulin effectively. Either way, glucose builds up in the blood, which can lead to a host of health problems, including heart disease, stroke, blindness and amputation of toes, feet or legs. To avoid these outcomes, people with Type 1 or advanced Type 2 diabetes regularly prick their fingers to measure blood-sugar levels, and some patients must inject themselves with insulin when needed. But sometimes, despite a person's vigilance, glucose levels can still get out of whack. Zhen Gu and colleagues wanted to come up with a simpler, more effective, shot-free way to manage diabetes.

The researchers developed a skin patch covered in painless microneedles that are loaded with tiny insulin-carrying pouches. The pouches are engineered to break apart rapidly and release the insulin in response to rising glucose levels. Diabetic mice wearing the patch maintained consistent concentrations of insulin in their blood. When these mice received a shot of glucose, their blood sugar levels spiked initially, but then fell to normal levels within two hours.

The authors acknowledge funding from the American Diabetes Association, National Institutes of Health and the National Science Foundation.

Spectroscopy Society of Pittsburgh Technology Forum Continued from Page 5

Biography Jesse is the CEO of Schell Games, a team of one hundred people who strive to make the world's greatest educational and transformational games, including Yale Medical's PlayForward: Elm City Stories, Water Bears VR, the Daniel Tiger's Neighborhood games, and Happy Atoms. Schell Games also creates pure entertainment content, such as the award-winning VR game, I Expect You To Die, and the comedy space game Orion Trail. Jesse also serves as Distinguished Professor of the Practice of Entertainment Technology at Carnegie Mellon University. Jesse has worked on a wide variety of innovative game and simulation projects for both entertainment and education, but he is best known for his award-winning book *The Art of Game Design: A Book of Lenses* and his predictions about the future of gaming technology. He is a previous chair of the International Game Developers Association, and former Creative Director of the Disney Virtual Reality Studio.

Spectroscopy Society of Pittsburgh Technical Program Continued from Page 5

dynamic redox events with exceedingly high spatial and temporal resolution. FEEM has been used for several applications including the study of dynamic formation of a diffusion layer, electrocatalysis screening, single nanoparticle collision, and the study of single redox events. A key application of FEEM is the study of single-cell exocytosis and neuronal communication in a functional neuronal network.

Biography - Bo is an Associate Professor of Chemistry at the University of Washington. His group is best known for the development and use of new analytical methods for studying heterogeneous electron transfer processes of single redox molecules and electrocatalytic nanoparticles. In addition, his group develops ultramicroelectrodes and nanoelectrodes and their massive arrays to study neuronal activity. His B.S. and M.S. degrees were obtained from Shandong University and Peking University, respectively. He worked with Henry White at the University of Utah and was awarded a Ph.D. in 2006. He joined the UW in 2008 after working in Andrew Ewing's lab at Penn State.

Pittsburgh Section Offers Travel Grants for Student Members

The Pittsburgh Section of the American Chemical Society has budgeted funds to help encourage undergraduate/graduate student participation in national and regional ACS meetings. The awards are intended to help defray meeting registration and travel-related expenses (lodging, transportation, per diem) for eligible students.

Click here for the application.

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Services

Volunteers Needed!

There are a number of volunteer opportunities in the Pittsburgh ACS section! If you are interested in volunteering, please contact Heather Juzwa at hljuzwa@shimadzu.com!

Crucible Deadline

The deadline for items submitted to The Crucible is the 15th of the month prior to publication.

For example, all items for the March 2017 issue must be to the editor by February 15, 2017.

The Crucible

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The Crucible

A newsletter of the Pittsburgh Section of the American Chemical Society

124 Moffett Run Rd.

Aliquippa, PA 15001

Change of Address

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To avoid interruption in delivery of your CRUCIBLE, please send your new address to Traci Johnsen, 124 Moffett Run Rd., Aliquippa, PA 15001. Allow two months for the change to become effective.

Pittsburgh Area Calendar

Monday, February 6

Society for Analytical Chemists of Pittsburgh

"Tunable Solid Phase Materials Using Ionic Liquid Chemistry"

Isiah M. Warner, Ph.D., Louisiana State University

Duquesne University, Power Center Ballroom Section C, Pittsburgh, PA

Friday, February 10

Job Searching for Chemical Technicians

Harbor Gardens, Student Services Area Conference Rooms

Bidwell Training Center, 1650 Metropolitan Street, Pittsburgh, PA 15233

Saturday, February 11

Job Searching for Chemical Professionals

Room 150, Ashe Auditorium, Chevron Science Center, University of Pittsburgh

219 Parkman Ave. (off Bigelow Blvd.), Pittsburgh, PA

Wednesday, January 18

The Spectroscopy Society of Pittsburgh

Power Center Ballroom Section C, Duquesne University, Pittsburgh, PA

Technology Forum

"Virtual Reality and the Future of Chemistry Education"

Jessie Schell, Schell Games, CEO

Technical Program

"Neuronal Imaging and Single Molecule Electrochemistry with Fluorescence - Enabled Electrochemical Microscopy"

Bo Zhang, Chemistry Department, University of Washington