

THE MIDLAND CHEMIST

A publication of the Midland Section of the American Chemical Society

November 2022, Vol. 59, No. 11

Contents

Alma College Student Is a Winner!.....	1
Promoting National Disability Employment Awareness Month.....	2
Woodpecker Chemistry	4
FAQ Sheet About the Updated Midland Section ACS Centennial Exhibit at CMU.....	6
Midland Section ACS Scholarship Fund Update and Encouragement to Give in 2022!.....	7
Upcoming Dates, Events, and Other Updates.....	8

Alma College Student Is a Winner!

Gina Malczewski, Director and Outreach Committee, Midland Section ACS

Madison Anzarut (photo at right), a senior Environmental Science major at Alma College, is \$50 richer after winning a raffle associated with Dr. Angela Wilson's visit to the Midland local section on September 22, 2022.

The visit by ACS President Wilson was primarily intended to celebrate the re-opening of the Midland Section's centennial historical exhibit at Rowe Hall on the campus of Central Michigan University. To encourage attendance at Dr. Wilson's hybrid seminar, *"Everything but the Kitchen Sink: From Transition Metals and the Heavy Elements to Drug Discovery,"* the Midland Section sponsored the raffle of a \$50 Amazon gift certificate to an attendee who signed up online before attending the seminar either virtually or in-person. Dr. Wilson spent the day in various meetings on the Central Michigan University campus, and one such meeting was a discussion of *"Career Pathways"* with students.

Madison is from Midland, where she graduated from H.H. Dow High School in 2020. She has a background in toxicology and environmental health, with an emphasis on environmental justice and equity in low-income areas. Madison is currently investigating higher education in sustainability, climate change, and ecology. "I'm still exploring new interests," she says, "as I am looking forward to hearing back from some graduate schools."

Congratulations, Madison!



Promoting National Disability Employment Awareness Month

Michelle Cummings, Chair, National ACS Committee on Chemists with Disabilities

Editor's note: This article is reprinted, in part, from the October 10, 2022 (Volume 100, Issue 36), issue of *C&EN*, a publication of the American Chemical Society. A version of this article also appeared in the October 12, 2022, issue of *C&EN Weekly Newsletter*, an electronic newsletter provided to members of the American Chemical Society.

Michelle has been an ACS member since 2007 and became an active Midland Section ACS leader soon after joining the organization. Her elected officer positions within the Midland local section include Secretary, 2008-2009; Chair-Elect, 2013; Chair, 2014; Past Chair, 2015; Director, 2016-2018; and Chair, Nominations and Elections Committee, 2019-2020. She is also active in the Midland Section's Women Chemists Committee, among other local section roles.

At the National level, Michelle is a member of the Divisions of Chemical Health & Safety (CHAS), Industrial & Engineering Chemistry (IEC), and Profession Relations (PROF). In 2017, she received the ACS Division of Industrial & Engineering Chemistry Applied Chemical Technology (ACT) Award. She served as an Associate Member of the ACS Committee with Disabilities from 2018 to 2021, and then stepped up as the Chair of that committee in 2021. In 2022, Michelle was named a Fellow of the American Chemical Society.



The American Chemical Society's Committee on Chemists with Disabilities (CWD) adopted a new vision and mission during its 2022 strategic planning retreat. Our new vision is "making chemistry accessible to all," and our mission is "accessibility, inclusion, and respect for persons with disabilities in the chemistry enterprise."

CWD also streamlined its goals, last updated in 2019, to make them more concise and action oriented. We now have three goals: (1) to promote and facilitate awareness, inclusion, and respect for persons with disabilities in the chemistry enterprise; (2) to support internal and external alliances to increase visibility and impact; and (3) to develop, advocate for, and communicate the most effective accessibility resources for persons with disabilities in the chemistry enterprise.

At the ACS Fall 2022 national meeting, CWD focused on creating visibility and impact through three presidential workshops. The first workshop discussed covering and reverse covering – looking at what it is like to feel that you need to mask your disability or to feel that you should accept more accommodation than you need so that others can feel comfortable. The second workshop dealt with invisible disabilities and challenges posed by neurodivergence, traumatic brain injuries, and bipolar disorder. The third workshop explored accommodations that have been put in place for people who are blind or have low vision.

Learning about disabilities and accommodations, as well as gaining the awareness to identify systemic bias, is a marathon, not a sprint. My commitment to allyship grows deeper as I become more involved in the disability community. This year I have learned a substantial amount about neurodiversity, including hearing firsthand the experiences of many strong and resilient neurodivergent professionals in the workforce. These conversations have led me to examine the baseline skills required for successful job

performance. A common practice during recruitment is to determine how an applicant's skills correlate to an existing job. The focus should instead be on how we can design a role to match an individual's strengths. Doing so would unleash the exceptional abilities of every person, whether or not they are neurodivergent. Enabling remote work is an example of how viewing things through this lens could help tap potential. Some people are most productive when they work at home. In explaining a preference for remote work, one person described part of their neurodivergent experience as feeling like every sound is at maximum volume when they work in an open plan office.

As part of CWD's ongoing work toward our goal to improve communication of the most effective accessibility resources, we recently updated the manual *Teaching Chemistry to Students with Disabilities*. The fifth edition will be available on the committee's [website](#) shortly.

A focus of CWD for the next few years will be on making ACS resources more accessible to people with disabilities. We will be developing accessible PowerPoint slides and PDFs and sharing best meeting practices, such as providing a microphone to everyone who speaks in meetings. We will also be working to improve the accessibility of ACS online publications and electronic resources for screen readers used by people who are blind or have low vision. I encourage everyone to pull together to help CWD deliver the changes necessary to improve the accessibility of ACS resources for the benefit of all.

CWD continues to recognize the need for all chemical professionals to have role models. The [CWD Travel Award](#) encourages the participation of undergraduates, graduate students, and postdocs with disabilities by supporting them in making presentations at ACS national meetings. Our committee is also involved with reviewing the nominations for the [WCC Overcoming Challenges Award](#). In addition, CWD is piloting a matching funds grant of up to \$1,000 to help cover accommodation costs at regional meetings. Once this regional pilot is complete, it is expected that more funds will be made available for local and divisional activities. Through the CWD-sponsored ChemLuminary Award, the committee also continues to recognize outstanding efforts of ACS local sections and divisions that support CWD's mission.

Our committee is passionate and excited about chemistry, and its members continue to use our unique skills to drive inclusivity throughout ACS membership and beyond. We are an enthusiastic group that enjoys personal interaction, so feel free to reach out via our email address (cwd@acs.org) to find out more information or share your journey.

CWD invites all people with disabilities who are working in the chemical sciences or who aspire to study or work in them to contact us. We also welcome the interest and support of all educators, employers, and colleagues. For more information, please call the ACS Office of Society Services, 800-227-5558, or send an email to cwd@acs.org.

The views expressed in this article are those of the author and not necessarily those of *C&EN* or the ACS.



Woodpecker Chemistry

Mark Jones, Director and 2020 Chair, Midland Section ACS

Editor's note: This article is reprinted, in part, from the Thursday, November 3, 2022, issue of *ACS Industry Matters Newsletter*, an online news publication of the American Chemical Society. At the National ACS level, Mark Jones is a member of the ACS Committee on Public Relations and Communications and the National Historic Chemical Landmark Committee. In this article, Mark speaks to his yearly battle with woodpeckers and how organic peroxide chemistry is involved.



My yearly battle with the woodpeckers bent on destroying my house is now in full swing. As the days shorten, the hairy and downy woodpeckers start aggressively attacking the house's cedar siding. It is a time when I am particularly grateful for chemistry, an integral part of my yearly fight with the woodpeckers.

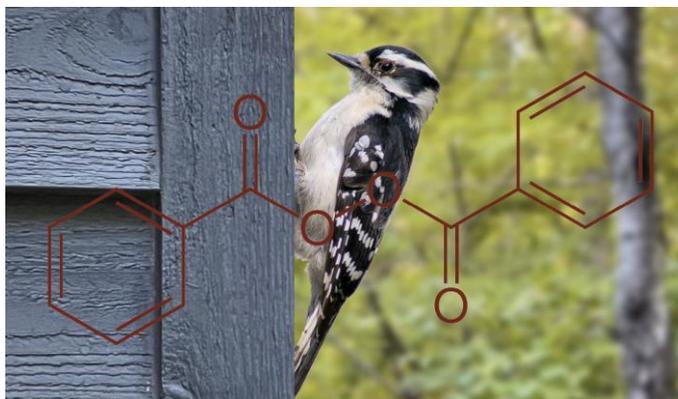
For anyone that jumped to the conclusion that I'm poisoning woodpeckers, relax, I am not. The woodpeckers are safe and sound.

I've tried many solutions over the years. The one I've settled on makes me grateful for chemistry. I use chemical tools to repair the damage, a reactive, unsaturated polyester wood filler. It is a two-part system that hardens in mere minutes. Mixing resin with a dab of hardener gives me only a few minutes of pot life. I can seal a hole in the cedar siding with a plug as hard or harder than siding itself in the time it takes me to descend my ladder. By the time I ascend again, it is ready for paint. All the other solutions I've tried required days of drying and reapplication. I'm not particularly scared of heights, but I do possess the good sense to fear falling. The rapid cure of the wood filler enables the fewest trips up and down the ladder. For that I am grateful, and grateful for the chemistry that enables it.

The resin I purchase is a mixture of an unsaturated polyester resin and styrene. The data sheets are a bit cagey, but an educated guess is the condensation of maleic anhydride and phthalic anhydride with a diol, likely either ethylene or propylene glycol, forms the resin. The styrene present in the mixture provides crosslinking once the chemistry is initiated.

The polyester resin I purchase is a metastable system. These materials happily sit in the can, but they are itching to react. The trigger to initiate the reaction of my wood filler is itself a high-energy material, an organic peroxide. Adding peroxide releases the chemical energy, creating heat as monomers are turned to lower energy polymers.

Peroxides are themselves metastable and are products of some pretty tricky chemistry. The chemical industry produces a variety of peroxides used in polymer and rubber chemistry, medicine, and disinfection. The initiator used in my wood filler is benzoyl peroxide, the same peroxide used in over-the-counter acne medicines. It is handled safely day



in and day out in many sectors of society, yet it is a [dangerous material](#). First, it is hazardous in both skin and eye contact. Its use in acne treatments relies on it both killing bacteria and skin.

Heating benzoyl peroxide can result in an explosion. Hurricane Harvey's assault on the Houston area in August 2017 provided a window into the production of organic peroxides and the inherent dangers. It exposed the bravery of industry workers faced with dire conditions and dangerous materials. It exposed the layers of protection philosophy common in industrial safety. It also exposed how failures can still occur.

The staff at Arkema's Crosby, TX, site knew the hurricane was coming. The organic peroxides made at the site were, like all peroxides, thermally unstable. Safe storage and handling required refrigeration. Back-up generators are one of the layers of protection present on the site. Loss of utility power should not have been an issue. Chemical production benefits from increasing scale. It is the primary way costs are reduced throughout the chemical industry. As Harvey pounded Houston, scale became a problem. Scale meant there was a concerning large inventory.

A little bit of a thermally unstable compound heating up is a problem. Large amounts of thermally unstable material heating up is an event. Harvey knocked out utility power and soon rising waters flooded the generators. Faced with large quantities of warming, thermally unstable products, there was a plan. The next layer of protection was refrigerated trailers. Inventory was moved from buildings into trailers, each with its own refrigeration system. The [CGI movie created by the Chemical Safety Board](#) details the actions taken and where they fell short.

The flood waters ultimately swamped the layers of protection, flooding the fuel tanks and wrecking the refrigeration. The inevitable decomposition and fires happened. [The large column of black smoke made the news, another toxic chemical story](#). The CSB report paints a more positive than negative picture. Safety was thoughtfully considered. Plans were in place and followed. Communication with emergency personnel was occurring. A 100-year flood would have been no problem. Same as for a 500-year flood. Harvey was bigger.

[Felony charges for reckless emission of air pollutants](#) were filed by Harris County, the county where the plant is located. In October of 2020, it was dismissed with no convictions. Civil trials continue. [Arkema contends](#) the events were a result of a natural disaster. They state the employees acted heroically. The CSB report leads me to the same conclusion.

The video and reports are worth a look. They provided me with new respect for the industrial workers tasked with making peroxides. As I am typing this, the woodpeckers are pecking at my cedar siding. I'm thankful for the peroxides and those that produce them. My go-to solution for living with woodpeckers relies on them.



FAQ Sheet About the Updated Midland Section ACS Centennial Exhibit at CMU

Gina Malczewski, Director and Outreach Committee, Midland Section ACS

“A Century of Science and Service,” Rowe Hall 124, Central Michigan University

1. What is the Midland Section American Chemical Society (ACS) exhibit all about?

The exhibit discusses the history of the Midland Section of the ACS, founded in 1919, and the relationship between the local section needs and activities and the growth of our Mid-Michigan communities. Also celebrated are the outstanding Midland Section ACS members and the Section's contributions to education at local colleges and universities, as well as chemistry awareness across all age levels in our area. Important inventions by ACS members and their global contributions are also highlighted.

2. What target audience is the exhibit designed for?

The exhibit was designed with the general public in mind, to inform as well as to commemorate. Chemists can look up friends and colleagues on the Periodic Table of Elemental Members, but there are also videos of ACS outreach, a presentation on ethics and the breast implant controversy, as well as interactive augmented reality (AR) displays of important molecules, several interesting artifacts, and puzzles for kids to solve.

3. Is the exhibit FREE?

Yes, for unguided visits. Groups are asked to make a small donation. Contact the CMU Museum at 989-774-7165 for more information.

4. If I saw the centennial exhibit in 2019, is there anything new or different?

Yes, there is updated material in the exhibit, the AR experience is new, and there will be rotating displays along the outer perimeter of the museum space, as well as program events in the adjacent space.

5. Where exactly is the exhibit located and when is it open? How long will it be there?

The exhibit is located in Room 124 of Rowe Hall (650 East Bellows Street) on the campus of CMU in Mount Pleasant, MI. It is open from 8:00 AM to 5:00 PM weekdays, or by appointment. The CMU Museum office can be reached at 989-774-3829. Current plans are for the centennial exhibit to stay in place at this location for at least two years.

6. Will there be any special events or educational programs at the exhibit?

Yes, school group tours (or senior tours) can be arranged by contacting Rebecca Petrone at 989-774-3176 or via email at galla1ra@cmich.edu. Alternatively, you can fill out a program request form here: [Century of Science: Program Request Form](#).

7. Who is responsible for the exhibit? What if I have questions?

The centennial exhibit was designed by John Metcalf of Good Design LLC. Content was developed by members of the Midland Section ACS who partnered with the CMU Museum Studies Program. Generous funding was provided by the Herbert H. and Grace A. Dow Foundation, the Rollin M. Gerstacker Foundation, the Midland Section of the ACS, the Charles J. Strosacker Foundation, and

National ACS Corporate Associates. We also acknowledge the renovation efforts funded by CMU that allowed us to accommodate the exhibit at Rowe Hall.

If you have any questions, please direct them to Gina Malczewski (regainmalczewski@gmail.com) and/or to Dr. Jay Martin (marti6jc@cmich.edu).

Midland Section ACS Scholarship Fund Update and Encouragement to Give in 2022! ***Gina Malczewski, Director and Scholarship Committee, Midland Section ACS***

In May of 2021, **Dr. Wendell and Marcia Dilling** (photo at right) issued a challenge relative to growing the Midland Section ACS Scholarship Fund. At that time, they committed \$18,000 of matching money to grow the fund to \$1,000,000 by matching dollar for dollar all contributions made to the fund until it reached the target goal.



To date, there have been six contributions amounting to \$1,980.76, and recently Wendell and Marcia honored their matching donation commitment by submitting a check in the amount of \$2,000 to the Midland Area Community Foundation, the entity that holds and manages the Midland Section ACS Scholarship Fund.

Wendell and Marcia have recommitted to their original pledge and will continue to provide matching money until their contribution reaches \$18,000, or perhaps a little more upon future reflection. The long-range goal remains the same, to increase the Midland Section ACS Scholarship Fund principal balance to \$100,000 to enable offering additional and perhaps larger year-by-year scholarships to well-deserving students across the greater Midland Section ACS region.

Although the current balance in the scholarship fund is a little less than where it stood when Wendell and Marcia issued their matching gift challenge (\$60,458.49 as of mid-September 2022), the investment strategies practiced by the Midland Area Community Foundation remain sound. Since May of 2021, the fund balance has decreased a mere 6.9%, pretty remarkable when considering what many of us have been seeing with the value of our own personal retirement accounts.

Continuing to invest now, when the stock market is in a bear market, means that proportionally lower cost shares of stock can be purchased now that will ultimately produce greater yields when the stock market turns around once again.

The Midland Section ACS has been proud to offer scholarships to deserving undergraduate students majoring in a chemical science since 2002. Annually, two to four scholarships are awarded to candidates who have graduated from a high school in one of the Section's five counties (Bay, Midland, Saginaw, Isabella, and Gratiot), are studying at a Michigan university, and are ideally intending to pursue a career in some aspect of chemistry or chemical engineering. Selections are made by a committee and are based on academics, service and extracurricular contributions, and an essay on the student's sources of motivation as well as future plans. Past scholarship recipients are often highlighted in issues of the *Midland Chemist*.

Awards usually range from \$1,000-2,000, depending on the financial performance of the Midland ACS Scholarship Fund (#399) administered through the Midland Area Community Foundation. A long-standing goal of the Midland Section ACS has been to raise the base amount to \$100,000 to serve more students.

Wendell and Marcia Dilling, both chemists and long-time supporters of the Midland Section ACS, are prepared to continue to help us reach that goal by donating up to \$18,000 as part of a challenge grant to the scholarship fund. **They will match 1:1 any new contributions to the fund at the Midland Area Community Foundation over the next couple years.**

Please consider contributing to this worthwhile cause. **Your donations will help shape the future of chemistry!** If you have any questions about contributing to the Midland Section ACS Scholarship Fund, please call the Midland Area Community Foundation at 989-839-9661. Thank you.

An online donation form can be found through the following link:

[Midland Section American Chemical Society Endowed Scholarship Fund #399](#)

Upcoming Dates, Events, and Other Updates

- November 7 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - November 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- November 9 (7:00 – 8:30 PM) – MSU St. Andrews Family Astronomy Night, free virtual event. Presentation topic: *Galaxies: Island Universes*. Please see <https://standrews.msu.edu/family-astronomy-night/> for more information about these ongoing monthly programs and to access prior archived presentations.
- November 14 (11:59 PM EST) – **Deadline for election of 2023 Midland Section ACS Officers and Board.** Voting will start Monday, October 24, 2022, and will close Monday, November 14, 2022, at 11:59 PM. Watch your email for a ballot.
- December 5 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - December 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- December 19 (4:00 – 6:30 PM) – 2022 Midland Section ACS Volunteer Appreciation event, at Creative 360, 1517 Bayliss Street, in Midland. Save the date; more details to follow. For more information, please contact Robbyn Prange at RPrange@dow.com, or Gina Malczewski at reginamalczewski@gmail.com.
- January 9 (Tentative Date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - January 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771. **Please note: This Board meeting is being held on the second Monday of January, not the usual first Monday of most months due to the New Year's Day holiday.**
- February 6 (Tentative Date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting -](#)

[February 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.

- March 6 (Tentative Date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - March 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- March 26-30, 2023 (Save the Date) – ACS Spring 2023 National Meeting & Exposition, Indianapolis. In-person and virtual hybrid meeting format. Meeting theme: *Crossroads of Chemistry*. For more information about the ACS Spring 2023 meeting, please see [ACS Spring 2023](#).
- April 3 (Tentative Date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - April 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- May 1 (Tentative Date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - May 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- June 5 (Tentative Date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at [Webex Board Meeting - June 2022](#), Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.

The Midland Chemist is published twelve times a year by the Midland Section of the American Chemical Society, P.O. Box 2695, Midland, MI 48641-2695, <http://www.midlandacs.org>. Current and past issues are available at midlandchemist.org.

Volunteer Staff

Vickie Langer
Steve Keinath
Mike Malczewski

Editor (vlanger@dow.com)
Editor (skeinath54@charter.net)
Webmaster (web@midlandacs.org)

Please submit all articles and photographs to the editor at newseditor@midlandacs.org. Neither *The Midland Chemist*, nor the Midland Section, nor the American Chemical Society assumes any responsibility for the statements and opinions advanced by contributors of or to *The Midland Chemist*.

© Copyright 2022 Midland Section of the American Chemical Society

The Midland Chemist is available online with publication notification through an email alert to its readership. If you have any questions or comments about the content of or submissions to *The Midland Chemist*, please contact the editor at newseditor@midlandacs.org.