Pittsburgh Section ACS Welcomes 2017 Chair
Dr. David Waldeck

During the past year the ACS Pittsburgh Section engaged in many activities aimed at supporting the professional chemistry community in our region and promoting chemistry in the region through outreach activities. With her energy and enthusiasm, Evonne Baldauff flawlessly led our officers, directors, councilors, group leaders, committee members, and volunteers in serving our members and general community. We hosted and participated in numerous activities that bring educational chemistry experiences to K-12 students and the general community. We also provided numerous support and workshop activities for one another in grant-writing, job searching, and networking. We recognized the significant accomplishments of students and colleagues through our awards activities. These and other activities of the section benefit all of us and the chemistry profession, in general. I thank Evonne and everyone who committed their time, energy, and expertise toward these laudable pursuits.

Yet, the Society and the local section face important challenges. With the general rise in the public’s skepticism of science and its implications, it is more important than ever to bring quality educational experiences for our colleagues and for the general public. Thus I encourage you to consider donating your time or expertise in some way during the coming year to promote a better appreciation for science and, in particular, chemistry amongst the general public. A challenge more specific to the local section is the decreasing percentage of members who read the Crucible. As it has been our primary means of communication over the past decades, we will certainly continue its production for the near term; however, we will be embarking on more aggressively promoting communication through other forms of social media; and I encourage you to visit our webpage at www.pittsburghacs.org and join our Facebook group: www.facebook.com/groups/PittsburghACS/. More importantly, send us your ideas as to how the local section can better serve you, by sending an Email to dave@pittsburghacs.org.

As we all step into the new year let’s work together to accomplish our Section’s goals. Let’s volunteer for something new. Let’s be innovative. Let’s help to educate and excite others. Let’s share our love for chemistry and the perspective it provides on the natural world.

2017 Pittsburgh Section ACS Chair, Dr. David Waldeck
"Developing Deep UV Raman Standoff Spectrometers for Explosives: Novel Instrumentation and Photophysical Properties"

Sanford A. Asher, Ph.D.
University of Pittsburgh

Abstract: Kyle Hufziger, Sergei Bykov, Katie Gares and Sanford Asher are developing deep UV resonance Raman standoff spectrometers to detect trace explosives. For this effort we are developing revolutionary compact UV lasers, ultrahigh efficiency spectrometers and novel imaging spectrometers. We will discuss our rastering instrument and a new imaging instrument that utilizes a novel photonic crystal narrow wavelength band selection optic. We are developing methodologies to detect explosives at standoff distances greater than 2 m. We are exploring the spectroscopic signatures of explosives as well as their photochemistries, which gives rise to specific dynamic spectral signatures. We will discuss the exciting deep UV Raman spectral signatures of NaN3, NH4NO3, TNT, RDX, PETN and HMX and compare their behavior to the more boring signatures of typical lazy molecules.

Biography: Sanford A. Asher, Distinguished Professor of Chemistry at the University of Pittsburgh received his B.A. in chemistry at the University of Missouri, St. Louis in 1971 and completed his Ph.D. in chemistry at the University of California, Berkeley in 1977. Dr. Asher was a Research Fellow in Applied Physics at Harvard University between 1977 and 1980, and in 1980 he became Assistant Professor of Chemistry at the University of Pittsburgh. Dr. Asher’s research program at Pitt involves development of new materials and the development of new spectroscopic techniques. His group developed UV resonance Raman spectroscopy as a new technique for fundamental and applied structural and trace studies of molecules in complex matrices. His group is using UV resonance Raman to examine the first stages in protein folding. In addition, they are investigating the use of UV resonance Raman for the detection of explosive molecules, especially for stand-off detection. They are working with others in developing a deep UV Raman instrument for NASA’s 2020 Mars lander. In addition, Dr. Asher’s research group develops new photonic crystal optical devices and chemical sensing devices from self-assembling colloidal particles. He pioneered the development of smart hydrogel materials for chemical sensing.

Dr. Asher received numerous awards. He is the recipient of the 2016 SAS Honorary Membership Award, was named the 2016 14th Henry Kuivila Lecturer, University at Albany, SUNY, 2016 Society of Analytical Chemists of Pittsburgh (SACP) Award in Analytical Chemistry, 2015 FACCS Charles Mann Award in Applied Raman Spectroscopy, the 2011 Charles E. Kaufman Award and the 2008 Pittsburgh Spectroscopy Award. He became a Fellow of the Society of Applied Spectroscopy in 2007, and received the Sigi Ziering Award from the American Society of Clinical Chemistry in 2005. The University of Missouri awarded him the 2004 St. Louis Distinguished Alumni Award. He won the 2002 ACS Pittsburgh Award, and the 2002 Ellis Award.

Dinner Reservations: Please email the SACP Administrative Assistant, Julianne Diddle at diddle@pittcon.org by Tuesday, January 3, 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 Valerie 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.
Mr. Beatty will give an overview of the current uses of natural gas in our region. He has considerable direct experience in designing and building compressed natural gas fuel stations. He recently completed his sixth natural gas fueling station in Pennsylvania. Mr. Beatty will be describing virtual pipeline, energy, and methane derivatives markets, which integrate small-scale producers of CNG, LNG, GTLs in order to advance innovative uses for PA indigenous natural gas into the transportation sector. The focus of his presentation will be on the implementation of vertical integration from well head to finished product, leveraging the best management practices for by-products utilization. Among his current endeavors, he will also be discussing the 400 acre “Sunnyside Energy Park” that is in the process of being constructed in Jefferson County, a site that will include over 1,000 small gas wells to be utilized in various energy applications. His main purpose is to create a sustainable, profitable market for stranded natural gas supplies and to supply resource-isolated markets.

Robert H. Beatty, Jr. is an award-winning speaker, avid compressed natural gas (CNG) advocate, and CEO of “O” Ring CNG Fuel Systems, L.P.—a PA company dedicated to both promoting and providing a pathway for the use of CNG as a vehicle fuel. He holds certifications from the Natural Gas Vehicle Institute (NGVI) of America in both CNG Fuel Station Design & Construction and CNG Fuel Station Management and has over 30 years of experience in the natural gas and compression industries. Robert is passionate about changing the landscape of the transportation sector by increasing the use of natural gas to provide a cleaner, more affordable, domestic fuel source for Americans.

Please make a reservation by contacting Elliott Bergman at elliott.acstechnology@gmail.com by 5:00 P.M. on Jan. 7, 2017.

Making a reservation in advance allows us to arrange for an appropriately sized meeting room. Walk-Ins are still welcome. Our meetings are open to all. Menu includes the all-you-can-eat buffet at a cost of $20 per person. Wine and alcoholic beverages can be ordered at an additional charge from the wait staff.
Waiting with bated breath....

Save the Date
Tripartite
Saturday May 20, 2017
The Spectroscopy Society of Pittsburgh

January Meeting
Wednesday, January 18, 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

“Zika Virus and Microcephaly: Old Biology and New Realities”

Jennifer Adibi MPH, ScD
Assistant Professor, Department of Epidemiology, Department of Obstetrics, Gynecology and Reproductive Sciences
University of Pittsburgh

Based on the first wave of data from Brazil in early 2016, the U.S. C.D.C. declared strong certainty in the causal relationship between exposure to Zika virus in pregnancy and the risk of the child being born with microcephaly. The quantitative estimates of absolute and relative risk vary widely based on different assumptions made in the models. So far, there are only 2 published empirical studies that offer unstable estimates of risk. It is a rare event when an epidemiologist can watch a teratogenic investigation unfold in real time. In this presentation, I will provide updates in terms of what we know about

Continued on Page 9

TECHNICAL PROGRAM - 8:15 PM

“How Structure and Dynamics Dictate Specificity and Regulation in a Superfamily of Phosphatases”

Karen N. Allen
Boston University, Department of Chemistry, Boston, MA

The haloalkanoate dehalogenase superfamily (HADSF) of enzymes is a ubiquitous superfamily represented in the proteomes of organisms from all three domains of life, wherein its members participate in numerous diverse biological processes. Because of the occurrence of the family in all domains of life and the number of homologues within each organism the members provide numerous examples of orthologues to study determinants of specificity and paralogues to study function diversification. The HADSF has successfully evolved several forms of chemical transformation and has experienced expansion through substrate space. Notably, members show “substrate blurring”, with activity toward a number of substrates and significant substrate overlap between “paralogues”. Other family members have been honed to a specific substrate with high catalytic efficiency and proficiency. The construction of the family is functionally modular, with

Continued on Page 9

Dinner Reservations: Please register on-line at http://www.ssp-pgh.org, Monthly Meetings, to make dinner reservations NO LATER THAN Friday November 10, 2016 @ noon. Dinner will cost $10 ($5 for students) and checks must be made payable to the SSP. 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.
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.
The annual Awards Banquet for the ACS Pittsburgh Section was held on Tuesday, November 29th, 2016 at the Grand Concourse in Station Square. Professor Neil Donahue was the recipient of the 2016 Pittsburgh Award, in recognition of his significant scientific accomplishments. Neil is also a former Chair of the local ACS section. In a break with tradition, the Service award was made to the sister societies, Spectroscopy Society of Pittsburgh (SSP) and the Society of Analytical Chemists of Pittsburgh (SACP), in recognition of their important contributions to promoting science and their ongoing support of the Pittsburgh ACS section. Karen Johnson, SSP Chair, and Melinda Stevens, SACP Chair, were present to receive the Distinguished Service awardee on behalf of the societies.

The ceremony was held after the dinner and was begun by Evonne Baldauf who recognized the contributions of former ACS Section chairs. Eight former chairs were present to celebrate.

The Distinguished Service Award was established in 2007 to recognize outstanding volunteer service to the section. Mackenzie Speer described the contributions of the SACP and SSP and presented the award to Melinda Stephens and Karen Johnson. A former Distinguished Service Award winner, Dr. Richard Danchik was in attendance.

The Pittsburgh Award was established in 1932 by the Pittsburgh Section of the ACS to recognize outstanding leadership in chemical affairs in the local and larger professional community. Professor Linda Peteanu, Professor and Chair of chemistry at the Carnegie Mellon University, introduced her colleague, Dr. Neil Donahue. Former Pittsburgh Award winners, Dr. David Waldeck and Dr. Kris Matyjaszewski, were present to celebrate the event.

Professor Asher served as the Co-Director of the Materials Research Center of the University of Pittsburgh. He was the Chairman of the XV International Conference on Raman Spectroscopy held in Pittsburgh in 1996. He is Scientific Founder and Chairman of the Scientific Advisory Board of the startup company Vytrace Corp. (previously Glucose Sensing Technologies, LLC.), and is on the Scientific Advisory Boards of BioTools Inc. and Crystalplex Co. He consults for companies such as PPG Industries, ChemImage Corporation, Glucose Sensing Technologies, LLC, and ThermoFisher Co.

He is the author of greater than 295 publications and is an inventor in over 30 patents in the area of photonic crystals.
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.
Zika virus, its spread to other countries, and the risk of microcephaly. I will take a slightly deeper dive into the value and importance of understanding a critical mediator of this relationship - the placenta.

Biography Jennifer Adibi holds an A.B. in Russian Studies from Brown University, a M.P.H. in Environmental Health from Columbia University and a doctorate in occupational and environmental epidemiology from the Harvard T.H. Chan School of Public Health. She joined the faculty at the University of Pittsburgh School of Public Health in 2013 after post-doctoral training in placental and stem cell biology at the University of California, San Francisco. Jennifer has taken a multidisciplinary approach to her research on environmental exposures to the fetal origins of health and disease, which has led her down an exciting path of inquiry. Her career in science began with several adventure-filled years traveling and developing collaborations with mass spectrometrists working on dioxin contamination in post-Soviet Russia.

Spectroscopy Society of Pittsburgh
Technical Program Continued from Page 5

Biography - Karen N. Allen received her B.S. degree in Biology, cum laude from Tufts University and her Ph.D. in Biochemistry from Brandeis University, where she was a Dretzin scholar. Her graduate studies in the laboratory of the mechanistic enzymologist, Dr. Robert H. Abeles, focused on the design, synthesis, and inhibition kinetics of transition-state analogues of esterases. Following her desire to see enzymes in action she pursued X-ray crystallography during postdoctoral studies as an American Cancer Society Fellow in the laboratory of Drs. Gregory A. Petsko and Dagmar Ringe. Since 1993 she has lead her own research team at Boston University, first in the Department of Physiology and Biophysics at the School of Medicine, and since 2008 in the Department of Chemistry where she is now a Professor. She is also on the faculty of both Bioinformatics and Pharmacology and Experimental Therapeutics at Boston University and recently was named Professor of Material Science and Engineering. Dr. Allen’s research has focused on the elucidation of enzyme mechanisms and on the understanding of how Nature has evolved new chemistries from existing protein scaffolds. Within this context, her laboratory has plumbed the basis of enzymemediated phosphoryl transfer and decarboxylation reactions. In addition, Dr. Allen has sought to provide new tools for the exploration of protein structure and function by the invention and implementation of lanthanide binding tags. Dr. Allen’s students and postdoctoral researchers have gone on to research positions in structural genomics institutes such as RIKEN, Japan and drug discovery companies including AstraZeneca and Novartis as well as in the academic arena as independent investigators. She has served on the Nominating Committee and as Program Chair of the Biological Chemistry Division of ACS and on Council and as Secretary of the ASBMB. Dr. Allen has been an invited lecturer and seminar speaker on over one-hundred occasions, and has chaired a number of national and international meetings.
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.

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.

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- Monthly Symposia by Prominent Researchers
- Promoting Science Education
To Join Call Amy: 412-825-3220 ext 212

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Stay up-to-date on all the happenings of the Pittsburgh Section ACS

Section’s Website: www.pittsburghacs.org

Facebook Page: Pittsburgh Section of the American Chemical Society

Linked In: Pittsburgh Section of the American Chemical Society
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 hjuzwa@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 February 2017 issue must be to the editor by January 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

Pittsburgh Area Calendar

Monday, January 9
Society for Analytical Chemists of Pittsburgh
Sanford A. Asher, Ph.D., University of Pittsburgh
Duquesne University, Power Center Ballroom Section C, Pittsburgh, PA

Tuesday, January 10
Pittsburgh Section ACS Energy Technology Group
“The Uses of Natural Gas in Western Pennsylvania”
Bob Beatty, Jr., CEO of O Ring CNG Fuel Systems L.P.
Old Town Buffet, 860 Sawmill Run Rd., Pittsburgh, PA

Wednesday, January 18
The Spectroscopy Society of Pittsburgh
Technology Forum
“Zika Virus and Microcephaly: Old Biology and New Realities”
Jennifer Adibi MPH, ScD, Assistant Professor, Department of Epidemiology, Department of Obstetrics, Gynecology and Reproductive Sciences, University of Pittsburgh

Technical Program
“How Structure and Dynamics Dictate Specificity and Regulation in a Superfamily of Phosphatases”
Karen N. Allen, Boston University, Department of Chemistry, Boston, MA

Duquesne University, Pittsburgh, PA

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