American Chemical Society Newsletter

Pittsburgh Section

The Crucible

Volume CIV, No. 7 March 2019

Call for Nominations

Pittsburgh Section of the ACS Pittsburgh Award

The Pittsburgh Award was established in 1932 by the Pittsburgh Section of ACS to recognize outstanding leadership in chemical affairs in the local and larger professional community. This Award symbolizes the honor and appreciation accorded to those who have rendered distinguished service to the field of chemistry. The Award consists of a plaque presented annually at a section dinner. Members of the Pittsburgh Section, or in exceptional cases, nonmembers, who have done work worthy of recognition toward increasing chemical knowledge, promoting the chemical industry, benefiting humanity, or advancing the Pittsburgh Section, are eligible for consideration.

The Distinguished Service Award

The Distinguished Service Award was established in 2007 by the Pittsburgh Section of the ACS to expand and replace the predecessor Chairman's Award of the section. Both recognize outstanding volunteer service to the Section. The Award, consisting of a plaque, is presented annually at a Section dinner, which is open to the public. Members of the Pittsburgh Section, past or present, who have provided outstanding service in advancing the Pittsburgh Section, are eligible for consideration.

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Nominations for both awards are solicited from the membership of the Pittsburgh Section. Please include your contact information, the nominee's contact information, any supporting letters, and the nominee's CV. More information about the awards, including information on past winners can be found on the ACS website: http://www.pittsburghacs.org/awards/pittsburgh-award/ Please send all nominations (or questions about nomination process) to Pittsburgh Section Chair-Elect, Dr. Matthew Price, **price@calu.edu**. Nominations are due by **Tuesday**, **September 1, 2019**.

Contents...

2019 CCEW Illustrated Poem Contest
Take Note: The Chemistry of Paper

The Pittsburgh Section of the American Chemical Society (ACS) is sponsoring an illustrated poem contest for students in Kindergarten - 12th grade. This regional contest is open to students who live in the following Ohio, Pennsylvania, and West Virginia counties:

Ohio: Jefferson; **Pennsylvania:** Allegheny, Armstrong, Beaver, Butler, Cambria, Clarion, Fayette, Greene, Indiana, Jefferson, Somerset, Venango, Washington, & Westmorland;

West Virginia: Brooke, Hancock, & Ohio

Contest Deadline: Entries must be received by Friday May 3, 2019.

Mail entries to Michael Mautino, 3485 Frye Ave, Finleyville, PA 15332

Questions, or to e-mail entries: michael.mautino@covestro.com

Prizes: $50 1st Place in each of 4 grade categories: K-2nd, 3rd-5th, 6th-8th and 9th-12th

Winners of the Pittsburgh Section ACS illustrated poem contest will advance to the ACS National Illustrated Poem Contest for a chance to be featured on the ACS website and to win prizes!

Write and illustrate a poem using the CCEW theme, "Take Note: The Chemistry of Paper." Your poem must be **no more** than 40 words and in the following styles to be considered:

HAIKU - LIMERICK - ODE - ABC POEM - FREE VERSE - END RHYME - BLANK VERSE

Possible topics related to paper chemistry include:

Bioplastics	Cellulose	Fiber	Lignin
Plastic	Polymer	Pulp	Slurry

Entries will be judged based upon:

Artistic Merit - use of color, quality of drawing, design & layout

Poem Message - fun, motivational, inspiring about yearly theme

Originality Creativity - unique, clever and/or creative design

Neatness - free of spelling and grammatical errors

Contest rules:

All poems must be no more than 40 words, and in one of the following styles to be considered: Haiku, Limerick, Ode, ABC poem, Free verse, End rhyme, and Blank verse.

Entries are judged based upon relevance to and incorporation of the NCW theme, word choice and imagery, colorful artwork, adherence to poem style, originality and creativity, and overall presentation.

All entries must be original works without aid from others. Poems may be submitted by hand on an unlined sheet of paper not larger than 11" by 14" or scanned and sent via email. Illustrations may be created using crayons, watercolors, other types of paint, colored pencils, or markers. The illustration may also be electronically created by using a digital painting and drawing app on a computer, tablet, or mobile device.

The text of the poem should be easy to read and may be typed before the hand-drawn or digital illustration is added, or the poem may be written on lined paper, which is cut out and pasted onto the unlined paper with the illustration.

No clipart or unoriginal images can be used.

Only one entry per student will be accepted; all entries must include an entry form. If the illustration is created using a digital painting or drawing app, the name of the program must be included on the entry form.

All illustrated poems and/or digital representations of the poems become the property of the American Chemical Society.

Acceptance of prizes constitutes consent to use winners' names, likenesses, and entries for editorial, advertising, and publicity purposes.

2019 CCEW Illustrated Poem Contest
Take Note: The Chemistry of Paper

Please fill out this entry form and attach to the back of the poems.

Parent/Guardian information may be left blank if Teacher contact information is provided.

The deadline for the Pittsburgh Local Section Contest is Friday, May 3, 2019.

Student and Organization Information			
Student Name:			
Grade:			
Parent/Guardian Name:		Parent/Guardian Email:	
Parent Address:			
City:		State:	Zip:
School or sponsoring group: *(e.g. Boys and Girls Club or Scout Troop, 4-H, etc.)*			
Teacher Name:		Teacher Email:	
School Address:			
Address Line 2:			
City:		State:	Zip:
Please send any follow up for the student to the school or parent address.			

Judging Category by Grade (Check one)			
K-2	3-5	6-8	9-12

FOR LOCAL SECTION USE ONLY	
Local Section Name:	Pittsburgh
CCEW Coordinator Name:	Michael Mautino

Pittsburgh Mass Spec Discussion Group

Practical Problem Solving with LC/MS – The Real World

A Pittcon Quality Course in our Backyard

Tuesday, March 5, 2019

Duquesne University – Power Center (8th Floor)

600 Forbes Ave, Pittsburgh PA 15282

Prerequisite and Target Audience

Recommended for Analysts who have used LCMS previously or who want to see real world problems solved with the use of LCMS. Anyone using HPLC now and considering adding an LCMS detector to see what it will add to their lab, anyone doing chemical research, pharmaceutical analysis, food chemistry, organic synthesis, environmental analysis, QC, structural analysis, etc. will benefit from this course.

Questions Answered

√ What sensitivity is possible/expected? What causes sensitivity loss? What can be done to improve sensitivity?
√ Which is the better mobile phase for LCMS, Methanol or Acetonitrile? How long can a mobile phase be used?
√ What additives can I use and what are the best? How much does concentration of additives/buffers matter?
√ What is the best HPLC column for LCMS?
√ How can I make more ions? How can I minimize multiply charged ions?
√ How can I determine the best settings for collision energy or voltages?
√ How can I improve quantitation reproducibility?
√ Is it better to have more resolution or more mass accuracy? What is spectral accuracy?
√ Does nitrogen purity matter?
√ What are the limitations of my current hardware?
√ What software can I use to mine my data more effectively? How do I incorporate data-dependent experiments into my projects?

Cost

Professionals: $25.00 Students: $15.00 Parking not included. Coffee and buffet lunch included.

Registration is limited to the first 50 people.

Please RSVP by Tuesday, February 26, 2019.

Make check payable to SSP and mail the registration form below to:
Heather Juzwa, Chair 2018-2019 SSP MSDG, 321 Winners Circle, Canonsburg, PA 15317

Name: _____ Affiliation: _____

Mailing Address: _____

Phone: _____ Email: _____

MS Instrumentation and software currently utilized: _____

Please indicate dietary restrictions.

Practical Problem Solving with LC/MS – The Real World

A Pittcon Quality Course in our Backyard

Tuesday, March 5, 2019

Duquesne University – Power Center (8th Floor)

600 Forbes Ave, Pittsburgh PA 15282

9:00 AM – 4:00 PM

Abstract

This is a course in LCMS for people who have done some LCMS previously. It focuses on the practical aspects of LCMS. The key understanding will be the 'what, where, why and how' of LCMS including real world examples at each step. The course will pose various problems that people have and then show ways to solve each question. For example, one of the questions will be 'Why are my results changing when I haven't changed anything?' or 'How much can I improve my sensitivity without having to buy new hardware?'

Numerous practical applications will be used to illustrate key points such as how different classes of molecules ionize or how simple changes in chemistry affects sensitivity. It thoroughly explores how to avoid the pitfalls and problems most common for users of LCMS such as how to prepare a sample for LCMS analysis and how to develop LCMS friendly methods. The course will show how to deal with complex samples, improve sensitivity, and speed up analyses. Identification of common impurities and artifacts will also be covered. It will also explore specific application areas including data mining software.

About our Trainers

The presenters have more than 50 years combined expertise with mass spectrometry. They teach these very course concepts at Pittcon and other conferences.

Bob Classon has several decades of experience with applications for both HPLC and LCMS, having worked at Waters Corporation and Shimadzu Scientific Instruments, Inc.. His focus is on getting better results from your existing instrumentation and improving sensitivity. He has delivered numerous talks, short courses and publications on chromatography and mass spectrometry.

Ross Willoughby has Pittsburgh roots and did his undergrad at the University of Pittsburgh. He was formerly the Vice President of R&D for Extrel, and is a pioneer in hardware design for mass spec. He is co-inventor of Particle Beam LC/MS, and has built LC/MS instruments. Ross has over 50 patents issued on mass spectrometer technology, and is also co-author of the popular book "A Global View of LC/MS."

Practical Problem Solving with LC/MS – The Real World

A Pittcon Quality Course in our Backyard

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Duquesne University – Power Center (8th Floor)

600 Forbes Ave, Pittsburgh PA 15282

9:00 AM – 4:00 PM

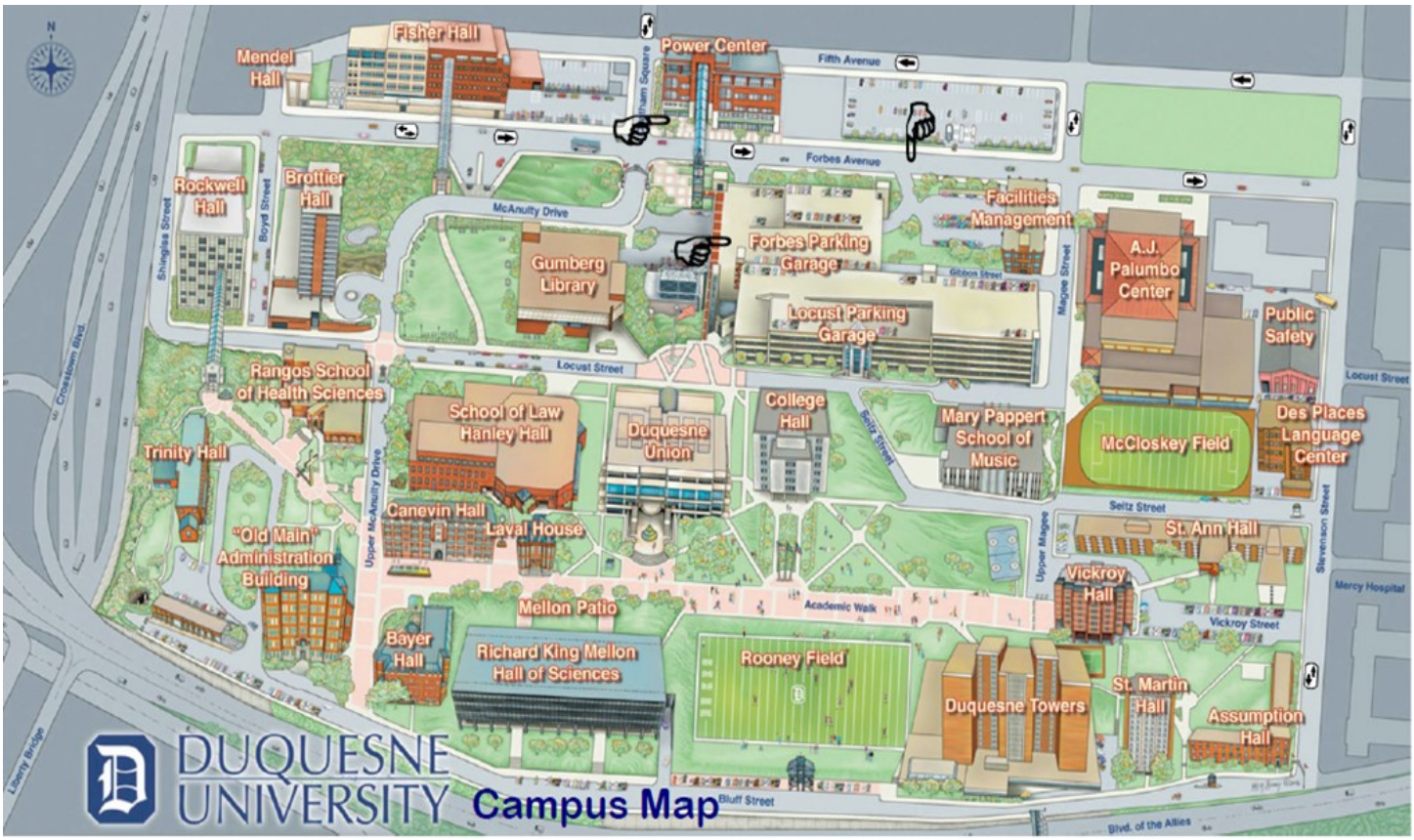
Finding the Power Center

The Power Center is located at 600 Forbes Avenue, Pittsburgh, PA 15282. There is a parking garage adjacent to the Power Center, also at 600 Forbes Avenue.

From the parking garage, take the elevator to the 8th floor level. At this level, go to the right and walk through the enclosed Skywalk to the Power Center Ballroom.

Once in the Power Center, you will be on the 5th floor where the Ballroom is located.

For driving directions to Duquesne University, please go to their website: www.duq.edu, under "About DU" then under Campus Map.



PITTCON 2019
CONFERENCE & EXPO

The Visible Difference
In Laboratory Science Expositions

Join thousands of chemists and scientists from around the world at Pittcon, an all-in-one event offering a high-caliber technical program, skill-building short courses and a dynamic exposition showcasing the latest scientific instrumentation and services. We are proud to have the ACS as a co-programming partner again for Pittcon 2019. Don't miss the ACS Poster Session, Symposia, Awards Lecture and other presentations lead by your fellow members.

Pennsylvania Convention Center | Philadelphia, PA | March 18 - 21 | www.pittcon.org

CARLOW UNIVERSITY

Department of Chemistry

College of Learning and Innovation

February 2019

The Department of Chemistry at Carlow University invites applications for a full-time non-tenure track Chemistry Laboratory Instructor with an anticipated start date of August 2019. A broad knowledge of chemistry and proficiency in a diverse array of laboratory skills is essential. The position entails teaching undergraduate laboratory sections across the program curriculum possibly including general, organic, chemical principles, and physics.

Carlow University, a private, Catholic, liberal arts, comprehensive University in Pittsburgh, PA. Carlow University was founded in 1929 by the Sisters of Mercy, an international community of Roman Catholic women with a mission to serve the poor, the sick, and the uneducated. Carlow, an institution grounded in the liberal arts while also offering strong professional programs, is committed to engaging its diverse community in a process of life-long learning, scholarship, research, and service. Degrees are offered at the baccalaureate, master's, and doctoral levels. Carlow is recognized as a College of Distinction, a Catholic College of Distinction, and a Pennsylvania College of Distinction for 2018-19. Carlow has also been selected by Abound as a provider of Top Degrees for Adult Undergraduates for 2017 and is regionally ranked by US News & World Report. The University was recently named one of Money Magazine's "Best Colleges for Your Money."

We seek an innovative leader with the following qualifications:

• M.S. or Ph.D. (preferred) in Chemistry

• Teaching experience is preferred, as well experience helping students transition to college-level coursework

• Able to work both independently and as part of a team and should have strong written and oral communication skills

Please submit curriculum vitae, letter of introduction, statement of teaching philosophy, unofficial copies of undergraduate and graduate transcripts, and the names, addresses, e-mail addresses, and phone numbers of three professional references. Only completed packets will be advanced in consideration. Review will begin immediately and continue until an appointment is made.

Carlow University employees commit themselves to the highest standards of ethical conduct. They commit to act with integrity, treat others with respect and dignity, carefully steward the University's resources, avoid conflicts of interest or commitment, maintain confidentiality, and to comply with legal and professional obligations.

Carlow University is an Equal Opportunity/Affirmative Action Employer. We strive for a campus that reflects our urban setting and is inclusive of underrepresented groups to enhance our University community.

Visit: https://www.carlow.edu/Employment.aspx For more information and to apply.

2019 Mildred Perry Memorial Lecture

Dr. Megan Matthews

Dept of Chemistry, University of Pennsylvania

Date & Time: Tuesday April 16, 7 PM

ACS Meeting at 6:15 PM in SFU Sci. Ctr 219

Reception: 6:30-7 on 2nd floor Atrium

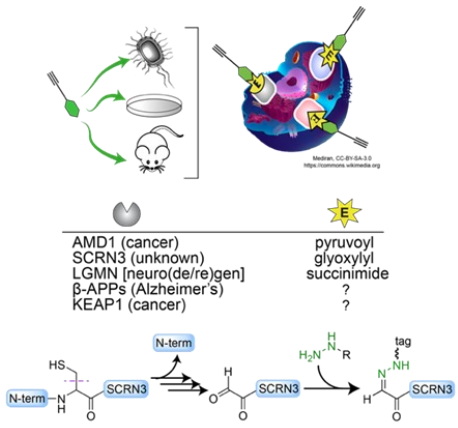
Location: Saint Francis University Science Center- Room 024

117 Evergreen Drive, Loretto, PA 15940

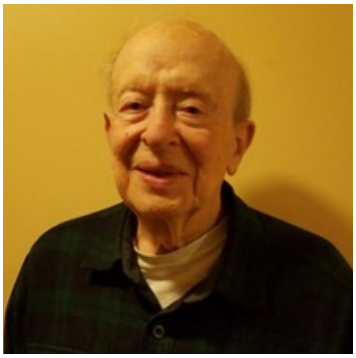
To register or for more information, please email Edward Zovinka at ezovinka@francis.edu

"Chemical Biology to Discover Functional Post-Translational Modifications of Proteins"

Abstract Intrinsic nucleophiles abound but electrophiles are essentially absent among the common, proteinogenic amino acids, resulting in activity-based protein profiling (ABPP) probes that have historically targeted nucleophilic functionality. However, by post-translational processing and binding of exogenous small molecules, proteins do incorporate and subsequently deploy more than ten classes of *electrophiles* for catalysis and other essential functions. At the current state of knowledge, electrophilic post-translational modifications (PTMs) are not generally predictable from primary structure, and untargeted proteomics approaches often fail to detect them. For these reasons, such species are almost certainly more prevalent than is currently appreciated. To delineate the scope of this other functional half of the proteome (the 'electrophilome'), we developed the first chemically unbiased *de novo* screen for protein-bound electrophiles. Using a set of probes containing reactive N-N/O nucleophiles, we detected hitherto undiscovered electrophiles in enzymes and non-enzymes that have been targets for design of drugs against Alzheimer's disease and cancer. Additionally, a previously unknown protein modification, an *N*-terminal glyoxylyl group formed from a cysteine residue, was found in an uncharacterized protein (human Secernin3) thought to use the encoded Cys as a *nucleophile* for a hydrolysis reaction. Discovery of this new species immediately raised three compelling questions that will be discussed in this seminar: (1) what novel function or reactivity does this electrophilic functional group impart to the mature Secernin3 protein (i.e., *what does the glyoxylyl do?*); (2) what enzyme machinery exists to install the novel PTM (i.e., *how does it get there?*); and (3) what other organisms and proteins/enzymes possess a glyoxylyl, and in what other reactions and pathways is it involved (i.e., *where else is it and why?)*? These discoveries will illuminate enzyme cofactors and other essential protein-bound modifications as druggable targets, thereby providing new strategies for therapeutic intervention in several human pathologies including cancer, neurodegenerative diseases and antibiotic-resistant bacterial infections.



Bio Megan started her faculty position in the Department of Chemistry at the University of Pennsylvania in July 2017. She received her B.A. in Chemistry from Miami University, OH in 2005. She then received her Ph.D. in 2011 in bioinorganic chemistry from Pennsylvania State University under Marty Bollinger and Carsten Krebs. Upon graduation, she performed her postdoctoral studies at Scripps Research in the chemical biology laboratory of Prof. Benjamin Cravatt as a Helen Hay Whitney Fellow.

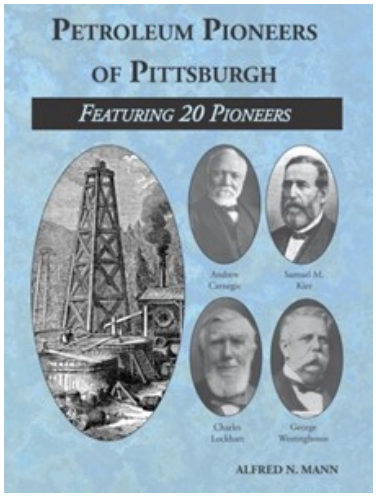


Long-time Energy Technology Group Member Al Mann has Published a Book Petroleum Pioneers of Pittsburgh

Alfred Mann received a B.S. in Chemical Engineering from Cornell University and an M.S., also in Chemical Engineering, from the University of Pittsburgh. He retired in 2006 from the National Energy Technology Laboratory of the U.S. Department of Energy, Pittsburgh, PA, where he served as a support contractor. He was previously employed by Gulf Research & Development Corporation from 1957 to 1983, where he was Director of Process Economics.

He was instrumental in the Pittsburgh Local Section receiving the 2009 National Chemical Historic Landmarks Award from the National ACS for The Development of the Pennsylvania Oil Industry. See more http://www.pittsburghacs.org/archives/national-historic-chemical-landmark/

Order forms can be found on page 11 of this issue of The Crucible.
Order your copy today!



This work gathers and interweaves the stories and oil/natural gas business ventures of the following Pittsburgh men who helped develop and lead this emerging energy industry from the 1850s into modern times:

Michael L. Benedum, Ebenezer Brewer, Andrew Carnegie, John W. Chalfant, John Eaton, John H. Galey, James M. Guffey, David Hostetter, Samuel M. Kier, Charles Lockhart, Andrew W. Mellon, Richard B. Mellon, Joseph N. Pew, Sr., Thomas W. Phillips, Sr., John Pitcairn, Jr., Joseph C. Trees, Herbert W. C. Tweddle, Jacob J. Vandergrift, George Westinghouse, John Worthington

Two Pittsburgh Section ACS Members Win National Awards

University of Pittsburgh R.K. Mellon Professor and Chair of Physics and Astronomy Hrvoje Petek has won the Ahmed Zewail Award in Ultrafast Science and Technology. Sponsored by Ahmed Zewail Endowment Fund established by the Newport Corporation, this award recognizes outstanding and creative contributions to fundamental discoveries or inventions in ultrafast science & technology in areas of physics, chemistry, biology, or related fields.

Congratulations, Hrvoje!

Carnegie Mellon University J.C. Warner Professor of Natural Sciences and 2001 Pittsburgh Award winner Krzysztof Matyjaszewski has won the ACS Award in the Chemistry of Materials. Sponsored by DuPont, this award recognize and encourage creative work in the chemistry of materials.

Congratulations, Krzysztof!

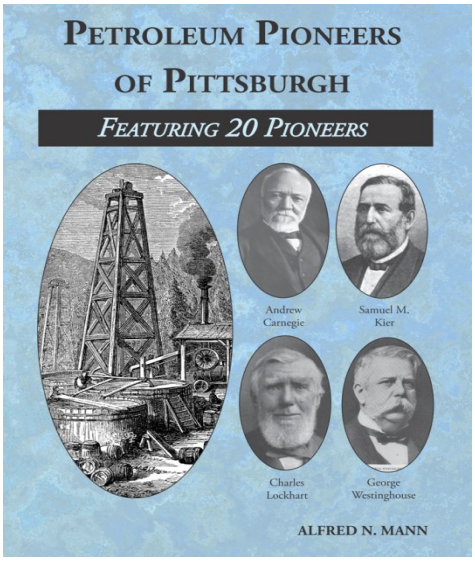
Petroleum Pioneers of Pittsburgh

Alfred N. Mann

Hardcover with dust jacket, 325 pages, 8½ in. x 11 in.

This work gathers and interweaves the stories and oil/natural gas business ventures of the following Pittsburgh men who helped develop and lead this emerging energy industry from the 1850s into modern times:

Michael L. Benedum, Ebenezer Brewer, Andrew Carnegie, John W. Chalfant, John Eaton, John H. Galey, James M. Guffey, David Hostetter, Samuel M. Kier, Charles Lockhart, Andrew W. Mellon, Richard B. Mellon, Joseph N. Pew, Sr., Thomas W. Phillips, Sr., John Pitcairn, Jr., Joseph C. Trees, Herbert W. C. Tweddle, Jacob J. Vandergrift, George Westinghouse, John Worthington



Order Details

Quantity: _____	@ $55.00/copy	$_____		Sales tax
Shipping:	$5 any quantity, $0 for on site pickup	$_____		
	Sub Total:	$_____		$$ | 7%
Sales Tax:	7% for Allegheny Co. (incl. 6% PA sales tax)	$_____		55 | 3.85
	Order Total:	$_____		60 | 4.20
Payment method:	( ) Check ( ) Cash ( ) Invoice by mail			110 | 7.70
Customer Name:				115 | 8.05
Company Name:				165 | 11.55
Billing Address:				170 | 11.90
Shipping Address:				
(if other than Billing Address)				
Customer Email				
Customer Phone				

Orders may be placed by mail, phone or email:

Mail: Alfred N. Mann
Longwood at Oakmont
151 Overlook Drive
Verona, PA 15147
Phone: 412-826-5834 Email: amann23451@gmail.com

2019 Tripartite CHEMISTS WITHOUT BORDERS

Saturday, May 18, 2019, 8:30 am – 1:00 pm

Carlow University – AJ Palumbo Hall of Science and Technology
3333 Fifth Avenue, Pittsburgh, PA 15213

8:30	**Registration and Opening Remarks**
9:00	**Chemists Without Borders: Past, Present and Future** Dr. Bego Gerber
9:45	**Applying Chemistry to Solve Problems in the Developing World** Dr. Ronda Grosse
10:30	**Intermission**
10:40	**Studying Abroad in Chemistry: An Opportunity for Undergraduate Chemistry Researchers to have an International Impact in Chemical Education** Dr. Bakarr Kanu
11:25	**Chemists Without Borders Arsenic Project Development: Confronting the largest mass poisoning of a population in history by providing clean water in Bangladesh** Dr. Steve Chambreau
12:10	**Luncheon and Discussion**

OPEN TO THE PUBLIC

Please register by Friday, May 10th.
Registration Fee: $10 - Luncheon & Parking* Included
(* Parking in lot at 3333 Fifth Avenue)
Please make check payable to SSP and mail the Registration Form below to:
Heather Juzwa, SSP - Tripartite Symposium
321 Winners Circle, Canonsburg, PA 15317

TRIPARTITE 2019 REGISTRATION FORM

Name: _____ **Affiliation:** _____

Mailing Address: _____

Email: _____ **Phone:** _____

_____ **I am attending the luncheon.** **Dietary Restrictions:** _____

CHEMISTS WITHOUT BORDERS

Tripartite Symposium
May 18, 2019

Dr. Bego Gerber

- Chemists Without Borders: Past, Present and Future

Dr. Ronda Grosse

- Applying Chemistry to Solve Problems in the Developing World

Dr. Bakarr Kanu

- Studying Abroad in Chemistry: An Opportunity for Undergraduate Chemistry Researchers to have an International Impact in Chemical Education

Dr. Steven Chambreau

- Chemists Without Borders Arsenic Project Development: Confronting the largest mass poisoning of a population in history by providing clean water in Bangladesh

Chemists Without Borders: Past, Present and Future

Bego Gerber

Hear the remarkable story of some remarkable people making a remarkable difference. What are the foundations of Chemists Without Borders? Why does it exist? How does it work? Why does it matter? Who is affected? What have we learned? Where do we all fit in? What is possible?

Bego Gerber is Managing Director of Business Development International, a lifestyle marketing company, and is an Executive Associate accredited by the Institute for Independent Business. Dr Gerber's expertise ranges from academic medical research to patented new product development in a no-walls start-up and in Fortune 100 R&D; and from idea processing and information management to entrepreneurial lifestyle marketing and the development of B-Quadrant businesses on the Internet. He also spent many years as a passionate court appointed special advocate for abused and neglected children. Bego was educated at Heriot-Watt University in Scotland, has Master's and Doctoral degrees from the University of California, Santa Barbara, and was a postdoctoral fellow at the Johns Hopkins University.

Bego is Chairman and Co-Founder of Chemists Without Borders, and focuses on board development, fundraising, public relations and partnerships.

Applying Chemistry to Solve Problems in the Developing World

Ronda Grosse*, Rolande Hodel, Marya Lieberman, Julian Tyson

Chemists Without Borders is a non-profit organization, comprised primarily of volunteer chemists, with the mission of solving humanitarian problems by mobilizing the resources and expertise of the global chemistry community and its networks. Work to date has involved clean water initiatives, science education in developing countries, and inexpensive tests for analysis of medicines. This presentation will review projects aimed at improving living conditions in South Asia, including measuring heavy metal concentrations in the Bangladesh food supply and renewable energy options for affordable housing in India. Projects in Africa include development of paper analytical devices to provide high quality chemical analysis of pharmaceutical samples and prevent falsified or substandard medications. Recent work in Kenya will be shared. Additionally, AIDSfreeAFRICA has set up a laboratory in Cameroon for drug testing. The status of these initiatives, technical progress, and ongoing opportunities and challenges will be discussed.

Ronda Grosse received her Ph.D. in analytical chemistry from the Ohio State University and her B.S. in chemistry from Bethel University in St. Paul, Minnesota. She has worked as an industrial chemist for 25 years in laboratory and managerial roles at Dow Corning Corporation. Her primary expertise is in molecular spectroscopy, chromatography, and mass spectrometry for materials characterization. Ronda is an active member of the American Chemical Society. She is an advocate for science education and conducts chemistry demonstrations in local schools, as well as other outreach activities.

Ronda is on the Board of Directors at Chemists Without Borders. She serves as the organization's liaison with the ACS. Ronda actively supports Chemists Without Borders' projects by providing technical guidance and assisting with grant writing and other communications.

Ronda's international experience includes scientific research in Japan and an affordable housing project in India. She is passionate about improving quality of lives by combining science and service, and exploring sustainable ways that we can collectively create positive change in our global community. Originally from New Castle, Pennsylvania, she resides in Saginaw, Michigan, with her husband and two daughters.

Studying Abroad in Chemistry: An Opportunity for Undergraduate Chemistry Researchers to have an International Impact in Chemical Education

Bakarr Kanu

Developing undergraduate research through service learning is a high impact practice that can greatly influence student engagement and success. In this project, a team of scientists has been working to develop inexpensive microchemistry kits to facilitate Chemistry Education in West Africa. Since 2015, several undergraduate STEM majors have engaged in research with the nonprofit organization, Chemists Without Borders, to enhance chemistry education in Sierra Leone. The ultimate goal has been to provide chemistry laboratory kits to high school and first- year university students' in Sierra Leone by training teachers to use the kits in their classrooms. In addition to standard labs that will help students understand basic chemical concepts, most of the STEM experiments developed for this project will focus on the application of chemistry towards practical knowledge relevant to the lives of ordinary Sierra Leoneans. Currently, we have assembled 15-lab activity kits ready for use in Sierra Leone. To implement this project, we developed a study abroad class at Winston-Salem State University (WSSU) and we expect to offer this class in spring 2019. Students enrolled in this course will have the opportunity to travel to Sierra Leone and conduct a workshop to train teachers who will in turn use the kits in their classrooms. In addition, they will have an opportunity to learn about the politics, history, and culture of Sierra Leone. Upon implementation of this project, we anticipate the kits to service between 200-500 teachers and students, covering approximately 50 schools in Sierra Leone annually. Our hope is that once this project is executed successfully, it will be expanded to other English-speaking countries. We anticipate this service learning research project will attract students from underrepresented groups and influence their engagement in STEM activities at WSSU and the broader community of scientists.

Dr. Kanu received his Ph.D. in Instrumentation and Analytical Chemistry from the University of Manchester, Manchester, United Kingdom in 2003. His Ph.D. work developed a novel sampling device with "active membranes" that reduced sampling time by 60% and increased sensitivity by 25%. His sampling device, interfaced to several separation-typed instruments was used to characterize environmental pollutants. One of his papers, published in the Journal of Environmental Monitoring, January 2007 issue, was selected to appear on the front cover of the journal as a current cutting-edge research development on environmental processes and impact. In 2008, a second paper he published in the Journal of Mass Spectrometry, January 2008 issue, appeared on the front cover of the journal. Dr. Kanu is an expert in separation-type instrumentation techniques including gas and liquid chromatography, mass spectrometry, capillary electrophoresis, ion mobility mass spectrometry, to name a few. Dr. Kanu currently has over thirty-two peer-reviewed scientific publications in top -rated reputable journals, over fifty presentations and two patents (related to sample introduction interfaces). Dr. Kanu has mentored several undergraduate and graduate students in research and is very interested in developing activities to increase number of minority students enrolled and retained in STEM disciplines. Since joining WSSU, he has mentored over thirty undergraduate students in research and many have presented their results at regional and national conferences. One of Dr. Kanu's mentees won the Best Poster in Chemistry award at the 2016 Annual Biomedical Research Conference for Minority Students (ABRCMS).

His current research is modifying separation-type instrumental techniques to achieve rapid analysis of chemical and biological compounds. He is interested in investigating the fate of compounds like environmental soil-gas and water contaminants, drugs, explosives, chemical warfare agents, total suspended particles, nucleotides, nucleosides, peptides, proteins, forensic, and biological samples in complex matrices. Dr. Kanu has been studying the ingredients from plant sources to identify chemical compounds that may be useful for promoting health and/or fighting diseases. Additionally, he is interested in the chemical synthesis of novel polymers that may be useful in alternate energy and military type applications.

Dr. Kanu is the American Chemical Society Student Chapter Faculty Advisor (WSSU Chapter). His responsibility is to provide guidance and mentorship to the executive members and foster their smooth operation. Since 2012, the organization has volunteered in a number of community events. Dr. Kanu has membership is eight professional organizations and he is the current WSSU representative to National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) Collaborative Institutional. Dr. Kanu has developed curricular materials and pedagogical methods for instrumental analysis, quantitative analysis, and forensic chemistry. He has also developed and implemented guided inquiry projects in the laboratory portions of quantitative and instrumental analysis.

Chemists Without Borders Arsenic Project Development: Confronting the largest mass poisoning of a population in history by providing clean water in Bangladesh

Steven Chambreau

Dr Chambreau demonstrating the Hach arsenic test kit to students at Palmdale High School, Palmdale, CA

Back in the 1970s, in an attempt to provide hygienic drinking water in Bangladesh, the United Nations International Children's Emergency Fund (UNICEF) and other aid agencies began installing millions of tube wells in Bangladesh villages as an alternative source of drinking water to contaminated surface water supplies. The program, which continued through the 1980s, was an early success. Instances of cholera, microbe-caused diarrhea, and other diseases dropped dramatically. But no one thought to analyze water for trace and ultra-trace impurities, and soon the good news turned bad. By the early 1990s, villagers began breaking out with skin disorders and experiencing fatigue symptoms of arsenicosis from drinking the water. Arsenic poisoning in drinking water in Bangladesh has been identified as one of the world's greatest humanitarian disasters, with the World Health Organization characterizing the situation as "largest mass poisoning of a population in history." Out of 150 million people in Bangladesh, 35-77 million people are at risk from arsenic contamination of water. It is estimated that between 1-5 million children are at risk of death by arsenicosis, or arsenic poisoning, by 2030. Many countries with arsenic-contaminated groundwater do not face the same catastrophic outcomes as in Bangladesh, in part due to inaction on the part of the Bangladesh government. Clearly there are no simple, easily implemented solutions that would provide "arsenic-free" water in sufficient quantities to meet the requirements of communities in rural Bangladesh for drinking, cooking and irrigation of crops (particularly rice). Chemists Without Borders works to remedy this. The Arsenic Project in Bangladesh will be described from its inception and how the project has evolved into the work that is currently underway today, involving arsenic education, arsenic testing of wells and the development of alternative drinking sources in Bangladesh.

Steve Chambreau is a Co-founder of Chemists Without Borders, and has served the organization previously as Vice President, President and Director. Dr. Chambreau is a Research Scientist in the Propellants Branch at the Air Force Research Laboratory at Edwards Air Force Base, where he studies chemical dynamics. Steve grew up in California, attended school at UC Berkeley (BS 1993), San Diego State University (MS 1997), and UC Riverside (PhD 2002). He spent 2 years working as an NRC Associate at the Air Force Research Laboratory at Hanscom AFB near Boston, and 2 years as a postdoc with Professor Arthur Suits at Wayne State University investigating the H-atom roaming mechanism. Dr. Chambreau's primary interest in Chemists Without Borders involves water quality issues, and he initiated the Arsenic Project in Bangladesh. In his various roles, Dr. Chambreau assisted Chemists Without Borders development in many ways including development of the mission and vision statements, incorporating the organization and obtaining 501(c)(3) nonprofit status, fundraising, project development, and membership management.

Parking

Enter parking lot at the corner of Craft and Fifth Avenues. The AJ Palumbo Center is directly across the street from the parking lot.

Dear Academic ACS Pittsburgh Section 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. Awards will be made based on the scientific merit of the paper/poster to

be presented, financial need, and preference will be given to ACS members.

To apply for the funds, applicants should complete the attached application and return it by the relevant deadline. The deadlines for receipt of applications are as follows:

- ***06/01 (for travel to be completed by 12/31)***
- ***12/01 (for travel to be completed by 06/30)***

As noted on the application, students should include an abstract and confirmation (if received) of the paper/poster being accepted for the Meeting. In addition to the application form, applicants should include a recommendation letter from the PI of the project being presented and/or a recommendation letter from another and a personal statement as to the anticipated benefits of meeting attendance.

Applications can be made electronically (*preferred*) by emailing the application to Heather Juzwa

(hljuzwa@shimadzu.com or heather_sapko@hotmail.com) or by mailing a hard-copy application (Pittsburgh Section ACS Travel Grants / Heather Juzwa / Center / 321 Winners Circle / Canonsburg, PA 15317).

Since 2013, the Pittsburgh Section of the ACS has awarded up to four $500 grants each year to aid

our undergraduate/graduate student members in presenting papers or posters at ACS Meetings.

This is an ongoing program in our Section, and details will be updated on our website, (www.pittsburghACS.org , as necessary.

Applicants will be notified via email that their application was received. All efforts will be made to announce awards within two weeks of the application deadline, and all applicants will be notified of the final committee decisions. 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 me.

Sincerely,

Heather Juzwa, ACS Pittsburgh Section Student Travel Grants, Chair

Senior Field Sales Engineer, Shimadzu Scientific Instruments, Inc.

American Chemical Society
Pittsburgh Section

Student Travel Grant Application

www.pittsburghacs.org

Application Deadline	***Travel Completion Date***
December 1st	June 30th (subsequent year)
June 1st	December 31st (same year)

Name of Applicant: _____

Name of Institution: _____

_____ Undergraduate Student / Year

_____ Graduate Student / Year

Mailing Address to Receive Payment if Awarded _____

_____

Email: _____ Phone:_____

PI: _____

ACS Membership No.*: _____

**If you do not know your ACS number, please email hljuzwa@shimadzu.com to receive it by email.*

Meeting Location: _____ Meeting Date: _____

Project Title:_____

_____ Paper Presentation _____ Poster Presentation

**Please attach a copy of your project abstract to the application.*

Has your project been accepted? Yes No

**Attach documentation regarding acceptance if received at point of application.*

Will this be your first presentation at an ACS national or regional meeting? Yes No

If no, please list conferences at which you have presented: _____

Purpose of grant: _____

_____

_____

Other funding sources (if any):

_____

_____

Personal Statement of anticipated benefits of meeting attendance

_____

_____

_____

_____

Has the applicant received a travel grant from the ACS Pittsburgh Section in the past? Yes No

If your application was selected, the Pittsburgh Section of the ACS would like you to write a short (one page) description of your activity upon completion of the conference for publication in our monthly newsletter, The Crucible, and on our website. The description is due within 30 days of the meeting attended.

I am willing to complete this report: Yes No

Signature: _____

Date: _____

Send completed hard-copy applications and supporting documentation to:

Pittsburgh Section ACS Travel Grants
Heather Juzwa
321 Winners Circle
Canonsburg, PA 15317

Business Directory

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Services

Services

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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 April 2019 issue must be to the editor by March 15, 2019.

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!

Society for Analytical Chemists of Pittsburgh

CALLING NEW MEMBERS

Dues Only $10.00, Call the SACP Administrative Assistant at 412-825-3220 Ext. 212 **Right Now!**

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.

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

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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

The Crucible

A newsletter of the Pittsburgh Section of the American Chemical Society

124 Moffett Run Rd.
Aliquippa, PA 15001

Change of Address

If you move, notify the American Chemical Society, 1155 Sixteenth Street, N.W., Washington, D.C. 20036.
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

Tuesday, March 5

Pittsburgh Mass Spec Discussion Group
"Practical Problem Solving with LC/MS—The Real World"
Duquesne University Power Center, 600 Forbes Ave, Pittsburgh, PA

March 18-21

Pittcon
Pennsylvania Convention Center, Philadelphia, PA

Tuesday, April 16

2019 Mildred Perry Memorial Lecture
"Chemical Biology to Discover Functional Post-Translational Modifications of Proteins"
Dr. Megan Matthews, Department of Chemistry, University of Pennsylvania
St. Francis University Science Center, 117 Evergreen Drive, Loretto, PA

Saturday, May 18

2019 Tripartite Symposium
Chemists Without Borders
Carlow University, AJ Palumbo Hall of Science and Technology, 3333 Fifth Ave, Pittsburgh, PA