

## American Chemical Society - Pittsburgh Section Volume CIX, No. 3 October 2022

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# Pittsburgh Local Section NCW activities are changing!

Join us for a series of new events throughout the entire week. Watch for emails and check our Facebook page and website for updates!

Event 1: "Drop the Base" Lab experiments at the Carnegie Science Center.

From 1999-2021, the Pittsburgh Local Section partnered with the Carnegie Science Center (CSC) to host "ChemFest," a multi-day celebration of chemistry catering to students in the Pittsburgh region. This year, to pilot a more focused approach to outreach, we are collaborating with the CSC to host a series of wet chemistry labs over the course of NCW. Teachers from local schools will bring groups of 24 students to participate in a full laboratory experience. Volunteers will be needed to serve as "lab assistants" for this event. Monday, October 17 through Friday, October 21 at the Science Center.

### Event 2: Meeting & Mixer

Join the Executive Board for its monthly meeting; provide feedback and engage with other members. Date and location forthcoming.

### Event 3: ACS Student Chapter Industry Tour and Networking

Exclusive for undergraduate chapters, join other ACS students in the region for a tour of a local company followed by a networking session to share outreach, professional development, and chapter development strategies. More information coming soon!

### **Event 4: Teacher Kit Mailings**

Back by popular demand from NCW 2021, ACS student chapters will be assembling and mailing NCW-themed kits to local teachers. Non-student members that would like to get involved can sponsor kits or nominate local teachers to receive a kit.



For more information, contact NCW Coordinator, Evonne Baldauff, at <u>ebaldauf@waynesburg.edu</u>. Scan the code to the right to join our Facebook group:











### 2022 NCW Illustrated Poem Contest Fabulous Fibers: The Chemistry of Fabrics

The Pittsburgh Local Section of the American Chemical Society (ACS) is sponsoring an illustrated poem contest for students in kindergarten through 12th grade.

### Contest Deadline: Sunday, October 23rd by 11:59 PM ET

**Prizes:** \$50 1st Place and \$25 2nd Place in each of 4 grade categories: K-2nd, 3rd-5th, 6th-8th and 9th-12th grades.

**Contact:** Evonne Baldauff, NCW Coordinator. Mail entries to 51 W. College St., Waynesburg, PA or scan and email to ebaldauf@waynesburg.edu.

Winners of the Pittsburgh Local Section's Illustrated Poem Contest will advance to the 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 NCW theme, "**Fabulous Fibers: The Chemistry of Fabrics.**" Your poem must be <u>**no more**</u> 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 the theme include:

- Natural fiber
- Dyeing fabrics
- Synthetic fiber
- Hydrophilic
- Chemical synthesis
- Polymers
- HydrophobicProperties of fabrics
- Entries will be judged based upon:
- Artistic Merit use of color, quality of drawing, design, and 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.
- Acceptance of prizes constitutes consent to use winners' first name, and entry for editorial, advertising, and publicity purposes.







### National Chemistry Week (NCW) Illustrated Poem Contest ENTRY FORM

Please fill out this form and attach it after the poem. All fields are required. Incomplete forms will invalidate the entry.

### The deadline for the Pittsburgh Local Section Contest is Sunday, October 23<sup>rd</sup> by 11:59 PM.

**Submit poems to** Evonne Baldauff, NCW Coordinator. Mail entries to 51 W. College St., Waynesburg, PA or scan and email to ebaldauf@waynesburg.edu.

Student and Organization Information						
Student Name:						
Student Grade:						
Parent/Guardian Name:						
Parent/Guardian Email:						
Parent/Guardian Address:						
Parent/Guardian City:				State:		Zip:
School or Sponsoring Grou and Girls Club or Scout Tro	p (e.g. Boys oop, 4-H, etc.):					
Teacher Name:						
Teacher Email:						
School Address:						
School Address 2:						
School City:				State:		Zip:
Please send any follow up t	or the student to	o the <u>p</u>	<u>parent </u> or <u>sc</u>	hool 🗌 ac	ldress.	
Illustration Type (Check o	ne)					
Hand-drawn art 🗌		Digitally created art				
If the poem was digitally created, please name the software used in the box below:						
Judging Category by Gra	de (Check one)	)				
K-2 🗌	3-5 🗌		6-8 🗌	]		9-12 🗌
FOR LOCAL SECTION USE ONLY						
Local Section Name:						
NCW Coordinator Name:						
NCW Coordinator Email/Ph	ione:					

More information is available at <u>www.acs.org/ncw</u>.

### Donate to a Scholarship in Honor of Fu-mei Lin



In honor of Fu-mei, The University of Akron's Department of Development has created **The Fu-mei and Fu-Tyan Lin Endowed Scholarship in Polymer Science and Polymer Engineering**. Fu-mei passed away earlier this year, and the obituary can be found at <u>this link</u>. If you wish to donate to the scholarship, instructions are given below:

### By Check in the Mail

Make check payable to "The University of Akron Foundation" and write "The Lin Endowed Scholarship" on the memo line

Mail to: The University of Akron Department of Development c/o Eric Jezewski Akron, OH 44325-2603

### Online

Go to the link <a href="https://fundraise.givesmart.com/form/MtPpYA?vid=txldv">https://fundraise.givesmart.com/form/MtPpYA?vid=txldv</a>

To ensure the gift is designated correctly, under "Designate my gift to", select "A different designation" and type in "Lin Endowed Scholarship"

Any questions you may have can be directed to <u>fumeiclinscholarship@gmail.com</u>.

### **Two ACS Pittsburgh Section Members Win National Awards**

Two long-term Pittsburgh Section ACS Members and Pittsburgh Award Winners won National Awards in 2022!

2012 Pittsburgh Award winner and University of Pittsburgh Professor Peter Wipf won the ACS Award for Creative Work in Synthetic Organic Chemistry. This award recognizes and encourages creative work in synthetic organic chemistry and is sponsored by MilliporeSigma (a business of Merck KGaA, Darmstadt, Germany).

2016 Pittsburgh Award winner and Carnegie Mellon University Professor Neil McPherson Donahue won the ACS Award for Creative Advances in Environmental Science and Technology. This award encourages creativity in research and technology or methods of analysis to provide a scientific basis for informed environmental control decision-making processes, or to provide practical technologies that will reduce health risk factors. This award is sponsored by Aerodyne and the <u>ACS Division of Environmental Chemistry</u>.

Congratulations to you both!

### SSP/SACP Joint Meeting Monday, October 10, 2022 Duquesne University

5:00 PM – Social Hour 5:30 PM – Technology Forum 6:30 PM – Dinner 7:15 PM – Business Meeting 8:00 PM – Technical Program

### SSP Technology Forum

### "Balloon-Borne Observations of the 2017 Total Solar Eclipse"

# Lou Coban, manager of the University of Pittsburgh's Allegheny Observatory and current president of the Amateur Astronomers Association of Pittsburgh



### Biography:

Lou Coban is the manager of the University of Pittsburgh's Allegheny Observatory and the current president of the Amateur Astronomers Association of Pittsburgh. He has been working at the Allegheny Observatory for nearly 30 years. Starting out a part time telescope operator then becoming a full time technician and finally the manager. Lou has his name on 9 scientific papers on varying subjects from astrometry to extrasolar planetary systems.

### Abstract:

This talk is about using a helium filled weather balloon to collect data in the upper atmosphere using light sensors and a multitude of cameras to observe the 2017 total solar eclipse. The subject of our interest is a phenomena known as shadow bands. Shadow bands both precede and antecede a solar eclipse. When we began thinking about this project we had no idea how to fill and launch a helium balloon. The trials and tribulations, the successes and failures of flying various types of camera systems, payloads and equipment into the atmosphere will be presented. Additionally, some of the technology systems used will be discussed.

### SACP Technical Program

### "Use of Microfluidics and Single Cell Imaging for Analyzing Liquid Biopsy Markers: Circulating Tumor Cells and Extracellular Vesicles"

### Dr. Steven A. Soper, University of Kansas 2022 Ralph N. Adams Award Winner



### **Biography:**

Prof. Soper is a Foundation Distinguished Professor in Chemistry, Bioengineering, and Mechanical Engineering at the University of Kansas. At the KU Medical Center, Soper is a member of KU Cancer Center and has an adjunct appointment in Cancer Biology. Prof. Soper also holds an appointment at Ulsan National Institute of Science and Technology in

Ulsan, South Korea, where he is a World Class University Professor. As a result of his efforts, Prof. Soper has secured extramural funding totaling >\$165M, published over 255 peer-reviewed manuscripts (h

index = 70; 18,989 citations), 31 book chapters, 71 peer-reviewed conference proceeding

papers, and is the author of 12 patents. He is also the founder of a startup company, BioFluidica, which is marketing devices for the isolation of liquid biopsy markers.

### Abstract:

Liquid biopsies are generating significant interest for both basic and translational research. Indeed, the NIH/NCI is launching a national effort to explore the use of liquid biopsies for the early detection of cancer. For oncology, these markers include but are not limited to cell free DNA (cfDNA), circulating tumor cells (CTCs), and extracellular vesicles (EVs). While liquid biopsies have their advantages compared to solid tissue biopsies (minimally invasive acquisition of markers, frequent sampling, monitoring metastatic sites, and potential for early detection), they do have challenges: (i) They are a vast minority in a mixed population; (ii) limited molecular cargo for conventional cellular or molecular assays; and (iii) pre-analytics that highly affect the quality of downstream results. We have developed extensive infrastructure and know-how to analyze liquid biopsy markers in terms of their selective isolation and subsequent cellular and molecular analyses. In this presentation, we will discuss two projects that involve the use of microfluidics for the analysis of CTCs and EVs: (1) Using CTCs for monitoring response to therapy for pancreatic cancer patients; and (2) EVs for molecular sub-typing of breast cancer patients. (1) We have developed a CTC selection microfluidic that employs two chips modified with antibodies with each selecting a distinct CTC subpopulation from a single blood sample. In addition to the common marker used for CTC positive selection (EpCAM), Fibroblast Activation Protein alpha (FAPa) expressing CTCs are also selected. We have also developed a novel microfluidic for the fluorescence immunophenotyping of single cells and performing fluorescence in situ hybridization (FISH) assays on single cells to search for prognostic cytogenetic modifications. (2) Both EpCAM and FAP $\alpha$  were used as affinity agents to select EVs from plasma samples using a novel microfluidic, which consisted of a high density array of micropillars that provided high recovery and purity of the target EVs as well as a large dynamic range for securing quantitative results. Following selection, the exosomal RNA was used for expression profiling by labeling the exosomal mRNA with fluorescent bar-codes to identify relevant mRNAs, which permitted subtyping breast cancer patients into one of four types, Luminal A, Luminal B, Basal-like, and HER2 positive; subtype elucidation is critical in breast cancer patients to assure proper treatment.

For complete details and to make a dinner reservation, please visit our society's website. Deadline for dinner reservations Thursday, September 29, 2022 by noon.

https://chemistryoutreach.org/meeting/

### In Memoriam – Percy E. Pierce

Long-time Pittsburgh ACS Member Percy E. Pierce passed away October 24, 2021. Information was published in the August 8, 2022 issue of Chemical and Engineering News. by <u>Nina Notman, special to C&EN</u>



Credit: Courtesy of Pierce family Percy E. Pierce

Percy E. Pierce, 89, died Oct. 24, 2021, in State College, Pennsylvania.

"Percy was an assistant professor of chemistry at Case until 1962 when he joined the Glidden Company in Cleveland, Ohio, as a research chemist. In 1969, he joined PPG Industries at their Springdale, Pennsylvania, coatings research center. He was the author of numerous publications and several monographs on coatings technology. He participated in the Gordon Research Conferences on organic coatings and the Federation of Societies for Coatings Technology. He retired from PPG in 1991. He is an emeritus member of the American Chemical Society, Federation of Societies for Coatings Technology, and Sigma Xi."—Caroline Pierce, daughter

Most recent title: Research chemist, PPG Industries

Education: BS, chemistry, Case Institute of Technology, 1953; PhD, physical chemistry, Yale University, 1958

Survivors: Daughters, Barbara Mysona, Elizabeth, and Caroline; son, William; five grandchildren

To recognize your late loved one or colleague, submit obituary information at <u>cenm.ag/obits</u>.

### ACS Pittsburgh Section Member Named a CAS 2022 Future Leader

As reported in the August 15, 2022 edition of Chemical and Engineering News, Pittsburgh Section ACS Member and Carnegie Mellon University Post-Doc Saigopalakrishna "Sai" Yerneni was named a 2022 Future Leader! CAS, who produces SciFinder, has selected Future Leaders for 12 years. This program provides PhD students and postdocs the opportunity to gain leadership skills and learn about the chemical information industry.



Photo Credit: Saigopalakrishna Yerneni

Education: MS, biomedical engineering, 2015, and PhD, biomedical engineering, 2021, Carnegie Mellon University

Research: Enabling RNA medicine for central nervous system disorders

Advice for others: "One of my favorite quotes is, 'There is no good in anything until it is finished' by Genghis Khan. As a researcher, it's easy to think of different ideas and projects, but a true leader is someone who knows how to see their ideas through to the end."

Congratulations, Sai!

### 2022 Fall ACS Meeting Trip Report – Leo Dong

As travel restrictions slowly lifted earlier this year, I could not hold back my excitement to meet with other scholars from around the world at the ACS 2022 Fall National Meeting. Though I stayed only one afternoon for the meeting, I participated in many outreach opportunities. I presented our research group's work on investigating the local electronic environment of iridium complexes using different methods at the poster session. Throughout the presentation, I not only shared our lab's efforts in identifying defining features when predicting the complexes' characteristics but also learned about many other computational approaches that would assist our project by talking to others. I exchanged words with many professors about how they use computational methods to facilitate chemical property explorations.

One of the professors shared her research lab's effort in probing the chemical property of transitional metal complexes using molecular dynamics. My interest in transitional metal complexes prompted me to discuss the potential and challenges of this practice with her. After learning this information, I was thrilled to launch the new research focus on the simulation of molecular dynamics of iridium complexes after completing the manuscript for our research predicting complexes' spectra characteristics. Additionally, I met with many Ph.D. candidates who examined the electronic structure of complexes through vibronic influences and spin transitions using computational tools. These researchers enlightened me about the myriad possibilities to comprehend the properties of chemicals. Additionally, their captivating stories as graduate students swayed me to continue my expedition to uncover chemistry obstacles using computational power beyond college into graduate school.

Though the trip was quick, I was grateful for the sponsorship from the local ACS branch. I was able to share about the work our group did with chemists around the world. I also got a chance to explore the vast network of ACS and appreciated the guidance by the ACS services.



### COUNCILOR'S CORNER – Kristin Nuzzio

Hi everyone! My name is Kristin Nuzzio, and I am a new Councilor for the Pittsburgh Section this year. I have been an ACS member for 14 years and have served in a variety of roles on the local and national levels.

I received my B.S. in Chemistry and a B.A in Spanish from the University of Delaware in 2005. I then completed a Ph.D. in Physical Chemistry from the University of Illinois at Urbana-Champaign focusing on solid-state NMR characterization of blood coagulation proteins. After graduation, I joined PPG at the Allison Park location in 2015.

At PPG, I worked in the Analytical department characterizing aerospace and industrial coatings. I then moved into managerial roles, supervising the Wet Chemistry, Analytical Regulatory, and Chromatography teams. In my current role as a Group Leader, I lead a R&D team in the decorative formulation department developing low temperature cure coatings. I also serve on PPG's Abilities First Network and was a former Co-Chair of the Science Education Council. My colleagues and I have chaired a symposium at the ACS Green Chemistry and Engineering Conference for the past four years.

My interest in service with ACS began during my undergraduate studies at the University of Delaware where I was the Student Affiliates Chapter President. During graduate school, I was an active member of the East Central Illinois Women Chemists Committee, serving as Secretary In 2010 and Chair in 2011. I then served as an Associate to the National Younger Chemists Committee in 2014 and 2015 before becoming a Member in 2016. I led the YCC track for the ACS Leadership Development Institute, and I was a Subcommittee Chair for the YCC's Governance, Interface, and Outreach and Membership Engagement teams. I had the honor of serving as the Chair of the National YCC in 2020 and 2021 and am currently serving as a Consultant to the Committee this year. I also am an active ACS Career Consultant and am a Member-at-Large for the Strategic Planning Committee in 2022.

In my free time, I enjoy spending time with my family, dancing ballet, and floral design. I look forward to continued service and engagement with the Pittsburgh Section and National ACS!

Sincerely submitted, Kristin Nuzzio





Each year, the Pittsburgh local section features an "On the Road" event, which has the Mildred E. Perry Memorial Lecture. This is a great opportunity for local section chemists to visit your site or campus. The organizers choose the speaker and program details. Past organizers would be happy to share our experiences and websites if the host location is interested. In 2021, this event was hosted by Saint Francis University and featured Dr. Lan Deng from PPG. The event was virtual, and we encourage virtual events during these uncertain times. If your institution is located in the Pittsburgh Local Section and you would like to host the 2022 ACS "On the Road" event, please contact ACS Chair, Kim Woznack (woznack@calu.edu).



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 (<u>hljuzwa@shimadzu.com</u> or <u>heather sapko@hotmail.com</u>) 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



	Application Deadline	Travel Completion Date	٤	
	December 1	June 30 (subsequent ye	ar)	
	June 1	December 31 (same yea	ar)	
Name of Applicant:				
Name of Institution:				
Under	rgraduate Student / Vear			
Onder				
Gradu	late Student / Year			
Mailing Address to Receiv	ve Payment if Awarded:			
Email:		Phone:		
PI:				
ACS Membership No.*: _				
*If you do not know your	ACS number, please email	<u>hljuzwa@shimadzu.com</u> to	receive	it by email.
Meeting Location:		Meeting Date:		
Droiget Title:				
		· · ·		
Paper Presentatio	on Poster Pres	sentation		
*Please attach a copy of	your project abstract to the	e application.		
Has your project been ac	cepted? Yes	No		
*Attach documentation r	regarding acceptance if rece	eived at point of application		
Will this be your first pre	sentation at an ACS nationa	al or regional meeting?	Yes	Νο
If no. please list conferen	ices at which you have pres	sented:		

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. Photos are welcomed and encouraged.
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
Electronic copies of completed applications should be sent to <u>hljuzwa@shimadzu.com</u> and

heather sapko@hotmail.com. Be sure to place "Pittsburgh Section ACS Travel Grants" in the subject line.



# 2022 Pittsburgh Section Officers

Chair	Kim Woznack
	woznack@calu.edu
Chair-Elect	Ed Zovinka
	zovinka@pittcon.org
Secretary	Alysia Mandato
	<u>atm75@pitt.edu</u>
Treasurer	Matt Price
	price@calu.edu
Treasurer-	Matt Price
Elect	price@calu.edu
Directors	Michael Mautino
	Toby Chapman
	Dave Waldeck
	Heather Juzwa
	Evonne Baldauff
	Logan Miller
Councilors	Kim Woznack
	Rich Danchik
	Haitao Liu
	Kristin Nuzzio

# 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

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.

Design Editor: Alysia Mandato, crucible@pittsburghacs.org



# Advertise in The Crucible

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

# The Crucible Deadline

The deadline for items submitted to The Crucible is the 25<sup>th</sup> of the month prior to publication. For example, all items for the September 2022 issue must be to the editor by August 25<sup>th</sup>, 2022.

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ACS Regional Awards – Apply Today!
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More information can be found here