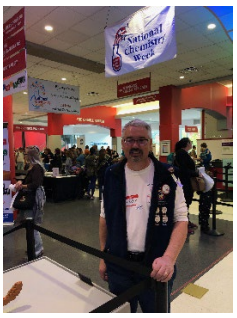
The Crucible

Pittsburgh Section of the American Chemical Society
Volume CX, No. 4
November 2023

Contents

Get to Know A Member – Mike Mautino



1. What is your work and ACS (if applicable) title?

ACS: Former Pittsburgh Section ACS Councilor (21 years) and Director (3 years)
Work: Product Line Manager, Covestro (Retired)

2. How many years have you been in the ACS?

Only 26 Years ☺ In the fall of 1996 I volunteered to become the Recognition Committee Chair for the newly formed Western Pennsylvania Technician Affiliate Group of the Pittsburgh Section. In 1997 I was granted "National Affiliate" status due membership rules at that time not granting non-degree chemical technicians full membership in the national ACS. It wasn't until a year later, with the help of former Pittsburgh ACS Councilor Dr. Gordon McCarthy, that I was granted full membership in the society.

3. What is the biggest benefit of ACS Membership?

What is the biggest benefit of ACS Membership? The ability to develop a local and national network of people working in the chemical enterprise is invaluable. The ability to collaborate and develop professional relationships across the region, and nationally, is so very important in today's job market.

4. What did you want to be when you were a child?

I thought I wanted to be an architect until I got into college and discovered I couldn't draw!

5. What made you fall in love with Chemistry?

It was when I first started to work in the bench lab and discovered I had knack for formulating polyurethane rigid insulating foam chemistry.

Do you want to be our featured member? Please email hljuzwa@shimadzu.com to get onto the schedule!

6. **What is your favorite part of your career or job?**

   My former employer greatly valued and supported my ACS volunteer efforts, allowing me to pursue my interests in promoting the applied chemical technician profession and community outreach at the local and national level.

7. **Which chemist, past or present, would you like to meet and why?**

   My favorite chemist would be Michael Faraday. Faraday started his science career as a chemical technician and went on to have such an impact in multiple science disciplines.

Pitt Chemistry

University of Pittsburgh

JOB FAIR

NOV. 10th STARTING @ 9AM

On the 2nd floor, Ashe Balcony
in Chevron Science Center
219 Parkman Ave.

PPG

Opportunity to Network!

Company Overview Presentations!

On-site interviews!

CalgonCarbon
A Kuraray Company

Pfizer

J★STAR RESEARCH, Inc.

GSK*

Not Finalized

covestro

REGISTER BY OCTOBER 31st

Sponsored by: Pitt Chemistry, Pitt PLU & Pittsburgh ACS

Refreshments will be provided

pitt.wufoo.com/forms/pitt-chemistry-job-fair-student-registration

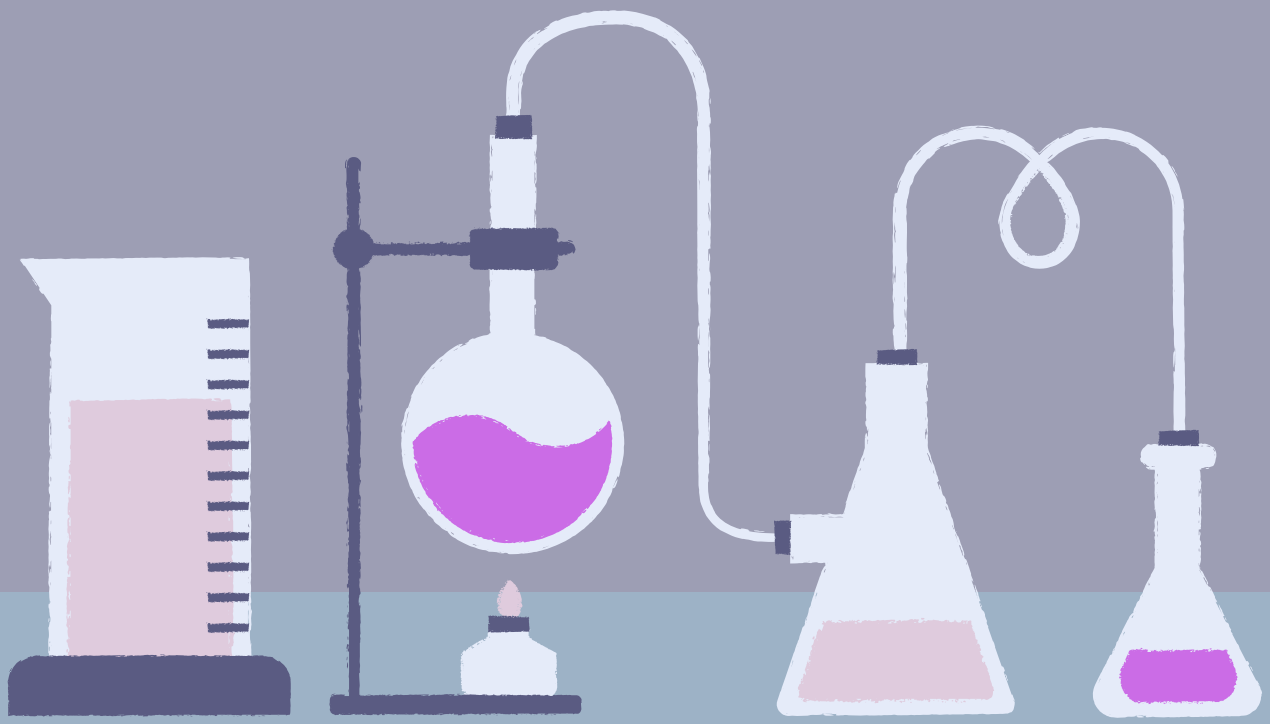
PITTSBURGH ACS WOMEN CHEMISTS COMMITTEE HAPPY HOUR

NOVEMBER 17, 2023
5:30 PM

TUPELO HONEY SOUTHERN KITCHEN AND BAR
111 W STATION SQUARE DR,
PITTSBURGH, PA 15219

SNACKS AND APPETIZERS PROVIDED!

RSVP BY MONDAY, NOVEMBER 10
https://forms.gle/W5fBAcgi9czTBFzEA



#ACSWCC #WCCINACTION

Lunch and Learn

- **Are You Ready to Elevate Your Chemistry Career?**
- **Join Our Exclusive Lunch Sessions with Pittsburgh Award Recipients**

Are you a junior chemist seeking to kickstart your career? Or a mid-career chemist looking for a fresh direction? Don't miss this opportunity to meet a Pittsburgh Award recipient over a complimentary lunch and gain priceless insights!

- **What to Expect:**
  - Enjoy a FREE work lunch.
  - Engage with a Pittsburgh Award recipient and connect with 1-2 peers who share your passion.
  - Receive valuable guidance for success in both industry and academia.

- **To Schedule Your Lunch:** Contact Dr. Haitao Liu at hliu@pitt.edu with a brief self-introduction and name(s) of the adviser you'd like to meet.
- **Availability:** Now - end of 2023. Space is limited – first come, first served.

Meet Our Esteemed Advisers:

Dennis Simpson
- Experience: A distinguished 42-year career at PPG
- Achievements: Named inventor on 41 U.S. patents
- Influence: Advised countless scientists in industry

Richard Howe
- Experience: 30 years as Associate Dean at Pitt's School of Arts and Sciences
- Achievements: Coordinated $300M+ capital projects program
- Leadership: Chair of the Society for Analytical Chemists of Pittsburgh, PITTCON president, and more

Michael Mautino
- Experience: Over 30 years with Covestro LLC (formerly Bayer MaterialScience)
- Expertise: Formulating polyurethane rigid foam insulation
- Career Path: Product Research, Marketing, and Product Line/Channel Management

Steve Little
- Position: Department Chair and Distinguished Professor, University of Pittsburgh
- Research: Drug release, biomaterials. 100+ publications, 30+ patents, 2 spin-outs
- Honors: Fellow of AAAS, the National Academy of Inventors

David Waldeck
- Position: Professor of Chemistry and Director of the Petersen Institute of NanoScience and Engineering, University of Pittsburgh
- Research: Chiral Induced Spin Selectivity, nanotechnology. 260+ publications, H-index: 71.
- Honors: Fellow of AAAS, ACS, and APS

2023 Election Instructions

The 2023 Nominating Committee of the Pittsburgh Section of the American Chemical Society submits the following slate of candidates for the Section office for 2024. All persons nominated are members of the society and have agreed to serve if elected. Only members of the Pittsburgh Section of the American Chemical Society are eligible to vote. The polls will open November 9, 2023. Please note that all ballots must be received by November 16, 2023 when polls close.

Chair-Elect (Vote for 1)

Samuel Leung

Secretary-Elect (Vote for 1)

Ronghong Lin

Directors (Vote for up to 2)

Heather Juzwa

Kevin Noonan

Councilors (Vote for 1)

Haitao Liu

Assuming you are a member in good standing, you will receive your ballot electronically. The polls will open on at 8:00 AM on November 9 and close November 16 at 11:59 PM.

For ballot questions, please contact:

Kimberly Woznack (Immediate Past-Chair) –

ACS Pittsburgh Section woznack@pennwest.edu

Pittsburgh ACS Fall 2023 Elections

Candidate Biographies

Chair-Elect

Samuel Leung

Samuel (Sam) Leung is the current secretary of the Pittsburgh ACS Local Section and a heterogeneous catalyst scientist at Braskem America in Pittsburgh, where he leads projects on developing new catalysts and processes for the sustainable conversion of waste plastics. Born in Elkhart, Indiana, he received his B.S. in chemical engineering from the University of Notre Dame (2015) and his Ph.D. in the same field from UC Berkeley (2021) under the direction of Dr. Enrique Iglesia. While at UC Berkeley, he received the Chevron Research Fellowship and awards for teaching. He has 10 years of experience in catalyst development, with an emphasis on mechanistic studies and reaction-diffusion systems. Sam is an enthusiastic supporter of STEM outreach and education, having participated in several programs at local schools during his time at Berkeley. In his free time, Sam enjoys rock climbing, photography, tennis, and dance.

Secretary-Elect

Ronghong Lin

Dr. Ronghong Lin is a senior R&D chemist working in the R&D department of Calgon Carbon Corporation in Pittsburgh, PA, responsible for new product development, activated carbon characterization and modeling, and technical support. Dr. Lin received his PhD degree in Chemical Engineering from Syracuse University in 2011. He was a postdoctoral research associate at Syracuse University from 2011 to 2014 and an ORISE postdoctoral fellow at DOE's National Energy Technology Laboratory (NETL) from 2015 to 2018. He later worked as a staff scientist and the thermal area lead at Arconic and as an R&D director at Anactisis, LLC, before joining Calgon Carbon. His current and previous research work includes activated carbon characterization and modeling, adsorption and gas separation, fluid properties modeling, rare earth element separation and recovery, and energy and fuels. He has published one book chapter and more than twenty peer-reviewed journal articles and has delivered numerous presentations at national and international technical conferences. He is a peer reviewer for many prestigious journals. Dr. Lin has been an ACS member since 2012 and currently serves as a director of the ACS Pittsburgh Local Section and chair of the Local Section's environmental group. In addition, he is a member of the Society for Analytical Chemists of Pittsburgh (SACP) and the Spectroscopy Society of Pittsburgh (SSP), and he serves as chair-elect of SACP's K-12 Administration Committee and SSP's Continuing Education Committee.

Councilor

Haitao Liu

Dr. Haitao Liu earned his B.S. from the University of Science and Technology of China in 2001 and completed his Ph.D. at UC Berkeley in 2007. After that, he conducted postdoctoral research at Columbia

University. In 2010, he joined the University of Pittsburgh, where he is currently a Full Professor and Chair of the Chemistry Department. His research mainly focuses on DNA-based nanofabrication and graphitic carbon surface chemistry. Within the ACS Pittsburgh local section, Dr. Liu has held various roles, including secretary, alternative councilor, and councilor. In addition to representing the local section at national ACS meetings, he has organized career-advising event for students and young chemists in the Pittsburgh area and plans to continue this effort in future years.

Director

Heather Juzwa

Heather Juzwa graduated from the University of Pittsburgh in 2000 with an Honors Bachelor of Science in Chemistry. While at Pitt, she was Secretary of the American Chemical Society (ACS) Student Affiliates. Encouraged by University of Pittsburgh advisors, she attended the Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (Pittcon) in her senior year. It was at her first Pittcon that she was offered a position in analytical instrumentation sales, and has been working in the field ever since. As of October 2006, Heather has worked as a Senior Field Sales Engineer at Shimadzu Scientific Instruments, Inc. She has been recognized with at least one performance award each year of her career and has always placed among the top 10 performers. Her most notable awards include multiple years in the Platinum Club and President's Club and top Analytical Sales Engineer in 2021. Heather joined a group of extraordinary people—including university Presidents--when she received the Prestigious 2017-18 Kenneth P. Dietrich School of Arts and Sciences Department of Chemistry Alumni Award from the University of Pittsburgh. In 2019, she received the prestigious President's Award, the highest recognition bestowed on a Shimadzu employee.

Heather is most proud of her extensive volunteerism. She served as Chair of the Pittsburgh Section of the American Chemical Society in 2011. Heather's Chairmanship paved the way for the section receive a ChemLuminary for Outstanding Large Local Section for 2012. Heather also served as Chair of the Society for Analytical Chemists of Pittsburgh in 2013-2014. In 2021, she became only the fourth person and first woman in history to chair all three major scientific societies in Pittsburgh when she was elected Chair of the Spectroscopy Society of Pittsburgh. For many years, she has happily served on and chaired over a dozen committees of various scientific organizations on local, regional and national levels. Heather also chaired and led her team to win an American Chemical Society ChemLuminary Award for the best regional meeting for CERM 2014 in Pittsburgh. She received both the Pittsburgh Local Section ACS Distinguished Service Award in 2014 and the 2015 E. Ann Nalley Regional Award for Volunteer Service to the American Chemical Society for the entire Central Region. She won the 2018 Greater Pittsburgh Women Chemists Committee Award for Career Excellence in the Chemical Sciences. Most recently, she was chosen to serve as President of the very conference where she secured her first job, Pittcon. Heather will be president of the 75th Pittcon in 2025 in Boston, MA.

Kevin Noonan

Kevin Noonan is currently an Associate Professor of Chemistry at Carnegie Mellon University (CMU) and has been there since 2011. He is originally from Canada, and received his BS degree from Dalhousie University in 2003 and PhD from the University of British Columbia in 2008. He was a postdoctoral fellow with Geoff Coates at Cornell University until 2011 when he joined CMU. He has been active with ACS Pittsburgh since 2019 when he served as the chair-elect, and was chair in 2020. He has served as an alternate counselor for the last year and is currently looking to expand his role in the local group by running for the director position. He has been in charge of administering the national Chemistry Olympiad program in the local area for the last 4 years. He has enjoyed all the opportunities to connect with the local community and is looking forward to continuing that in the future.

SSP/SACP Joint Meeting
Monday, November 13, 2023
Duquesne University Power Center

5:00 PM – Social Hour
6:00 PM – Dinner
6:45 PM – Business Meeting
7:15 PM – Technical Program

SACP Technical Program

"Navigating Chemical Experiments with AI and Automation"
Dr. Olexandr Isayev, Associate Professor of Chemistry,
Carnegie Mellon University

Biography:

Olexandr Isayev is an Associate Professor in the Department of Chemistry at Carnegie Mellon University. In 2008, Olexandr received his Ph.D. in computational chemistry. He was a Postdoctoral Research Fellow at the Case Western Reserve University and a scientist at the government research lab. During 2016-2019, he was a faculty at UNC Eshelman School of Pharmacy, the University of North Carolina at Chapel Hill. Olexandr received the "Emerging Technology Award" from the American Chemical Society (ACS) and the GPU computing award from NVIDIA. The research in his lab focuses on connecting artificial intelligence (AI) with chemical sciences.

Abstract:

The application of AI-driven approaches for modern experimental design has shifted the paradigm for scientific discovery. In this talk, we will provide an overview of the latest developments of machine learning and AI methods and their application to the problem of chemical experimentation at Isayev's Lab at CMU. We identify several areas where existing methods have the potential to accelerate chemistry research and disrupt more traditional approaches.

First, we proposed a novel ML-guided materials discovery platform that combines synergistic innovations in automated flow synthesis and automated machine learning (AutoML) method development. A software-controlled, continuous polymer synthesis platform enables rapid iterative experimental–computational cycles that result in the synthesis of hundreds of unique copolymer compositions within a multi-variable compositional space. The non-intuitive design criteria identified by ML, accomplished by exploring less than 1% of overall compositional space, upended conventional wisdom in the materials design.

Second, many chemical methods, such as HPLC, still require experimental setup based on domain-knowledgeable human experts. Experimental automation coupled with autonomy in the Cloud Lab environment has led to substantial growth in the availability of historical data on HPLC method development. This highlighted the need for automatic on-the-fly validation of acquired experimental results. Herein, we developed an automated ML-based approach

to characterize HPLC data retrospectively and autonomously validate the massive parallel HPLC execution at the CMU Cloud Lab facility.

For complete details and to make a dinner reservation, please visit our society's website. Deadline for dinner reservations is Monday, November 6, 2023 by noon.

https://chemistryoutreach.org/meeting/

2023 Faraday Lecture

"Water is to me, I confess, a phenomenon which continue awakens new feelings of wonder as often I view it" - Michael Faraday (1853)

For 36 years the Faraday Science Lecture has greeted the holiday season in Pittsburgh, and it returns this year in all its grandeur. The demonstrations in chemistry and physics have both amazed and encouraged middle and high school students for generations, and this year promises to provide these eager minds an opportunity to explore, enjoy, and marvel at the phantastic world of science. **This Lecture is free and open to all middle and high schools – however seating availability is *first come – first serve*!**

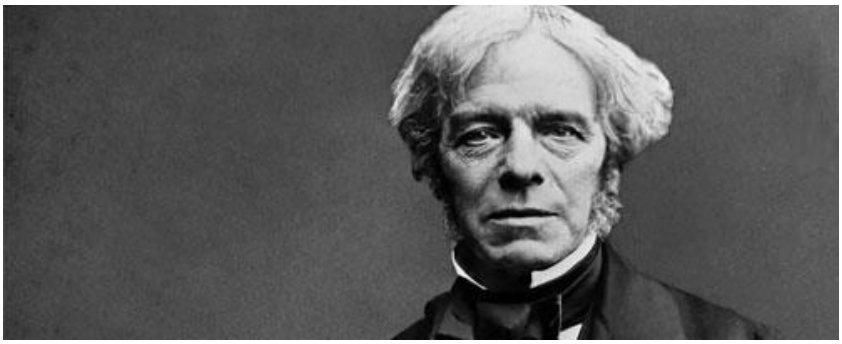
For this year's event, it is our pleasure to feature John "Merlin" Williams and his ensemble of Master Alchemists of the Kiski Science Society. Through the use of the Philosopher's Stone, they will take the audience on a mystical journey, challenging our concepts of chemistry and physics. Energy, pressure, and light will be manipulated in a number of demonstrations to show that science isn't always science, and even Wyverns can be hidden in plain sight. At the culmination of the lecture, it is hoped that the audience will be intrigued and curious of their surroundings, and that a new generation is inspired to further the study of scientific fields.

How to attend the Lecture: The free event will be held at Soldier's & Sailor's Memorial Hall in Oakland, 4141 Fifth Avenue, Pittsburgh, PA 15213. There will be a single lecture on Tuesday November 14, 2023, with doors opening at 9:30 am and the demonstration being conducted from 10:00 till 11:30 am. The presentation will only be conducted in-person; however, an on-demand video will be available after the event for those who registered. For schools that are outside the local area – to include international parties – that have an interest in gaining access to the on-demand video, please email Cally Shouse at shousec@pittcon.org

Event registration can be found at https://pittcon.org/faraday/

Questions can be directed to Cally Shouse: shousec@pittcon.org

About Michael Faraday



The namesake for the Faraday Lecture is Michael Faraday, a British scientist who lived in the early to mid-1800's. Although he had little formal education Mr. Faraday was one of the most influential scientists in history. Even today he is recognized as a top scientist.

As a physicist he discovered the principles of electromagnetic induction, electro-magnetic rotations, the magneto-optical effect, diamagnetism and field theory. As a chemist he discovered benzene and an early form of the Bunsen burner as well as several other accomplishments.

During the time of Faraday there was very little organized education for young people. In 1825 Faraday started Christmas lectures at the Royal Institution of Great Britain. Faraday and other prominent people gave lectures on different scientific topics. The lectures in his namesake continue to this day, across the United States and throughout the world.

Faraday Lecture Sponsors

The Faraday Lecture is sponsored by the Society of Analytical Chemists of Pittsburgh (SACP) and the Spectroscopy Society of Pittsburgh (SSP). Funding for the Faraday Lecture comes from Pittcon, a yearly conference and exposition serving the broad field of laboratory science. The SACP/SSP is dedicated to furthering science education in Pennsylvania, Ohio, West Virginia, New York, New Jersey, and Maryland. Please visit www.ChemistryOutreach.org for more information and to view other educational programs, teacher and student awards, and a wide variety of grant programs.

The SACP and SSP are pleased to announce the 36th iteration of the Pittsburgh Faraday Lecture, to be held at the Pittsburgh Soldier's and Sailor's Hall, on Tuesday November 14, 2023. The event is **free for all middle and high schools but is *first come – first serve for seating availability***. Doors will open at 9:30 am with the demonstration being conducted from 10:00 till 11:30 am. The presentation will only be conducted in-person; however, an on-demand video will be available after the event for those who registered. Parking instructions will be provided with the registration response. For schools that are outside the local area, to include international parties, that have an interest in gaining access to the on-demand video, please email Cally Shouse at shousec@pittcon.org. Event registration can be found at https://pittcon.org/faraday/, and questions can be directed to Cally Shouse at shousec@pittcon.org.

This year we are pleased to announce that Dr. John Williams and the Kiski Science Society will lead the Lecture. A number of experiments will be conducted, addressing concepts of pressure, energy, and color – with the goal of using these demonstrations to explain associated principals of chemistry, physics, and spectroscopy. It is through these displays that Dr. Williams will look to keep the philosophy of the original Faraday Christmas Lectures, by providing an entertaining tutorial on how the various presentations apply to everyday life, and inspire future generations of scientists. If you are a teacher, please consider bringing your students to the event; also, we ask that everyone help spread the word of the event to those educators who may not be familiar – this includes international schools that may not have access to a local Faraday Lecture.

Michael Faraday, the namesake for the Lecture, was a British scientist who lived in the early to mid-1800's. Although he had little formal education, Mr. Faraday was one of the most influential scientists in history. As a physicist he discovered the principles of electromagnetic induction, electro-magnetic rotations, the magneto-optical effect, diamagnetism, and field theory. As a chemist he discovered benzene, developed an early form of the Bunsen burner, theorized the concept of oxidation numbers. During this historical period, there was very little organized education for young people, and in 1825 Mr. Faraday started a Christmas lecture series at the Royal Institution of Great Britain. Mr. Faraday and other prominent people gave several lectures on different scientific topics for the youth-based audience. Since that time, annual lectures have continued at the Royal Institute, across the United States, as well as in numerous other countries.

The Crucible

The Crucible is published monthly, August through May. All statements and opinions expressed herein are those of the editors or contributors and do not necessarily reflect the position of the Pittsburgh Section.

Editors: Alysia Mandato and Sarah Scrivener, crucible@pittsburghacs.org

2023 Pittsburgh Section Officers

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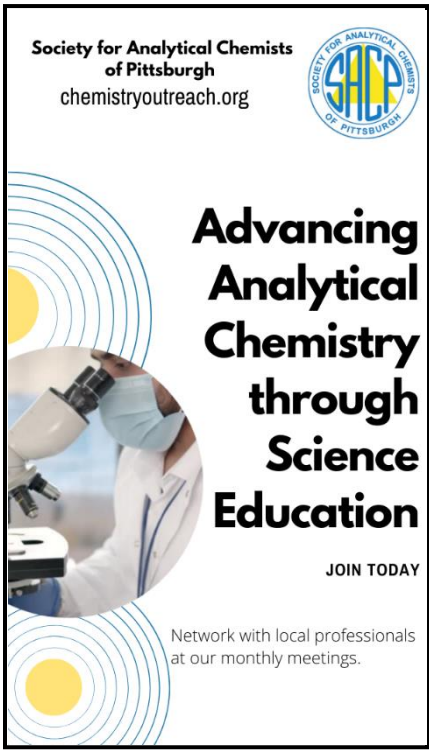

Advertise in The Crucible

	1X	3X	6X	10X
Full Page	$120	$115	$100	$75
Half Page	$75	$70	$60	$45
3.5” x 2”	$50	$45	$25	$20

Volunteer with Us!

We are always looking for new people to join the Pittsburgh Section Executive Committee. Email our Chair to inquire about opportunities.

The Crucible Deadline

The deadline for items submitted to The Crucible is the 25th of the month prior to publication. For example, all items for the February 2023 issue must be to the editor by January 25th, 2023.

ACS Regional Awards – Apply Today!

More information can be found here