Volume 111, No. 8 October 2024

THE CHEMICAL BULLETIN

Chicago Section of the American Chemical Society Newsletter

October Monthly Meeting (Virtual)

Thursday, October 17, 2024 7:00 PM – 8:15 PM CDT

Capturing the Stars: The Untold History of Women at Yerkes Observatory

Andrea Twiss-Brooks
University of Chicago

REGISTER HERE Deadline to receive Zoom link is October 17 at 7:00 PM

ABSTRACT

Women contributed to the advancement of astronomy and astrophysics at Yerkes Observatory in the early twentieth century. Not only were they calculators or assistants, but women also earned degrees, conducted their own research, collaborated on projects with peers of both sexes, worked on publications, and used their time at Yerkes to launch a wide range of careers. Their lives and labor are all but invisible in public records, but their contributions to science—and their voices—are preserved in archival collections studied by an interdisciplinary team at the University of Chicago. In this presentation, Andrea Twiss-Brooks of the University of Chicago Library will explore the scientific work and the lived experiences of women who contributed to the advancement of astronomy and astrophysics in early twentieth century America.

November Monthly Meeting: Fred Basolo Medal Event

Friday, November 8, 2024 4:30 PM – 9:30 PM CDT

BASOLO MEDAL LECTURE
Lecture is free and open to the public.
Technological Institute, Room LR3
Northwestern University
2145 Sheridan Road, Evanston

BASOLO MEDAL DINNER
Advance registration and payment are required to attend the dinner.
Deadline to register for dinner is OCTOBER 23

IN THIS ISSUE

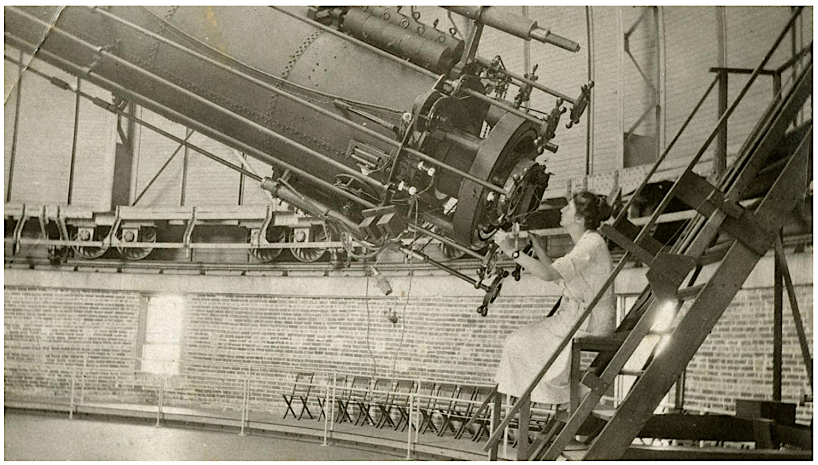
AGENDA FOR OCT 17 PROGRAM

7:00 PM	Announcements
7:10 PM	Virtual presentation by Andrea Twiss-Brooks
8:00 PM – 8:15 PM	Q & A

REGISTER HERE

MEET THE SPEAKER

Andrea Twiss-Brooks is the Director of Humanities and Area Studies for the University of Chicago Library. In addition, she offers reference and consultation support for students, faculty, and staff in chemistry, geophysical sciences, and the history of science, medicine, and technology. She joined the university library in 1993 as chemistry librarian managing the Chemistry Library branch and serving on the science/medical reference team at the John Crerar Library. In 2006, she was appointed Co-Director, Science Libraries, managing all aspects of collections that support teaching, learning and research in the physical, biological, and medical sciences. Before moving to Chicago, Andrea worked in scientific publishing, first managing an update project for the Wiley NBS Mass Spectral Database and later as an editorial associate for *Accounts of Chemical Research*. Her library career began at Lamar University in Beaumont, TX as an online searcher and science librarian. She has served in leadership positions in a variety of professional organizations, including the American Chemical Society (2021 ACS Fellow), the Geoscience Information Society, and the Medical Library Association (National Planning Committee/Local Assistance Committee chair for the 2014 Chicago meeting). She has also served on library advisory boards for various scientific and medical publishers. She earned a B.S. in chemistry at Texas Christian University. an M.S. in chemistry at Cornell University, and an M.L.S. at the University of North Texas.



An astronomer at the 40-inch refractor telescope of Yerkes Observatory under the 90-foot dome. (Photo courtesy of the Hanna Holborn Gray Special Collections Research Center, The University of Chicago Library)

From the Archives: "Better Meals and Prices Wanted"

Editor, THE CHEMICAL BULLETIN:

Sir—Did you have dinner with the chemical bunch at the last meeting of the Chicago Section, held at the City Club? If you did, I wonder if you, like others I know, consider that $1.75 is too high a tariff to contribute for such an unsatisfactory meal? It certainly seems that a protest is in order. The food served is practically the same throughout the season; in fact, the menu (tomato soup, a hunk of beef, some lettuce and a dab of ice cream with a pinch of cake—not to mention ripe olives) is a standing joke among the members, as well as their wives; and the price—well, I would prefer a 75¢ or $1 dinner in many of our well patronized loop restaurants. What is the matter?

—P. N. LEECH

From the December 1920 issue of The Chemical Bulletin

UPCOMING EVENT

Preview of Basolo Medal Event

Friday, November 8, 2024 – Prof. Galen Stucky – UCSB

Deadline for Dinner Reservations is October 23

Register by phone (847-391-9091) or email (chicagoacs@ameritech.net) or online:

REGISTER HERE

FOR IN-PERSON DINNER

$85 for ACS Members and nonmembers

Halim Time & Glass Museum, Evanston

There is no charge to attend the lecture only.

AGENDA

4:15 pm	Refreshments
4:30 pm	Medal presentation
	Lecture by Prof. Stucky
5:30 pm	Social hour / tour
6:30 pm	Dinner

LECTURE TITLE

Reflections on the Synergistic Role of Nanostructured Inorganics in Biological Processes"

ABSTRACT

This talk will give an overview of efforts to develop simple, low-cost inorganic agents to promote or inhibit blood clotting. The goals are 1) point-of-care therapeutic hemostasis treatment of external arterial bleeding, and 2) the targeted hemostasis of internal bleeding that results from traumatic injuries. The primary functions of the human blood-clotting system are to induce controlled localized clot formation, using both coagulation and anti-coagulation, and to regulate fibrinolytic formation to prevent excessive blood loss. It is a complex, extensive system with over 230 components and 13 clotting factors. The presentation will describe our search for inorganic agents that have the appropriate biocompatibility and interfacial interactions with the blood-clotting system to direct the blood-clotting process.

MEET THE SPEAKER

Galen D. Stucky obtained his Ph.D. degree in Physical Chemistry with Robert E. Rundle at Iowa State University in 1962. Now at the University of California, Santa Barbara (UCSB), Stucky is a Professor in the Department of Chemistry & Biochemistry and in the Materials Department and is a member of the interdepartmental graduate program in Biomolecular Science & Engineering. He currently holds the UCSB Khashoggi Chair in Materials Chemistry.

Complete abstract, biosketch and location information will be published in the November bulletin issue.

SMBC COMICS

https://www.smbc-comics.com/comic/laws smbc-comics.com

ACS Fall 2024 Council Meeting Report

The Fall 2024 National Meeting of the ACS was held in person in Denver and virtually from August 18 – 22, 2024. The theme of this meeting was "Elevating Chemistry". Dr. Mary Carroll, ACS President, presided over the Hybrid ACS Council Meeting on August 21, 2024. A total of 11,569 registrations (10,245 in-person and 1,324 online) were observed.

The Chicago Section was represented at Council by the following ten councilors: Amy Balija (Membership Affairs), Paul Brandt (Public Relations and Communications), Mark Cesa (Ethics), Kenneth Fivizzani (Economics and Professional Affairs), Russell Johnson (International Activities), Fran Kravitz (Council Policy), Josh Kurutz (Chemists with Disabilities), Ilana Lemberger, Margy Levenberg (Meetings & Expositions), and Milt Levenberg (Senior Chemists).

Election Results:
By electronic ballot, the Council selected Donna Friedman, Matthew Grandbois, Diane Grob Schmidt, and Kimberly Woznack for three-year terms on the Council Policy Committee (CPC). Sheila Murphy was elected for a two-year term (2025 through 2026). The Council elected Allison Aldridge, Mary Engelman, Katherine Johnson, Daniel Rabinovich, and Brian Mathes for three-year terms on the Committee on Committees (ConC). Peter Dorhout, Holly Davis, Kevin Edgar, and Donivan Porterfield were elected for three-year terms on the Committee on Nominations and Elections (N&E).

Highlights from Reports and Key Actions:

- On the recommendation of CPC, Council approved the Petition for Global Representation on Council, as amended on the Council floor. This petition allows for the creation of Global Electoral Zones for the election of Councilors by ACS members living outside the territory of existing Local Sections. The petition was amended to count these Councilors elected by Zones with Councilors elected by Local Sections for the purpose of calculating the number of Councilors elected by Divisions as shown in the equation below. This petition will be referred to the ACS Board of Directors for confirmation.

$$\frac{(Councilors\ elected\ by\ Local\ Sections + Councilors\ elected\ by\ Zones)}{Councilors\ elected\ by\ Divisions} = \frac{80}{20}$$

ACS Fall 2024 Council Meeting Report

- On the recommendation of ConC, and with concurrence of CPC, Council approved the Petition to Amend the Name of the Committee on Technician Affairs (CTA) to the Committee on Chemical Technical Professionals (CTP). This change recognizes the fact that the term "technician" does not adequately reflect the variety of titles used for these positions across the broader chemical enterprise.
- On the recommendation of ConC, and with concurrence of CPC, Council approved continuance of the Committees on Ethics (ETHX); Nomenclature, Terminology and Symbols (NTS); and Project SEED and, subject to the concurrence by the ACS Board of Directors, the Committees on Chemical Safety (CCS); Chemistry and Public Affairs (CCPA); Community Activities (CCA); Minority Affairs (CMA); Professional Training (CPT); Science (COMSCI); Senior Chemists (SCC); Women Chemists (WCC); and Younger Chemists (YCC).
- On the recommendation of the Committee on Economic and Professional Affairs (CEPA), Council approved the Academic Professional Guidelines. The guidelines were amended as requested by the Committee on Ethics (ETHX) to reflect the shared responsibility and accountability with the academic institution, faculty, and other mentors in creating a safe environment and the Chemical Professional's Code of Conduct.
- On the recommendation of the Committee on International Activities (IAC), Council approved the creation of the following three International Chemical Sciences Chapters, subject to the concurrence of the ACS Board of Directors: Bangladesh, East and Northeast India, and West India
- The Committee on Constitution and Bylaws (C&B) reported the certification of bylaws for a total of 11 units with five Local Sections: Columbus, Permian Basin, Inland Northwest, Midland, and Pensacola; three Divisions: Divisions of Colloid and Surface Chemistry (COLL), Environmental Chemistry (ENVR), and Biochemistry and Chemical Biology (BIOL); and three International Chemical Sciences Chapters: Switzerland, Egypt, and Guangdong, China.

- The Committee on Younger Chemists (YCC), in celebration of its 50th anniversary, encourages early-career chemists to join ACS. Through September, new members could join ACS for a 50% discount off their first year of annual dues.

–PAUL BRANDT

FROM THE EDITORS' DESK

Over the summer months I took a free Zoom-based course through Wikipedia Education. The main idea was to train more people to edit existing Wikipedia articles and create new ones, with a focus on historical women scientists. The scientist I chose to work on was Katharine Blunt, who was chair of Home Economics at the University of Chicago in the early 1900s. Although it wasn't hard to begin editing Wikipedia content, the question soon became, "How do I know when the article is *finished*?" In any event, I would encourage others to get involved for fun, learning and intellectual stimulation.

In the spirit of Halloween you will find in this issue an explanatory diagram on the chemistry of chocolate, created by UK science communicator Andy Brunning. For more infographics check out his Compound Interest website.

This month's bulletin issue was created with help from Russ Kohnken, Sherri Rukes, Andrea Twiss-Brooks, Paul Brandt, Vivian Sullivan and the Nominations Committee, including the nominees for Chair-Elect, Nic Gerst and Amy Balija. Thanks also to Adam Sussman and Bethel Shekour for their proof-reading skills. Please get involved in the bulletin by contributing on a topic of your choice: a book review, lecture highlight, food or safety topic, science humor and more. I would love to hear from you. Send ideas and content to editor@chicagoacs.org. Thanks for reading!

–MARGARET E. SCHOTT

2024 Chicago ACS Election

The elections for Chicago ACS officers will be open from 9:00 am on Monday, October 14th until 12:00 noon on Wednesday, November 6th. Members will be notified by email or postcard with specific details about how to participate and vote in the section election. Election winners will be notified by email and the results will be announced on our website as well as at our monthly meeting in late November. New officers will take office in January 2025 with the first Board of Directors meeting of the new year. Please contact the Chicago Section Office at office@chicagoacs.org if you do not receive your election materials, which will be sent by email from AssociationVoting.com and will contain your election-only password.

For complete information about each candidate go to https://chicagoacs.org/Election_2024_Candidate_Platforms_and_Biographies. Statements from candidates for Chair-Elect appear on the following page. Please remember to VOTE!

2024 ELECTION SLATE

Chair-Elect
Amy Balija
Nicolas Gerst

Vice Chair
Mark Cesa
Fran Kravitz

Secretary
Sharada Buddha
Josh Kurutz

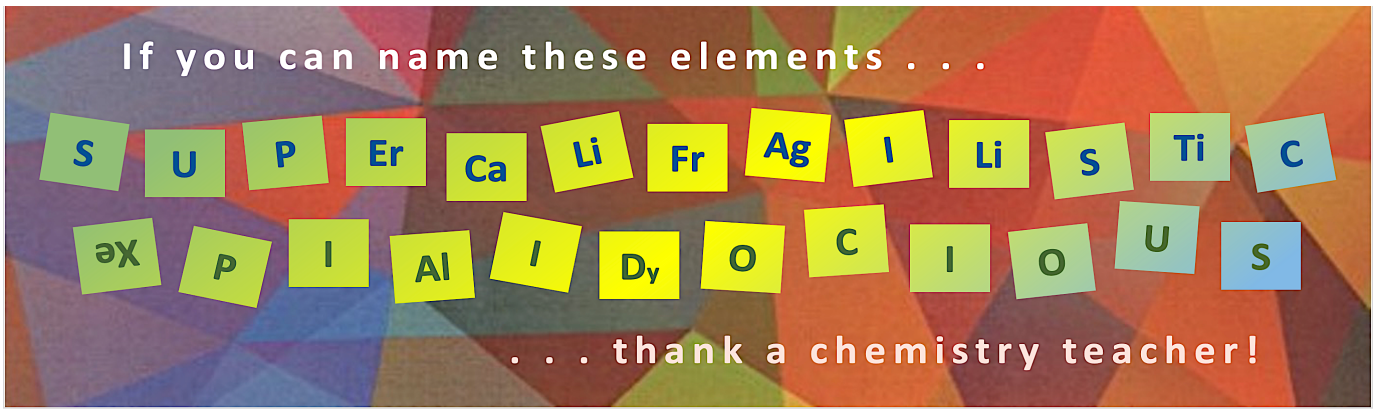
Treasurer
Russ Johnson
Adam Sussman

Directors
(seven to be elected)
Daniela Andrei
Claire Baxter
Lucas Claussen
Vince Hradil
James Kiddle
Ilana Lemberger*
Margy Levenberg
Raelynn Miller*
Kshitish (KP) Patankar
Bernie Santarsiero
Bethel Shekour
Madelyn Smith
Adam Sussman
Andrea Twiss-Brooks
Ana Zampirolli Leal

Councilor
(five to be elected)
Mark Cesa*
Josh Kurutz*
Margy Levenberg*
Avrom Litin
Tim Marin*
Margaret (Peggy) Schott

Alternate Councilor
(three to be elected)
Anita Mehta
Gowri Kuda-Singappulige
Katie Leach*
Oluseye (Kenny) Onajole*
Sherri Rukes

* Incumbents



Print on cardstock to make a bookmark. Designed by Margaret E. Schott

2025 Chair-Elect Candidate Statements

Amy Balija

I am honored to be nominated as a candidate for Chair-Elect. Our local section has a legacy of hosting successful educational, social, and outreach activities. Coming out of the pandemic, our section has expanded its programming to include in-person, virtual, and social events to include more members. We must build upon this foundation to create a local section that welcomes our diverse memberships.

I have a track-record of leading positive, collaborative teams to create opportunities that positively impact diversity, equity, inclusion, and respect (DEIR) for all individuals within the ACS.

As Chair of the national Women Chemists Committee,
1. I redesigned programming and social events which doubled the number of attendees,
2. I spearheaded a new grant for emerging scientists funded by a major pharmaceutical company,
3. I collaborated with other divisions, committees, and organizations to develop pathways to provide needed resources to constituents.

As an Associate Member of the national Membership Affairs Committee,
1. I collaborate with other divisions, committees, and ACS staff to design services which benefit our members and encourage member engagement.

As Lecturer at Loyola University Chicago,
1. I serve as the faculty mentor of the chemistry graduate student organization,
2. I coordinate with other faculty in teaching introductory level chemistry courses.

As Chair-Elect, I look forward to engaging the members and community in the Chicago ACS local section by advancing the ACS Core Value of Diversity, Equity, Inclusion and Respect.

If elected, I promise to work for the best interests of the Chicago section members. By establishing a welcoming environment, we can create a strong community for chemists.

Nicolas Gerst

If elected to the role of Chair-Elect of the Chicago ACS section, I will support our current section's programs, activities, and community outreach events. Also, I will pay attention to our section membership and look for initiatives and opportunities to grow our membership.

The Chicago ACS section has a lot to offer in terms of networking, education, and information in the World of Chemistry. As Chair-Elect, I would continue the recent initiative to change some of our events to appeal to different cohorts of our section members. Taking advantage of remote meetings (introduced during the pandemic), I would encourage meetings or contacts with other local scientific organizations and other ACS sections.

A native of France, I came to the US for a post-doctoral position and stayed to work in a pharmaceutical company on drug metabolism and pharmacokinetics.

Professional experience: Co-founder, Laboratory Equipment Services, LLC 2019-present; Validation Specialist, Universal Quality Solutions Inc., 2015-2019; Principal Scientist, Astellas Pharma, 1998-2013.

Education: PhD 1988, Pharmacology, Strasbourg University

Chicago ACS Section experience: Director of the board since 2022, Nomination Committee member 2022-2024, Program Meeting Arrangements Committee member 2022-2024, National Meeting team member (to organize the Fall 2022 ACS national meeting in Chicago), Volunteer at the Local Section booth during the 2022 national meeting, and Chicago Public Schools (CPS) liaison 2020-2024. I am also serving the section as Administration Division coordinator.

Divisional and National ACS Section experience: Member of the Chemical Small Business Division of ACS (SCHB).

Jaime Stasiorowski: Teacher Excellence Award

For 2024, Jaime Stasiorowski of Deerfield High School is the 2024 Teacher Excellence Award winner for the Chicago Section of the ACS. As usual, we received wonderful nominees who each had their strengths and are serving their students, schools, and communities well. Ms. Stasiorowski stood out on the strength of her involvement in so many of the aspects of our educational and scientific endeavors. Here are Jaime's thoughts:

I FELL IN LOVE with chemistry because my high school Chem teacher made it so fun, engaging and cognitively challenging. I ended up majoring in Chem and Biochem in college with plans to go to graduate school to get my Ph.D. I started grad school and quickly realized that lab research was not for me, but I really enjoyed being a teaching assistant (TA). It wasn't until 5 years after I left grad school and worked in business jobs for a while (companies hired me because I had a science degree and had analytical skills!) that I made the decision to go back to school to be a chemistry teacher. I realized that I missed the way chemistry teaches one to think and I missed sharing my love of chemistry and my love of learning with others.

Fast forward to now: I try to not only help my students appreciate chemistry for its complexity but also to help students use the study and cognitive demand of chemistry to help them become more engaged, more confident, and more reflective learners. We talk all year about how chemistry teaches you to problem-solve, to reason, to fail and pick yourself up again, to say "wow" or "so cool" and make you think in ways you didn't think you could. I use labs to drive learning.

We talk all year about how chemistry teaches you to problem-solve, to reason, to fail and pick yourself up again.

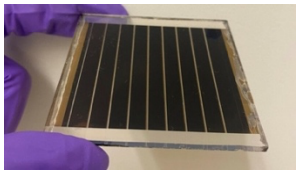
I check in on their learning every day through formative assessment. We make connections to real life, for example, what caused the explosion at the sugar refinery in Georgia? Why was Flint, MI water so lead-ridden? Why do they call it Elephant Toothpaste? I try to live by what Paul Hewitt of Conceptual Physics fame taught me: "Make their first experience delightful and they will come back for the rigor." I strive to show them the wonders of chemistry, discover the wonders for themselves, model what it looks like to wonder, and get them excited about learning. These are the tenets that I consistently return to, in order to ground me when teaching feels too hard or when the way I taught something last year doesn't seem to be working this year. These tenets drive me to "see" the students in front of me and continually evolve my practice and pay forward my love of chemistry and learning.

Read about past winners at: https://chicagoacs.org/Teacher_Excellence_Award_winners

–RUSS KOHNKEN

Mercouri Kanatzidis: National ACS Award

Inorganic chemist and Northwestern University faculty member Mercouri G. Kanatzidis has been honored with this year's ACS Award in the Chemistry of Materials, sponsored by DuPont. Professor Kanatzidis, who hails originally from Greece, specializes in the chemistry of perovskite materials for use in solar-to-electric energy generation and light-emitting devices. He presented a talk on this topic to the Chicago ACS Section in January 2023. Both 2D and 3D halide perovskites are members of a class of compounds that make outstanding semiconducting materials, thanks to their superior carrier lifetimes and structural diversity. In addition, the Kanatzidis research group is investigating the exploratory synthesis of chalcogenide (S, Se, and Te) compounds, perovskites for the detection of hard radiation. and thermoelectric materials with atom substitutions and electronic band conversion. Congratulations!



Sixty-Eighth Annual Scholarship Examination in Chemistry

SPONSOR: Chicago Section, American Chemical Society: High School Education Committee

HELD AT: Benedictine University, Libertyville and Whitney Young High Schools, Saturday May 18, 2024

AWARDS: Funds are contributed by the chemical industry and by individuals, including the **Chicago ACS Section, Stan Drigot, Dr. Henry M. Walton, Chicago Chemists' Club, and Rachel Smoler.** Teachers of a prize-winning student(s) will receive a one-year membership in AACT.

PRIZE	WINNER	SCHOOL & TEACHER
FIRST **$5,000 AWARD**	**Ray Han**	**Kevin Nihill** University of Chicago Lab School
SECOND **$3,000 AWARD**	**Mandal Dayita**	**Suzanne Teberg** William Fremd HS
THIRD **$2,500 AWARD**	**Ayush Kulkarni**	**Margaret Stokes** Metea Valley HS
FOURTH **$1,500 AWARD**	**Kyler Gao**	**Katherine Lynch** Naperville North HS
FIFTH **$1,250 AWARD**	**Caspar Chen**	**Brandon Tucker** Glenbrook South HS
MARIE LISHKA * **$2,000 AWARD**	**Mandal Dayita**	**Suzanne Teberg** William Fremd HS
MARSHALL S. SMOLER** **$1,000 AWARD**	**Eloise Khoury**	**Walt Kinderman** Walter Payton College Prep
BERNARD E. SCHAAR*** **$1,000 Chicago Chemists' Club Award**	**Ray Han**	**Kevin Nihill** University of Chicago Lab School

*To the highest scoring female in the examination. This award honors ***Marie Lishka***, who was an active Chicago Section member for many years. Additional funding for the Lishka award was provided in memory of ***Stan Drigot***.
To the highest-scoring Chicago Public High School Student. His sister, Rachel, established this award in 1972 in memory of **Marshall S. Smoler. Mr. Smoler was for many years a chemistry teacher in the Chicago public schools.
*** To the highest scoring Chicago High School student. Mr. Bernard Schaar's widow established this award in memory of ***Mr. Bernard Schaar***, long active in Chicago Section, American Chemical Society and the Chicago Chemist's Club

HONORABLE MENTIONS LISTED IN ALPHABETICAL ORDER
(These students were the next highest performers)

Jonathan Anandakumar, Metea Valley HS
Victor Chen, University of Chicago Lab School
Maria Giannopoulous, Naperville Central HS
Ryan Kong, Naperville Central HS
Cruise Lickerman, University of Chicago Lab School
Anagha Pullela, William Fremd HS
Myles Yiu, Glenbrook South HS

A total of 41 students from 14 schools took the 2024 ACS Scholarship exam. Each chemistry teacher could nominate two students. Awards were given to students at the ACS Education Night meeting on September 19th. Award winners and their teachers were contacted by the Chicago ACS office and invited to attend the meeting.

A special thank you to Dr. Tim Marin, Benedictine University, who wrote the exam. Additional thanks go to those who helped administer the process including Lindsay Consdorf, Tim Marin, Sherri Rukes, and Karen Trine.

—RUSS KOHNKEN

ACS Chemistry for Life®

NATIONAL CHEMISTRY WEEK

2024 NCW Illustrated Poem Contest
Picture Perfect Chemistry

The Chicago 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 27 by 11:59 PM ET

Prizes: Gift card for the top 2 students in each group.

Contact: Sherri Rukes, community@chicagoacs.org (please email entries and form)

Winners of the Chicago 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, **"Picture Perfect Chemistry."**
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 the theme include:

- Chemical reaction
- Molecules
- Transparent
- Ultrasound
- Colloid
- Film
- Filters
- Lens
- Imaging
- Pixel

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 yearly topic (the 2024 theme is Picture Perfect Chemistry), the word choice and the imagery, colorful artwork, adherence to poem style, originality and creativity, and overall presentation.
- All entries must be original works without aid from others. Physical drawings may be scanned or captured via camera and submitted digitally. 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. If the illustration is created using a digital painting or drawing app, the name of the program must be included on the entry form.
- Use of AI in any form (i.e., written or pictorial) is strictly prohibited.
- 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 (without assistance from others).
- Students must be sponsored by a school or another sponsoring community group (e.g., Homeschool Association, Boys and Girls Club, Scout Troop, 4-H, etc.).
- Acceptance of prizes constitutes consent to use winners' names, likenesses, and entries for editorial, advertising, and publicity purposes.
- Do not place participant names on the front of your poem.

PICTURE PERFECT Chemistry

October 20-26, 2024 #NationalChemistryWeek

MSI

The ACS Chicago Section is in need of volunteers for an event during National Chemistry Week this year on **October 12th, 2024**. The event will be at the **GRIFFIN MUSEUM OF SCIENCE AND INDUSTRY, CHICAGO** and will take place from **9 am to 3 pm**. We will have a table with hands-on experiments exploring this year's theme, "Picture Perfect Chemistry".

This event only is able to have **6 volunteers**. All the materials and directions will be provided for you. If you are able to help out the whole time, that would be wonderful.

Interested in volunteering? Please fill out this google form.

NAVY PIER

The ACS Chicago Section is in need of volunteers for our major event during National Chemistry Week this year on **October 26th, 2024**. The event will be at **NAVY PIER, CHICAGO** and will take place from **11 am to 6 pm**. We will have several hands-on experiments exploring this year's theme "Picture Perfect Chemistry".

There are many ways you can volunteer and make this day awesome for kids of all ages. You don't need to volunteer the whole time. You can volunteer for ½ the time, all day or whatever you can. We need many volunteers for the event, so even an hour or two of your time would be appreciated.

Interested in volunteering? Please fill out this google form.

I will be sending out the handouts for the stations prior to both events, so you can get used to the activities. Questions? Contact **Sherri Rukes** at **luvchem@gmail.com** or leave a text or voicemail at 847 - 668 - 0306 with your name, contact information, and the hours that you would like to volunteer.

This is a great opportunity to interact with young minds and support your local section!

ACS Chemistry for Life®

American Chemical Society

National Chemistry Week

Marshmallow in a Syringe

The investigation of gases were what allowed scientists to first think about atoms and how atoms combine to make molecules as well as the determination of the mass of the atoms relative to each other. Scientists Amedeo Avogadro, Robert Boyle, and Jacques Charles were all deeply involved in helping to determine how gases behaved.

Materials:

- Large Syringe (no needle) – 60 mL is best but 35 mL syringe can be found at pet or farm supply stores
- Mini Marshmallows

Experiment:

Remove the plunger and place the marshmallow into the syringe. Notice the ease with which you can push the plunger into the syringe down to the marshmallow. Cap the end of the plunger with your finger and try to pull the plunger out. Is this difficult? What's happening to the marshmallow? Remove your finger from the end of the syringe. What happened to the marshmallow? Pull the plunger out as far as it will go while still in the syringe, then cap the end of the syringe with your finger and push in on the plunger. Is this difficult? What's happening to the marshmallow?

What's happening?

The gas that we are referring to here is the air that is in the syringe and also in the marshmallow. When you first pushed the plunger in it was easy as the air could go out the tip of the syringe. Once you plugged the end and pulled on the syringe, you noticed that it became difficult to pull on the syringe because you were creating a vacuum (lower pressure) on the inside as the volume expanded with the same number of gas molecules. You also saw the marshmallow increase in size as the gas molecules that were on the inside of the marshmallow were pushing to get out of the marshmallow to escape.

This is because there was, in essence, a vacuum on the outside of the marshmallow. As you removed your finger from the tip, the marshmallow immediately shrunk in size as air rushed into the syringe alleviating the vacuum. The air molecules also returned to the inside of the marshmallow but the interior structure of the marshmallow had collapsed to a degree in the previous step when the air was being removed from the marshmallow. Finally, as the plunger was being pushed in with your finger over the tip, you noticed the marshmallow get smaller. The pressure inside the syringe was getting greater as the volume shrunk and the number of air molecules remained the same. With all the pressure on the outside of the marshmallow, the marshmallow decreased in size to take up less space. These manipulations show us that the pressure and volume of a gas are inversely related or that if the pressure of a gas goes up then the volume goes down. This is Boyle's Law.

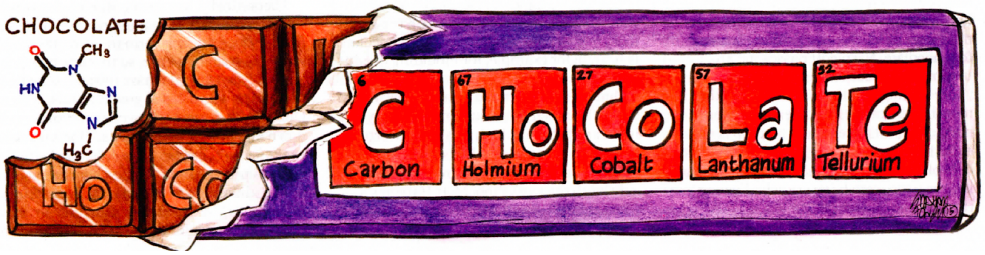
Extension:

Try blowing up a small water balloon so that it fits into the syringe and use the same procedures. Are there any changes? Try filling up the water balloon with water and do the same things. What's different? Try filling the syringe with water instead of air and attempt the same manipulations. Can you explain these results?

References:
https://kids.nationalgeographic.com/books/article/marshmallow-madness
https://www.scientificamerican.com/article/in-and-out-demonstrating-boyles-law/

To view all past "ChemShorts for Kids", go to:
https://chicagoacs.org/ChemShorts

–PAUL BRANDT



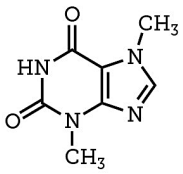
The chemistry of chocolate

PERIODIC GRAPHICS

Whether your preference is dark, milk, or white chocolate, here's a handy guide to what's inside!

Dark chocolate

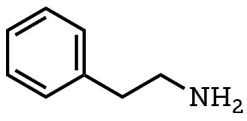
Cocoa solids: >35%



Median lethal dose for dogs **300 mg** (per kilogram of body weight)

Theobromine

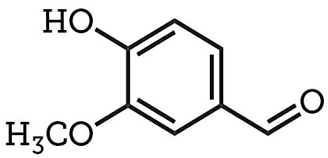
Dark chocolate has the highest amount of cocoa solids, left over after cocoa butter is extracted from cacao beans. The solids contain theobromine, toxic to dogs, and phenethylamine, linked to a feel-good effect but with little evidence.



Phenethylamine

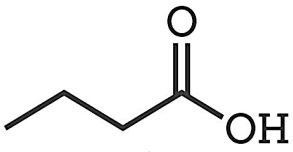
Milk chocolate

Cocoa solids: 20–30%



Vanillin

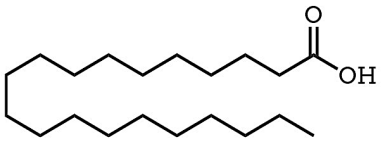
Confectioners add vanillin to many milk chocolates to enhance their flavor. American brands of chocolate often contain butyric acid, which adds a sour note to the chocolate's taste.



Butyric acid

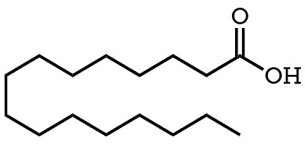
White chocolate

Cocoa solids: 0%



Stearic acid

White chocolate does not contain any cocoa solids, only cocoa butter, sugar, and milk. Cocoa butter is composed of a number of fats, mainly stearic acid and palmitic acid.



Palmitic acid

Cartoon (top left) appeared in the December 2015 issue of *Chemistry World; pumpkin is from freedesignfile.com;* Informational graphic (bottom) by Andy Brunning https://www.compoundchem.com/tag/chocolate/

UPCOMING EVENTS

CHICAGO SECTION BOARD MEETINGS

For Zoom link contact: office@chicagoacs.org

November 10	March 6
December 7	April 3
January 9	May 8
February 13	June 12

DEADLINES FOR BULLETIN SUBMISSIONS

editor@chicagoacs.org

November 16	March 16
December 16	April 16
January 16	May 16
February 16	June 16

CHICAGO ACS SECTION PROGRAMS

https://chicagoacs.org

SATURDAYS, OCTOBER 12 and 26
National Chemistry Week events (page 11)

THURSDAY, OCTOBER 17
Capturing the Stars (pages 1–2)

7:00 PM – 8:15 PM (virtual)
Presentation by Andrea Twiss-Brooks

FRIDAY, NOVEMBER 8
Basolo Medal Lecture and Dinner (pages 1, 3)

4:15 PM – 8:30 PM
Dinner registration deadline is October 23

THURSDAY, NOVEMBER 21
$^{53}I^{15}P$: Career Opportunities for Young Chemists in Intellectual Property

12 NOON – 1:00 PM on Zoom
Presentation by Adam D. Sussman

FRIDAY, DECEMBER 13
Holiday Party / "My Path as a Blind Chemist"

5:30 – 8:45 PM at Jameson's Charhouse
In-person only. Invited speaker is Cary Supalo

THURSDAY, JANUARY 16, 2025
Smart and Programmable Crystalline Sponges

Prof. Omar Farha (Northwestern University)
Joint Meeting with Chicago AIChE

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