Submitted by Amy Short, PhD Candidate, University of Pittsburgh

I would like to take the opportunity to thank the ACS Pittsburgh Section for enabling me to attend the 250th ACS National Meeting and Exposition held in Boston, Massachusetts. My primary goal was to present some really exciting findings from my research project, but I took advantage of my time there to listen to seminars, attend workshops, visit the employment expo, explore Boston for the first time and re-connect with old colleagues. I had such a wonderful time there, and it would not have been possible without the student travel grant that you so generously provided.

Much of my time at the ACS meeting was spent listening to seminars given by speakers from the polymer and organic divisions. I presented at two national ACS meetings as an undergraduate researcher, but my years in graduate school have certainly given me a much greater appreciation for the amazing science that was showcased. Personal highlights included the plenary lecture by Paula Hammond on multilayered polymer surfaces tailored for drug release, the surprisingly philosophical Fred Kavli lecture given by George Whitesides, and several engaging lectures on expanding the scope of olefin metathesis and starting a small business by Nobel Laureate Bob Grubbs. Some of the most rewarding moments from the trip took place while I presented my work “Sequenced copolymers with controlled molecular weight prepared via entropy-driven ring-opening metathesis polymerization” at both the Polymeric Materials: Science and Engineering (PMSE) Division poster session and the Sci-Mix poster session. During these sessions, I was able to share my enthusiasm for my research findings with scientists of all backgrounds and levels of experience – including a few of my personal science “heroes.” For my efforts, I was awarded as a distinguished poster nominee for the PMSE Division.

In addition to research seminars and poster sessions, I also spent a great deal of time in the ACS-sponsored networking sessions, interviewing with potential employers at the career expo and attending career development workshops. These experiences were incredibly valuable and excitingly allowed me to secure

Continued on Page 8
Abstract: Electrochemical methods and mass spectrometry imaging provide powerful approaches to investigate neurotransmitter release and storage from and in single cells. Additionally, the fly model (Drosophila melanogaster) provides a unique system to examine neurotransmitter release and drug dependence mechanisms in a small, but complete system.

We have been using secondary ion mass spectrometry (SIMS) with a unique 40-kV argon cluster ion source and the NanoSIMS to measure the lipids across the fly brain and catecholamine in nanometer vesicles, respectively. Here, we have focused on the effect of a drug on lipid composition in the brain and on measuring transmitter in subregions of nanometer vesicles.

We developed electrochemical cytometry to separate nanometer vesicles, lyse them on an electrode surface, and amperometrically detect the active contents of each vesicle in a high throughput manner. We have developed a new method of electrochemical cytometry. The electrochemical response to single adrenal chromaffin vesicles filled with hormone transmitters as they impact a 33-um diameter disk-shaped carbon electrode will be shown. The vesicles appear to adsorb onto the electrode surface and sequentially spread out over the electrode surface trapping their contents against the electrode. These contents are then oxidized and a peak results for each vesicle that bursts. A large number of current transients can be observed if the concentration of vesicles is high relative to the area of the electrode. We have also been able to accomplish this type of cytometry in the cytoplasm of living PC12 and adrenal cells with a nanoelectrode. Comparison of the contents of these biological vesicles to the release of catecholamine from single cells supports the concept that only a fraction of transmitter is released during exocytosis. This might be highly important in understanding short-term memory in the brain and represents a new pharmacological target.
The 2014 Ebola epidemic in West Africa is the first in history. The first case was reported in Guinea in March 2014, and the disease spread in the neighboring countries of Liberia and Sierra Leone. Over the span of a year, the Ebola epidemic has caused more than 10 times as many cases of Ebola than the combined total of all those reported in previous Ebola outbreaks. Overall, nine countries have reported cases of Ebola, more than 27,000 people have had suspected, probable, or confirmed Ebola, and more than 11,000 have died. These numbers are likely to be even higher, as many cases have gone undiagnosed and unreported. Effective infection control can protect communities and the healthcare workers who serve them. Before the Ebola outbreak, infection control in health facilities in Guinea, Liberia, and Sierra Leone was often minimal at best. Fragile healthcare systems added to the rapid spread of the virus and made it difficult to contain the epidemic. In addition, community behaviors needed to change to keep people from getting Ebola when caring for people who were sick or participating in traditional burials. Responders on the ground in West Africa have been working closely with partners and the ministries of health to provide training and health education to reduce the spread of disease.

Bio on Page 9

TECHNICAL PROGRAM - 8:15 PM

“Raman Spectroscopy”

Molecular Analysis in the Nanometer Domain - Tip-Enhanced Raman Scattering

Volker Deckert, Jena University (Germany)

Nano science is omnipresent in modern research. Nanometer structuring of electronic circuits, toxicity assessment of nano particles are just a few examples where nano science already reached everyday life. Interestingly only a few analytical techniques can cope with such small dimensions. While electron and scanning probe microscopy provide impressive contrast and morphological distinction at such dimensions, direct chemical information is limited to the elemental composition. The Nobel Prize 2014 clearly indicated the importance of nanoscale sensitivity. Here labeling techniques in combination with clever illumination schemes are used to push fluorescence techniques to the lateral limit.

Interestingly the wealth of structurally sensitive analytical techniques available in combination with normal optical microscopy (IR, MS, Raman, etc.) is still restricted by Abbe’s / Rayleigh’s diffraction limit. As for now emission depletion and pointilistic fluorescence techniques cannot be used for those methods. As an alternative near-field optical techniques can be applied to overcome resolution limitations. Those techniques can still profit from the wealth of structurally sensitive optical methods.

Continued on Page 9

Dinner Reservations: Please register on-line at http://www.ssp-pgh.org to make dinner reservations NO LATER THAN Wednesday, February 10, 2016 at noon. Dinner will cost $10 ($5 for students) and checks must be made payable to the SSP. This month’s entrées TBD. 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 Chemical Society, Pittsburgh Section
The Spectroscopy Society of Pittsburgh

Friday, February 19, 2016
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

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:30 A.M.</td>
<td>Registration</td>
</tr>
<tr>
<td>9:00 A.M.</td>
<td>MANAGING AN EFFECTIVE JOB SEARCH</td>
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<td></td>
<td>Daniel J. Eustace, Ph. D.</td>
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<td>Career Consultant, American Chemical Society</td>
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<tr>
<td>11:30 A.M.</td>
<td>OVERVIEW OF THE LOCAL JOB MARKET</td>
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<td>Joseph D. Jolson, Ph. D.</td>
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<td>Career Consultant, American Chemical Society</td>
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<tr>
<td>12:00 Noon</td>
<td>INFORMAL LUNCH WITH QUESTION AND ANSWER SESSION</td>
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<tr>
<td>1:30 P.M.</td>
<td>CLOSE</td>
</tr>
</tbody>
</table>

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:

kjohson@mcg-btc.org

Your email must include your full name, complete contact information including address, phone number and email address.
JOB SEARCHING FOR CHEMICAL PROFESSIONALS

Presented by
The Society for Analytical Chemists of Pittsburgh
The American Chemical Society, Pittsburgh Section
The Spectroscopy Society of Pittsburgh

Saturday, February 20, 2016

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 Mr. John P. Auses
at:

jpauses@pitt.edu

Your pre-registration must be received by Monday, February 15, 2016 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 WOMEN CHEMISTS COMMITTEE AND UNIVERSITY OF PITTSBURGH ACS-SA BRING HOLIDAY CHEER TO VETS IN OAKLAND VA HOSPITAL

Thanks to the generosity of the friends and members of the Greater Pittsburgh Area Women Chemists Committee and the University of Pittsburgh ACS Student Affiliates 300 stockings were filled and delivered to 300 veterans on December 22, 2015. This year’s Adopt-A-Veteran number of stockings is up from 250 last year and 200 in 2013. In addition to passing out the stockings to the outpatients and inpatients on the 22nd, enough stockings were left for those patients who would be having treatment in the chemotherapy, radiation, and dialysis wards on the 23rd and 24th. Thank you to each of you that gave donations or your time!

UPCOMING EVENTS

Join the WCC for a Networking Dinner featuring a seminar by Dr. Jennifer Logan Bayline on February 8th. Jennifer is an associate professor in the Department of Chemistry at Washington & Jefferson College. She was a double major in chemistry and French at Rollins College and earned her PhD in chemistry from the University of Florida (with some of her graduate work being done at the Université Bordeaux in France). Dr. Bayline did postdoctoral work at Harvey Mudd College and is a National Science Foundation Graduate Research Fellow. Her research involves creating nanoscopic structures using diblock copolymers and developing these thin films as templates for other molecules. Dr. Bayline primarily teaches analytical chemistry but has also taught courses on perfume chemistry and art conservation. Her interest in perfume chemistry, in fact, stems from her undergraduate years when she visited a perfume factory while doing an internship in a French chemistry lab. She finds perfume to be an excellent topic for teaching molecular structure, extraction, synthesis, chromatography, and consumer safety.

Some other upcoming WCC events (more information will be available at www.pghWCC.org):

• Careers in Chemistry Symposium for High School Students
• Scientific Presentation Skills Workshop
• Scientific Writing Skills Workshop
• Self-Defense Workshop
• STEMulate Success High School Poster Session
• Girl Scout Workshop
Congratulations to Pittsburgh Section Member  
**Dr. Stephen Weber - 2016 Winner of the Chromatography Forum of Delaware Valley Dal Nogare Award**

Congratulations to Dr. Stephen Weber, the winner of the 2016 Chromatography Forum of Delaware Valley Dal Nogare Award. The award is given each year to the individual who is an outstanding scientist in the field of chromatography. The awardee is selected on the basis of his contributions to the fundamental understanding of the chromatographic process.

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Congratulations to Pittsburgh Section Member  
**Dr. Sandy Asher - 2016 Winner of the Pittsburgh Analytical Chemistry Award**

Congratulations to Dr. Sandy Asher, the winner of the 2016 Pittsburgh Analytical Chemistry Award. The award is established in recognition of an individual’s significant contributions to the field of analytical chemistry including:

- introduction of a significant technique, theory or instrument
- providing exceptional training or a fertile environment for progress in analytical chemistry

The winner receives a cash award and travel costs to Pittcon and will be included as a speaker in Pittsburgh Analytical Chemistry Award Symposium in his/her honor.

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**Applications for Student Travel Awards Now Being Accepted**

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. To apply for the funds, one should simply complete the application (available on our web site at www.pittsburghACS.org) and return it by the relevant deadline to:

Pittsburgh Section ACS  
Travel Grants  
Attn: Dr. Michelle Ward  
Room 107 / Chevron Science Center  
219 Parkman Avenue  
Pittsburgh, PA 15260

Each year, the Pittsburgh Section of the ACS will award up to four $500 grants to aid our undergraduate/graduate student members in presenting papers or posters at ACS Meetings. Awards will be made based on the scientific merit of the paper/poster to be presented and financial need. The deadlines for receipt of applications are 06/01/2016 (for travel to be completed by 12/31/2016) and 12/01/2016 (for travel to be completed by 06/30/2017).

Our Section is looking forward to helping increase the participation of local students in ACS conferences. If you have any questions, please do not hesitate to contact Dr. Michelle Ward, muscat@pitt.edu or 412-624-8064.
Fall 2015 ACS National Meeting: Keep it going in Boston by Student Travel Award Recipient Dhruv Shah

The latest national ACS meeting was held at Boston Convention Centre in August 2015. The thing which has attracts chemists from all around the globe to Boston is the vibe of the city which led to an increase in the attendance for the national meeting. The theme of the national meeting was “Innovation from the discovery to application” with special focus on new and emerging biological targets. The theme was discussed in numerous seminars detailing the long process of filing of a new drug application which starts with discovery of a new and potent chemical entity in laboratory. There were focused symposiums explaining each and every step of the filing process which was good for current graduate students giving them a feel of intricacies of the process in an industrial setting. In my experience ACS national meeting is a budding ground for prospective chemists from all backgrounds to meet with their peers which inspire them to pursue sciences as a career. The Kavli lecture on “reengineering chemistry” by George Whitesides was a big draw and featured numerous interfacial facets of chemistry. My favorite part of the ACS national meetings was the poster sessions (organic & medicinal chemistry) as the interaction is directly with person who performed the work. I got to see research work from a wide variety of chemistry topics from my peers which inspires me to do novel work. Overall attending ACS national meeting was a very pleasant experience for me and I would recommend it to anyone who is thinking about a career in chemistry.

I would like to thank the Pittsburgh section of American Chemical Society (ACS) for giving me a travel award for attending the Fall National Meeting August 16-20 2015.

Pittsburgh Section ACS Energy Technology Group Elects Officers

On January 13, 2016, the ACS-Pittsburgh Section’s Energy Technology Group (ETG) steering committee met at the Spaghetti Warehouse and selected Maggie Hall as program chair and Tim Grant as treasurer. Andy Takacs, Elliott Bergman, and Joe Jolson remain president, communications manager, and secretary, respectively.

Despite stepping down as program chair, Mordecai Treblow plans to remain active in the group. He and Al Mann are already working with Melissa Mann, site administrator of the Drake Oil Museum, to plan a series of award related events. Maggie Hall is excited about taking on her new responsibilities and has lots of programing ideas. The group is planning 5-6 dinner meetings this year, each featuring a local energy thought leader. The first meeting is tentatively scheduled for March.
Attention: Speakers Wanted

The Pittsburgh Section of the American Chemical Society is establishing a local speakers bureau and we would like for you to consider joining.

The speakers bureau will be available on our web site and will facilitate the connection between those organizing symposia and speakers from our area.

If you would like to be listed in the Bureau, please provide the following information:

- Name
- Affiliation
- Contact Information:
  - Mailing Address
  - Website (if applicable)
  - Email address
  - Phone
- Keywords/categories related to expertise (up to 5)
- Current CV/Resume (in pdf format)

Any questions should be directed to Michelle Ward (muscat@pitt.edu or 412-624-8064)

Spectroscopy Society of Pittsburgh February Meeting Continued from Page 3

Technology Forum Biography Justin M Hettick

BIOGRAPHY: Justin M. Hettick is a Research Chemist and Acting Team Leader for Bio-Organic Chemistry in the Allergy and Clinical Immunology Branch, Health Effects Laboratory Division of the National Institute for Occupational Safety and Health. He received a B.S. degree from Truman State University and a Ph.D. from Texas A&M University. He joined the National Institute for Occupational Safety and Health in 2003, where he completed a post-doctoral appointment before joining the staff as Research Chemist in 2006. He is a member of the American Society for Mass Spectrometry, and was the recipient of the Centers for Disease Control and Prevention’s Charles C. Shepard Award in 2005.

Technical Program

The presentation will mainly focus on Raman related near-field optical techniques to address nano domains. So-called tip-enhanced Raman scattering (TERS) will be shown to provide the means to structurally investigate nanometer sized domains on surfaces. Applications ranging from structure assessment of biologically relevant systems like fibrils and viruses, to the insight of heterogeneous catalyze reactions will be presented.

BIOGRAPHY: Institute of Physical Chemistry and Abbe Center of Photonics, Friedrich-Schiller University, Helmholtzweg 4, 07743 Jena, Germany
Leibniz Institute of Photonic Technology, Albert-Einstein-Str. 9, 07745 Jena, Germany

Get Connected!

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

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412-825-3220 Ext. 204 Right Now!

Spectroscopy Society of Pittsburgh
• Professional Networking within the Spectroscopy Community
• Monthly Symposia by Prominent Researchers
• Promoting Science Education
To Join Call Amy: 412-825-3220 ext 212

Get Connected!
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 hljuzwa@shimadzu.com!

Crucible Deadline

The deadline for items submitted to The Crucible is the 1st of the month prior to publication.

For example, all items for the March 2016 issue must be to the editor by February 1, 2016.

The Crucible

The Crucible is published monthly, August through May. Circulation, 2,500 copies per month. Subscription price, six dollars per year. All statements and opinions expressed herein are those of the editors or contributors and do not necessarily reflect the position of the Pittsburgh Section.

Design Editor: Traci Johnsen
124 Moffett Run Rd.
Aliquippa, PA 15001
Phone: 724-378-9334
tracijohnsen@comcast.net

Advertising Editor: Vince Gale
MBO Services
P.O. Box 1150
Marshfield, MA 02050
Phone: 781-837-0424
cust-svc@mboservices.net

PITTSBURGH SECTION OFFICERS

Chair
Evonne Baldauff
51 W. College St.
Waynesburg University
Waynesburg, PA 15370
Office: 724-852-7627
Cell: 765-914-425
ebaldauf@wayne.edu

Chair-Elect
Dave Waldeck
University of Pittsburgh
Room G-10
219 Parkman Avenue
Pittsburgh, PA 15260
412-624-8430
dave@pitt.edu

Secretary
Matthew Price
250 University Ave.
California, PA 15419
price@calu.edu
724-938-4153

Treasurer
Kelley Colopietro
2220 Eagles Nest Lane
Monroeville PA 15146
443-617-6792
kelley.colopietro@gmail.com
Pittsburgh Area Calendar

Monday, February 1
Society for Analytical Chemists of Pittsburgh
“Electrochemistry and Mass Spectrometry Imaging in Flies, Cells, and Vesicles”
Andrew Ewing, Ph.D., Chalmers University of Technology and University of Gothenburg
Duquesne University, Pittsburgh, PA

Monday, February 8
Greater Pittsburgh Area Women Chemists Committee
Networking Dinner
Dr. Jennifer Logan Bayline
Please see www.pghWCC.org for location information

Wednesday, February 17
Spectroscopy Society of Pittsburgh
Technology Forum
“Infection Prevention and Control in the West Africa Ebola Outbreak”
Justin Hettick, NIOSH (Morgantown)
Duquesne University, Pittsburgh, PA

Technical Program
“Raman Spectroscopy”
Molecular Analysis in the Nanometer Domain - Tip-Enhanced Raman Scattering
Volker Deckert, Jena University (Germany)
Duquesne University, Pittsburgh, PA

Friday, February 19
Job Searching for Chemical Technicians
Harbor Gardens, Student Services Area Conference Rooms
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Saturday, February 20
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Room 150, Ashe Auditorium, Chevron Science Center, University of Pittsburgh, 219 Parkman Ave. (off Bigelow Blvd.)