



# The KalChemist News

January 2024

[www.kalamazooacs.org](http://www.kalamazooacs.org)

Vol. 14, Issue 1

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## 2024 KACS Executive Officers

### Chair

Dr. Dibyendu Mondal  
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### Past-Chair

Mr. Ben Maxey  
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### Chair-Elect

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### Alternate Councilor

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[tomasz.respondek@zoetis.com](mailto:tomasz.respondek@zoetis.com)



## LinkedIn: Join the Local Section!

By Blakely Tresca

We often tell young chemists that building a professional network will be vital to a successful career. This is great advice whether you are planning to head down an academic, government, or industry path. Networking today is more than social gatherings or professional conferences. Online social networks have given everyone a platform to speak their mind and find their community. But how do you filter all the noise on the internet to find a professional community that will help your career (rather than add to the distractions)? LinkedIn is an excellent option whether you are looking to start your network or stay connected with network you already have. And joining groups you are already involved with is an easy place to start, both KACS local section <https://www.linkedin.com/groups/12584628/> and the national ACS <https://www.linkedin.com/groups/51209/> have their own groups. Here you will find the latest news and upcoming events. You can also post your own updates, ask questions, or find other professionals in the area. ACS members also have access to LinkedIn Learning with a large library of skills and professional development courses.

Even if you are not actively looking to grow your network, there are benefits to creating a LinkedIn profile. Most college students are introduced to LinkedIn as a tool to find internship opportunities and jumpstart their careers. This is a great opportunity to promote training positions and recruit new talent for your business. College students often feel isolated from the professional world while in school. LinkedIn is one place to offer mentorship for young chemists in the area.

Check it out and you may be surprised at what you will find.



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## The KalChemist News Format Survey

Your KACS Executive Committee would like to know your preference regarding the format in which you receive our monthly newsletter: is your preference the **current format, which sends the newsletter as an attachment to an e-mail?** or would you be **equally likely (or more likely) to read it** if you were provided with a link to access it on our KACS website (example: <https://kalamazooacs.org/december-2023-vol-1311/>)?

Current format \_\_\_\_\_

Link to website: \_\_\_\_\_

Equally likely \_\_\_\_\_

More likely \_\_\_\_\_

Please respond with your comments to Newsletter Editor Lydia Hines by replying to this email or emailing [lemhwgh@gmail.com](mailto:lemhwgh@gmail.com).



## Looking Ahead to the Summer of 2025 ...

By Lydia Hines

Since it is now **2024**, it is not too early to start considering attending a Chemistry meeting “fairly close to home”—the **2025 Great Lakes Regional Meeting** which will be **jointly co-hosted by the Central Wisconsin and the Northeast Wisconsin Sections in Appleton, WI, in June**. At the end of this article is a link to a survey **requesting input** as to the types of experiences which would capture your interest and increase the likelihood of your participation at that meeting. Given the time of year for the meeting, and its relative proximity to Kalamazoo, you may also want to consider it as a desirable location for a family vacation, especially if you like CHEESE! The meeting's Local Organizing Committee is hard at work developing a robust program; **they would very much appreciate your responses**.

[https://uwsp.az1.qualtrics.com/jfe/form/SV\\_ddo4EFil803jZlQ?Q\\_CHL=q](https://uwsp.az1.qualtrics.com/jfe/form/SV_ddo4EFil803jZlQ?Q_CHL=q)



## KACS Calendar

### January

- **January 15, Monday, 7 p.m.:** Executive Committee meeting via Zoom; contact [Dr. Dibyendu Mondal](#)

### February

- **February 19, Monday, 7 p.m.:** Executive Committee meeting via Zoom; contact [Dr. Dibyendu Mondal](#)

### March

- **March 17-21:** Spring ACS National Meeting, New Orleans, Louisiana: “The Many Flavors of Chemistry.” In-person and hybrid; more information at this [link](#).
- **March 18, Monday, 7 p.m.:** Executive Committee meeting via Zoom; contact [Dr. Dibyendu Mondal](#)
- **March** (tentatively, second week) **speaker:** Martha Gammill on Patents





# The KalChemist News

February 2024

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Vol. 14, Issue 2

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## 2024 KACS Chair's Comments and Request for Membership Participation

By Dibyendu Mondal

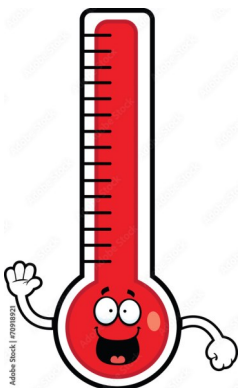
Post COVID, the Executive Committee of the Kalamazoo Section of the American Chemical Society (KACS) devoted much of their time to exploring opportunities for in-person meetings. While we have been somewhat successful in this regard in 2023 with the June member meeting/outdoor picnic and the October poster session at Bell's Brewery, we are still behind the pre-COVID times.



Our aim for 2024 will be focused on re-engagement with the community, particularly the high school teachers and students: We will continue to work with the teachers to fund acquisition of necessary equipment for classroom loan, and I am strongly committed to working with my colleagues to re-instate our successful annual chemistry competitive exam for high school students, which was a highlight of our section but has been on hiatus for the last several years. We also have plans to continue hosting our annual awards ceremony which recognizes long-term ACS members and exemplary students and teachers, support Project SEED engagement, participate in outreach activities during National Chemistry Week and Chemists Celebrate Earth Week, host speakers, and offer networking opportunities.

Finally, we have formed a planning committee to pursue our intent to take part in the U.S. National Chemistry Olympiad in 2025.

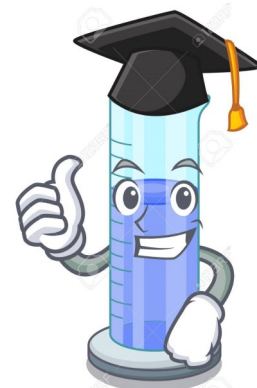
We would welcome your participation in these efforts.



## A Chemistry Joke

Q: What did the thermometer say to the graduated cylinder?

A: "You may have graduated but I've got so many degrees"



# Kalamazoo College Chemistry Club 2023 and 2024 Update

By Maxwell Rhames  
*Student Leader*

Happy 2024 Kalamazoo Chemists! The Kalamazoo College Chemistry Club is happy to report back on a very successful 2023 fall term here at K! Our term was jam-packed with activities both on campus and in the community. Many of our members were able to participate in the outstanding KACS Speed Networking event. I was fortunate enough to have been attending for the third time and I am always blown away at the kindness and excitement that mentoring chemists share with our students! This is by far one of our favorite events to participate in and it is so important in allowing young scholars to hear about the infinite places that a career in chemistry may take them. From the bottom of our hearts, thank you for providing local collegiate chemistry students with an opportunity to network with such supportive and encouraging professionals.

Our fall term also included participation in the Kalamazoo Valley Museum's Chemistry Day. Several of our members were able to host a booth demonstrating the powerful effects of UV radiation and the effectiveness of various household products in protecting the skin from these rays. Our chemists were thrilled to work with local students throughout the event and share the love for science with the community! We were also fortunate enough to host a large-scale demonstration where we performed the tried and true "Elephant's Toothpaste," but with a Halloween twist!

After a lackluster first demonstration in a standard graduated cylinder where the foamy product barely obtained liftoff from the vessel, our chemists doubled down to perform the experiment within a carved pumpkin. This time, the foam exploded out of the pumpkin's eyes and mouth while our chemists bathed in the thunderous applause of the crowd! It was quite a riot! Many thanks to Carol Kercher and the museum staff for allowing us to make a mess in their auditorium! K College chemists also enjoyed some time together as a club during the fall, hosting an evening of trivia. We are unsure if it was the trivia or the free pizza which drew such a crowd, but we certainly enjoyed the friendly competition among students!

Our club sees no need to slow down after a busy fall, however, as we have many upcoming events on our 2024 calendar. We will be hosting a chemistry "Jeopardy" game night in the next few weeks to welcome everyone back to campus. We hope this will be a fun evening where our members can reconnect after a long break. Later in the term, we will be collaborating with the Western Michigan University Chemistry Club for an evening of inter-club camaraderie and chemistry-themed Bingo! We will also host an event to celebrate Kalamazoo College's new chemistry majors on the upcoming Declaration of Major Day. In March the K College Chem Club will be sending nine members to present their research at the Spring meeting of the American Chemical Society in New Orleans, LA; some will be presenting their posters at various symposia, and several will be giving talks! We are so excited to support our members while they share their impressive accomplishments at the national level! Spring term at K will also mark the occurrence of Dow Science Night, a fun evening of chemistry demonstrations for area elementary and middle school students. Keep an eye out for more details and upcoming events!



Our club is incredibly grateful for the ongoing support that the KACS has continued to offer us! We are extremely excited to continue our partnership in the future! Thank you for supporting our students and sharing your passion for chemistry with us!

# Planning Underway for Upcoming Project SEED Program

**Doug Williams**

**KACS Project SEED Coordinator**

Planning is underway for our local Project SEED high school student research program this summer with five to six projects. We are grateful to Kalamazoo College and Kalsec, Inc. for the continued support to offer these experiences and to the mentors who supervise them. See the September *KalChemist News* for a [summary of our 2023 program](#). Additional comments on the [2023 national program](#) and recent enhancements were published in [C&E News](#) in November. We are happy to be part of this influential commitment to our young scholars and our collective future.



Student applications open on Feb 12. Due to project locations, we will focus our recruiting on high school students in Kalamazoo County. Last year, however, we were able to host a student from Allegan County for a project that allowed much of the work to be done from their home. ACS is interested in increasing the number of virtual or hybrid ("flex") projects for students who do not live within easy commuting distance to a research site.

Your support is important to us. Thank you to those who are already contributing. You can help by considering the following.

1. Do you know of a potential research project site, especially if it is outside of Kalamazoo County?
2. Would you consider mentoring a student yourself in a future year? I can add you to our team communications as an observer this year to give you a better idea of what is involved. More information is available on the [ACS Project SEED website](#).
3. Donate to our [KACS Project SEED fund](#). Each student project currently costs our section \$2,000. Donated funds are spent entirely on student stipends. Our budget is sufficient for 2024 (see [Dec-2023-Donations & Finances](#)) but we are seeking ways to improve and stabilize our long-term funding. This year we will explore partnership with the Kalamazoo Community Foundation to establish a wider community commitment and assess the potential for a Project SEED endowment fund. Every donation that we accept this year could be reserved as "seed" money for that endowment fund.

Please contact me ([treasurer@kalamazooacs.org](mailto:treasurer@kalamazooacs.org)) if you have questions, interest, or expertise in any of these ideas.

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## KACS Calendar

### February

- **February 15, Thursday:** KACS Annual Report due to National ACS
- **February 19, Monday, 7 p.m.:** Executive Committee meeting via Zoom; contact [Dr. Dibyendu Mondal](#)

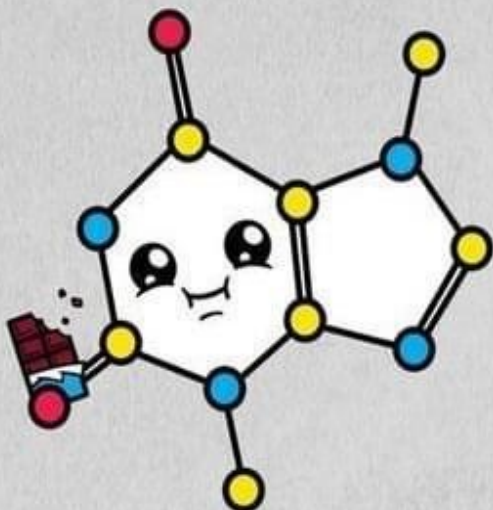
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- **March 11, Monday, 4 p.m.:** Martha Gammill, "Patents 101," WMU Chemistry Bldg., Rm. 1260.
- **March 17-21:** Spring ACS National Meeting, New Orleans, Louisiana: "Many Flavors of Chemistry." In-person and hybrid; more information at this [link](#).
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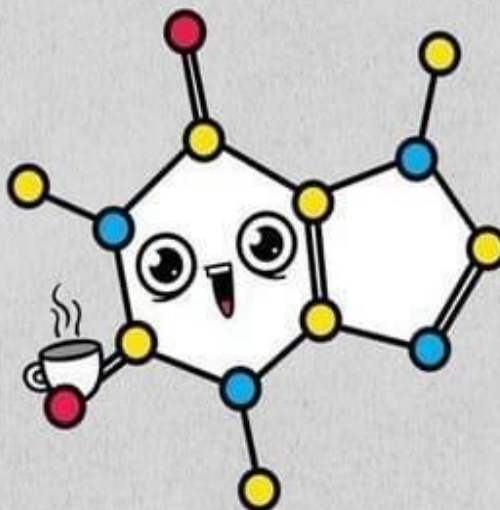
### April

- **April 15, Monday, 7 p.m.:** Executive Committee meeting via Zoom; contact [Dr. Dibyendu Mondal](#)
- **April 21-27:** Chemists Celebrate Earth Week, theme "Get a Charge out of Chemistry," topic—batteries
- **April (tentative) Speaker:** Irina Popova—University of Wisconsin-Madison

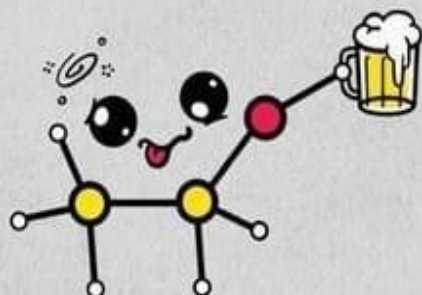
# Chemistry is awesome



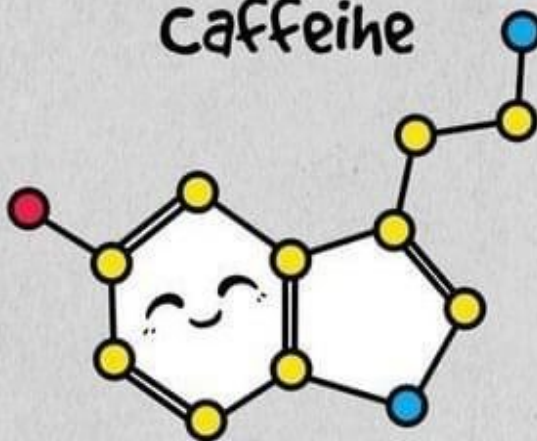
Chocolate  
(Theobromine)



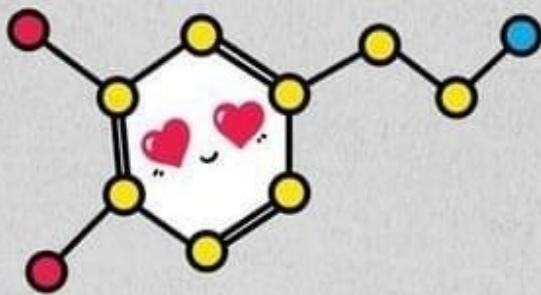
Caffeine



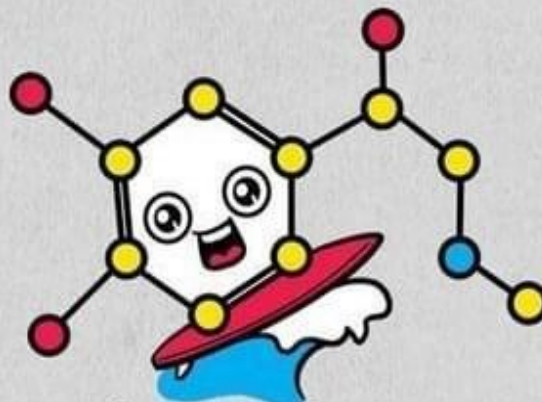
Alcohol  
(Ethanol)



Happiness  
(Serotonin)



Love  
(Dopamine)



Adrenaline



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March 2024

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Vol. 14, Issue 3



## A Chemistry Joke

Q: What do you call iron blowing in the wind?

A: Fe-breeze!

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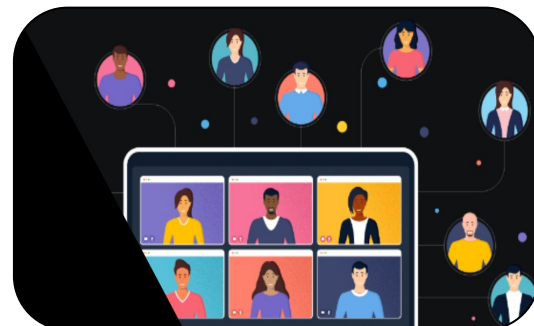
## Enthusiastic Response to ACS' Leadership Development Institute!

By Jake Kirkendall

As a returning member of the ACS executive committee, I was granted the opportunity to attend the ACS Leadership Institute on January 26th to 28th in Atlanta, Georgia. Every year the Leadership Institute invites ACS local section leaders, division leaders, national committee chairs, student leaders, and younger chemist leaders with the goal of preparing ACS volunteer leaders by teaching them management and leadership skills so that they may be an effective volunteer for ACS and understand the opportunities that they have to provide enrichment and education through ACS to both members and the community.

I attended as representative of our local section and was on the Local Section Leader track. Though this placed me in a mostly structured track I was able to select a class for Saturday morning, so I selected the "Fostering Innovation: Styles and Process" class. All of the classes were very hands-on and focused around collaboration. On Friday there was an introduction session followed by a workshop on how to plan successful activities and the variety of grants that ACS can provide for funding of such activities.

The local section track sessions were centered around successful event planning and how to strategically build the events to accomplish the goals of the local section and ACS. The final day of the Institute had us in local section "groups" planning events starting from a simple idea and fully fleshing out all aspects including funding, volunteers, and how to measure success after the event was finished. My group developed an idea for a "Recycle-a-conference" based upon our yearly Recycle-a-poster event. Our idea was to extend that to be a day-long event bringing together multiple local sections and having student and industry presentations and posters that had been previously presented. It would also involve career resources and networking.



Leadership Institute, continued on page 2

## Martha Gammill to Present Patent Program



Martha Gammill, J.D., will present “Patents 101” on Monday, March 11, 2024 at 4:00 p.m. at the WMU Chemistry Building Room 1260.

*“I worked with Martha a great deal and have several patents that she was the attorney of record. This should be a great talk.”*  
—Former KACS member

Did you know patents make the world go round? The commercial world, that is. If it weren't for patents, companies wouldn't spend BIG BUCKS on R&D to come up with the Next Big Thing! Come learn what it takes to get a patent and your role in the process.

Martha has practiced patent law in the pharmaceutical industry for over 30 years, working for companies such as Upjohn, Pfizer and Zoetis. She received her bachelor's degree in chemistry from Emory & Henry College and her law degree from the University of Virginia. She is a member of the Michigan Bar, Connecticut Bar and is registered to practice before the U.S. Patent and Trademark Office.

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### Leadership Institute, continued from page 1

I found the “Leadership Institute” highly productive and enriching. I hope to bring the things I learned back to the local section and push for new and enriching events for our local section.

As with all conferences, one of the most valuable parts was the networking. During the conference I was able to meet leaders from various Michigan sections such as West Michigan, Michigan State, Detroit, and Midland sections. The newly-elected leaders from the West Michigan Section (Grand Rapids area), Carter Tomko and Brianna Gordon, showed interest in working together to do some joint events over the next year.

I thank the local section for supporting my participation in the Leadership Institute and I do hope to bring the section value from this training through my continued service as the local section Secretary.

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- **April 21-27**: Chemists Celebrate Earth Week, theme “Get a Charge out of Chemistry,” topic—batteries
- **April 9, Tuesday**, 6:30 p.m.: Irina Popova—University of Wisconsin-Madison, soil chemistry, Kalamazoo College

### May

- **May 20, Monday**, 7 p.m.: Executive Committee meeting via Zoom; contact [Dr. Dibyendu Mondal](#)







# The KalChemist News

April 2024

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Vol. 14, Issue 4

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## Soils Seminar Set



Dr. Inna Popova will present a seminar entitled “Chemicals of Emerging Concern Found in Soils” in Dewing 103 (on Academy Street) at K College on Tuesday, April 9, at 6 p.m.

Dr. Popova is an Assistant Professor at the University of Wisconsin-Madison. Her primary research interests are in Environmental Soil Chemistry. The goal of her research program is to assess the impact of organic chemicals’ influx on natural and agricultural ecosystems.

After graduating from Moscow State University (Moscow, Russia) with a degree in Chemistry, Dr. Popova pursued her interests in Analytical and Experimental Physical Chemistry at the University of North Dakota (Grand Forks, ND, USA) working in the area of plant-derived biologically active compounds and bioremediation technologies. Following Postdoctoral fellowships, she joined the University of Idaho (Moscow, ID), and held the position of Assistant Professor of Soil and Environmental Organic Chemistry.

She is a co-author of 45 peer-reviewed publications in a variety of areas: examples are transdermal drug delivery; the fate and biological effects of natural and synthetic organic compounds in soil ecosystems; and biopesticides used for improving agricultural systems.

## Project SEED Donations—Thank You!

By Doug Williams

**KACS Project SEED Coordinator**

We thank our KACS members for their generous contributions to our Project SEED fund in 2023, which included \$2000 from Zoetis, \$1000 from Pfizer’s employee-directed charitable giving fund, and \$500 from two individual members.

As explained in our [December newsletter](#), these funds are important to ensure the long-term health of Project SEED in the Kalamazoo Section. To learn how you can donate, see our [Project SEED webpage](#).

## Patent Seminar Well-Attended

By Ed Thomas

Martha Gammill, J.D., a retired patent attorney from Upjohn, Pfizer and Zoetis and a graduate from the University of Virginia Law School, presented a seminar entitled Patents 101 at Western Michigan University on March 11 to KACS' members and college students. In her talk we learned the legal basis for U.S. patents can be traced back to our Constitution article 1, section 8, that states, "Congress shall have power..... to promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries." Patents protect intellectual property, and this can be defined as useful processes, machines, manufacturing, composition of matter, or any new and useful improvement thereof. The laws of nature, physical phenomena and abstract ideas are not patentable. A patent also requires that the invention be useful, novel, non-obvious or unpredictable and sufficiently described to be repeatable.



After background comments about patent law, Martha gave us real-world examples of patents from the pharmaceutical industry including antibiotics, lipid-lowering compounds and HIV products. She also engaged the audience by asking scientists present to share their experience with patents. Martha further emphasized that for people with a chemistry degree there are a number of career opportunities in the patent area, such as attorneys, agents, searchers, IP liaisons and patent examiners. Some of these positions do not require a law degree. During the lively question and answer period after her presentation the audience learned they could file an individual patent application on their own for a nominal fee.

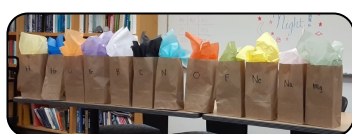
A hearty round of applause expressed our appreciation for her engaging and enlightening presentation at this first post-COVID in-person joint KACS/WMU seminar event.

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## Crossing Campuses with Chemistry Bingo

By Seth Byrne and Maxwell Rhames

What better way to break up school studies than bingo, pizza, and prizes? That's exactly what the chemistry clubs of Kalamazoo College and Western Michigan University did in late February. Meeting on WMU's campus, the two groups spent the evening socializing, enjoying food, and winning some prizes using chemistry-themed bingo boards. Spaces included molecular weights, amino acid structures, pH indicator colors, and chemical nomenclature. The only complaint was a bias toward biochemistry-related answers – oh, well, Seth Byrne, the president of WMU's chemistry club, showed his bias toward his major...



For each bingo, winners received a prize bag labeled with one of the first twelve elements on the periodic table. Goodies ranged from delicious candy to the "more practical" Dawn laundry detergent (we are college students, after all). Some folks were more lucky than others, but everyone enjoyed the fun break from their studies. Max Rhames, the president of K College's chemistry club, helped organize the event and is excited to continue collaboration between the two clubs. We look forward to future connections between the chemists on the K College and WMU campuses through social and professional activities.

# K College Chemistry Club Report from New Orleans ACS Meeting

By Maxwell Rhames

Happy spring, Kalamazoo area chemists! 10 members of our Kalamazoo College Chemistry Club recently had the opportunity to travel to New Orleans, Louisiana, to attend the Spring 2024 Meeting of the American Chemical Society; all of us were either presenting a poster or delivering a talk. By presenting at various symposia and SciMix, our members were able to communicate their work and engage with chemists from diverse backgrounds. Our members also had the opportunity to network over dinner with several graduate students and post-doctoral researchers. We were joined by Atanu Ghosh, a Ph.D. candidate at Michigan State University working with Dr. Jim McCusker, and Allison Wong, a Ph.D. candidate at the University of Minnesota. We were also fortunate enough to be joined by Dr. Michelle Brann, a post-doctoral researcher serving a joint appointment with Harvard and the Smithsonian Institute. These mentors were quick to engage with our students over dinner, sharing their personal experiences within the field of chemistry and offering us guidance. Thanks to funding by the local Kalamazoo section, our club was able to treat them (and our members) to a complimentary dinner filled with lovely conversation about the wonders of a professional future within the field of chemistry.



To further encourage networking between our members and professional chemists attending the conference, we held a small competition to see which group could get a “selfie” with the most famous chemist. The competition concluded with the winning photograph of four Kalamazoo College chemists and none other than Dr. Carolyn Bertozzi, recipient of the Nobel Prize in Chemistry in 2022. Dr. Bertozzi also chatted with us about the last lecture she gave at K College several years ago! Our chemists were also able to snap a photo with an organic chemist famous on TikTok, Dr. Andre Isaacs of College of the Holy Cross. Though we were unable to take a selfie with her, several of our members also had a chance to chat with Dr. Dorothy Phillips, 2024 President-Elect of the ACS, who shared kind guidance and professional advice with our students.

Overall, our members had a wonderful time interacting with such an established group of chemists and truly enjoyed the opportunity to attend this national meeting. We would like to emphasize how thankful we are to have received an incredible level of support from the KACS to fund our expedition to NOLA. Thank you all for supporting us as we grow as chemists - our members were able to develop professionally through countless interactions with new mentors.



With Dr. Carolyn Bertozzi



With Dr. Andre Isaacs

## ACS Spring 2024

### Many Flavors of Chemistry

Connect with peers. Get the latest insights in chemistry.

New Orleans, Louisiana & Hybrid  
March 17-21



## Information from the New Orleans Spring 2024 ACS Meeting

By Lydia E.M. Hines  
*Councilor*

### General news

- **CPC** (Council Policy Committee) announced that the successful Sunday evening **post-caucus Councilor networking reception** initiated in the Fall of 2023 **will be repeated at the Fall meeting in Denver**
- **CCA** (Committee on Community Activities) announced that they are in the process of building an “Activities Library.”
- The **2024 National Chemistry Week (NCW)** theme is “Picture - Perfect Chemistry” and the **Program-in-a-Box** will likely be making a **come-back for the 2024 NCW**
- The **2025 Chemists Celebrate Earth Week (CCEW)** theme is “Hot Topics, Cool Chemistry” (in recognition of the International Year of Glacier Preservation)
- **NOTE:** The **2025 NCW general topic is “The Chemistry of Spices (not just in foods)** – “The hidden life of spices”
- The 2026 CCEW general topic will be either “Flowers” or “Forests”
- **LSAC** (Local Section Activities Committee) announced that there are now more than 1,000 speakers in the Speakers Directory. **LSAC** also urged that Local Section Officers read the monthly Officers Insight and participate in the monthly webinars offered on various topics of interest to Local Sections

**Plus - news from the Council floor.** (See full report on our website at <https://kalamazooacs.org/archives/>)

### Candidates for President-Elect, 2025

The Committee on Nominations and Elections (N&E) presented to the Council the following *nominees* for President-Elect, 2025: Rigoberto Hernandez, Thomas Holme, Ingrid Montes, and Laura Sremaniak. By electronic ballot, the Council selected **Rigoberto Hernandez and Laura Sremaniak as candidates for 2025 President-Elect**. These two candidates will join **Mukund Chorghade**, a petition candidate, and any additional candidates, submitted via petitions, to stand for election in the fall 2024 national election.

### Candidates for District V Directors

#### (Our Kalamazoo Section is in District V)

N&E announced the results of the election held prior to the Council meeting to select candidates from the list of nominees for **Directors from District V**. By electronic ballot, the Councilors selected **Lisa M. Balbes, Mark C. Cesa, and Silvia S. Jurisson as District V candidates**; ballots will be distributed to members around October 1, 2024.

The ACS Spring 2024 meeting was held from March 17-21. As of March 19, there were 14,368 registrations (13,122 in-person and 1,246 online).

**The ACS Fall 2024 meeting will be held in Denver, CO from August 18-22, 2024.**

## Opportunity for STEM Outreach to Young People in the Community

KRESA and the MiSTEM Network invite local businesses to be part of the Kalamazoo Growlers and SW MiSTEM Network STEM Education Days, scheduled for Tuesday, May 28 (9-11 a.m.), Wednesday, May 29 (9-11 a.m.), and Monday, June 3 (9-10:30 a.m.) at Homer Stryker Field in Mayors Riverfront Park. The event is designed to offer 3rd to 6th grade students in the MiSTEM Network's Southwest Region hands-on STEM experiences that will not only capture their interest but also inspire them to consider future careers in STEM fields.

By participating in this event, you will have the opportunity to showcase your workplace and provide interactive, hands-on activities

that will engage and educate young students. Last year, the event exposed over 5,020 young people to STEM career awareness activities. Does your company or organization have the potential to make a lasting impact on the lives of our future scientists, engineers, and innovators?

To confirm your participation, kindly fill out the registration form at: <https://forms.gle/wBNZXpfyACfuv1cQ6>.

Through this form you can select the day(s) that best fit your schedule and provide details about the hands-on activity you plan to offer.

If you have any questions, please contact Ms. Kelsey McKague, KRESA Community Engagement Liaison, [kelsey.mckague@kresa.org](mailto:kelsey.mckague@kresa.org).



## KACS Calendar

### April

- **April 9, Tuesday**, 6 p.m.: Dr. Inna Popova, U of Wisconsin-Madison, "Chemicals of Emerging Concern Found in Soils," Kalamazoo College, Dewing 103
- **April 15, Monday**, 7 p.m.: Executive Committee meeting via Zoom; contact [Dr. Dibyendu Mondal](#)
- **April 21-27**: Chemists Celebrate Earth Week, theme "Get a Charge out of Chemistry," topic—batteries. Theme-related hands-on activity booklets for children ages 10-13 are available for distribution to teachers and others by contacting [Lydia E. M. Hines](#).

### May

- **May 13, Monday**, 5:30-7:30 p.m.: Annual KACS Awards Gathering at WMed on Campus Drive. Please RSVP to Salonika Aggarwal ([aggarwal.salonika@gmail.com](mailto:aggarwal.salonika@gmail.com)) by **May 3**.
- **May 20, Monday**, 7 p.m.: Executive Committee meeting via Zoom; contact [Dr. Dibyendu Mondal](#)
- **May 28, May 29, and June 3**: See above invitation to participate in STEM outreach event

### June

- **June 15, Monday**, 7 p.m.: Executive Committee meeting via Zoom; contact [Dr. Dibyendu Mondal](#)





# The KalChemist News

May 2024

[www.kalamazooacs.org](http://www.kalamazooacs.org)

Vol. 14, Issue 5

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**Plan Now for Chemistry Day!**

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## 2024 KACS Executive Officers

### Chair

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### Alternate Councilor

Dr. Tomasz Respondek  
[tomasz.respondek@zoetis.com](mailto:tomasz.respondek@zoetis.com)

## Awards Recognition Evening Returns *RSVP Deadline May 6*

After a four-year hiatus, our in-person Awards Recognition evening is returning on May 13, Monday, beginning at 5:30 p.m., at the WMed Innovation Center at 4717 Campus Drive, in Kalamazoo. To help in the planning we ask that you let us know of your intent to attend by no later than Monday, May 6; you may e-mail Salonika Aggarwal at [aggarwal.salonika@gmail.com](mailto:aggarwal.salonika@gmail.com) or call Lydia Hines at 269-375-7349.

## KACS Meeting Travel Grants Encourage Their Participants

In the April issue of *The KalChemist News* (<https://kalamazooacs.org/april-2024-vol-144/>) we were treated to an article (with pictures) by one of the four students from Kalamazoo College who were awarded grants to attend the Spring ACS meeting in New Orleans.

Below are excerpts from individual reports submitted by each of the other three students:

- “Presenting my research at this conference allowed me to receive feedback from other scientists in the inorganic chemistry field. This has allowed me to identify areas for further development and how to refine my presentations. Additionally, at the conference, I was exposed to many career opportunities that help provide direction as I start to navigate graduate school.”
- “This was my first time going to an ACS conference, and it was a wonderful experience. ... My biggest take-away though is what I learned from my own presentation. ... While I know that my presentation was not perfect it gave me great hope that I am learning how to be a better presenter. This conference was amazing as it built my interest in subdisciplines I did not know existed, expanded my knowledge in research areas I wanted to learn more about, and gave me greater confidence as a presenter.”
- “Being able to travel to an ACS conference was surreal – I had never imagined myself as being able to present to the country’s best and brightest chemists! Another amazing opportunity that stemmed from the experience was attending a graduate school fair, which helped me identify some key graduate schools that I will be applying to this coming fall. Along with attending a graduate school fair, I also attended a career fair which helped me narrow down the jobs I’ll apply to for my gap year.”



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# Chemicals-in-Soil Presentation Summary



**By Ed Thomas**

For those who missed it, below is a summary of Dr. Inna Popova's presentation to our Section.

Do you know what is in the soil beneath your feet? Dr. Inna Popova has made this her life's work. Her path to this point took several twists and turns. After graduating from Moscow State University in Moscow, Russia, with a degree in chemistry, she pursued her Ph.D. in analytical & experimental physical chemistry at the University of North Dakota – Grand Forks. As she explained to an audience of KACS members and Kalamazoo College students at K, on April 9, 2024, she then received her masters degree in soil & land resources. This helped her to better study the effects of natural and synthetic organic compounds in soil ecosystems.

In her current position as Assistant Professor of Soil and Environmental Organic Chemistry at the University of Wisconsin – Madison, Dr. Popova has been called upon to test all types of soils for possible contaminants. Dairy cows and other farm animals are given antibiotics to fight infections. On large industrial farms, cows may overload the capacity of the soil with their waste and this could lead to levels of tetracyclines that could confer antibiotic resistance. Inna's team used pressurized solvent extraction to remove and measure the tetracyclines from the soil. There are several types of tetracycline antibiotics that cling to soil with varying degrees of affinity. Part of the measurement process employing HPLC/UV-vis involved devising procedures to ensure complete removal of the tetracyclines from the soils.

In Spain, sewage sludge was applied to agricultural fields for 26 years between 1992 – 2018. Inna's lab was called upon to analyze the effect of this farming process. Common human drugs such as estriol, tetracycline, and progesterone, among others, could not be detected. However, antibiotics, such as sulfamethoxazole, were detected. Levels of these compounds could be controlled by binding them to added minerals.

In a study of corn fields in Oklahoma, they monitored levels of chlortetracycline, another antibiotic. Tetracyclines represent nearly 50% of all antibiotics used in the swine industry. Fortunately, the levels found were less than 16 mg/ml, which is deemed lower than levels that could cause antibiotic resistance.

After Dr. Popova's stimulating talk there were several questions related to methods and procedures.

Our section was not the only one which enjoyed Inna's visit; we were able share her expertise with the St. Joe Valley Section in northern Indiana to our east, where she spoke at Notre Dame on April 10. From our colleagues' reports, her talk was equally well received there.



## Celebrating Chemistry Publication Available for STEM Education Days

KRESA and the MiSTEM Network invite local businesses to be part of the Kalamazoo Growlers and SW MiSTEM Network STEM Education Days, scheduled for Tuesday, May 28 (9-11 a.m.), Wednesday, May 29 (9-11 a.m.), and Monday, June 3 (9-10:30 a.m.) at Homer Stryker Field in Mayors Riverfront Park. The event is designed to offer 3rd to 6th grade students in the MiSTEM Network's Southwest Region hands-on STEM experiences that will not only capture their interest but also inspire them to consider future careers in STEM fields.

To confirm your participation, kindly fill out the registration form at: <https://forms.gle/wBNZXpfyACfuv1cQ6>. Through this form you can select the day(s) that best fit your schedule and provide details about the hands-on activity you plan to offer.

If you have any questions, please contact Ms. Kelsey McKague, KRESA Community Engagement Liaison, [kelsey.mckague@kresa.org](mailto:kelsey.mckague@kresa.org).

If you decide to participate and offer an interactive opportunity for the young people who attend, please contact Lydia E. M. Hines ([lemhwgh@gmail.com](mailto:lemhwgh@gmail.com) or 269-375-7349) for copies of our most recent Celebrating Chemistry publication to distribute to the attendees; the theme of the publication is "Getting a charge out of chemistry" and it features activities which may be done at home, as well as extensive information regarding **batteries** - suitable primarily for students in grades 4-7.

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## Plan Now for Picture-Perfect Chemistry Day!



October will be here before we know it and that month brings National Chemistry Week (the 2024 theme is "Picture-Perfect Chemistry") and our Chemistry Day at the Museum - please consider how you may participate in that popular outreach event on October 19, Saturday, noon to 4 p.m. The person to contact with your intent to help is Hershel Jude ([hjude@kalsec.com](mailto:hjude@kalsec.com)) - he will be very glad to hear from you!

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## KACS Calendar

### May

- **May 13, Monday**, 5:30 p.m.: Awards Gathering, WMed Innovation Center, 4717 Campus Drive—response requested no later than May 6 to Salonika Aggarwal ([aggarwal.salonika@gmail.com](mailto:aggarwal.salonika@gmail.com)) or Lydia E. M. Hines at 269-375-7349
- **May 20, Monday**, 7 p.m.: Executive Committee meeting via Zoom; contact [Dr. Dibyendu Mondal](mailto:Dr.DibyenduMondal)
- **May 28, May 29, and June 3**: See above invitation to participate in STEM outreach event

### June

- **June 15, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](mailto:Dr.DibyenduMondal)

### July

- **No EVENTS; no newsletter**

### August

- **August 18-22**, [Fall ACS National Meeting](#) in Denver, Colorado, "Elevating Chemistry"
- **August 19, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](mailto:Dr.DibyenduMondal)





# The KalChemist News

June 2024

[www.kalamazooacs.org](http://www.kalamazooacs.org)

Vol. 14, Issue 6

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## 2024 KACS Executive Officers

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## MiSTEM Chemistry Network Update

By Doug Williams,  
Carl Stachew, and  
Blakely Tresca



### Southwest Region

Our 2023-24 school year goals for the MiSTEM Chemistry Network were only partially achieved.

The KACS Executive Committee approved a budget of \$2000 for teacher outreach in 2024. Since Fall 2023, we spent \$2800 in designated and general funds to purchase temperature, pH, conductivity, gas pressure, colorimetric absorbance sensors, and a lessons manual from the sensor manufacturer Vernier Science Education. We thank Pfizer for matching our KACS costs for these devices, which are available from the Kalamazoo Regional Educational Media Center (REMC) for instructors in our local section to borrow. Early reviews have been positive. Teachers in our network are just becoming acquainted with these tools. Based on feedback, we plan to double the number of temperature and pH sensors and host an in-person workshop on use of the sensors this fall. More details about these and other resources are featured on our [MiSTEM Chemistry Network website](#).

Although we continue to recruit and support teacher-scientist partnerships, our number of partnerships fell from four to three this year. We continue to offer one year of free AACT membership to interested teachers. One of our teachers, Dustin Himebauch of Climax-Scotts HS was featured by AACT in the [May Member Spotlight](#). At the end of this school year we recognized Amber French of Parchment HS with a \$250 gift certificate to Flinn Scientific; she was a steady contributor to our bimonthly MiSTEM Network meetings.

As always, we encourage you to send your comments and questions. If you are interested in helping motivated high school teachers to challenge and motivate high school chemistry students, please contact one of us below. We would love to add you to the team.

Doug Williams ([treasurer@kalamazooacs.org](mailto:treasurer@kalamazooacs.org))  
Carl Stachew ([carl.f.stachew@pfizer.com](mailto:carl.f.stachew@pfizer.com))  
Blakely Tresca ([blakely.tresca@kzoo.edu](mailto:blakely.tresca@kzoo.edu))

## Plan Now to Participate in 'Recycle-A-Poster' Event!

The KACS is pleased to announce that this year's **Recycle-a-Poster event** will be held at the **Bell's Eccentric Café on Tuesday, November 5**. The keynote speaker will be **Prof. Jeremy Kodanko from Wayne State University**. The title of Professor Kodanko's speech will be provided at a later date. We look forward to this event which brings chemists from the Kalamazoo Section (Allegan, Kalamazoo and Van Buren counties) into one room for an evening of chemistry, science conversations and poster presentations.

### In-Person Awards Gathering a Reality Again



**Dr. Rex Hornish**

It was a pleasant Monday afternoon on May 13, 2024, when our **in-person** Awards Gathering became a reality again after a 4-year COVID interruption. These pictures show awards given to 60- and 50-year ACS members present (Dr. Rex Hornish (60), Dr. Robert Gadwood (50) and posthumously to the widow of Mr. Virendra Kumar (VK) Sood (50)) as well as to the recipient of our KACS Meritorious Service Award, Dr. Tomasz Respondek. The KACS Education committee (Dr. Salonika Aggarwal and Dr. Joe Chemler) worked diligently to bring back our Section's Competitive Exam. Further information will be shared with the entire KACS in the August issue of *The KalChemist News*.



**Mrs. VK Sood**



**Dr. Robert Gadwood**



**Dr. Tomasz Respondek**



# Updated Volunteer and Participant Code of Conduct Policy Takes Effect

The Volunteer/National Meeting Attendee Conduct Policy was adopted in 2013. In December 2023, the ACS Board of Directors approved an updated version and renamed it the [Volunteer and Participant Code of Conduct Policy](#). **It took effect on May 1 of 2024.**

This updated policy unifies multiple policies that governed attendees at the spring and fall meetings, Local Section and Regional meetings, and other events hosted by units of the Society. This single, unified policy outlines ACS's expectations for all ACS members, volunteers, and participants at ACS-hosted events, in person and virtual, which includes meetings, seminars, symposia, workshops, or other gatherings hosted wholly or in part by ACS or its units.

Things that largely didn't change: Participants are expected to support ACS's mission and vision, and the definitions of professionalism, non-discrimination, harassment, and illegal activity.

New items include language on non-disclosure of proprietary, confidential, or personally identifiable information; the recording policy; disclosure of conflicts of interest; background checks for events involving minors; and compliance with anti-trust laws. Also, details about how to report violations, procedures ACS will use to investigate violations, disciplinary action, and non-retaliation policies are included. **There will be a separate communication in the coming months about the background checks, described in Section 10, which will be required only for ACS events involving minors. Details of this Youth Protection Policy, when, how, and to whom it applies, as well as how the required checks can be conducted efficiently will be announced soon.**

This policy has been placed on our KACS website at <https://kalamazooacs.org/wp-content/uploads/2024/05/2023-ACS-Volunteer-and-Participant-Code-of-Conduct-Policy.pdf>.

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## KACS Mid-Year Financial Summary

**By Doug Williams (KACS Treasurer)**



At mid-year we have a balanced budget with about \$11,100 in revenues and accounts receivable and \$11,400 in expenses and accounts payable. Total assets remain steady at about \$55,000 since our last summary in December. As mentioned then, we are projecting a net loss of \$10,000 in the second half of the year, due to local section costs for our Project SEED summer research program which is just about to begin. Because of our strong assets, this loss is affordable but not sustainable in the long term. This spring, we submitted a grant request to the Kalamazoo Community Foundation with a vision to set up an endowed partnership fund for our Project SEED program. A response is expected soon, in June.

We are grateful for your member support, including annual voluntary dues. This optional contribution appears on your ACS member renewal invoice and generates about \$1,500 for our section annually. The suggested amount was raised from \$6 to \$8 in 2017 and will remain at \$8 through 2025. We are considering an increase to \$10 in 2026 to support spending for the following focus areas in alignment with our strategic plans for outreach.

- Growing costs for Project SEED and student/teacher travel grant programs
- New equipment and materials for local chemistry teachers (see SW MiSTEM Chemistry network summary on page 1)
- Future participation in local testing for US National Chemistry Olympiad team student selection

I welcome comments on these priorities and plans at [treasurer@kalamazooacs.org](mailto:treasurer@kalamazooacs.org). Donations to our Project SEED or general funds can be made on our [website](#). If you choose to donate, please let us know if your employer will match it. THANKS!

# NATIONAL CHEMISTRY WEEK



## Chemistry Day at the Museum—Save the Date and Call for Volunteers

Chemistry Day at the Kalamazoo Valley Museum will be held on October 19, 2024. This event will be held in person from noon to 4 p.m. Get ready to educate, entertain, and entice the next generation to the wonders of chemistry and watch the smiles on the faces of children and adults alike! The **topic** of 2024 National Chemistry Week is “Photography and Imaging” and the **theme** is “Picture Perfect Chemistry.” Do you have a great experiment you can share with an audience of fifth- to ninth-graders? Are you interested in demonstrating one of several experiments that are performed every year at this event? Do you have no idea what this event is about but are willing to contribute a few hours of your time on a Saturday in October to brighten the day of young scientists in our community? We need your help to make this event a success. If you are willing to participate, please email [Hershel Jude](#) or [Carol Guerrero](#).

## KACS Calendar

### June

- **June 15, Monday**, 7 p.m.: Executive Committee meeting [ZOOM]; contact [Dr. Dibyendu Mondal](#)

### July

- **No EVENTS; no newsletter**

### August

- **August 18-22**, [Fall ACS National Meeting](#) in Denver, Colorado, “Elevating Chemistry”
- **August 19, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)

### September

- **September 16, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)
- **September 17, Tuesday**: Dr. M.V. Orna, “How Color Changed the World”

### October

- **October 19, Saturday**, noon—4 p.m.: Chemistry Day at the Kalamazoo Valley Museum
- **October 20-26**: 2024 [National Chemistry Week](#); the theme is “Picture Perfect Chemistry” and the topic is “Photography and Imaging”
- **October 21, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)



## A Chemistry Joke

Prof. Richard Feynman:  
“A chemist froze himself at  $-273.15^{\circ}\text{C}$ ;  
everyone said he was crazy, but he was OK”

We would love to hear from you and share your news with fellow scientists in Allegan, Kalamazoo, and Van Buren counties! Send your news to editor [Lydia E. M. Hines](#).



# The KalChemist News

August 2024

[www.kalamazooacs.org](http://www.kalamazooacs.org)

Vol. 14, Issue 7

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and Van Buren counties

## Top Chemistry Students, Others Awarded

By Dr. Salonika Aggarwal

The Kalamazoo Section of the American Chemical Society held the High School Chemistry competitive exam after a four-year hiatus. The previous exam was conducted in 2019. The exams were organized by the competitive exam committee, led by Dr. Salonika Aggarwal and Dr. Joe Chemler, who both work as scientists at Kalsec. There were two exams; the first exam took place during the week of March 11-15. A total of 169 students took the first exam, and 30 students qualified for the final exam, which was held at Western Michigan University on April 20. All the students performed exceptionally well in both exams. The top scorers were Nathan Gleason (1st place), Isabelle Tai (2nd place), and Bryce Evergreen (3rd place) from Kalamazoo Area Math and Science Center, and Travis Heyn (3rd place) from Portage Northern High School.

The award ceremony took place at the WMED Innovation Center on May 13, 2024. The top scorers were awarded certificates and prize money of \$600, \$400, and \$200. A total of 57 people RSVP'd for the award ceremony, where food was provided for the guests. The ceremony was hosted by Dr. Lydia E.M. Hines, Dr. Dibyendu Mondal, Dr. Salonika Aggarwal, and Dr. Joe Chemler. Additionally, 50 and 60-year members of KACS were honored at the ceremony. Michelle Mason of Portage Northern High School was recognized as the Outstanding HS Chemistry Teacher. Jordyn Wilson from K-College and Emily Hayward from Western Michigan University were honored as the Outstanding Graduating College Seniors. Awards were also given to outstanding HS Chemistry students from nine participating schools. Teachers from all the participating schools were also appreciated in the award ceremony. Overall, it was a wonderful event, and we hope to continue this tradition into the future.



Michelle Mason



Jordyn Wilson



Top Scorers



Outstanding Seniors

# Save the Date, September 17—‘How Color Changed the World’



**By Ed Thomas**

As part of our continuing lecture series, on Tuesday, September 17, Mary Virginia Orna, Ph.D., will address the KACS on “How Color Changed the World.” Color has been an exciting and enjoyable part of human life ever since the color-sensitive eye evolved over a million years ago. However, the junction between color and chemistry, and color and history, is of more recent origin. This rich history of color and chemistry will be explored by Dr. Orna. Don’t miss it. Time and location to be confirmed.

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## The Return of Our Speed Networking Event

**By Blakely Tresca**

We are happy to announce that our award-winning Speed Networking event is returning for the 8th year on **Monday, October 7**, co-sponsored by Kalamazoo ACS and Kalamazoo College. Join us at **6 p.m. on Zoom** for five rounds of short discussions on careers and navigating life as a chemist. Registration is open now at <https://bit.ly/KACSSpeedNet>. The virtual format opens this event to professionals and students beyond the Kalamazoo area. Sign up early as space may be limited, and priority will be given to early registrants. **Mentors** include professional chemists from industry and academia—this event can’t happen without you! **Undergraduate students**—this is your chance to meet with professionals from across the chemical enterprise and learn about starting a successful career in chemistry.



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*Editor’s note: After striking up a conversation with Jacob Hood in a “hub” airport on the way to the 2024 Spring ACS meeting in New Orleans, and learning that he is a relatively new KACS member, LEMH asked him to share his thoughts regarding the importance of ACS membership and participation in ACS meetings to one’s professional growth. Below is his contribution. Thank you, Jacob!*

## Unleashing Potential: Why Students Should Embrace Professional Conferences

**By Jacob C. Hood**

The number of students attending the spring 2024 American Chemical Society (ACS) meeting in New Orleans was 46% lower than at the spring 2018 meeting held in the same city. **Attending professional conferences offers undergraduate and graduate students a unique and invaluable opportunity to enhance their academic and professional development.** These events are not just about exchanging knowledge, ideas, and innovations, but also about providing an enriching experience beyond the classroom. Here are several compelling reasons why students should prioritize attending professional conferences.



**Professional conferences serve as a melting pot**, bringing together a diverse range of individuals from various sectors, including academics, industry professionals, and fellow students. This rich environment fosters networking, allowing students to build relationships with potential mentors, collaborators, and future employers. These connections can be instrumental in opening doors to internships, job opportunities, and collaborative research projects, paving the way for a promising future. Networking at conferences also helps students learn about different career paths and gain insights into the professional world.

**Conferences are at the forefront of innovation**, showcasing the latest research, technologies, and trends in a particular field. This exposure is crucial for students as it provides a glimpse into their chosen discipline's current and future directions. Attending presentations, poster sessions, and panel discussions can inspire new ideas, spark curiosity, and motivate students to delve deeper into their studies or pursue new research projects. This could lead to unknown areas of interest. For instance, attending a talk on continuous flow synthesis led me down the path of incorporating this technology in my research. Now, I have a position devoted entirely to this area of research.

**Attending conferences** is not just about academic enrichment; it **also contributes significantly to a student's professional growth**. These events often include workshops, seminars, and training sessions on skill development. Students can learn about emerging tools and methodologies, enhance their presentation and communication skills, and gain insights into effective project management. Engaging in these activities equips students with practical skills that are highly valued in the job market, making conference attendance a crucial part of their professional development.

Many meetings offer students the chance to present their research through oral presentations or poster sessions. **Such presentations allow students to share their work with a knowledgeable audience, receive constructive feedback, and refine their presentation skills.** I was often shocked at the valuable insights researchers in related fields would have on applications of my synthetic methodologies.

**The energy and enthusiasm at conferences can be incredibly motivating.** The sense of community and shared purpose, where everyone is united by their passion for the field, can be a powerful source of inspiration. Hearing from leading experts and seeing their impactful work can inspire students to pursue their goals with renewed vigor and passion. This shared sense of purpose reinforces the importance of their work and its potential to make a difference.

Attending conferences helps students learn and grow and begin establishing their professional identity. By engaging with the community, presenting their work, and actively participating in discussions, students start to make a name for themselves in their field. This **early establishment of a professional presence can be a stepping-stone to future career opportunities**, filling students with hope and optimism for their professional journey.

I encourage students to participate in conferences as an investment in their future, equipping them with the knowledge, skills, and connections necessary to succeed in their chosen careers. I recommend that all students ask their departments and universities about funding for conference travel - and as starters consider attending **regional meetings**, which are often "closer to home", less expensive to attend, and less intimidating. I hope to see you at the next meeting!

- Fall ACS Meeting – Denver, CO, August 18-22, 2024 ([acs.org/meetings.html](https://acs.org/meetings.html))
- Midwest Regional meeting – Omaha, NE, October 13-15, 2024 (<https://www.mwrm2024.org/>).
- **Great Lakes Regional Meeting** – Appleton, WI, June 4-6, 2025 (The KACS is in the Great Lakes Region of the ACS). **Keep the link <https://greatlakesregion-ac.org/event-welcome/glr-2025> active as it will continue to be updated** as the meeting time approaches.

*Jacob Hood is a passionate organic chemist interested in synthetic methodology and continuous flow technology. As an undergraduate at the University of Illinois Urbana-Champaign he worked in Scott Denmark's research group; he then went on to Northern Illinois University where he graduated with a Ph.D. in organic chemistry. He has since dedicated his research to exploring continuous flow synthesis for Zoetis as a postdoctoral scientist. Jacob has attended regional and national ACS meetings since 2013, where he has presented 10 times.*

# Project SEED Update and Poster Session Invitation (August 23)

**By Dr. Doug Williams**

Our Project SEED fellows are busy finishing up their research this month in preparation for the Kalamazoo College Summer Research Symposium on Friday, August 23. Watch for time and location details to be sent by email, Facebook, and LinkedIn. We would love to see you there.

As always, I am deeply grateful to our research mentors at Kalamazoo College and Kalsec for the time, supplies, expertise and inspiration provided to our fellows. This year we thank DiPharma for a remarkable tour of their research and GMP areas on July 9 and the WMU Chemistry Department for lunch and a tour of Haenicke Hall on July 22.



Project SEED fellows visiting WMU. From left: Rowan Hagenbuch, Benjamin Knight, Dr. Megan Kowalske (chair, WMU Chemistry), Mahdi Hassnawi, Dr. Doug Williams (SEED coordinator), Jocelyn Suranyi, Nya Neal (guest), Sadaya Hamby, Dorian Roberts.

We appreciate you, our members, who generously support our program. Our section expenses for Project SEED have been \$10,000 in each of the last two years. 100% of all member donations are used directly for student stipends. Please see our [website](#) for more information.

## Meet our 2023 Project SEED Fellows

### *Dorian Roberts*

My name is Dorian Roberts and I am a rising senior and set to graduate in May 2025. This is my first year in Project SEED. My chemistry teacher is Mr. Jovaughn Carver who teaches at Kalamazoo Central High School. I plan to go to college at the University of Michigan and my special interests include reading, the STEM field, and collecting vinyl records. I also really enjoy taking chemistry and advanced classes, because I love to learn all the intricate parts and gain new knowledge. I learned about Project SEED through a friend who did the program for two years. My mentor this summer is Dr. Dwight Williams and the project that I'm working on is the design, synthesis and evaluation of maleimide-tryptamine hybrids as potential antibacterial agents. Project SEED has been an amazing experience as it has helped me to gain hands-on experience in college-based labs and additional chemistry knowledge that will come in handy later. I encourage Project SEED students to pursue this program because it has been a helpful way for me to gain career experience and open doors to other possible internships/programs. This program will help my college life and my future career as an OB/GYN. While in college, I plan on pursuing a chemistry and possibly Spanish dual degree.



### *Rowan Hagenbuch*

Hello, I'm Rowan Hagenbuch, and I am going into my junior year at Comstock High School and the Kalamazoo Area Mathematics and Science Center (KAMSC). My wonderful chemistry teacher at KAMSC is Mrs. Claudia Witt-Thomas. I learned about Project SEED through KAMSC's Research Director, Ms. Rebecca Joyce, who posted this amazing opportunity in our Research Google Classroom. Before working on my SEED Project, I completed two research projects at KAMSC on elevated risk of Kaposi sarcoma from organ transplants (literature) and comparing solvents for extraction of compounds from dry rosemary herb (lab). My SEED research project is to improve an HPLC method for quantifying carotenoids in food extracts. I am working with Michael Horton at Kalsec, Inc. Project SEED has helped me see a possible career path in research and has helped me figure out how to move forward with future research projects.

### *Reem Rasool*

I graduated from Kalamazoo Central High School in May. I spent my time in high school taking challenging courses and finding opportunities to gain more knowledge about the sciences both in and outside of school. It was when I took my first introductory chemistry class that I met my chemistry teacher, Mr. Jovaughn Carver who introduced me to this program. For the last two years, I have been able to work in the organic chemistry lab of Dr. Dwight Williams and his supportive research group at Kalamazoo College to synthesize tryptamine-maleimide hybrids for potential antibacterial agents. This year, I have furthered my research for this project and am excited to present it at the upcoming summer research poster session. I hope to continue my education this fall at Western Michigan University, where I plan to major in Biomedical Sciences. I am so grateful for all the opportunities this program has offered me. Thanks to this program, I have gained a lot of valuable knowledge that I will use all throughout college.

### *Ben Knight*

Ben graduated this year from Portage Northern High School with an IB diploma and studied chemistry with instructor Michelle Mason. He returns to us for a second year of Project SEED with Dr. Drew Elder at Kalsec, Inc., where he is categorizing the relative effectiveness of natural food antioxidants to retard the oxidation of vegetable oils under accelerated conditions. Ben will attend Kalamazoo College this fall. He appreciates the opportunity to work in an industrial lab and see how research skills are used to benefit companies in competitive, essential industries.

### *Jocelyn Suranyi*

Jocelyn graduated this year from Bloomingdale High School and studied chemistry with Mr. Chris Bily, who encouraged her to sign up for Project SEED in 2023. This year she is working on her second Project SEED internship with Dr. Blakely Tresca at Kalamazoo College and using computational modeling and solid-phase synthesis to design and prepare biologically inspired polymers known as peptoids. Jocelyn will attend Kalamazoo College this fall, where she intends to major in chemistry.

### *Mahdi Hassnawi*

Mahdi is a rising senior at Kalamazoo Central High School and studied chemistry with Mr. Jovaughn Carver. He is working with Dr. Daniela Arias-Rotondo at Kalamazoo College to design, prepare, and characterize Schiff base compounds as complexing agents to improve photoelectric conversion of solar energy with first row transition metals. With Dorian, he is preparing for his college applications through our Project SEED writing workshops this summer. Mahdi enjoys reading about aerospace technologies and plays lacrosse at KCHS.

### *Nya Neal*

Nya will begin her sophomore year at City High School in Grand Rapids in the fall. She is not in our Project SEED program but has been introduced to us through her summer research appointment with Dr. Dwight Williams at Kalamazoo College. We were delighted to have her join us for tours and workshops this summer.

# KACS Calendar

## August

- **August 18-22**, [Fall ACS National Meeting](#) in Denver, Colorado, “Elevating Chemistry”
- **August 19, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)
- **August 23, Friday**: SEED Poster Session, Kalamazoo College (further information to be sent by e-mail, on FB, LinkedIn as mentioned in the article)

## September

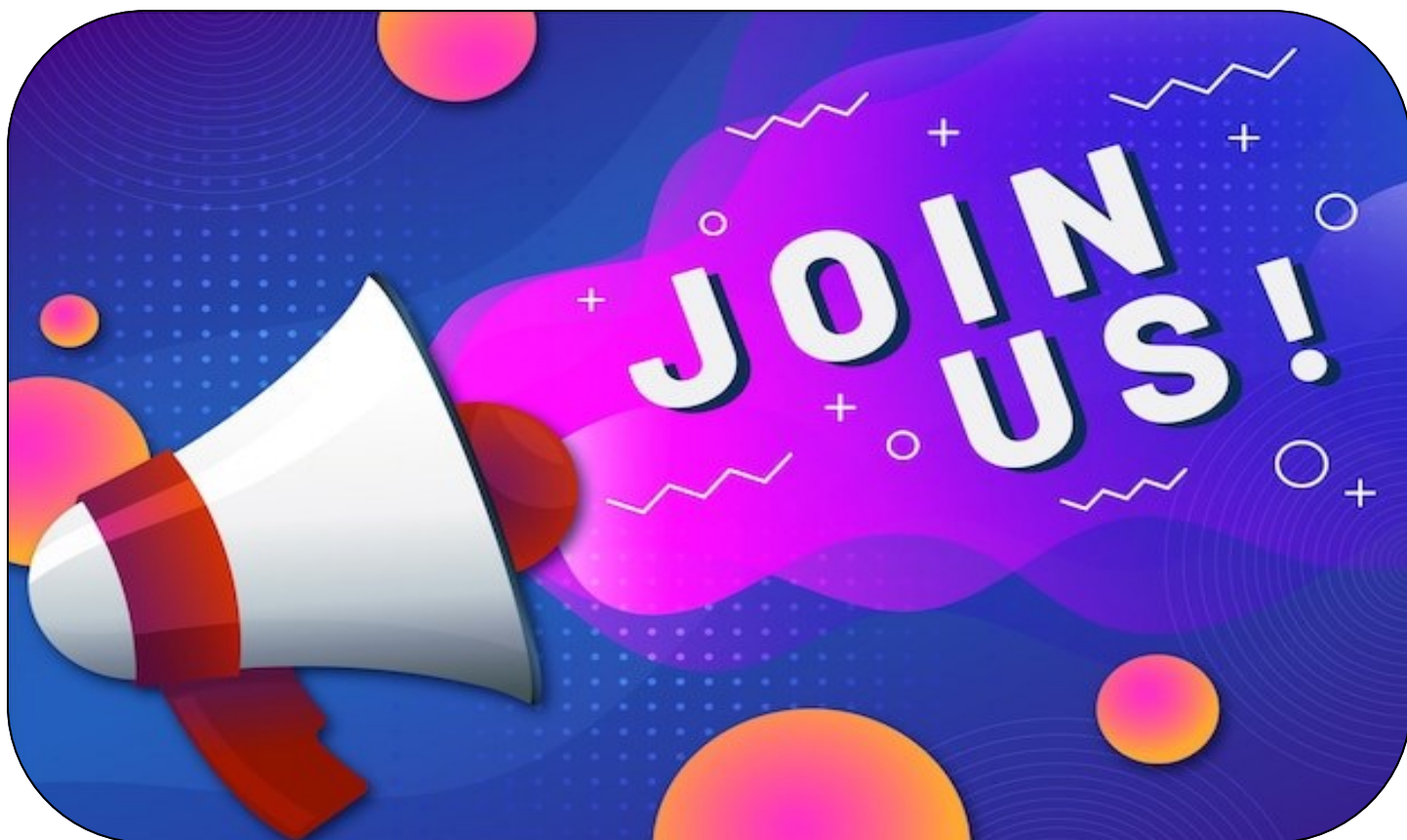
- **September 16, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)
- **September 17, Tuesday**: Dr. M.V. Orna, “How Color Changed the World” (time and location TBD)

## October

- **October 7, Monday**, 6 p.m.: Speed Networking Event—Virtual; registration is open now at <https://bit.ly/KACSSpeedNet>
- **October 19, Saturday**, noon—4 p.m.: Chemistry Day at the Kalamazoo Valley Museum
- **October 20-26**: 2024 [National Chemistry Week](#); the theme is “Picture Perfect Chemistry” and the topic is “Photography and Imaging”
- **October 21, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)

## November

- **November 5, Tuesday**, 5-9 p.m.: “Recycle a Poster” annual event at Bell’s Eccentric Café



## Share Your News with Scientists in Three Counties!

We would love to hear from you and share your news with fellow scientists in Allegan, Kalamazoo, and Van Buren counties! Send your news and events to newsletter editor Lydia E. M. Hines at [lemhwgh@gmail.com](mailto:lemhwgh@gmail.com) by the end of the month in order to get it in next month’s newsletter!



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# The KalChemist News

September 2024

[www.kalamazooacs.org](http://www.kalamazooacs.org)

Vol. 14, Issue 8

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## 2024 KACS Executive Officers

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[chair@kalamazooacs.org](mailto:chair@kalamazooacs.org)

### Past-Chair

Mr. Ben Maxey  
[past.chair@kalamazooacs.org](mailto:past.chair@kalamazooacs.org)

### Chair-Elect

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[nburke@kalsec.com](mailto:nburke@kalsec.com)

### Secretary

Mr. Jacob Kirkendall  
[secretary@kalamazooacs.org](mailto:secretary@kalamazooacs.org)

### Treasurer

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[treasurer@kalamazooacs.org](mailto:treasurer@kalamazooacs.org)

### Councilor

Dr. Lydia E. M. Hines  
[lemhwgh@gmail.com](mailto:lemhwgh@gmail.com)

### Alternate Councilor

Dr. Tomasz Respondek  
[tomasz.respondek@zoetis.com](mailto:tomasz.respondek@zoetis.com)

Serving Allegan,  
Kalamazoo,  
and Van Buren counties

## Come Learn How Color Changed the World

A lecture by **Dr. Mary Virginia Orna**, "How Color Changed the World," will be held **Tuesday,**

**September 17 at 6 p.m.,** in

the **WMU Chemistry Building, Rm. 1220**. This lecture is free and open to the public!



**Mary Virginia Orna**, Ph.D., is Professor Emerita of Chemistry, College of New Rochelle, New York. Her academic specialties are in the areas of color chemistry and archaeological chemistry. She has twenty-one authored, co-authored or edited books on chemical education and history of chemistry to her credit. Her latest book, *March of the Pigments*, was published by the Royal Society of Chemistry on May 23, 2022, a direct product of the COVID lockdown. She is the recipient of numerous chemical education and service awards, the latest being the American Chemical Society 2021 Joseph B. Lambert HIST Award "for her original research in the area of color and pigment chemistry." In 1989, she was designated the New York State Professor of the Year, and in 1994 she served as a Fulbright Fellow in Israel. Her hobby is constructing crossword puzzles; she has contributed many of these to the *New York Times*. She is a religious *novitiate* of the Ursulines of the Roman Union, and a Fellow of the American Chemical Society.

*This talk is based on her popular book, "The Chemical History of Color" (Springer, 2013).* Color has been an exciting and enjoyable part of human life over the years. However, the junction between color and chemistry, and color and history, is of more recent origin. The first recorded use of chemistry to manufacture a color is the stunning set of cave paintings found in the Grotte Chauvet in Southern France. This talk traces the history of color usage as a chemical endeavor from the earliest records to the present day, focusing on four major areas: fashion, pharmaceuticals, food, and fun. It is a trajectory peppered with stories to help us understand the mystery of color as a universal experience and phenomenon; its chemical history, as you shall see, even changed the course of history in the 20th century.



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## Bell's Recycle-a-Poster Date Change



Please note the BELL's Recycle-a-Poster Event DATE CHANGE to **Wednesday, November 6, same place** (Bell's Eccentric Café Back Room) **and time** (5-9 p.m.); our speaker will be Dr. Carrie Graveel; intrigued by science starting in Junior High at Climax-Scotts, she is currently doing breast cancer research at the VanAndel Institute in Grand Rapids.



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## The Return of Our Speed Networking Event

By Blakely Tresca

We are happy to announce that our award-winning Speed Networking event is returning for the 8th year on **Monday, October 7**, co-sponsored by Kalamazoo ACS and Kalamazoo College. Join us at **6 p.m. on Zoom** for five rounds of short discussions on careers and navigating life as a chemist. Registration is open now at <https://bit.ly/KACSSpeedNet>. The virtual format opens this event to professionals and students beyond the Kalamazoo area. **Sign up early, as space may be limited**, and priority will be given to early registrants. **Mentors** include professional chemists from industry and academia—this event can't happen without you! **Undergraduate students**—this is your chance to meet with professionals from across the chemical enterprise and learn about starting a successful career in chemistry.

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## Animal Scientist, Autism Self-Advocate to Speak in Sturgis



**Dr. Temple Grandin**, animal scientist and autism self-advocate, will speak in Sturgis next month as part of Glen Oaks Community College's 2024 Viking Speaker Series.

Her presentation will be Thursday, **October 10, 2024** at **6 p.m.** at the **Sturges-Young Center for the Arts**, 201 N. Nottawa St., Sturgis. The event is free but an autograph and photo op scholarship fundraiser will be held from 7:15-8:30 p.m.

Dr. Grandin is a renowned professor of animal science at Colorado State University, overcoming the challenges of autism to make significant contributions to improving the handling and welfare of farm animals. She has designed handling facilities impacting half the cattle in the U.S. and Canada and has published numerous industry publications and books.

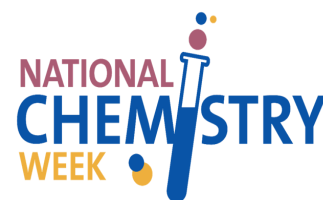
She is a popular inspirational speaker and has received numerous awards and honors for her outstanding contributions to the livestock industry and autism advocacy.

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## Chemistry Day at the Museum: Save the Date, Call for Volunteers

Chemistry Day at the Kalamazoo Valley Museum will be held in person on **Saturday, October 19, 2024** from noon to 4 p.m. Get ready to educate, entertain, and entice the next generation to the wonders of chemistry and watch the smiles form on the faces of children and adults alike! The topic of 2024 National Chemistry Week is **Photography and Imaging: Picture Perfect Chemistry**. Do you have a great experiment you can share with an audience of 4th to 9th graders?

Are you interested in demonstrating one of several experiments that are performed every year at this event? Do you have no idea what this event is about but are willing to contribute a few hours of your time on a Saturday in October to brighten the day of young scientists in our community? We need your help to make this event a success. If you are willing to participate, please email [Hershel Jude](mailto:Hershel Jude) or [Carol Guerrero](mailto:Carol Guerrero).



## 2024 Project SEED Poster Presentations

By Doug Williams

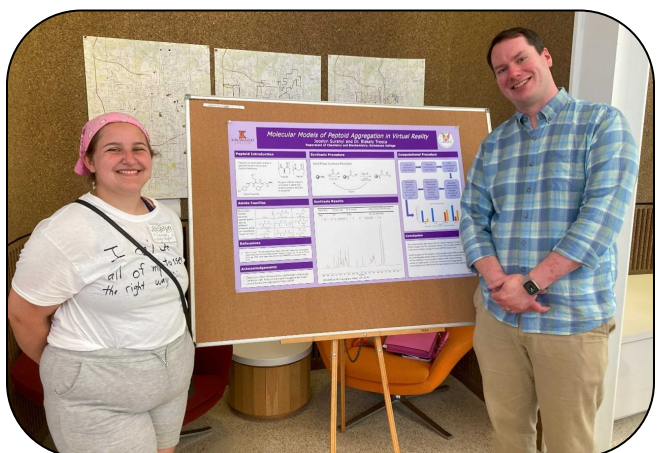
On August 23, five of our six 2024 Project SEED fellows presented posters of their summer research at a gathering hosted by Kalamazoo College (see photos). We give special thanks to Prof. Dwight Williams (Chemistry, Kalamazoo College) for organizing the event again this year. Three of our fellows are starting college this month: Ben Knight (Kalamazoo College), Reem Rasool (WMU), and Jocelyn Suranyi (Kalamazoo College), each with interests in science and health professions. They join two of last year's fellows, Eddie Anderson and Sadaya Hamby, who are starting at Howard University and Albion College, respectively, this fall. Dorian, Mahdi, and Rowan are returning to their high schools and hope to join us again next summer to continue their research work. We congratulate all of these promising young scholars on their accomplishments and wish them well in their future work. Our ability to offer this program has become increasingly dependent on local fund raising as we continue to spend down excess reserves. Thank you to our members who have donated to this effort. Please visit our [Project SEED webpage](#) or contact me directly at [treasurer@kalamazooacs.org](mailto:treasurer@kalamazooacs.org) to learn more about how to help. We cannot do this without you.



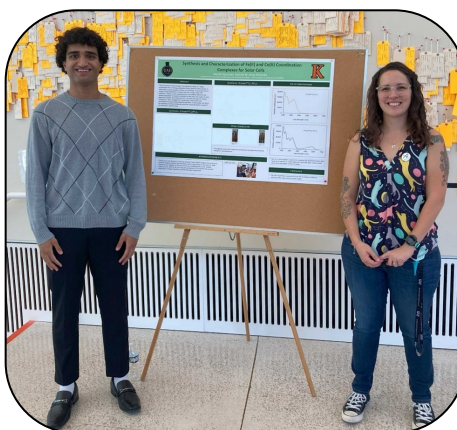
**Reem Rasool** (Kalamazoo Central HS, graduated)  
Pictured with mentor Prof. Dwight Williams  
(Chemistry, Kalamazoo College)



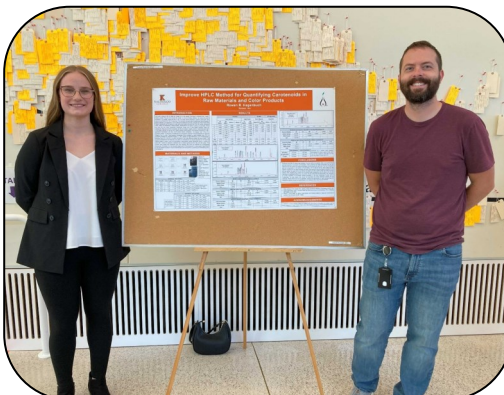
**Dorian Roberts** (Kalamazoo Central HS, senior)  
Mentor: Prof. Dwight Williams (Chemistry,  
Kalamazoo College)



**Jocelyn Suranyi** (Bloomington HS, graduated)  
Pictured with mentor Prof. Blakely Tresca  
(Chemistry, Kalamazoo College)



**Mahdi Hassnawi**  
(Kalamazoo Central  
HS, senior)  
Pictured with  
mentor Prof.  
Daniela Arias-  
Rotondo (Chemistry,  
Kalamazoo College)



**Rowan  
Hagenbuch**  
(Comstock HS/  
KAMSC, junior)  
Pictured with  
mentor Michael  
Horton (Kalsec,  
Inc.)

## An Invitation to the Great Lakes Regional Meeting

Please continue to keep in mind the **2025 Great Lakes Regional Meeting** which will be held **June 4-6 in Appleton, Wisconsin**. Plan to attend and to participate in some way! The organizers would be happy to hear from you in terms of your willingness to organize a symposium for their program, or to exhibit information regarding your business or school at their exposition, and to plan to present your research (orally or by way of a poster) at the meeting. Their website is <https://greatlakesregion-acs.org/event-welcome/glrm-2025> and it will continue to be updated. Regional Meetings offer many opportunities for students and aspiring chemists to network with others—faculty and industrial chemists—in an environment which is usually less intimidating than a large ACS meeting. **To ask any questions please send the [Local Organizing Committee](#) an email or contact the General Co-chairs, [Matt Hammers](#) and [Katie McGarry](#).**

## Highlights from the August 2024 ACS Council Meeting

By Lydia E. M. Hines

(The full report is on our website <https://kalamazooacs.org/wp-content/uploads/2024/08/Fall-2024-ACS-meeting-Councilor-Report.pdf>)

- The Council approved the **updated Academic Professional Guidelines, as amended to reflect the shared responsibility and accountability with the academic institution, faculty, and other mentors in creating a safe environment.**
- The Committee on Community Activities (CCA) announced that the topic for CCEW in 2025 (April 20-26) will be glaciers, with the theme of “Hot Topic, Cool Chemistry,” and the **theme for the NCW in 2025 will be “The Hidden Life of Spices.”**
- As of August 22, there were **11,569 registrations (10,245 in-person and 1,324 online)** at the Fall meeting.
- The Board voted to approve the **advance member registration fee for 2025 spring and fall meetings as \$549 for in-person and \$249 for virtual.**
- The CEO, Albert Horvath, and his staff, reported on the **planning for the 150th anniversary (2026) of ACS.**
- As of the end of July 2024, the number of ACS Members stood at 98,902, and the number of Society Affiliates at 2,766. The number of Community Associates (not members) increased to 119,625.
- ACS General Counsel, Tokë Vandervoort, provided an **update on the Youth Protection Policy and Volunteer Background Check process\*\*.** (more information is found on our KACS website under “Policies” <https://kalamazooacs.org/guidelines/>)



**\*\*Starting on September 1, 2024, the [Youth Protection Policy](#) will take effect, and it details the expectations for volunteers at ACS Youth Events. ACS has partnered with Sterling Volunteers to conduct all background checks. This policy applies to all adults volunteering at ACS Youth Events in the U.S.**

# Comments on KACS Bylaws' Update Process

By Jake Kirkendall  
*KACS 2024 Secretary*

The ACS Committee on Constitution and Bylaws (C&B) requested that the Kalamazoo local section update our bylaws, as they were no longer consistent with the ACS Governing Document. The current bylaws were approved in 2009, so this will be the first update in 15 years. The majority of these updates were recommended by C&B, with some changes added by the KACS executive committee.

In accordance with current bylaws, a notice was sent out to all current members on July 26 for a 30-day comment period on the updated bylaws. The concerns expressed during this period were addressed, and amends were made to the document based on this feedback.

The next steps are for these bylaws to be voted on at the September 16 executive committee meeting. If you have any further questions or objections, please contact Jake Kirkendall ([secretary@kalamazooacs.org](mailto:secretary@kalamazooacs.org)) or attend the executive committee meeting on September 16. If issues can't be resolved at that meeting, or if it is determined that an election is needed to approve the amendments, a special election will be held. If no further objections are raised, the Executive committee will hold a vote to approve the updates and if approved they will be sent to C&B for their approval and date-stamp.

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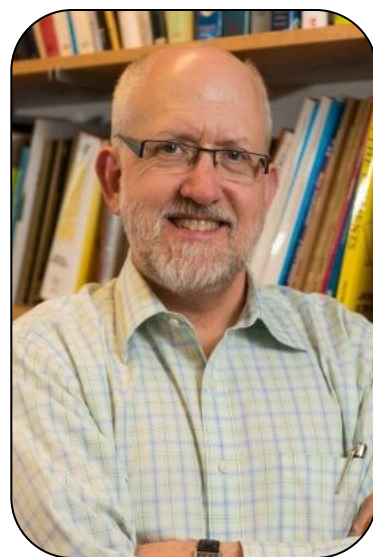
## WMU to Host Seminar on Molecule Movement

WMU Chemistry Department has graciously offered to let KACS know of seminars which they will be hosting through the 2024-5 academic year, on Mondays in the **Chemistry Building, Rm. 1260 at 3 p.m.** Below is the abstract for the **September 30** seminar by Dr. James Penner-Hahn. (Others will be featured in subsequent monthly newsletters)

### **Watching molecules move: femtosecond dynamics of cobalamins**

Dr. James Penner-Hahn, Departments of Chemistry and Biophysics, University of Michigan

The motion of atoms and electrons in a molecule is central to understanding its photophysical and photochemical properties. Although a variety of methods have been used to characterize excited state structure, X-ray spectroscopies (both absorption – XAS, and emission – XES) have proven to be uniquely useful in understanding excited state dynamics due to their ability to directly probe the *local* structural environment of metal ions. We will describe the use of these techniques to characterize a variety of vitamin B<sub>12</sub> (cobalamin) congeners in order to investigate the structural changes that accompany the redistribution of energy following photo-excitation and to characterize how these differ as a function of axial ligation. We show how, by controlling the relative polarization of the UV-visible pump and the X-ray probe beams, it is possible to measure polarized XAS even for molecules in isotropic solution. We demonstrate that the structural evolution of the excited molecule is best described by a coherent ballistic trajectory on the excited state potential energy surface in which prompt expansion of the Co cavity by ca. 0.03 Å is followed by significant elongation of the axial bonds (>0.25 Å) over the first 190 fs. Subsequent contraction of the Co cavity in both axial and equatorial directions results in the relaxed S<sub>1</sub> excited state structure within 500 fs of excitation. In contrast to K-edge XAS, which is primarily sensitive to molecular structure, XES and L-edge XAS are primarily sensitive to electronic structure. We show that the combination of all 3 X-ray methods together with UV-visible spectroscopy can provide a uniquely detailed description of the excited state evolution.



## KACS Calendar

### September

- **September 16, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)
- **September 17, Tuesday**, 6 p.m.: Dr. M.V. Orna, “How Color Changed the World”; WMU Chemistry Bldg., Rm. 1220
- **September 30, Monday**, 3 p.m.: Dr. James E. Penner-Hahn (University of Michigan), “Watching Molecules Move: *femtosecond dynamics of cobalamins*”; WMU Chemistry Bldg., Rm. 1260

### October

- **October 7, Monday**, 6 p.m.: Speed Networking Event—Virtual; registration is open now at <https://bit.ly/KACSSpeedNet> (more information on page 2)
- **October 10, Thursday**, 6 p.m.: Dr. Temple Grandin presentation; Sturges-Young Center for the Arts, 201 N. Nottawa St., Sturgis

- **October 19, Saturday**, noon—4 p.m.: Chemistry Day at the Kalamazoo Valley Museum
- **October 20-26**: 2024 [National Chemistry Week](#); the theme is “Picture Perfect Chemistry” and the topic is “Photography and Imaging”
- **October 21, Monday**, 3 p.m.: Dr. Brittlund DeKorver (Grand Valley State University), WMU Chemistry Bldg., Rm. 1260
- **October 21, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)

### November

- **November 6, Wednesday**, 5-9 p.m.: “Recycle a Poster” annual event at Bell’s Eccentric Café
- **November 11, Monday**, 3 p.m.: Dr. Renée Bouley (The Ohio State University at Marion), WMU Chemistry Building, Rm. 1260
- **November 18, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)



### Share Your News with Scientists in Three Counties!

We would love to hear from you and share your news with fellow scientists in Allegan, Kalamazoo, and Van Buren counties! Send your news and events to newsletter editor Lydia E. M. Hines at [lemhwgh@gmail.com](mailto:lemhwgh@gmail.com) by the end of the month in order to get it in next month’s newsletter!





# The KalChemist News

October 2024

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Vol. 14, Issue 9

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## 2024 KACS Executive Officers

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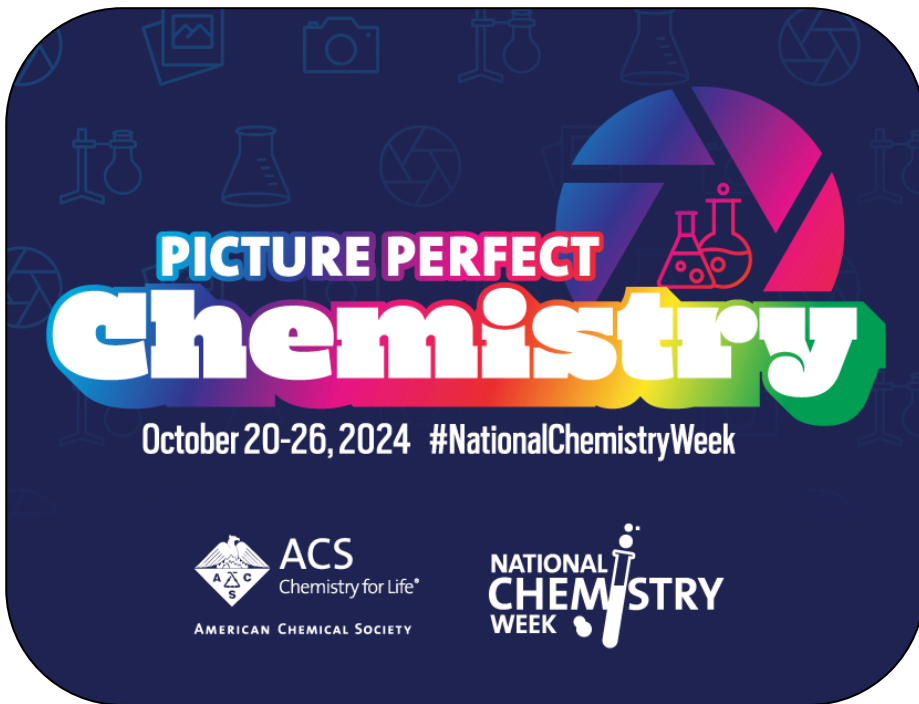
### Councilor

Dr. Lydia E. M. Hines  
[lemhwgh@gmail.com](mailto:lemhwgh@gmail.com)

### Alternate Councilor

Dr. Tomasz Respondek  
[tomasz.respondek@zoetis.com](mailto:tomasz.respondek@zoetis.com)

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## Chemistry Day at the Museum: This Month!

By Hershel Jude and Carol Guerrero

Chemistry Day at the Kalamazoo Valley Museum will be held on October 19, 2024. This event will be held in person from noon to 4 p.m. Get ready to educate, entertain, and entice the next generation to the wonders of chemistry and watch the smiles form on the faces of children and adults alike! Do you have a great experiment you can share with an audience of 4th to 9th graders? Are you interested in demonstrating one of several experiments that are performed every year at this event? Do you have no idea what this event is about but are willing to contribute a few hours of your time on a Saturday afternoon in October to brighten the day of young scientists in our community? We need your help to make this event a success. If you are willing to participate, please email [Hershel Jude](mailto:Hershel.Jude) or [Carol Guerrero](mailto:Carol.Guerrero).

The Kalamazoo Valley Museum does not require participating vendors to obtain a background check for this event; however, all ACS members participating as vendors must follow the [ACS Volunteer & Participant Code of Conduct](#).



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# Recycle-a-Poster Event Coming to Bell's November 6

## By Tomasz Respondek

The Kalamazoo Section of the American Chemical Society presents Sustainable Science – Recycle a Poster on Wednesday, November 6 from 5-9 p.m. at Bell's Eccentric Café, 355 E Kalamazoo Ave., Kalamazoo, MI 49007. The event is free and open to the public, with complimentary hors d'oeuvres provided.

The keynote presentation will be "Identifying causes and novel therapeutic strategies for treatment-resistant cancers" by Dr. Carrie Graveel.

Dr. Carrie Graveel is a Senior Research Scientist at the Van Andel Research Institute and the Assistant Dean of the Van Andel Institute Graduate School in Grand Rapids. Her scientific career began as a Chemistry Major at Kalamazoo College where she was a Dow Chemical Foundation Scholar and Goldwater Fellow. Dr. Graveel obtained her PhD in Cellular and Molecular Biology at the University of Wisconsin-Madison. In the last two decades, her research has focused on the oncogenic signaling pathways that drive both sarcoma and breast cancer progression and treatment resistance. Dr. Graveel has numerous publications on the adaptive molecular mechanisms that promote cancer progression, including several with pharmaceutical collaborators. In this talk, Dr. Graveel will discuss her current oncology research and the opportunities and serendipitous events that led her passion for science into a career as a scientist.



### The Evening's Schedule:

- 5-7 p.m. Poster Setup, Registration, Reception
- 6:45 p.m. KACS Announcements
- 7 p.m. Keynote Speaker: Carrie Graveel, PhD
- 8 p.m. Prize Announcement
- 8-9 p.m. Poster Session, Network with Scientists and Speaker

Current ACS members, poster presenters, and Zoetis employees are eligible for two complimentary drink tickets (alcoholic beverages for 21 years and older)

For questions please email [symposium@kalamazooacs.org](mailto:symposium@kalamazooacs.org). Funding has been provided through a generous grant from Zoetis.

### How to Submit a Poster

Newly prepared or "recycled" posters are welcome from all attendees, though undergraduate and graduate students are especially encouraged to participate. Student presenters who submit their abstract (100-200 words) by Sunday, November 3, 2024 can win a \$50 cash prize! (3 student presenters will receive a prize)

To reserve an easel, presenters should email the following information to [symposium@kalamazooacs.org](mailto:symposium@kalamazooacs.org) by Sunday, November 3, 2024:

- The poster title
- Author list with the presenter underlined and an asterisk (\*) for the lead PI
- Institution information
- An abstract to enter the prize drawing

More information is available on the KACS website at <https://www.kalamazooacs.org/>.

# Get a 30% Discount on ACS Membership

By Doug Williams

Now that I am retired, I occasionally wonder why I still read C&E News every week – not every article, of course – but I'm happy when it shows up in my email. What would my adult children do if I stopped sending them my favorite story each week? How would they get through life without a proper appreciation of chemistry? If you're reading this, you may already know of many ways that ACS and the Kalamazoo local section support professional member growth, accelerate paths to chemical education, and increase public awareness of the value of chemistry. Members are vital for this work.

Recently we received a memorandum from ACS' "Component Services" saying that they were initiating an ACS membership campaign that runs from October 1, 2024, through November 15, 2024: If you renew or upgrade to Standard or Premium membership during this period, you will receive a 30% discount on the membership fee. To redeem your discount:

1. Visit <https://membership.join.acs.org>
2. You will be prompted to log in using your ACS ID (username/password). If you don't have one or forget your login, click the appropriate link on the login page
3. On the Review step of the application, enter the following code to apply the discount to your ACS dues: LSGROW24

After considering this offer, please share it with others in your network who may not be current members but might be interested in ACS. The discount applies to new memberships too! Thank you.



**GLRM 2025**  
**Chemistry for a Better Planet**

June 4-6, 2025  
Appleton, WI

Hosted by the Central Wisconsin  
and Northeast Wisconsin Local Sections

Chemistry for Life

## Great Lakes Regional Meeting 2025

Planning for the program is under way for the Great Lakes Regional Meeting in Appleton, WI, June 4-6, 2025; the theme is **Chemistry for a Better Planet** and it is being cohosted by the Central and the Northeast Wisconsin Sections of the ACS. This meeting will bring more than 400 chemists from industry, academia, and government sectors together.

A tentative list of symposium topics is on the next page. If you would like to organize a symposium on one of those topics, or on a different topic, please send one of the organizers below an email with your contact information and your topic(s) of interest. We would also like to hear from you if you would be willing to preside over a session but are not currently interested in organizing a symposium.

The general co-chairs Katie McGarry ([kmcgarry@uwsp.edu](mailto:kmcgarry@uwsp.edu)) and Matt Hammers ([hammersm@uwosh.edu](mailto:hammersm@uwosh.edu)), as well as the program co-chairs, Jennifer Mihalick ([mihalick@uwosh.edu](mailto:mihalick@uwosh.edu)) and Bree Lybbert ([lybbertb@uwgb.edu](mailto:lybbertb@uwgb.edu)) would very much appreciate your involvement as speaker, symposium organizer, exhibitor, sponsor. More information may be found by emailing [glrm2025@gmail.com](mailto:glrm2025@gmail.com) or visiting <https://greatlakesregion-acis.org/event-welcome/glrm-2025>.

<b>category</b>	<b>symposium topic</b>
analytical chemistry	general analytical
analytical chemistry	analysis of biologicals
analytical chemistry	cannabis testing
analytical chemistry	advanced instrumentation
biochemistry	general biochemistry
biochemistry	drug delivery
biochemistry	sensing
biochemistry	biologically-related small molecules
biochemistry	proteomics and mass spectrometry
chemical education	general chem ed
chemical education	HHMI Inclusive Excellence
chemical education	Course-based Undergraduate Research Experiences (CUREs)
chemical education	teaching chem through art & archaeology
chemical education	assessment in chem ed research and practice
chemical education	high school teacher workshop?
chemical education	research at PUIs
chemical education	accomplishments in research by undergraduate students
computers in chemistry	applications of Artificial Intelligence
environmental chemistry	general environmental
environmental chemistry	PFAS
environmental chemistry	watershed
environmental chemistry	atmospheric chemistry
environmental chemistry	emerging concerns in Great Lakes region
green & sustainable chemistry	general green chemistry
green & sustainable chemistry	recycling technology
green & sustainable chemistry	sustainable materials
inorganic chemistry	general inorganic
inorganic chemistry	catalysis
inorganic chemistry	f-elements
inorganic chemistry	magnetism
inorganic chemistry	organometallic chemistry
manufacturing	general manufacturing
manufacturing	GMP for food, pharmaceuticals
manufacturing	use of green chemistry principles in manufacturing
manufacturing	industrial catalysis
manufacturing	paper chemistry
manufacturing	surfactants, rheology, foam/defoaming
materials	general materials
materials	sustainable materials
materials	nanomaterials and thin films
organic chemistry	general organic
physical chemistry	general physical
physical chemistry	surface chemistry
physical chemistry	computational chemistry

## Update of KACS' Bylaws is Complete

By Jake Kirkendall



In the September issue of The KalChemist News we shared that updates to the Bylaws had been proposed by the ACS Committee on Constitution and Bylaws (C&B). After adjustments of minor wording errors in that proposed document, the KACS Executive committee voted on the revision of the bylaws and was able to pass them unanimously. C&B officially approve the new KACS Bylaws on September 26, 2024 and these may now be found at <https://kalamazooacs.org/bylaws/>.

Thanks to all who participated in the working and editing sessions, as well as to those who were able to catch needed minor wording adjustments and typos. Your work on this was invaluable.

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## KACS Calendar

### October

- **October 7, Monday**, 6 p.m.: Speed Networking Event—Virtual; registration is available at <https://bit.ly/KACSSpeedNet>
- **October 10, Thursday**, 6 p.m.: Dr. Temple Grandin presentation; Firm Foundation Ministries, 651 E. Main St., Centreville (**NOTE VENUE CHANGE**)
- **October 19, Saturday**, noon—4 p.m.: Chemistry Day at the Kalamazoo Valley Museum
- **October 20-26**: 2024 [National Chemistry Week](#); the theme is “Picture Perfect Chemistry” and the topic is “Photography and Imaging”
- **October 21, Monday**, 3 p.m.: Seminar with Dr. Britland DeKorver (Grand Valley State University), WMU Chemistry Bldg., Rm. 1260
- **October 21, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)

### November

- **November 6, Wednesday**, 5-9 p.m.: “Recycle a Poster” annual event at Bell’s Eccentric Café
- **November 11, Monday**, 3 p.m.: Seminar with Dr. Renee Bouley (The Ohio State University at Marion), “Understanding the Role of L,D-transpeptidases in Antibiotic Resistance,” WMU Chemistry Building, Rm. 1260
- **November 18, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)

### December

- **December 2, Monday**, 3 p.m.: Seminar with Dr. Renee Cole (University of Iowa), WMU Chemistry Building, Rm. 1260
- **December 16, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)



## Share Your News with Scientists in Three Counties!

We would love to hear from you and share your news with fellow scientists in Allegan, Kalamazoo, and Van Buren counties! Send your news and events to newsletter editor Lydia E. M. Hines at [lemhwgh@gmail.com](mailto:lemhwgh@gmail.com) by the end of the month in order to get it in next month’s newsletter!



# The KalChemist News

November 2024

[www.kalamazooacs.org](http://www.kalamazooacs.org)

Vol. 14, Issue 10

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- Chemistry Day Comes Full Circle** *Page 3*
- KACS Election Results** *Page 4*
- Seminar on Antibiotic Resistance** *Page 5*

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## KACS' Seventh Speed Networking Night: A Success Story

**By Blakely Tresca**

Kalamazoo College and the Kalamazoo Section of the ACS jointly hosted the 7th annual Speed Networking Night over Zoom on the evening of Monday, October 7, this year. We had an exceptional turnout, with over forty students and mentors. Virtual networking in Zoom has helped to expand this opportunity for both mentors and students beyond the Kalamazoo area.

The evening kicked off with a presentation by Dr. Zeus De los Santos from the FDA, who shared tips for undergraduate research funding. Scott Bagley and Carl Stachew shared their career experiences at Pfizer and the wide range of opportunities available in the pharmaceutical industry.

Students and mentors were paired up in five breakout rooms for 10-minute discussions. After the event, a list of contacts was circulated for mentors and students to continue their conversations. We are hopeful that the connections that were made will benefit students and mentors alike for many years to come.

Overall, our fourth virtual chemistry speed-networking event was a resounding success, and we look forward to continuing to expand this format further in the future. The number of interested students has grown dramatically over the last few years, and we are looking for more mentors. Anyone interested in becoming involved with Speed Networking in the future please contact [blakely.tresca@kzoo.edu](mailto:blakely.tresca@kzoo.edu). Planning has started for **next year's event on October 6, 2025.**





ACS  
Chemistry for Life®



2024

**The KALAMAZOO Section of the American Chemical Society presents**

**Sustainable Science – Recycle a Poster**

**“Identifying causes and novel therapeutic strategies for treatment-resistant cancers”**

**by Carrie Graveel, Senior Research Scientist at the Van Andel Research Institute**



**Sci-Mix Poster Session on November 6, 2024 (5-9pm)**

**Bell's Eccentric Café**

**355 E Kalamazoo Ave, Kalamazoo, MI 49007**

**Complimentary hors d'oeuvres**

**Free and open to the public**

Carrie Graveel is a Senior Research Scientist at the Van Andel Research Institute and the Assistant Dean of the Van Andel Institute Graduate School in Grand Rapids. Her scientific career began as a Chemistry Major at Kalamazoo College where she was a Dow Chemical Foundation Scholar and Goldwater Fellow. Dr. Graveel obtained her PhD in Cellular and Molecular Biology at the University of Wisconsin-Madison. In the last two decades, her research has focused on the oncogenic signaling pathways that drive both sarcoma and breast cancer progression and treatment resistance. Dr. Graveel has numerous publications on the adaptive molecular mechanisms that promote cancer progression, including several with pharmaceutical collaborators. In this talk, Dr. Graveel will discuss her current oncology research and the opportunities and serendipitous events that led her passion for science into a career as a scientist.

**5-7 pm Poster Setup, Registration, Reception**

**6:45 pm KACS Announcements**

**7:00 pm Keynote Speaker: Carrie Graveel, PhD**

**8 pm Prize Announcement**

**8-9 pm Poster Session, Network with Scientists and Speaker**

**Current ACS members, poster presenters and Zoetis employees are eligible for two complimentary drink tickets (alcoholic beverages for 21 years and older)**

For questions please email [symposium@kalamazooacs.org](mailto:symposium@kalamazooacs.org)



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**Funding provided through a generous grant by zoetis**

# Families Explore the Wonders of Chemistry At the Kalamazoo Valley Museum

**By Carol Guerrero (KVM) and Hershel Jude (KACS)**

The Kalamazoo Valley Museum and the Kalamazoo Local Section of the American Chemical Society (ACS) hosted the 38th annual celebration of chemistry, “Photography and Imaging: Picture Perfect Chemistry,” on Saturday, October 19, from noon to 4 p.m. at the Kalamazoo Valley Museum. This event brought together chemistry enthusiasts and families to explore the wonders of chemistry and gain a deeper appreciation for the science that shapes our world.



Thanks to the dedication of volunteers from Dipharma, Kalamazoo College, Kalamazoo Valley Community College, Kalamazoo Valley Museum, Kalsec, Perrigo, Pfizer, Western Michigan University, and the Kalamazoo Local Section of the ACS, attendees engaged in exciting experiments, witnessed captivating demonstrations, and learned about chemistry in meaningful ways.

We extend our heartfelt gratitude to all the volunteers whose time, knowledge, and enthusiasm made Chemistry Day a success. Your commitment and passion for science are appreciated; this event could not have happened without you.

The topic for National Chemistry Week in 2025 will be Spices, and the theme will be “The Hidden Life of Spices.” **Mark your calendars for Saturday, October 18, 2025, for next fall’s celebration of chemistry at the Kalamazoo Valley Museum.** Together, let’s continue to ignite the spark of scientific curiosity and exploration in our community.

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## Chemistry Day Comes Full Circle

**By Andy Kaczmar**

Growing up in Mattawan, MI, my family and I would often attend Chemistry Day at the Kalamazoo Valley Museum. I truly enjoyed going to this event as a kid, and I think it’s what sparked my initial interest in chemistry and in science as a whole. Even today, I still remember walking around the museum, watching electricity demonstrations, and participating in a variety of chemistry activities. I remember looking up to the volunteers, thinking that they were the coolest thing ever. Little did I know that I’d be in their shoes over a decade later!

Fast forward to today, and here I am - not only a volunteer at Chemistry Day but also a scientist and president of the WMU Chemistry Club. Now, I get to share my love for chemistry with others while giving back to the community that supported me. It was a fantastic experience to see the same curiosity in the kids that came to the recently-held Chemistry Day at the Museum that I felt back when I was their age. Personally, volunteering for Chemistry Day feels like my way of saying thank you for the life-changing experiences this event provided me all those years ago.

Looking back, it’s amazing to see how those early seeds blossomed, helping me to become the person that I am today. They’re the reason why I’m studying chemistry at WMU (anticipating a Spring 2025 graduation) and why I want to pursue a career in science. They’ve made me a more curious individual, a more engaged student, and a better leader. Overall, my journey from a wide-eyed little kid at Chemistry Day has come full circle. I’m grateful to be part of an event that has played such an important role in my life, and I look forward to seeing the fruit that it bears in the next generation.

*[Editor’s note: Thank you, Andy! My request for this story was triggered by a casual chat I had with Andy as he was leaving our October 19, 2024, Chemistry Day at the Kalamazoo Valley Museum where he and his team safely led our young visitors in the preparation of “Slime.”]*



## Report on our Recent KACS Officer Election

By Jake Kirkendall  
KACS Secretary

In October we held our annual KACS elections. Since I took over as Secretary, this is the largest election turnout we have had, with 26% of eligible members voting. The new voting system we adopted last year through ElectionRunner has eased the process of running the annual officer election and also increased election participation. **Joe Chemler** (Kalsec Inc.) was elected as the 2025 Chair-Elect, **Sean Lapekas** (Pfizer) as Treasurer, and **Brian Eklov** (Dipharma) as Alternate Councilor. Thanks to all who voted, and congratulations to our new executive committee members.



Continuing on the KACS executive committee are Nicole Burke, chair; Dibyendu Mondal, past-chair; Jake Kirkendall, secretary; Lydia E. M. Hines, councilor. **Many thanks are due to our outgoing executive committee members for their dedicated service to KACS: Ben Maxey** (outgoing Past-chair), **Doug Williams** (outgoing Treasurer), and **Tomasz Respondek** (outgoing Alternate Councilor).

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## Another Invitation to Attend GLRM 2025

Here is another invitation to consider attending and possibly participating in the GLRM 2025 (<https://greatlakesregion-acs.org/event-welcome/glrm-2025>)

Also, if you know of a deserving HS teacher within our Great Lakes Region (see <https://kalamazooacs.org/the-great-lakes-region/> for a map of our Region, or contact Lydia E. M. Hines) the information below is given for you to consider a nomination:

### Great Lakes Regional (GLR) Award for Excellence in High School Teaching

This award is offered by the Chemical Education (CHED) division to recognize a High School teacher within the region who excels in the classroom and beyond

The nomination form is available at <https://greatlakesregion-acs.org/Event-Awards> (*note – the nomination form for this award is extensive and we encourage you to begin completing it well in advance of the deadline*)

**Deadline: March 1, 2025**

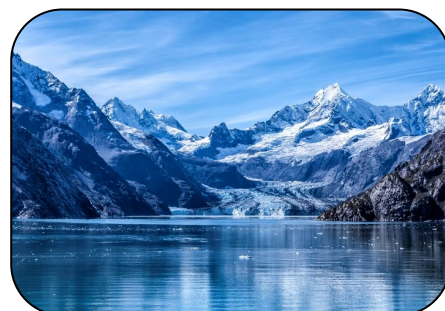
If you have any questions regarding this award, please contact Graeme Wyllie ([wyllie@cord.edu](mailto:wyllie@cord.edu)), GLR Awards Chair.

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## Plan Ahead for CCEW, NCW Next Year



At the Denver ACS meeting in August of 2024 the Committee on Community Activities (CCA) announced that the topic for **Chemists Celebrate Earth Week (CCEW)** in 2025 will be Glaciers, with the theme of **“Hot Topic, Cool Chemistry,”** and that the topic for the **National Chemistry Week (NCW)** in 2025 (October 19-25) will be Spices, with the theme of **“The Hidden Life of Spices.”**



## Seminar to Discuss Antibiotic Resistance

Below are the title and abstract for the **November 11** seminar presentation at 3 p.m., WMU Chemistry Building, Rm 1260, by **Dr. Renee Bouley**, Assistant Professor of Biochemistry, Dept of Chemistry and Biochemistry, The Ohio State University at Marion.

Title: Understanding the Role of L,D-transpeptidases in Antibiotic Resistance

Abstract: L,D-transpeptidases (Ldts) as well as D,D-transpeptidases also known as penicillin-binding proteins (PBPs) play an important role in formation of cross linkages in peptidoglycan, which is key to the structural stability of the bacterial cell wall. The functions of these two transpeptidases are similar, although they are structurally distinct and they generate different peptide cross-linkages. Due to these differences, the majority of the  $\beta$ -lactam antibiotics do not effectively inhibit the Ldts. This has led to the hypothesis that they are involved in resistance to  $\beta$ -lactam antibiotics. The role of Ldts in many pathogenic Gram-negative bacteria, such as *Enterobacter cloacae*, has not been studied. *E. cloacae* contains six hypothetical Ldt genes that are analogous to the six Ldts that have been characterized in *E. coli*. This study aims to investigate two of these Ldts found in *E. cloacae*, termed LdtD and LdtE, which are hypothesized to catalyze 3 $\rightarrow$ 3 cross-linkages based on their homology with *E. coli* proteins.



LdtD and LdtE were cloned and purified as fusions with maltose-binding protein and their activity was determined using a nitrocefin assay. A panel of 14  $\beta$ -lactams was then assayed to determine which demonstrates activity against LdtD and LdtE. We determined that 3 carbapenems tested and 2 penams inhibited both LdtD and LdtE whereas the cepheems and monobactam tested did not show activity. Previous studies have shown that carbapenems often display Ldt inhibition, however penams typically do not show activity. We determined the IC<sub>50</sub> values for active  $\beta$ -lactams against both LdtD and LdtE and utilized native mass-spectrometry to investigate the enzyme-inhibitor interaction.

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## KACS Calendar

### November

- **November 6, Wednesday**, 5-9 p.m.: “Recycle a Poster” annual event at Bell’s Eccentric Café back room
- **November 11, Monday**, 3 p.m.: Seminar with Dr. Renee Bouley (The Ohio State University at Marion), “Understanding the Role of L,D-transpeptidases in Antibiotic Resistance,” WMU Chemistry Building, Rm. 1260
- **November 18, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)

### December

- **December 2, Monday**, 3 p.m.: Seminar with Dr. Renee Cole (University of Iowa), WMU Chemistry Building, Rm. 1260
- **December 16, Monday**, 7 p.m.: Executive Committee meeting; contact [Dr. Dibyendu Mondal](#)

### January 2025

- January 13, Monday, 3 p.m.: Seminar with Michael Van Stipdonk (Duquesne University), WMU Chemistry Building Rm. 1260



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# The KalChemist News

December 2024

[www.kalamazooacs.org](http://www.kalamazooacs.org)

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## Research Scientist with Local Roots Headlines Annual Bell's Event with Inspirational Speech

By Tomasz Respondek

The 12th **Recycle-a-Poster** annual KACS event took place on Wednesday, November 6, 2024, at Bell's Eccentric Café. This iconic Kalamazoo venue was once again filled with a broad spectrum of scientists from the Kalamazoo area representing both academia and industry; there were close to 80 attendees, 17 of whom presented posters.

This year's keynote presentation was given by Carrie Graveel, Ph.D. Dr. Graveel earned her BA in Chemistry at Kalamazoo College and her PhD in Cellular and Molecular Biology from the University of Wisconsin-Madison. She then served as a postdoctoral fellow in the laboratory of Dr. George Vande Woude at the Van Andel Research Institute (VAI). In 2010, Dr. Graveel became a Senior Research Scientist at the Institute and is currently working there with surgeon scientist Dr. Matthew Steensma. In 2023, she added the role of Assistant Dean of Student Research at the VAI Graduate School.



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Dr. Graveel gave the public a truly intimate and inspirational insight into her early years as a student and young scientist in the Kalamazoo area as a high school student within the KAMSC program and an intern at The Upjohn Company in the laboratory of Dr. Karen Leach. She also talked about earning her Chemistry degree at Kalamazoo College where she was introduced to academic research by Dr. Tom Smith, who was in attendance!

Dr. Graveel shared her research with the public with a talk titled “Identifying causes and novel therapeutic strategies for treatment-resistant cancers” and focused on describing the role of NF1 in a variety of resistant breast cancers. Her talk was followed by a number of questions. Dr. Rachel House, one of Dr. Graveel’s Postdoctoral Fellows, who was also in attendance, helped answer some of the inquiries centered on cancer cell metabolism.

During the evening attendees enjoyed hors d’oeuvres and craft beers and beverages from Bell’s Brewery, all of which were made possible by a generous grant from our longstanding partner, Zoetis.

The Eccentric Café was buzzing during the poster presentations that followed Dr. Graveel’s lecture. The 17 poster presenters highlighted research conducted at WMU, Kalamazoo College, Vestaron, Bridge Organics, Zoetis, and elsewhere. Each of three students from WMU and Kalamazoo College were randomly selected as the recipients of a \$50 prize.

The poster presentations fueled numerous conversations that gave the students the opportunity to interact with industry scientists and offered networking opportunities.

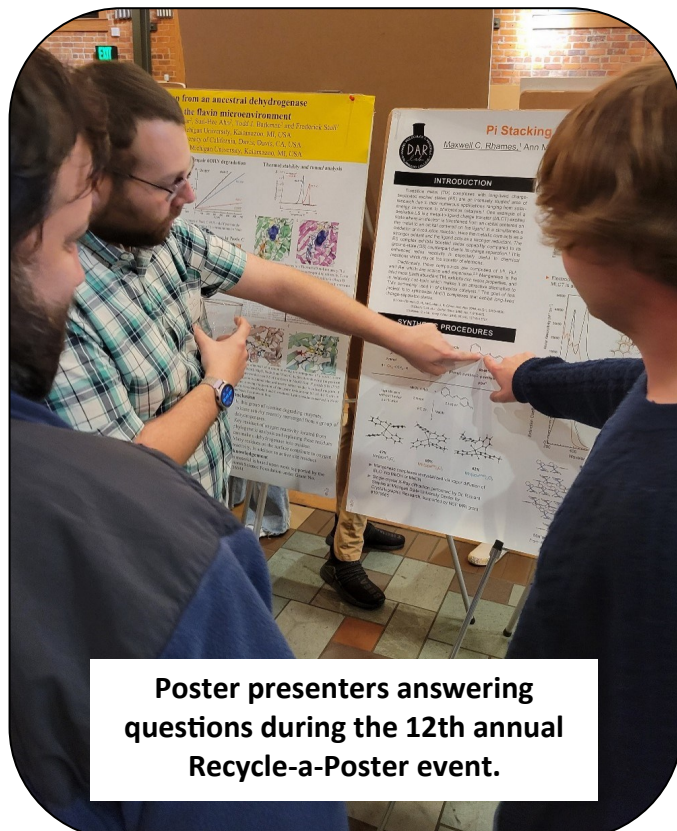
The KACS executive committee would like to thank all the volunteers and sponsors that helped organize the event and all the participants for joining us. We are looking forward to the 13th edition of the event in the fall of 2025!!



**Dr. Carrie Graveel talking about her early steps as a scientist while studying in the KAMSC program and at Kalamazoo College under Dr. Tom Smith’s mentorship.**



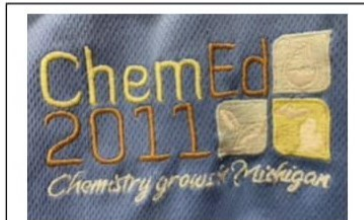
**Poster presenters during the 12th annual Recycle-a-Poster event discussing their research.**



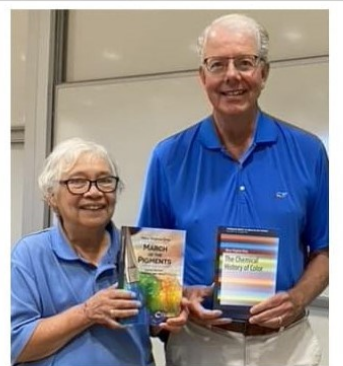
**Poster presenters answering questions during the 12th annual Recycle-a-Poster event.**

# Chemistry Historian Presented “How Color Changed the World” at WMU

By Elke Schoffers



Orna's shirt included logo of the 21st biennial conference for chemistry educators at the high school level that took place in Kalamazoo



Host Ed Thomas with Orna, holding up her 2 books on color.

On Sept. 17, 2024, about 40 people attended Dr. Mary Virginia Orna's seminar which was based on her popular book, **“The Chemical History of Color”** (Springer, 2013). When the Covid-19 pandemic affected everyone's travel plans, including Orna's, she focused on writing **“March of the Pigments – Color History, Science and Impact”** (Royal Society of Chemistry, 2022). Dr. Orna, *Ph.D.*, is *Professor Emerita of Chemistry, College of New Rochelle, New York*. Her academic specialties are in the areas of color chemistry and archaeological chemistry.

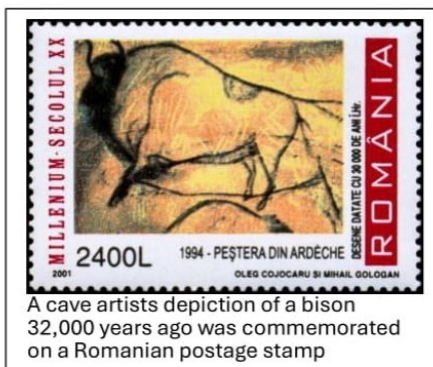
Orna proudly donned her ChemEd conference shirt she acquired when she visited Kalamazoo in 2011 for a high school education conference; it was sponsored by the Department of Chemistry and the Mallinson Institute of Science Education (MISE) at WMU. The logo reads “Chemistry grows in Michigan”.



Orna's interest in the history of color came about when she was asked to develop a new course for art students. The goal was to illustrate the pivotal role of color chemistry in the art world while treading lightly on the physical science content to entice non-chemists. Orna weaved together a wide range of topics that were all related to the intersection of color, chemistry and history. She included powerful examples that highlight how the chemical sciences affected world politics and people's lives. Topics ranged from natural dyes in the ancient world to natural and synthetic colors in modern times.

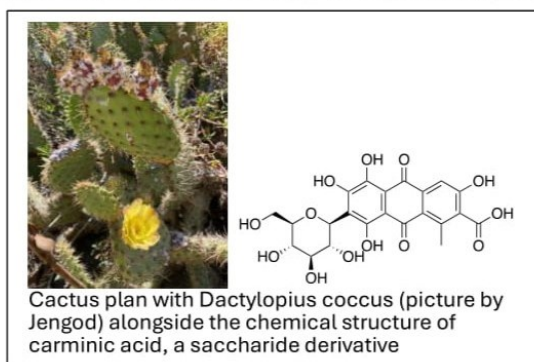
Her presentation began with 32,000-year-old cave paintings of a steppe bison by paleolithic artists on the walls of Grotte Chauvet in southern France. Early colors were based on iron(III) oxides that, depending on the degree of hydration, result in various shades of ochre.

Some of pigments, in is

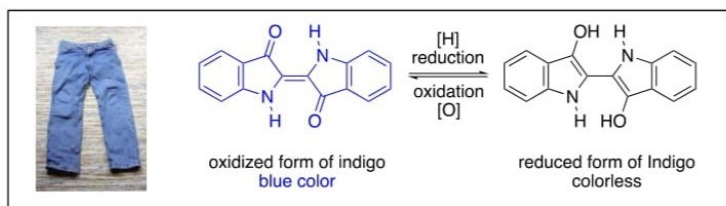


the earliest manufactured such as cinnabar vermilion which mercury(II)

sulfide, HgS, were toxic. This bright red pigment was commonly used by Roman painters to create Pompeii's wall paintings. Egyptian Blue is another well-known pigment and was used thousands of years ago, 4613-4494 BP. It is a calcium copper tetrasilicate, CaCuSi<sub>4</sub>O<sub>10</sub>, but its exact manufacturing method is still debated. Next up was the role of carmine cochineal. It is a New World pigment-dye, which was considered more precious than silver. It was a real treasure on



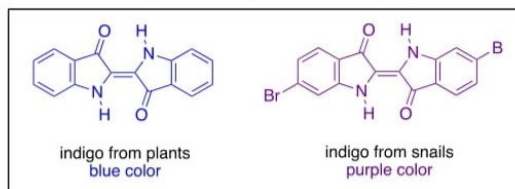
Spanish galleons. The chemical structure is carminic acid which was extracted from the egg sacs of female scale insects that feed on cactus plants. The parasite *dactylopius cocci* are gray-reddish scale insects that expressed this acid as a chemical defense ingredient. This phenomenon of deterring predators with colors can be found in many other naturally occurring pigments. Interestingly, "carmine" quickly became a source of contention when Starbucks made headlines like "Beetle coloring bugs vegans". They had to quickly refrain from using this red-colored dye in their products. An ingredient list may not contain "bugs" as a component but "carmine" instead, which consumers don't easily recognize as an insect. Carmine is often listed as E120 and had been used in sweets like Skittles. There is no economically viable method to produce carmine other than grinding up many bugs.



Considerable time was spent on the chemistry of indigo and its geopolitical influence. Indigo plants are green but can release the typical blue color when their leaves are crushed together, releasing the

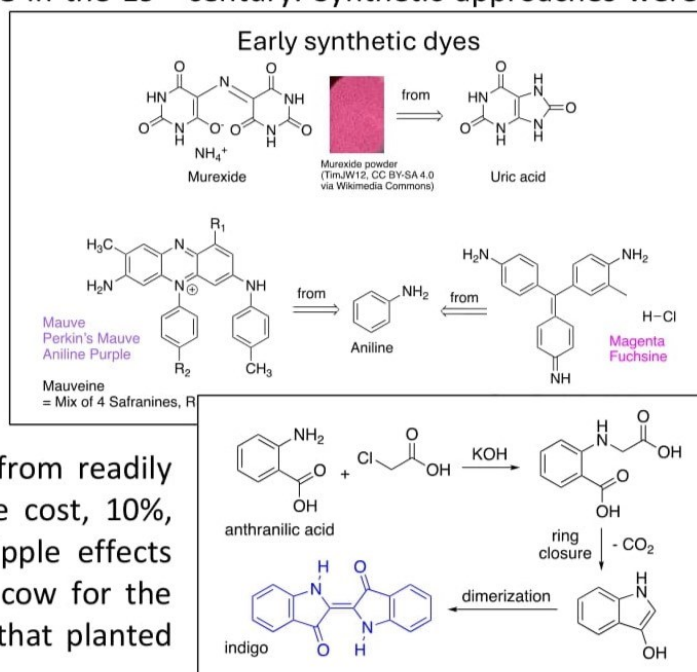
enzyme that catalyzes the formation of its oxidized blue form. Indigo is produced on a large scale, 55,000 pounds each year, and 95% of it is used to dye *Blue Jeans*. A closely related chemical compound, 6,6'-dibromoindigo, was extracted from snails and lead to discussions about how to

describe the color of Tyrian, which is Royal Purple. This color could only be worn by the richest people because it took 10,000 snails to obtain 1 g of the precious dye. In religious text this chemistry was hotly debated, whether it was the “color of the sky at dawn” or the “color of the sky at midnight”. During Orna’s Fulbright in Israel she collaborated with Zvi Koren. HPLC analyses proved that the color was specific to each snail, producing varying ratios of indigo (blue) and 6,6'-dibromoindigo (purple). The two bromine atoms in the latter shift the absorption maximum from blue to purple. She marveled that nature came up with the same template by two very different evolutionary pathways, from two very different species, indigo from plants and dibromo indigo from animals.



Scientists eventually caught on to the opportunities of chemically producing dyes in the laboratory when alternative starting material resources were sparse. After all, who wants to milk a python to extract uric acid? The latter was the starting material for Scheele’s and W. Prout’s synthesis of **murexide** in the 19<sup>th</sup> century. Synthetic approaches were

readily scaled up when unlimited amounts of aniline derivatives from tar could be converted into **mauve** (W. H. Perkins) and **magenta** dyes (A. W. von Hofmann).

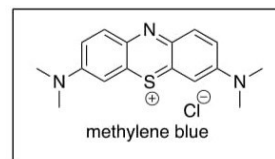


The chemistry of indigo was the first example with major geopolitical consequences about how color changed the world. The natural dye extraction on Indian plantations was labor-intensive and exploited peasants who spent hours crushing plants. However, once Adolph von Baeyer succeeded at synthesizing indigo from readily available anthranilic acid for a fraction of the cost, 10%, compared to naturally extracted dyes, the ripple effects became obvious. India was no longer a cash cow for the British to exploit leading to the indigo revolt that planted the seeds for India’s fight for independence.

The dye industry made colorful fashion accessible to the masses by replacing costly natural dyes with modern synthetic methods. There was an expansion of the German dye industry, which, in turn, led to an expansion of the German university system to meet the needs of hiring well-trained workers. It would eventually have a world-wide effect by raising the educational level of the masses. However, cottage industries had to give way to board rooms. The dye industry became a powerful lobby to promote favorable politics and instituted a modern patent system to protect their rights. Moreover, research became a big business and allowed Germany to dominate and carry on in two World Wars. The Haber-Bosch process played a pivotal role. It fixed stable N<sub>2</sub> in the air into ammonia and gave Germany power and independence. Eventually the knowledge of turning dyes into explosives was converted into using dyes for making drugs in the post-war era.

Biological and biochemical applications of dyes were also addressed. Walther Flemming noticed

that certain cell portions would take on dyes and called it chromatin. Wilhelm von Waldeyer-Hartz renamed them as “chromosomes”, linking dyes to genetics. Paul Ehrlich, a chemist and physician, was fascinated with color and developed diagnostic tools to differentiate various tissues.



Methylene blue could selectively stain nerve cells. And, of course, chemical substances with a high affinity to diseased tissues would give rise to chemotherapy to eliminate the disease with a “magic bullet”.

Orna pointed out that in an unregulated market, it was possible for bakers to attract children with their colorful creations even though they contained toxic inorganic chemicals such as orpiment, blue vitriol, vermilion, lead white, litharge / massicot, realgar or Paris green. Many food colors were toxic until whistleblowers changed the rules. For example, Frederick Accum published a treatise to combat the use of toxic food colors. It wasn't until 1906 when Harvey Wiley supported the landmark *Pure Food and Drugs Act*. Its successor was the USDA and its protective regulations to protect citizens from harmful food additives.

Orna concluded that color chemistry changed many different worlds, that of art, fashion, politics, economies, education, medicine, and, overall, the history of the 19<sup>th</sup> and 20<sup>th</sup> centuries. One notable comment in the Q&A session was her response to how she became interested in chemistry. It all began when her younger brother received a chemistry set for Christmas, after which a “hostile takeover” ensued; her passion for chemistry began and the rest is history.

On a personal note, I have known Mary Virginia Orna for some time. My presentations at ACS HIST symposia resulted in my contribution of a book chapter for “**Food at the Crossroads: Chemistry's Role in Sustainability, Past & Present**” that she co-edited (ACS Symposium Series, 2020). Throughout the day I observed her embracing every interaction with students, staff and science colleagues. She encouraged everyone to stay in touch with her via email at [maryvirginiaorna@gmail.com](mailto:maryvirginiaorna@gmail.com).

Her visit to Kalamazoo at WMU was preceded by a visit to Eastern Michigan University and followed by a presentation at Grand Valley State University. More background information can be found in our September 2024 issue of *The KalChemist News* (p. 1), or gleaned from Dr. Mary Virginia Orna's Wikipedia page ([https://en.wikipedia.org/wiki/Mary\\_Virginia\\_Orna](https://en.wikipedia.org/wiki/Mary_Virginia_Orna), retrieved 11/1/2024), or from a full issue of the HIST division's publication, "Bulletin for the History of Chemistry", that was dedicated to Dr. Orna's research (Volume 48, Number 1, 2023).



This event was co-sponsored by the Kalamazoo Section of the American Chemical Society, KACS, [www.kalamazooacs.org](http://www.kalamazooacs.org), and the Department of Chemistry at Western Michigan University (WMU).





## Plan to Attend the Great Lakes Regional Meeting in June!



Please make special note of the **2025 Great Lakes Regional Meeting which is to be held in Appleton, WI June 4-6, 2025** — an excellent opportunity to give a presentation to, and network with, other chemists in a more intimate environment than at a National ACS meeting. Visit <https://greatlakesregion-accs.org/event-welcome/Program>.

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### Note the New Policy for Outreach Volunteers Working with Youth

**A note of information from the American Chemical Society for volunteers who do outreach events with young people under 18 years of age;** information about this new policy also appears on the KACS website <https://kalamazooacs.org/guidelines/>.

With National Chemistry Week behind us, and almost 2000 ACS Background Checks complete, the [ACS Youth Protection Policy](#) is in full swing. Remind those who may want to volunteer for an ACS Youth Event to also get their required background screening done. Getting checked is easy – one volunteer marveled that it only took one day for clearance! Sterling Volunteers is conducting checks for all adult volunteers at ACS Youth Events.

Visit the [webpage](#) which includes a tutorial video, procedural information, and FAQs that include details about ACS and co-sponsored event requirements, and screening for student, non-U.S. residents and other volunteers. If you need advice about whether volunteers need to be cleared, send an email to [VolunteerPolicy@acs.org](mailto:VolunteerPolicy@acs.org).

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### Chemistry Reference Books Available

A generous offer of Chemistry Reference Books available to anyone interested in having any or all of them in his/her library. (If interested please contact Lydia E. M. Hines at [lemhwgh@gmail.com](mailto:lemhwgh@gmail.com) and give your name along with reference to the list.)

Organic Functional Group Preparations Vol. 1 Saneller & Kara 1983

Organic Functional Group Preparations Vol. 2 Saneller & Kara 1986

Compendium of Synthetic Organic Methods Vol. 1 Harrison and Harrison 1971

Compendium of Synthetic Organic Methods Vol. 2 Harrison and Harrison 1974

Compendium of Synthetic Organic Methods Vol. 3 Hegedus & Wade 1977

Compendium of Synthetic Organic Methods Vol. 4 Wade 1980

Compendium of Synthetic Organic Methods Vol. 5 Wade 1984

The Chemistry of Amidines and Imidates Patai 1975

The Chemistry of Amides Zabicky 1970

The Chemistry of the Cyano Group Rappoport 1970

The Chemistry of Carboxylic Acids and Esters Patai 1969

The Chemistry of the Azido Group Patai 1971

The Chemistry of the Quinonoid Compounds Vol. 1 Patai 1974

The Chemistry of the Quinonoid Compounds Vol. 2 Patai 1974

Reagents for Organic Synthesis Vol. 1 Fieser and Fieser 1967

Reagents for Organic Synthesis Vol. 2 Fieser and Fieser 1969  
Reagents for Organic Synthesis Vol. 3 Fieser and Fieser 1972  
Reagents for Organic Synthesis Vol. 4 Fieser and Fieser 1974  
Reagents for Organic Synthesis Vol. 5 Fieser and Fieser 1977  
Reagents for Organic Synthesis Vol. 6 Fieser and Fieser 1975  
Reagents for Organic Synthesis Vol. 7 Fieser and Fieser 1979  
Fieser and Fieser's Reagents for Organic Synthesis Vol. 8 Fieser and Fieser 1980  
Fieser's Reagents for Organic Synthesis Vol. 9 Fieser Danheiser Roush 1981  
Fieser's Reagents for Organic Synthesis Vol. 10 Fieser 1982  
Fieser and Fieser's Reagents for Organic Synthesis Vol. 11 Fieser and Fieser 1984  
Fieser and Fieser's Reagents for Organic Synthesis Vol. 12 Fieser and Fieser 1986  
Computer Assisted Structure Elucidation Gray 1986  
Infrared Characteristic Group Frequencies G. Socrates 1980  
Fourier Transform Infrared Spectroscopy Volume 2 Ferraro & Basile 1979  
Fourier Transform Infrared Spectroscopy Volume 3 Ferraro & Basile 1982  
Fourier Transform Infrared Spectroscopy Volume 4 Ferraro & Basile 1985  
Burger's Medicinal Chemistry 4 th Edition Part 1 Wolff 1980  
Burger's Medicinal Chemistry 4th Edition Part 2 Wolff 1979  
Burger's Medicinal Chemistry 4th Edition Part 3 Wolff 1981  
Organic Synthesis Collective V-1 2nd Edition Gilman & Blatt 1941  
Organic Synthesis Collective V-2 Blatt 1943  
Organic Synthesis Collective V-3 Horning 1955  
Organic Synthesis Collective V-4 Rabjohn 1963  
Organic Synthesis Collective V-5 Baumgarten 1973  
Organic Synthesis Collective V-1 thru V-6 Cumulative Index Shriner & Shriner 1976  
The Sadtler Guide to NMR Spectra W.W. Simons & M. Zanger 1972  
Plant & Fungal Toxins Handbook of Natural Toxins V-1 Edited by Richard F Keeler & Anthony T. Tu 1983

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## KACS Calendar

### December

- **December 16, Monday**, 7 p.m.: Executive Committee meeting; contact [Nicole Burke](#)

### January

- **January 13, Monday**, 3 p.m.: Seminar with Michael Van Stipdonk (Duquesne University), WMU Chemistry Building Rm. 1260
- **January 20, Monday**, 7 p.m. (tentative): Executive Committee meeting; contact [Nicole Burke](#)

### February

- **February 3, Monday**, 3 p.m.: Seminar with Nicolai Lehnert (University of Michigan), WMU Chemistry Building Rm. 1260
- **February 17, Monday**, 7 p.m. (tentative): Executive Committee meeting; contact [Nicole Burke](#)