NEWSLETTER OF THE LEHIGH VALLEY SECTION
OF THE AMERICAN CHEMICAL SOCIETY

MAY 2022
VOL. 105, NO. 5

THE OCTAGON

Celebrate the 95th anniversary of the Women Chemists Committee at the Reading Science Center

*****Wednesday, May 25th 9:00-10:30 AM*****

Network and Learn about the "Sisters in STEM" Program.
Free parking at the Doubletree Hotel.
Coffee, donuts and activities included.
➔➔First 15 attendees at the door free!
Everyone else $8.
Speaker: Sarah Troy, aka Solar System Sarah.
Sponsored by LVACS-WCC

Reading Science Center, 645 Penn Street, Reading, PA 19601
https://www.readingsciencecenter.org/visit/

CONTACT: Lorena Tribe lut1@psu.edu

LVACS Events Calendar

May 2022

Special Event: 95th Anniversary of the WCC!
Network and Learn about the "Sisters in STEM" Program.
Speaker: Sarah Troy, aka Solar System Sarah.
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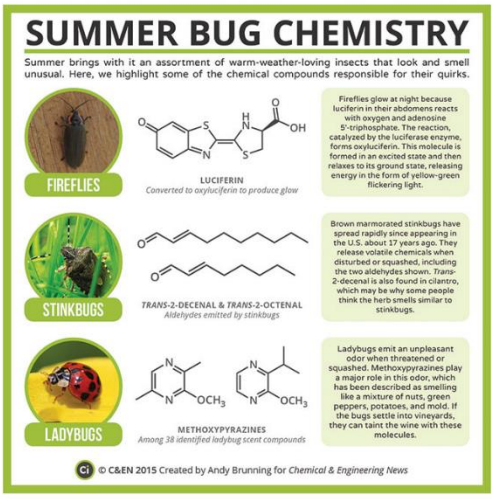
READING SCIENCE CENTER

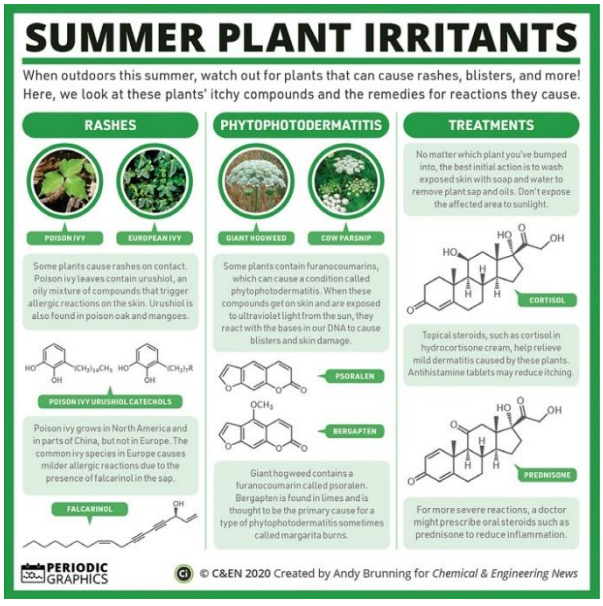
Summer 2022

Networking Social at Sorrenti Vineyards,
130 Lower Cherry Valley Rd
Saylorsburg, PA 18353
Saturday, July 16th, 5-8pm
More details coming soon!
CONTACT: Lorena Tribe, lut1@psu.edu
or Nigel Sanders, nigel53.sanders@gmail.com

Sorrenti Family Estate



HAVE A GREAT SUMMER... WITH CHEMISTRY



CONTACT: Nigel Sanders, LVACS secretary and newsletter editor, nigel53.sanders@gmail.com

Also In This Issue...

#ccew April 17–23 • 2022

THE BUZZ ABOUT BUGS: insect chemistry

It was a Day for the Bugs at Da Vinci Science Center As LVACS Chemists Celebrated Earth Week

LVACS celebrated Earth Week in many ways including a special event at Da Vinci Science Center in Allentown on Saturday, April 23rd. "THE BUZZ ABOUT BUGS: insect chemistry" was the theme as about 50 kids and their parents did hands-on demonstrations of cochineal s cale insect (carmine) dye extraction, insect spectral/faceted vision, aroma matching, build-a-bug and more!

DA VINCI SCIENCE CENTER
Open for Exsciting Possibilities

ACS Chemistry for Life

CHEMISTS CELEBRATE EARTH WEEK

#ccew April 17–23 • 2022

THE BUZZ ABOUT BUGS: insect chemistry

It was a Day for the Bugs at Da Vinci Science Center As LVACS Chemists Celebrated Earth Week

Many thanks to Jennifer Pors of Da Vinci and all of our volunteers: Nigel Sanders, Jane Bedell, Philip Elias, Jade Marshall, Zoe Monogan, Faith Candelora, Erica Nemitz, Savannah Labukas and Maximus Garganta. Super job team!

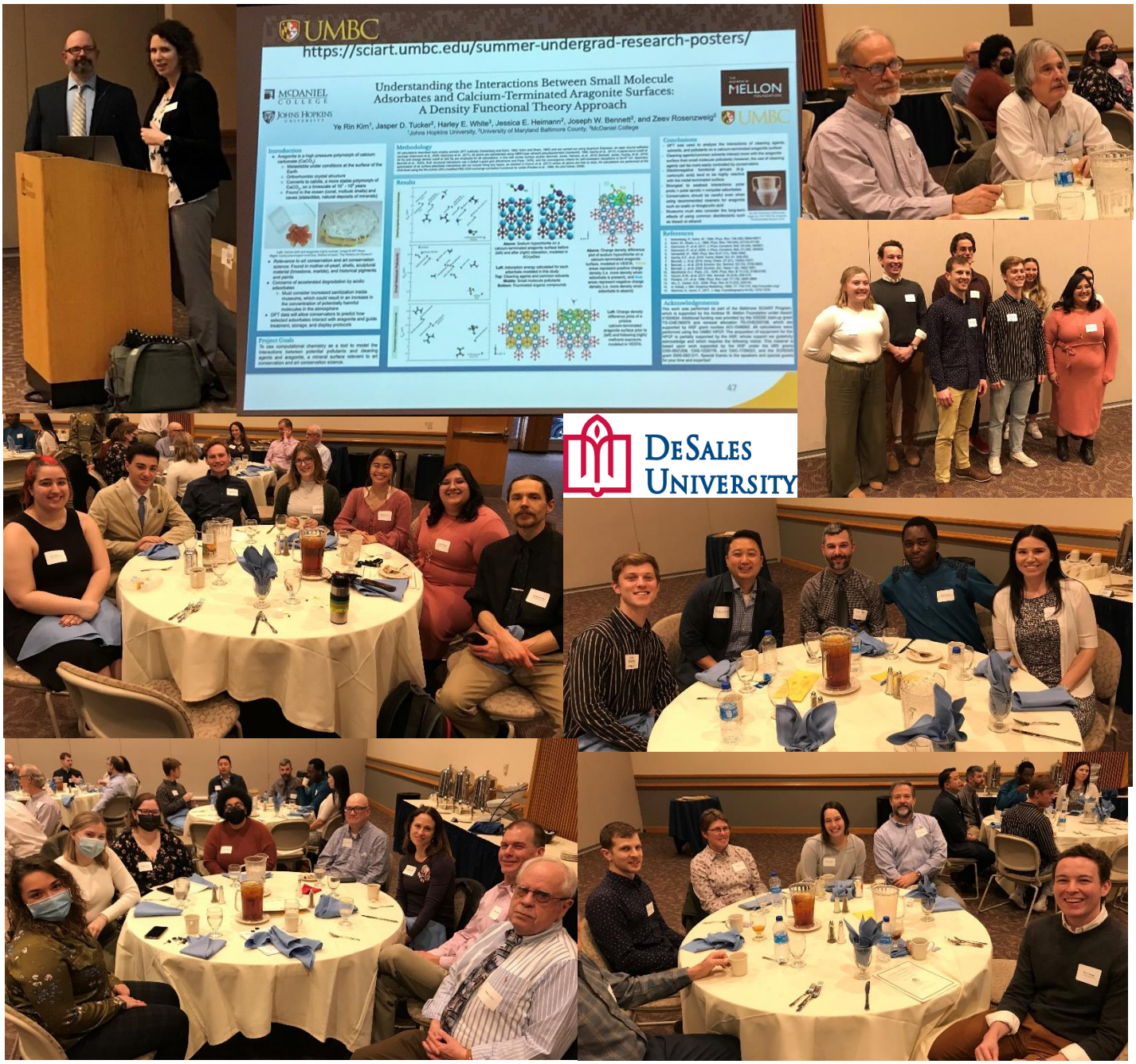
DA VINCI SCIENCE CENTER
Open for Exsciting Possibilities™

ACS Chemistry for Life®

CHEMISTS CELEBRATE EARTH WEEK

April 11th, 2022 LVACS Meeting Report: Undergraduate Posters and Senior Awards Night

Nearly 60 members attended the April 11th meeting, hosted by DeSales University, featuring our annual undergraduate research poster session, our graduating seniors who have shown exceptional chemistry aptitude over their academic careers and a great talk by Dr. Joe Bennett of UM/BC. Here's a link to the full Program including the Poster Abstracts. Thanks to Sara Hayik and Julie Himmelberger of DeSales for organizing the poster/speaker program and to Jeanne Berk and Lindsey Welch of Cedar Crest for recognizing our 2021-2022 senior awardees.



Photos: Lorena Tribe

2021-2022 UNDERGRADUATE SENIOR OUTSTANDING PERFORMANCE AWARDS

Senior Awardees

Albright College
Daniel Petersheim

Alvernia University
Brett Berger

Cedar Crest College
Talia Watson

DeSales University
Coby Rush

East Stroudsburg University
Alicia Gussenhoven

Kutztown University
Coty Emerich

Lafayette College
Chemistry: Natasha Miner
Chemical Engineering: Abigail Devlin

Lehigh University
Chemistry: Nicholas Bower

Moravian College
Rachel Riley

Muhlenberg College
Vanshika Kumar

Penn State University: Berks
Dillan Heller

CONGRATULATIONS, SCHOLARS!

Council Talking Points: Summary of Governance Issues and Actions

The following summary is provided on key actions of the ACS Council meeting held virtually on March 23rd.

Election Results

Candidates for President-Elect, 2023

✦ The Committee on Nominations and Elections presented to the Council the following nominees for selection as candidates for President-Elect, 2023: Frank Blum, Mary Carroll, Rigoberto Hernandez, and Ingrid Montes. By electronic ballot, the Council selected **Marry Carroll** and **Rigoberto Hernandez** as **candidates for 2023 President-Elect**. These two candidates, along with any candidates selected via petitions, will stand for election in the Fall National Election.

Council Actions

Committee on Committees Actions

✦ The Council approved the *Petition to Amend the Duties of the Committee on Chemists with Disabilities*. • This petition sought to change the language in the duties of CWD from **students** to **persons** to be more inclusive to ACS members of all levels and backgrounds participating in the Society's meetings and events.

✦ The Council approved the continuation of the Committee on Chemists with Disabilities • The Committee on Committee reviews each Society Committee no less often than every five years and advises the Board of Directors and Council whether they should be continued. Committee on Committees completed the performance review for the Committee on Chemists with Disabilities and recommended its continuation.

Committee on Budget & Finance Petition

✦ The Council approved the *Petition to Amend the Use of Dues*. • The petition has two major components. The first changes the basis for developing the total pool of allotments available for local sections and technical divisions. The second eliminates the connection between dues revenue and C&EN. • The total resource pool available for distribution to Local Sections and Divisions will be funded via a quasi-endowment established from the Society's unrestricted investment balances. This replaces the previous pool that was funded through the allocation of 20% of dues revenue to local sections and divisions.

Committee on Divisional Activities Action

✦ The Council approved a division name change. • Effective January 1, 2023, the Division of Carbohydrate Chemistry (CARB) will change its name to the Division of Carbohydrate Chemistry & Chemical Glycobiology (CARB).

Committee on International Activities Petition

✦ The Council approved a *Petition to Charter an International Chemical Sciences Chapter* • This petition, contingent on approval by the ACS Board of Directors, allows for a new International Chemical Sciences Chapter in Switzerland.

Committee on Membership Affairs

✦ The Council approved the extension of market testing of the international dues discount program based on World Bank country income levels. • The test provides reduced dues for international members residing in emerging nations, which host an ACS chapter, and as defined by World Bank income criteria. • The test results to date have suggested a positive impact on membership through new members and the expanded inclusivity that a wider global community provides.

✦ The Council approved the 2023 Schedule of Membership • The 2022 Schedule went live a few short months ago, and the 2023 Schedule was designed to add more value and increased choice for membership by adding clarity and a more intuitive explanation of how our membership works. • The 2023 Schedule of Membership did not change any dues, benefits, eligibility, or privileges from the 2022 Schedule.

Budget and Finance

In 2021, ACS generated a net from operations of nearly $79 million, which was almost $48 million higher than budgeted. Total revenues were $660 million, which was 5.2% or $32.6 million over budget. Expenses for the year were $581 million, or 2.5% below budget. This overall result was attributed to strong revenue performance from the Society's Information Services units (CAS and ACS Publications), reduced spending due to COVID-19 related impacts, and careful management of expenses across the ACS. The Society's overall financial position strengthened considerably in 2021 as Unrestricted Net Assets, or reserves, increased by $123 million to $676 million on December 31. The increase was primarily the result of the $79 million net from operations and growth of the Society's investments totaling $71 million.

The complete issue of Council Talking Points may be viewed here.

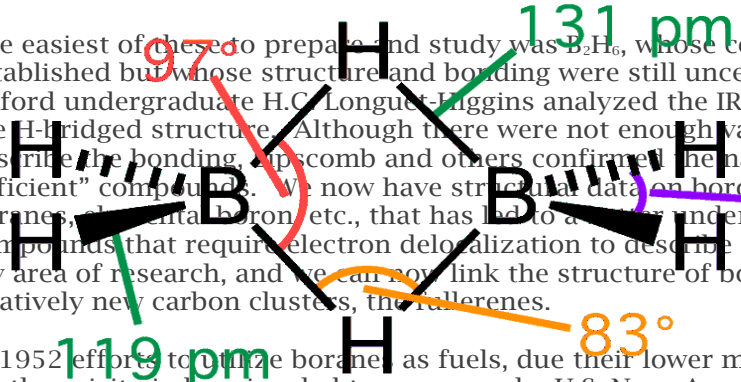
LEHIGH VALLEY ACS SENIOR CHEMISTS' PAGE

Where's the Boron?
By Lol Barton, Member of SCC

A couple of years ago I purchased an ACS Periodic Table tie and was shocked to note that boron, one of the most important elements, was missing. Boron is much less abundant in the earth's crust than most rare earths, and deposits of borate minerals are found in just a few places in the world.

Boron chemistry has been the focus of three Nobel Prizes: to W. N. Lipscomb in 1976, HC Brown in 1979, and A. Suzuki in 2010. I recently attended a celebration of the life of 2009 ACS Priestly Medalist Fred Hawthorne, a pioneer of polyhedral borane chemistry and Boron Neutron Capture Therapy (BNCT). So why has boron attracted such attention? Perhaps it is the remarkable range of chemistries that it manifests.

Boron was discovered in borax minerals and was used between 300 and 1700 AD in ceramic glazes. It was recognized as an element in the early 1800s by Humphrey Davy, Gay Lussac, and Jacques Thenard. In 1892 Henri Moissan first prepared a relatively pure amorphous form, and in 1909 Alfred Stock, who had worked as a student with Moissan, was appointed to direct the new Inorganic Chemistry Institute at Breslau. He began to study boron hydrides but was discouraged by Nobel Prize winner Sir William Ramsey, who said that these compounds were too difficult to isolate, characterize and handle. Stock continued his work, devising the vacuum line to isolate these very unstable compounds, and soon identified B_2H_6, B_4H_{10} and $B_{10}H_{14}$.



The easiest of these to prepare and study was B_2H_6, whose composition was established but whose structure and bonding were still uncertain. Then in 1943 Oxford undergraduate H.C. Longuet-Higgins analyzed the IR spectra and confirmed the H-bridged structure. Although there were not enough valence electrons to describe the bonding, Lipscomb and others confirmed the nature of these "electron deficient" compounds. We now have structural data on boron hydrides, polyhedral boranes, elemental boron, etc., that has led to a better understanding of cluster compounds that require electron delocalization to describe their bonding. This was my area of research, and we can now link the structure of boron clusters to the relatively new carbon clusters, the fullerenes.

In 1952 efforts to utilize boranes as fuels, due their lower masses and higher exothermicity in burning, led to programs by U.S. Navy Aeronautics' Project Zip and the U.S. Air Force's Project HEF (High Energy Fuels). These were finally abandoned but in 1971 triethylborane was used in Apollo 15 as a takeoff ignitor and an article in The Economist in May 2021 suggests that "Boron, a hitherto-neglected element, may have a military use" again. The 1950s work led to the discovery of the polyhedral boranes and carboranes by Hawthorne, Muetterties, and others and to stockpiles of boranes to be used by future researchers.

Examples of unique structural aspects of boron compounds have been observed by the work of Cowley, Power, Braunschweig, and others, as has the utility of boron and boranes in organic synthesis, carbon-carbon coupling reactions, catalytic C–H activation/borylation, and other applications. Of note is the 10^B isotope, with its large neutron capture cross section. This enables it to serve as a neutron shield in nuclear reactors and as an agent in BNCT, where slow neutrons are directed toward cancer cells enriched with 10B and the α-particle emitted destroys the adjacent cancer cells.

Boron may be missing from my tie, but it is very much present in our lives. Major applications are domestic, in fiber glass insulation materials, and in wood treatment products for termites. And you'll find 20 Mule Team Borax nationwide, to boost your detergent and freshen your laundry!

LEHIGH VALLEY ACS CAREER PAGE

Check out the Career page on our website lvacs.org/careers for a wealth of information on the services provided by LVACS to chemists at all stages of their careers. Online courses, 1-on-1 consulting, professional development grants and the ACS Career Navigator™ package are some of the benefits offered to ACS members to assist in planning and executing your career. Greglynn Gibbs, our local section ACS Career Consultant, would be happy to assist any member seeking more information. greglgibbs@gmail.com

Sr Principal Research Technician, Evonik, Allentown, PA
Conduct chemical and physical laboratory tests to assist scientists in making qualitative and quantitative analyses of solids, liquids, and gaseous materials for research and development of new products or processes, quality control, maintenance of environmental standards, and other work involving experimental, theoretical, or practical application of chemistry and related sciences. Apply

Senior Lab Technician - GC/MS, Intertek, Allentown, PA
An opportunity has arisen for a Senior Laboratory Technician to join this global organization within the Organic Analysis workteam at Intertek Allentown. Organic Analysis plays a key role in understanding the structures of organic chemicals, and quantitating concentrations in complex materials. Apply

Senior Chemist, Air Liquide, Branchburg, NJ
The Senior R&D chemist is part of a new product development team to synthesize, purify and analyze new semiconductor materials and other new emerging products. He/she will lead projects and groups to develop novel and scalable synthesis and purification, develop analytical methodology, create intellectual properties, interface with various other functions to move the new product to the market. Apply

Research Chemist, Church & Dwight Co., Inc., Princeton, NJ
A Research Chemist demonstrates competence in the area of cosmetics and or medical devices. This professional has a good understanding of diagnostic products and feminine hygiene products, processes and technologies associated with these products. Apply

Principal Scientist - Discovery Pharmaceutical Sciences, Upper Gwynedd, PA
DPS in West Point, PA is seeking a Principal Scientist (R5) to join our department. The role will report to the West Point DPS Director and will be expected to identify and champion impactful pipeline-driven innovations to solve unique Discovery program challenges across modalities. The candidate will be expected to inspire scientific rigor within the team and bring novel tools to aid in keeping DPS at the forefront of pharmaceutics assessment in Discovery. Apply

Program Scientist, Church & Dwight, Princeton, NJ
Lead category product development under the guidance of an R&D Director in a manner consistent with the C&D R&D Core Principles of teamwork, consumer and customer focus, personal responsibility and integrity, and ethical behavior and practices. Apply.

Senior Scientist - Dispersion, Axalta Coating Systems, Philadelphia, PA
Axalta is seeking an experienced Dispersion Scientist with a strong background in milled pigments, colloidal science, and color technology tools to join our global Research and Development organization. The Senior Scientist works with the wide range of milled pigments used in these various products in support of Axalta's coatings businesses. The Chemist will work very closely with the R&D teams as well as resources in product management and manufacturing to identify dispersion needs and develop technical solutions. More information and Apply

Senior Scientist, Axalta Coating Systems, Philadelphia, PA
Axalta Coating Systems is seeking a Polymer/Organic Chemist with experience in the synthesis and characterization of polymers. In addition to a synthetic background, the candidate should have a basic understanding of structure-property relationships and polymer physics. Knowledge of statistical methods, such as Six Sigma, is preferred. The ideal candidate would have an interest in raw materials initiatives, such as cost reduction and sustainability, and should be a multi-tasker with a dynamic personality who will interact successfully with multiple key functions within the organization. More information and Apply

Principal Scientist, GAF, Parsippany, NJ
The R&D technology plan for PolyIso development focuses on chemistry and additive technology, structure-property relationships, and assessing improvements/changes to the ISO panel construction that benefits roofing system performance.This position will focus on leading product and technology development in these and future areas, lead transiton of products/technology to manufacturing, provide technical direction and strategies for advancing ISO product, process, and technology. More information and Apply

Polymer Chemists, Mussel Polymers, Inc.
Mussel Polymers, Inc. located at 116 Research Dr, Bethlehem, PA 18015 in Bethlehem PA is a biomimetic specialty adhesive and formulations company. We are seeking Polymer Chemists and Adhesion Scientists to join our team while we expand our scientific development and pilot manufacturing. This is an opportunity to join an innovative startup looking to rapidly grow and develop new solutions to previously unsolvable problems. Interested? CONTACT: letsbond@musselpolymers.com

Remembering LVACS Member Joseph A. Sherma, Jr.

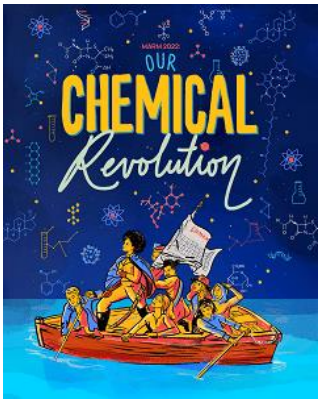
Sherma, who began teaching Chemisry at Lafayette when he was 24 years old, was known for involving students in his numerous research projects. (Photo courtesy of Flickr).

By Aliana Mediratta, Contributing Writer, The Lafayette, December 3, 2021

Joseph A. Sherma, Jr., retired Lafayette department head and professor of chemistry, passed away due to health complications in Aug. 2021.

Sherma had a profound impact on the Lafayette community throughout his 63 years on campus, including his dedicated research work with students, professional guidance for other chemistry department faculty and the enthusiasm he brought to teaching. Chemistry professor David Husic, who began his time at Lafayette in 1986 under Sherma's direction as the chemistry department head, spoke fondly of his leadership. "He was a mentor to me. He didn't tell people what to do, but he set a positive example of how a faculty member can approach their position," Husic said. Sherma was born in Newark, New Jersey, and attended Upsala College, where he graduated as a chemistry major in 1955 before receiving his Ph.D in analytical chemistry from Rutgers University three years later. Sherma initially began teaching at Lafayette in 1958 at just 24 years old as an instructor of analytical chemistry. Sherma was promoted multiple times, becoming a full professor in 1974 and served as the head of the chemistry department from 1984 to 1997, in addition to achieving many accolades. In 1982, Sherma was named the Charles A. Dana Professor of Chemistry, a title that was replaced in 1991 when he was named the John D. and Frances Larkin Professor of Chemistry. Ten years later he became a Professor Emeritus. Sherma had countless different contributions to the larger campus community outside of his department, including chairing three committees and serving on numerous others. He also lived in South College for five years as a faculty resident. Throughout his time at Lafayette, Professor Sherma was well-known for the research opportunities he gave to students. Sherma published 460 works and had 150 different students co-author at least one article with him. Husic emphasized that Sherma did extensive research work and really drew students into it, at a time when this was not necessarily the norm for other colleges and their faculty. "He was always happiest when he had a large group of students working with him," Husic noted. Although Sherma officially retired in 2000, Kenneth Huag, associate professor of chemistry, wrote in an email that "he had maintained a daily presence in the department with a student-centered active research program." Huag added that Sherma was incredibly committed to his work and he felt that he was doing his most significant work in the years before he had a stroke in 2019. Chip Nataro, professor of chemistry and current department head, added that among his numerous other accomplishments, "he was retired twenty years and yet was still in every day working with students." In October, Nataro wrote a resolution to Josh Smith, clerk of the Faculty, calling for a memorial for Sherma, citing his many accomplichments. Sherma's work in Analytical Chemistry is also recalled by Nataro in the February 7th 2022 issue of Acta Chromatographica.

Explore the MARM 2022 Technical Program



The technical program is now available for the **2022 Middle Atlantic Regional Meeting (MARM)** , June 1-4, at The College of New Jersey in Ewing, NJ! MARM 2022 will feature **more than 650 oral and poster abstracts, student activities, an exposition, and networking opportunities**! The technical program is where you can find programming information and event times for the meeting.

The meeting will also include the following ACS Career Pathways™ courses to support up-and-coming and current professional chemical scientists in navigating their futures:

- Finding Yourself: Identifying a Career that Matches your Strengths and Values
- Résumé Development: Marketing Your Brand for an Industrial Chemistry Position

Visit the MARM 2022 website to start exploring the technical program and register!

GC&E Registration: 26th Annual Green Chemistry & Engineering Conference

Register today for the **26th Annual Green Chemistry & Engineering (GC&E) Conference**! Organized by the ACS Green Chemistry Institute and the GC&E Conference Advisory Committee, this hybrid in-person/virtual conference features more than 40 sessions covering a variety of timely topics, daily keynote speakers, poster sessions, dedicated networking time, workshops, and opportunities to engage speakers, exhibitors, and attendees. Additionally, returning this year are the pre-conference **"GC&E Fridays"**:

- Careers in Green Chemistry and Engineering Designed for Sustainable Use – Friday, May 20, 10:00-11:30 AM ET
- Keynote Kick-Off with the ACS Sustainable Chemistry & Engineering Lectureship Winners – Friday, June 3, 9:00-10:30 AM ET
- Virtual Networking Event – Friday, June 3, 5:00-6:00 PM ET

This year's conference programming covers the breadth and depth of sustainable and green chemistry and engineering, with special attention to the theme, "Thinking in Systems: Designing for Sustainable Use." The conference will be held in Reston, VA from June 6-8, with the option to attend sessions virtually. ACS Members with the Premium Membership Package receive additional registration discounts— register today!

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2022 EXECUTIVE COMMITTEE

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lawelch@cedarcrest.edu

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lawelch@cedarcrest.edu

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lut1@psu.edu

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Jeanne Berk (term ends 12/31/24)
jrberk@cedarcrest.edu

Kelley Caflin (term ends 12/31/23)
caflinacs@yahoo.com

ALTERNATE COUNCILORS

Mike Bertucci (term ends 12/31/23)
bertuccm@lafayette.edu

Ned Corcoran (term ends 12/31/24)
ewc777@gmail.com

The Octagon Newsletter is published by the Lehigh Valley Section of the American Chemical Society to provide information to section members and the public about activities and programs which support the section mission "To promote the chemical sciences in the Lehigh Valley section for the benefit of our members and our community." Send all queries to the editor at: nigel53.sanders@gmail.com