THE MIDLAND CHEMIST

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Contents

Chair Column

Krishnaja Duvvuri, Chair, Midland Section ACS

Dear Reader,

In this May issue, I am happy to feature an article about the Midland Section ACS Diversity and Inclusion Committee.

About the Diversity and Inclusion Committee

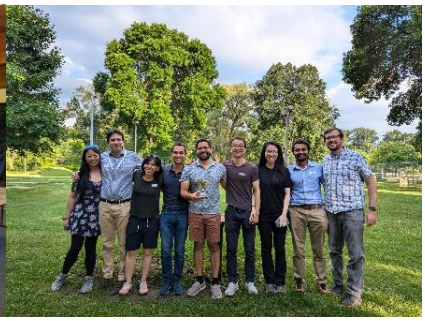
The Diversity and Inclusion Committee was revitalized in 2020 by Anne-Catherine Bedard and is now chaired by Kim Dinh. The Committee aims to engage the community in STEM Outreach for students and professionals with a focus on underrepresented minorities in the Mid-Michigan Region to make chemistry and the broader STEM communities a more inclusive and welcoming community. Notable events include:

- Day in the Life of an Industrial Scientist, which brings approximately 30 college students together with scientists and engineers for a day of problem solving and networking to learn about careers in industrial research.
- Girl Scouts STEM Day, a collaboration with Society of Women Engineers (SWE) and Women Chemists Committee (WCC) to host science demos for approximately 30 to 40 girl scouts in the region.
- Trivia in the Park, an evening of networking and trivia for all scientists.

These events promote STEM, foster connections, and build community. Since our revitalization, we have connected and impacted numerous students and professionals in different ways. A student who attended the Day in the Life of an Industrial Scientist program told us, "*First, I just wanted to say how much I appreciated being able to attend this event as it answered a lot of my questions about Industrial Chemists. I really enjoyed being able to talk with several different mentors of all different specialties to gather as much information as possible on what is needed to work in industry.*"

To learn more about our events, please follow along on our Facebook page: ACS Diversity and Inclusion - Midland Section | Facebook.






Biographies of the 2025 Diversity and Inclusion Committee

Anne-Catherine (AC) Bedard is the past chair of the Diversity and Inclusion Committee and a Research Scientist at Dow focused on high-throughput synthesis and homogenous catalysis. AC holds a PhD from Université de Montreal (Canada) and a post-doctoral fellowship from the Massachusetts Institute of Technology. AC was named the ACS 2025 Volunteer of the Year. She also received the 2023 Midland Section ACS Promotion of Diversity in Chemistry, Related Sciences, and Engineering Award. Outside of work, she keeps busy chasing her two toddler girls around and enjoys various kinds of physical activities!

Kim Dinh is the current chair of the Diversity and Inclusion Committee and an Associate Research Scientist at Dow focused on new process development and heterogeneous catalyst discovery. Kim holds a PhD from the Massachusetts Institute of Technology and was recently awarded the 2025 Midland Section ACS Promotion of Diversity in Chemistry, Related Sciences, and Engineering Award. Outside of work, you can often find her on a golf course.

Alyssa Fielitz is an R&D Leader at Dow. Her technical work is in microscopy and structure-property relationships of soft materials like silicones using electron microscopy techniques. She holds a PhD in Materials Science from the University of Minnesota and a BA in Physics with a minor in English from Mount Holyoke College. Outside of work, she takes dance classes and runs after her toddler, partner, cat, and chickens when she doesn't have her nose in a book.

Valiallah Hosseininasab is a Senior Scientist at DuPont focused on their healthcare and specialty silicone technologies. He holds a PhD from Georgetown University and conducted postdoctoral research at the Massachusetts Institute of Technology.

Justin Massing is an Associate Research Scientist at Dow specializing in process optimization and scale-up within Core R&D. Previously, he was an Assistant Professor at the University of Michigan–Flint, where he led a research program on reaction-based probes and taught numerous lecture and laboratory courses. Justin holds a PhD from the University of New Hampshire and conducted postdoctoral research at Northwestern University. He lives in Midland with his family and enjoys traveling, cooking, running, and playing games in his free time.

Victor Sussman is a Senior Research Scientist at Dow focused on catalyst and process development using heterogeneous catalysis. He holds a PhD from the University of Minnesota and is also active in AIChE, currently serving as a director of the Mid-Michigan Local Section, and the North American Catalysis Society where he is vice president of the Michigan Chapter. Outside of work, you can often find him out for a run or on the ice refereeing hockey.

Juan Venegas is an Associate Research Scientist in Dow Consumer Solutions. His work is focused on new technology development for the production of silicone intermediates. Prior to joining Dow, Juan obtained a PhD from the University of Wisconsin–Madison. Outside of work, Juan enjoys cooking, gardening, and photography. Juan is originally from Bogotá, Colombia, and enjoys introducing his friends to a variety of Latin food.

We are always happy to have more people join our Diversity and Inclusion Committee, and we can be reached at diversity@midlandacs.org.

Midland Section ACS Celebrates Achievements in Chemistry and Related Sciences

Wendy Flory and Tami Sivy, Awards Committee Co-Chairs, Midland Section ACS

The Midland Section of the American Chemical Society gathered on the evening of Wednesday, April 30, 2025, at the Great Hall Banquet & Convention Center, in Midland, for its 34th Annual Awards Recognition Banquet to honor past, present, and future chemists and those who support them. The evening began at 5:30 PM with a cash bar and social time followed at 6:00 PM with a delicious dinner.

Prof. Susan Olesik

Wendy Flory and Tami Sivy, Midland Section ACS Awards Committee Co-Chairs, welcomed everyone and introduced Dr. Susan Olesik, Dean of Natural Sciences and a Distinguished Professor at The Ohio State University, as the evening's keynote speaker. While everyone enjoyed their meal, Dr. Olesik began her presentation on the interesting and informative topic of "The Power and Potential of Chemistry."

The remainder of the evening, beginning around 6:45 PM, comprised the awards and recognition portion of the program. The following individuals were introduced and recognized:

Chemistry Olympiad

Chemistry Olympiad is a multi-tiered competition that brings together the world's most talented high school students to test their chemistry knowledge and skills. Michael Tulchinsky, Midland Section ACS Chemistry Olympiad Committee Chair, introduced nine high-scoring Chemistry Olympiad participants (and their chemistry teachers) and congratulated them for their achievement.

Louis Huang	H.H. Dow High School	Teacher Kristin Weston
Emma Huang	H.H. Dow High School	Teacher Kristin Weston
Anna Gessford	Midland High School	Teacher Jeff Yoder
Colter Mahabir	Midland High School	Teacher Jeff Yoder
Jacob Vaughn	Heritage High School	Teacher Melanie Galonska
Gemma Pace	Heritage High School	Teacher Melanie Galonska
Benjamin Blanco	Mt. Pleasant High School	Teacher Jason Brown
Derek Deans	Mt. Pleasant High School	Teacher Jason Brown
Benjamin Nichol	John Glenn High School	Teacher Jennifer Roller

Outstanding High School Chemistry Students

Eighteen local high school students were honored this year for being outstanding chemistry students as chosen by the chemistry teacher or department at each school. Wendy Flory and Tami Sivy introduced the following group of students, listed alphabetically by their first name, and presented them with their certificates of achievement:

Alexis Gilbert	Bay City Central High School	Andrew Beardsley	Bay City Western High School
Anna Gessford	Midland High School	Ashleigh Lederer	Swan Valley High School
Ashwin Vemury	H.H. Dow High School	Bella Davis	Beal City High School
Cierra Nowicki	Birch Run High School	Ella Mose	St. Charles High School
Kara Cramer	Frankenmuth High School	Kendall Town	Alma High School

Kris Gall	Shepherd High School	Lilian Rice	Coleman High School
Madalyn Hughes	John Glenn High School	Maddylynn DeSmyter	Merrill High School
Matthew Cudejko	All Saints Central High School	Miranda Bloomquist	Breckenridge High School
Violet DePeal	Pinconning High School	Yuxin Yang	Heritage High School

Outstanding College Chemistry Students

Nine outstanding college chemistry or biochemistry students, selected by their respective college chemistry departments, received plaques recognizing their dedication to their studies and achievements. Wendy and Tami again had the pleasure and honor of recognizing this group of students.

Maxim F Kraniak	Alma College	Chemistry
Skylar Medes	Central Michigan University	Chemistry
Mayada Al-Ahmad	Central Michigan University	Chemistry
Jordan Kobielus	Central Michigan University	Biochemistry
Eliza Atkinson	Central Michigan University	Biochemistry
Katarina Hilden	Delta College	Chemistry
Quin Gates	Delta College	Chemistry
Alexis Glumm	Saginaw Valley State University	Biochemistry
Brendan LaForest	Saginaw Valley State University	Chemistry

Outstanding Middle and College Level Science Teaching

While we are pleased to honor our up-and-coming, promising students, we do not want to overlook the importance of the people who have been their teachers and mentors, cultivating the passion of learning within their students and giving countless hours of their own time. Gina Malczewski introduced this year's Outstanding Middle Level Science Teaching award recipient while Bingbing Li introduced the College Level Science Teaching award recipient.

Heather Richards	Bay City Western	Middle School
Stephen J. Juris	Central Michigan University	College

Outstanding Chemical Technician

This year's outstanding Chemical Technician was not presented at the banquet due to prior obligations with his family. He received the award from his work group at a later event.

Benjamin Wendt	Dow Inc.

National ACS 2024 Project SEED Outstanding Mentor

Derek Schoch, a former SEED student, had the privilege of introducing a national award for a 2024 Project SEED Outstanding Mentor.

Anja Mueller	Central Michigan University

Promotion of Diversity in Chemistry, Related Sciences, and Engineering

This year's Promotion of Diversity in Chemistry, Related Sciences, and Engineering award recipient was not presented at the banquet due to a prior obligation. She received the award at a later event.

Kim Dinh	Dow Inc.

Bettye Washington Greene

The Bettye Washington Greene award is one of the Midland Local Section's more recently initiated awards. Liz McQuiston had the privilege of introducing and recognizing the recipient.

Safiyah Muhammad	Dow Inc.

Outstanding Achievement and Promotion of the Chemical Sciences

The Midland Section ACS Executive Committee had a difficult time choosing just one winner this year and decided to honor two recipients with the Outstanding Achievement and Promotion of the Chemical Sciences Award. Bingbing Li had the privilege to present to Ben Swarts while Marc-Andre Courtemanche presented to Dimi Katsoulis.

Benjamin M. Swarts	Central Michigan University
Dimitris Katsoulis	Dow Inc.

50-Year, 60-Year, and 70-Year ACS Members

Each year, the American Chemical Society notifies our Local Section leadership about those members among us who have shown time-honored service, dedication, and longstanding membership in the ACS. This year, Wendy Flory and Tami Sivy had the privilege of recognizing eight 50-year members, four 60-year members, and one 70-year member. Well done, good and faithful members!

50 Years

Pamela Kirchhoff
Dr. Ted Morgan
James Malek
Dr. Ricardo Fuentes
J Esquivel
Dr. Richard Harner
Gretchen Kohl
Dr. Richard Campbell

60 Years

Katherine Weissmann
Dr. Ieva Hartwell
Craig Murchison
Peter Pape

70 Years

Dr. Robert Nowak

Closing Remarks and Special Thank You's

As the co-chairs of this year's Midland Section ACS Awards Committee, we would like to extend our special thanks to the following individuals and groups:

- To Jacob LeCaptain who photographed the Awards Banquet Recognition event.
- To Henry LeCaptain who helped with handing out the student awards.
- To Diana Deese for taking care of the engraving of the plaques.
- To all those who were involved in nominating the award recipients and to those who presented the awards at this year's Awards Banquet Recognition event.
- And finally, to all those who celebrated this event with us this year.

An extensive, complete set of high-resolution photos taken at this year's event may be found at 2025 Midland ACS Awards Banquet.

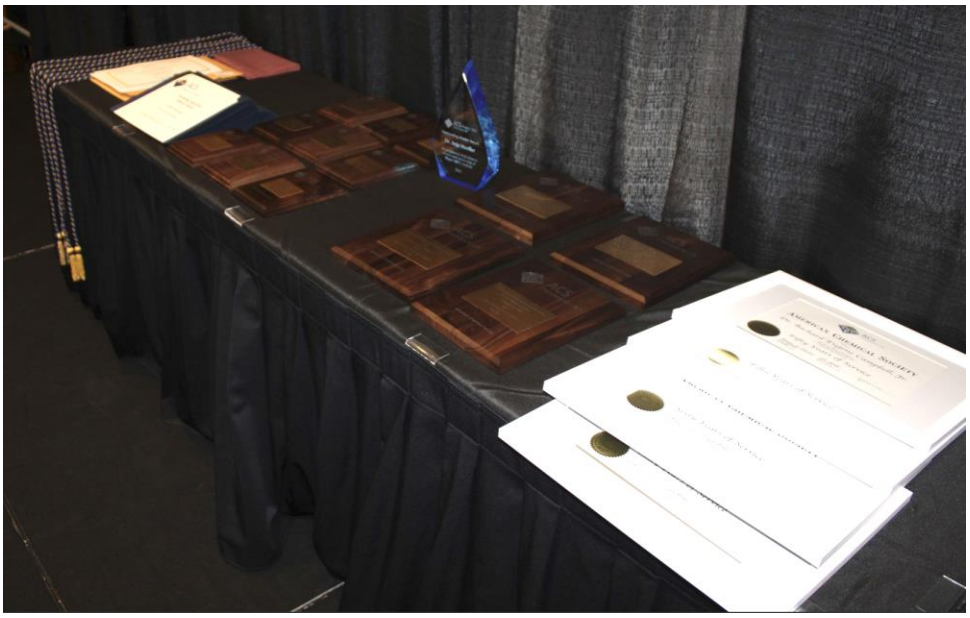
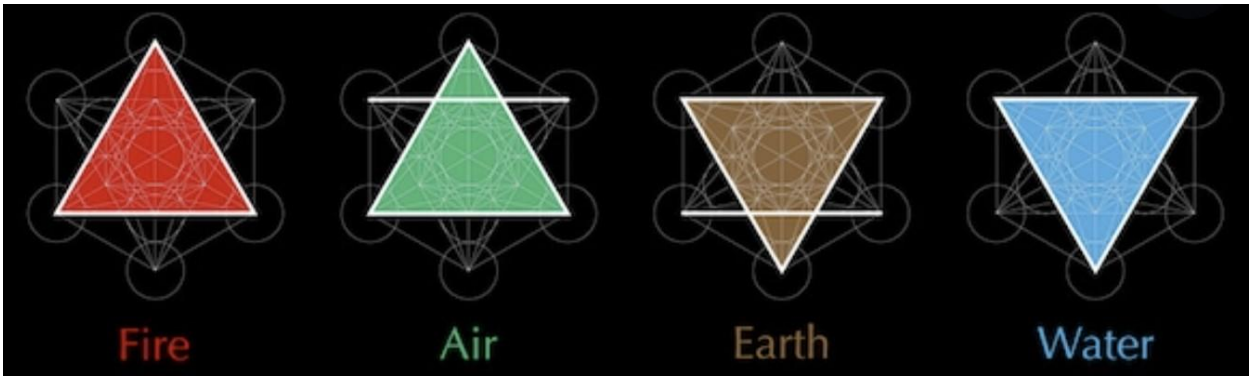


Table with various awards on display at the beginning of the 34th Annual Awards Recognition Banquet event at the Great Hall Banquet & Convention Center, in Midland, on April 30, 2025. College honor cords on the left, various outstanding student and outstanding teacher awards among other awards in the center, and 50-, 60-, and 70-year member plaques on the right.



2025 U.S. National Chemistry Olympiad in Mid-Michigan

Michael Tulchinsky, Chemistry Olympiad Committee Chair, Midland Section ACS

In 2025, the Midland Section of the ACS coordinated two rounds of the U.S. National Chemistry Olympiad (USNCO), including the Local Section Exam and the National Exam. The American Chemical Society (ACS) provided paper copies of the exams for a fee and then graded the National Exam. The chemistry teachers and the Chemistry Olympiad Committee graded the Local Section Exams. As in 2024, students were required to register with the ACS before the Local Section Exam.

The Local Section Exam was held in mid-Michigan the week of March 10-14, 2025, and involved 74 chemistry students from five high schools located in four counties. The chemistry teachers at H.H. Dow High School, Heritage High School, John Glenn High School, Midland High School, and Mount Pleasant High School administered the Local Section Exam. The test included 60 multiple choice problems to be completed in about two hours. Only non-programmable calculators were allowed.

Following the first round of the competition, the Midland Section ACS nominated ten students to the National Exam based on their Local Section Exam performance and the rule that not more than two students can be admitted from the same school. Nine students accepted the nominations and participated in the National Exam at Saginaw Valley State University on April 12, 2025. The students included: Louis Huang and Emma Huang of H.H. Dow High School (chemistry teacher Kristin Weston), Benjamin Nichol of John Glenn High School (chemistry teacher Jennifer Roller), Jacob Vaughn and Gemma Pace of Heritage High School (chemistry teacher Melanie Galonska), Anna Gessford and Colter Mahabir of Midland High School (chemistry teacher Jeff Yoder), and Benjamin Blanco and Derek Deans of Mount Pleasant High School (chemistry teacher Jason Brown). The National Exam included 60 multiple choice questions, eight questions involving problem-solving and explanations, and two experimental problems in a laboratory setting.

The students who participated in the National Exam received invitations to the Midland Section ACS Spring Awards Recognition Banquet on April 30, 2025. They were recognized with National ACS certificates and awarded with ACS honor cords. The chemistry teachers received ACS certificates for the guidance and encouragement given to these students.

Photo 1: The National Exam students after taking the written tests at Saginaw Valley State University (from left to right): Louis Huang, Colter Mahabir, Gemma Pace, Derek Deans, Benjamin Nichol, Anna Gessford, Jacob Vaughn, Emma Huang, and Benjamin Blanco.

Every year approximately 800-1,000 high school chemistry students throughout the country participate in the National Exam. The top-scoring 20 students receive invitations to attend the Chemistry Olympiad Study Camp in June, a prelude for the International Chemistry Olympiad (IChO) competition. The next 50 students receive High Honors, and the following 100 students receive Honors. Louis Huang of H.H. Dow High School received 51 points out of 60 at the Local Section Exam and is a strong candidate to receive Honors or a higher distinction this year. He was the only student from mid-Michigan who received Honors at the National Exam level in 2024.

Photo 2: The National Exam students at the Lab Practical at Saginaw Valley State University (from left to right): Anna Gessford, Derek Deans, Louis Huang, Gemma Pace, Jacob Vaughn, Colter Mahabir, Benjamin Nichol, Emma Huang, and Benjamin Blanco.

Several volunteers helped with the 2025 Chemistry Olympiad program. In collaboration with Dr. Krishnaja Duvvuri, Chair of the Midland Section ACS, the March issue of *The Midland Chemist* included a Chair Column feature detailing the history of the Chemistry Olympiad program in mid-Michigan. Dr. Jonathan Axtell and Dr. Brylon Denman of Dow volunteered as National Exam proctors. Dr. Anthony Revis of SVSU served as the National Exam host and Mr. Bruce Hart put together experimental sets for the Lab Practical. The event proceeded without any safety incidents. Dr. Michael Tulchinsky of Dow coordinated all the activities and recognized the students and their high school teachers at the Midland Section ACS Spring Awards Recognition Banquet.

Photo 3: The National Exam volunteers (from left to right): Drs. Jon Axtell and Brylon Denman of Dow, Dr. Anthony Revis of SVSU, and Dr. Michael Tulchinsky of Dow.

Midland Section Almost Had a Gold Medal Winner in the 2000 International Chemistry Olympiad

Wendell Dilling, Past Historian, Midland Section ACS

Dr. Michael Tulchinsky's article in a recent issue of *The Midland Chemist*, **2025**, *62*, No. 3, p 1-5, reminded me of an event that happened in 2000, the year that I was the Midland Section Chair.

A report in *The Midland Chemist*, **2000**, *37*, No. 6, p 10, recounts the event: "Former Midland Section Chemistry Olympian Wins International Competition. David Kurtz, who took first place in the Midland Section Chemistry Olympiad competition as a high school sophomore, also took first-place honors in the 2000 International Chemistry Olympiad. The international competition, held in Copenhagen, July 2-11, included a field of 212 students from 53 nations. Kurtz is currently a high school senior in Idaho Falls, Idaho."

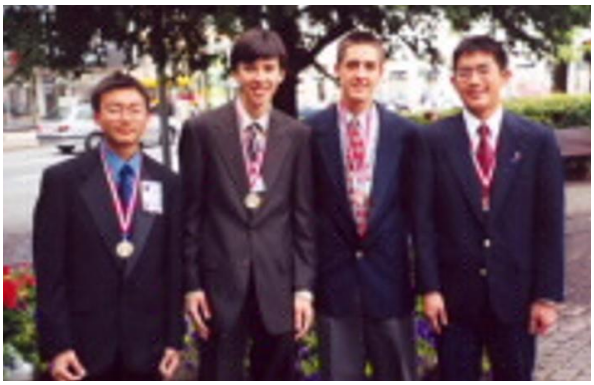


Photo at left: David Kurtz, (top gold), Skyline High School, ID, second from left, with 2000 US Chemistry Olympiad teammates, from left, Charles Duan, (gold), Beverly Hills High School, CA, Luke McSpadden, (bronze), Oklahoma School for Science and Technology, OK, and Albert Wang, (bronze), Bellaire High School, TX.

David's family moved from Midland to Idaho Falls before Davids's senior year in high school. Thus, he competed in the International Chemistry Olympiad as an Idaho resident rather than as a Midland Section representative.

He has moved on and received PhD and MD degrees. He is doing cancer research at Stanford University and has developed and applied liquid biopsies for lymphoma care. A Google search for David Kurtz leads to much information about David and his work.

I remember making an announcement about David's top gold medal at the 2000 Fall Scientific Meeting and feeling some sense of pride.

Photo at right: A recent photo of Dr. David Kurtz at Stanford University.

Earth Action Expo! An Outstanding Public Event for Earth Day 2025

Gina Malczewski, Outreach Committee, Midland Section ACS

On Saturday, April 26, 2025, over 70 exhibitors (not including electric car owners and dealers displaying their cars) joined the Midland Section ACS and our co-sponsors (Dow High Go Green, Midland Center for the Arts, Midland Recyclers, the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE), Chippewa Nature Center, and MSU St. Andrews) at the **Earth Action Expo** from 11:00 AM to 3:00 PM at Dow High School, in Midland.

Stations inside and outside the school building offered e-bikes to try, "plankton races," meet and greets with rescued birds, touch time with sea lampreys, hands-on circuitry on the Delta College STEM bus, jewelry made from seeds, the latest solar and wind technology, local honey and maple syrup, textile upcycling, and many, many earth-friendly crafts and activities. Story time for younger children focused on arctic animals and glacier attributes. Speakers focused on renewable energy, glaciers in Greenland, food waste, and glacier impact on Michigan geography. The weather was a bit challenging, but hundreds braved the wind and chill to learn, do, and experience the broad variety of local STEAM and environmental efforts.

Post-exhibit (3:00-4:00 PM), a number of the environmental groups in attendance congregated for a "Power Hour" to talk about what they are planning, and to engage potential recruits.

At the ACS station, the critical importance of glaciers and aspects of glacier movement and melting were addressed with hands-on activities. The 46 entries that we received for our Illustrated Poem contest on the theme, "Glaciers: Hot Topic, Cool Chemistry," were mounted and displayed in the school's Media Center. (The first prize winners in each age category were sent on to the National ACS competition.)

We were short on volunteers but were extremely grateful to those who stepped up to help. We will review the participant surveys and begin planning for 2026 shortly. (Save the date – April 25, 2026! Theme: "Into the Woods with Chemistry.") If you are interested in sponsoring this wonderful event, or helping in other ways, please contact Gina Malczewski at reginamalczewski@gmail.com.

E-bikes at the Earth Action Expo. Photo by Clare Light.

Inside the Busy Delta College STEM Bus. Photo by Gina Malczewski.

Participants Enjoying Community Flower Planter Painting. Photo by Gina Malczewski.

Wildlife Recovery Owl. Photo by Dave Stickles.

At the Midland Section ACS Activity Table in Dow High School. Photo by Dave Stickles.

ACS Outreach: Always Busy and Always in Need of Volunteers

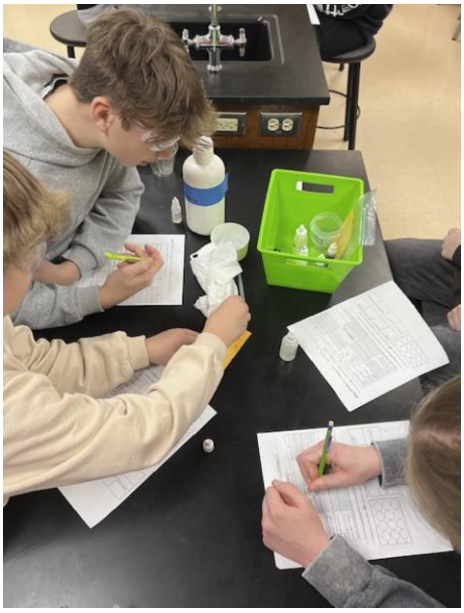
Gina Malczewski, Outreach Committee, Midland Section ACS

The year so far has seen Midland Section ACS volunteers at many events already – Kids' Day at the Midland Mall, Siebert Elementary School (Midland) Science Fair, Essexville-Hampton Community STEM Night at Garber High School, and Jefferson Middle School (Midland) "You be the Chemist" presentation.

We have also been busy in classrooms – Diana Deese has visited Auburn and Hemmeter Elementary (classes included hands-on activities with electricity as well as rocket science). Gina Malczewski has presented at four classes for Bay City Western seventh graders each month of 2025 so far, addressing carbon- and non-carbon polymers, carbon dioxide and its climate consequences, as well as the topic of glaciers. Freeland Middle School special needs classes led by Gina Malczewski participated in activities related to energy transformations and hydrophobicity/hydrophilicity. Dave Stickles and Gina Malczewski have offered density activities and hands-on learning at Highland Pines, in Caro, MI, related to states of matter.

Essexville-Hampton STEM Night. Dave Stickles with attendees. Photo by Gina Malczewski.

Participants at Siebert Elementary with "Glacier Goo." Photo by Gina Malczewski.



Bay City Western 7th Graders Working with Acids and Bases. Photo by Heather Richards.

Alginate Worms at Fashion Square Mall. Photo by Diana Deese.

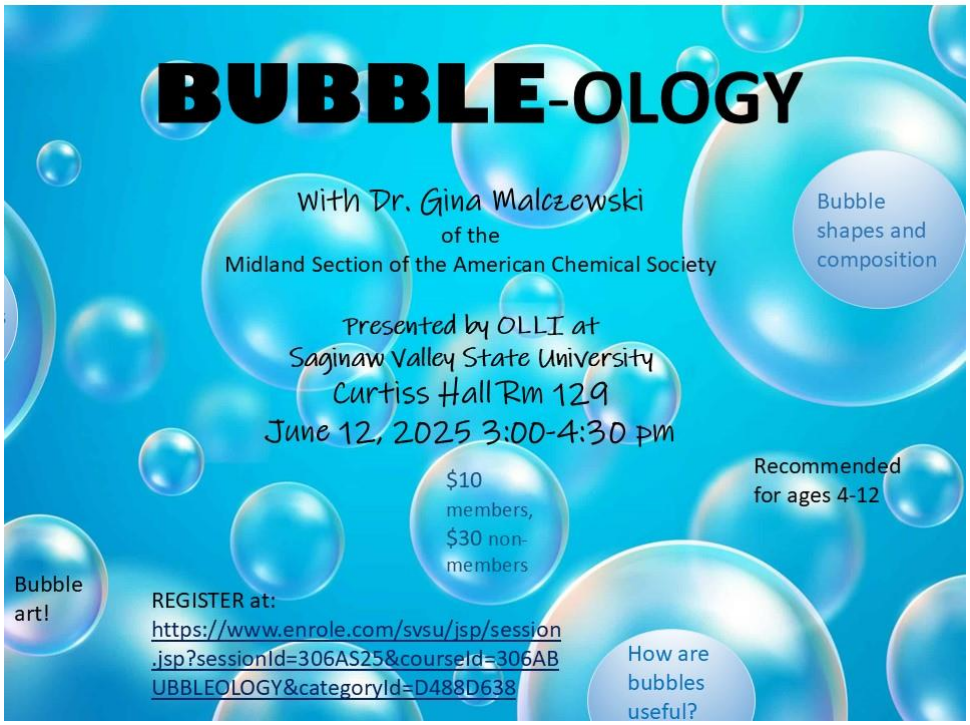
The recent *Earth Action Expo* which required five months of planning with a committee of volunteers from local non-profits, was held on April 26 and is addressed in a separate article (see pages 11 and 12). This community event and others required a number of volunteers to whom we are very grateful.

A week-long FREE Middle School STEAM camp, co-sponsored by MSU St. Andrews, in Midland, is scheduled for June 23-27, from 9:00 AM to 12:00 PM and a few volunteers are still needed. Background checks are required. The theme is *Sniff and Savor Science,* and the camp is full with many interesting and unique activities planned.

Outreach programs continue throughout the summer. Some dates are already set – please see the flyers in this newsletter and keep your eyes on the Midland Section ACS website calendar. Garden activities also begin near the end of May. Please contact Gina at reginamalczewski@gmail.com if you can help or have any questions.

BUBBLE-ology, June 12

Gina Malczewski, Outreach Committee, Midland Section ACS



Are You a pHoodie?, July 17

Gina Malczewski, Outreach Committee, Midland Section ACS

21st Annual MSU ChEMS Department Research Forum, May 6

MSU ChEMS Department, East Lansing

The Department of Chemical Engineering and Materials Science (ChEMS) at Michigan State University invites you to join us at the 21st annual ChEMS Department Research Forum on Tuesday, May 6, 2025. The forum is a full-day event, running from 8:30 AM to 4:30 PM, and will be held at the MSU Union, 49 Abbott Road, East Lansing, on the campus of MSU. This one-day meeting will feature invited plenary speakers, oral presentations from faculty and staff, and extended poster sessions describing the latest department research results.

Please note that this year's ChEMS Research Forum is being held much earlier in the year (May instead of August) than that of the past several Research Forum programs. Please also note that this year's ChEMS Research Forum is being held at a different location than that of the past several Research Forum programs.

The **21st Annual ChEMS Research Forum** will showcase departmental research advances in the areas of:

- Energy and Sustainability
- Nanotechnology and Materials
- Biotechnology and Biomedical Engineering

If you or your company shares an interest in chemical engineering and materials science, then this event offers a uniquely personal and informal view into the general research directions of the ChEMS department, its current research projects, and, most importantly, an opportunity to get to know the many talented graduate students that are at the heart of it all.

To see the full agenda for this day-long event, please go to 2025 ChEMS Research Forum.

Pre-registration for the forum is requested. Please register for the event at 2025 ChEMS Research Forum. For more information, call the MSU ChEMS Department at 517-355-5135, or send an inquiry by email to chems@egr.msu.edu.

Keynote Speakers

Marissa Beatty (left), Founder & CEO of Turnover Labs, Forbes 30 Under 30 in 2024
Xinyue Liu (right), ChEMS Assistant Professor, Forbes 30 Under 30 Asia in 2020.

Marissa Beatty, Founder & CEO of Turnover Labs, Forbes 30 Under 30 in 2024

From Breakthrough to Exit: A Guide to Hardware Startups for Academics and Students

Following initial discovery, there are multiple paths that researchers can take to scale and commercialize technical innovations. Pursuing a hardware startup is one strategy and requires strategic decision-making at every company stage. Successful hardware startups must navigate challenges including company formation, intellectual property licensing, and securing funding through grant support or venture capital. Several skills and resources are required at different company stages to ensure company growth, commercial adoption, customer acquisition, and venture backing. These required skills are frequently evolving as market and customer sentiments shift, making it difficult for first-time founders from academic backgrounds to access and absorb. However, understanding these challenges early and finding avenues for support is essential for transforming hardware breakthroughs into viable, scalable businesses. This talk will give an overview of the general path that hardware startups can take from initial discovery to company exit and cover key decisions and considerations founders should account for in their journey from lab to market.

Xinyue Liu, ChEMS Assistant Professor, Forbes 30 Under 30 Asia in 2020

Designing Polymeric Materials to Modulate Light and Mass Transport for Sustainability and Healthcare

In many chemical and biological systems, surface-limited reactions, characterized by inadequate energy and mass transfer, pose significant barriers to reaction efficiency. The uneven distribution of light, heat, catalysts, and reactants often confines these reactions to a thin surface layer, resulting in suboptimal kinetics and performance. This challenge is particularly pronounced in light-powered and diffusion-controlled processes. In this talk, I will first address the issue of inefficient photosynthetic biomanufacturing caused by limited light penetration in high-density algal cultures, where sunlight absorption is restricted to surface regions. To overcome this, we have developed hydrogel-based waveguides embedded with silica nanoparticles, leveraging both interfacial and bulk scattering effects to enable volumetric illumination. By integrating these light-scattering hydrogel fibers into algal cultures, we achieve deeper and more uniform light distribution, substantially enhancing biomass production rates under both indoor LED lighting and outdoor sunlight. Next, I will discuss our approach to addressing diffusion-limited biodegradation within solid hydrogel matrices. By applying controlled deformations to the hydrogel, we accelerate the mass transport of nano-sized biomolecules and nanoparticles. This promotes enzymatic degradation throughout the entire volume of the hydrogel, transforming the degradation mode from surface erosion to bulk erosion. Overall, these innovations in material engineering demonstrate the potential of hydrogels, and polymer networks more broadly, as versatile platforms for converting low-efficiency, surface-limited processes into high-efficiency, volumetric reactions.

Registration

Pre-registration for the forum is requested. Please register for the event at 2025 ChEMS Research Forum. For more information, call the MSU ChEMS Department at 517-355-5135, or send an inquiry by email to chems@egr.msu.edu.

2025 Turner J. Alfrey Visiting Professor Lecture Series, June 3

Karol Miller, Administrative Assistant, The Axia Institute, MSU St. Andrews, Midland

MSU St. Andrews is pleased to announce the 2025 Turner J. Alfrey Visiting Professor Lecture Series. Our guest lecturer this year will be Prof. Karen I. Winey, Harold Pender Professor of Engineering and Applied Science, Department of Chemical and Biomolecular Engineering, University of Pennsylvania.

Date: Tuesday, June 3, 2025 Time: 9:00 AM to 4:00 PM
Location: MSU St. Andrews, 1910 West St. Andrews Road, Midland
Guest Lecturer: Prof. Karen I. Winey

Prof. Karen I. Winey

About Karen Winey

Karen I. Winey is the Harold Pender Professor of Engineering and Applied Science with a 50:50 appointment between the Department of Chemical and Biomolecular Engineering and the Department of Materials Science and Engineering. Karen earned her Ph.D. in polymer science and engineering from the University of Massachusetts, Amherst, and joined the Penn Engineering faculty after a brief postdoc at AT&T Bell Labs. Karen has made significant contributions to the field of polymer science, particularly in the understanding of and manipulation of unique polymer nanocomposites and ion-containing polymers. She has a strong record of service including as an Associate Editor for *Macromolecules*, Chair of the Division of Polymer Physics within the American Physical Society, Department Chair of Penn's Materials Science and Engineering Department, and a variety of advisory boards.

Research Interests

The focus of the Winey research group is hierarchical and nanoscale morphologies in polymers and connecting these morphologies to the underlying chemical structure as well as the mechanical, thermal, and transport properties of the materials. We employ a variety of experimental and computational tools to probe the structural and physical properties of advanced polymers including X-ray scattering, electrochemical impedance spectroscopy, and time of flight SIMS. Targeting a variety of energy-related and membrane applications, we study and design functional polymers to improve selective ion and proton conductivity. In polymer nanocomposites, our current interests focus on nanoparticle dynamics across a range of time and length scales. Our newest project focuses on polymer-to-polymer upcycling to convert waste polyolefins to higher value polymers. Our dynamic and highly cited research group is currently funded by the National Science Foundation, the Department of Energy Basic Energy Sciences, and industry.

Dr. Hoda Shokrollahzadeh Behbahani

Dr. Hoda Shokrollahzadeh Behbahani

Accompanying Prof. Winey will be Dr. Hoda Shokrollahzadeh Behbahani. Hoda joined the Winey research group as a postdoctoral researcher after completing her Ph.D. in Chemical Engineering at Arizona State University. During her Ph.D. work, Hoda focused on developing innovative solutions to climate change and water scarcity. Her dissertation, titled "Polysulfones for Sustainability Related Applications," explored functionalized polysulfone-based polymers for direct air capture of CO_2 and the development of enhanced, greener desalination membranes. Hoda's research in the Winey group is focused on the characterization

of functional polymers derived from the upcycling of polyolefins, aiming to enhance sustainability and innovate material reuse.

- Lectures will take place in person at MSU St. Andrews, in Midland.
- Networking luncheon included from 12:30 – 2:00 PM in the MSU St. Andrews Rotunda, sponsored by the Midland Section of the American Chemical Society.
- Prof. Winey and her associate, Dr. Hoda Shokrollahzadeh Behbahani, will deliver five, 45-minute talks throughout the day.
- Time will be allowed for Q&A and discussion.

Registration is open now through Sunday, June 1, 2025, by clicking here.

This is a free event, but pre-registration is required to help plan for the networking luncheon. Please share information about this event with others that may be interested in attending. For more information, please contact Karol Miller at mill2785@msu.edu.

Agenda and Lecture Topics:

9:00 AM – Introduction and Housekeeping Items – MSU St. Andrews Staff

9:15 AM – Lecture #1 – Prof. Karen I. Winey
Nanoparticle, Segmental and Chain Dynamics in Polymer Nanocomposites.

10:15 AM – Lecture #2 – Prof. Karen I. Winey
Ionomers and the Impact of Precise Microstructures on Mechanical Properties.

11:15 AM – Morning Break

11:30 AM – Lecture #3 – Dr. Hoda Shokrollahzadeh Behbahani
Polymer to Polymer Chemical Transformations to Produce Specialty Plastics from Waste Polyolefins.

12:30 PM – Lunch Break
Lunch will be served in the MSU St. Andrews Rotunda with food provided compliments of the Midland Section of the American Chemical Society.

2:00 PM – Lecture #4 – Prof. Karen I. Winey
Ionomers and the Impact of Precise Microstructures on Transport Properties.

3:00 PM – Lecture #5 – Prof. Karen I. Winey
Proton Conductivity in Hydrated Fluorine Free Polymers.

4:00 PM – Closing Remarks – Robert Bubeck, MSU St. Andrews

This is a free event, but pre-registration is required to help plan for the networking luncheon. Please register no later than Sunday, June 1, 2025, by clicking on 2025 Tuner J. Alfrey Visiting Professorship Lecture Registration. Please share information about this event with others that may be interested in attending. For more information, please contact Karol Miller at mill2785@msu.edu.

H2O Q Middle School Outreach Volunteer Opportunity

Dale LeCaptain, Councilor, Midland Section ACS

The annual H2O Q event with Midland Public Schools is in need of about a dozen volunteers to guide 7th graders as they explore water quality.

Opportunities include:

- Chippewa Nature Center (outdoors, 3-hour commitments, April 30 and/or May 7)
- Midland middle school science lab (indoors, 4-hour commitment, May 1 and/or May 8)

Additional details here se.cmich.edu/H2OQ

Sign up here [Midland ACS Women Chemist Committee: H2O-Q Water Testing at CNC]

Dale J LeCaptain
Professor | Department of Chemistry and Biochemistry | Institute for Great Lakes Research
Dow Science 350 | Central Michigan University

Great Lakes Regional Meeting (GLRM 2025), June 4-6

Steve Keinath, Co-Editor, The Midland Chemist

Editor's note: The information contained in this article is reprinted, in part, from a National ACS email communication to all ACS members, dated January 23, 2025.

GLRM 2025 will be held from Wednesday to Friday, June 4 - 6, 2025, in Appleton, WI, hosted by the Central Wisconsin and Northeast Wisconsin Local Sections.

This year's theme is ***Chemistry for a Better Planet***. Chemistry has led to hundreds of innovative solutions over the last several centuries and it will continue to do so. Chemistry helps us gain a better understanding of the world around us, in all facets of life – health care, environmental science, and more. Chemistry and the planet are closely intertwined with one another and there are connections at all different levels and scales. With this theme, we hope to encourage curiosity and ingenuity to explore and discover all the possibilities that exist between the two.

Visit the website to find a list of the programming divisions and planned symposia open for submissions.

ACS Fall 2025 National Meeting & Exposition, August 17-21

Steve Keinath, Co-Editor, The Midland Chemist

Editor's note: The information contained in this article is reprinted, in part, from a National ACS email communication to all ACS members, dated January 8, 2025.

This in-person and digital meeting will be held in Washington, DC, and globally from August 17-21, 2025. Please see **ACS Fall 2025**.

This is your chance to share your research with the chemistry community. ACS Fall 2025 brings together chemistry professionals, educators, and students worldwide to discover and share research, network, and advance careers. These meetings are an excellent opportunity for professionals and students to showcase their work and connect with colleagues in all areas of chemistry. Visit the website to learn more about the symposia open for submission.

Joint CERM 2025 and Midland Section ACS 2025 Fall Scientific Meeting, October 16-17

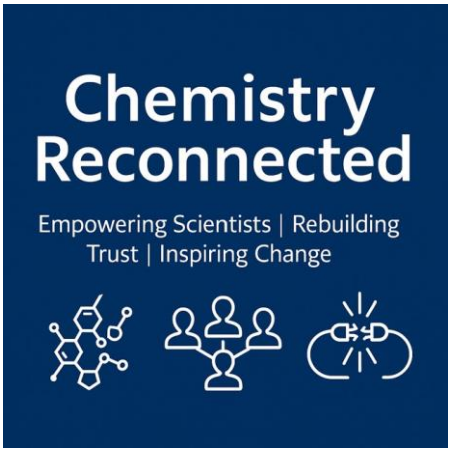
Dale LeCaptain, Councilor, Midland Section ACS

Meeting Theme – Chemistry Reconnected: Empowering Scientists in a Disconnected World

Location – Central Michigan University, Mount Pleasant, MI

Date and Time – Thursday, October 16, 1:00 PM to ?? through Friday, October 17, morning, afternoon, and evening (tentative)

For More Information – Dale LeCaptain, General Meeting Chair, Central Michigan University, lecap1dj@cmich.edu



In a time marked by social fragmentation, misinformation, and growing challenges to scientific integrity, **Chemistry Reconnected** serves as both a call to action and a source of empowerment. This year's joint Central Regional Meeting (CERM 2025) and the Midland Section ACS 2025 Fall Scientific Meeting

(FSM) invites scientists across disciplines – chemists, engineers, educators, and students – to come together in restoring trust, strengthening community, and championing the role of science in society.

Chemistry is more than molecules – it's a force for connection, truth, and change. Let's reconnect science with society – and empower scientists to lead that transformation.

Possible program topics – Artificial Intelligence and Chemistry, Member Education, and Chemistry Reconnected: A Call to Action. Poster sessions will also be part of the joint meeting's programming.

Volunteer Session Leaders are needed. Please contact Dale LeCaptain at lecap1dj@cmich.edu. Thank you.

In Memoriam – Richard Ernest Skochdopole

Steve Keinath, Co-Editor, The Midland Chemist

Editor's note: Dick Skochdopole's obituary notice as it appears here is reprinted, in part, from the Saturday-Sunday (Weekend), February 1-2, 2025, issue of the *Midland Daily News*. Dick joined the American Chemical Society in 1952 and was a 72-year member at the time of his passing. Dick was an active member of the ACS and according to Midland Section ACS Past Historian Wendell Dilling, he served in the following roles from the 1960s through the 1980s – Radio Committee, six years sometime prior to 1964 and chair for one and one-half years; Science Quiz Committee, three years sometime prior to 1964; Nominating Committee, three years prior to 1964 and chair for one year; Alternate Councilor, 1964-1970; Nominations and Elections Committee Chair, 1981; Public Affairs Committee Chair, 1982-1983; Director, 1983-1985; and Executive Committee, 1984.

Richard Ernest Skochdopole died peacefully on December 23, 2024. Dick was born on December 11, 1927, to Albert Otto Skochdopole and Doris (Druliner) Skochdopole in Ravenna, Nebraska. He was raised during the Depression and drought years in Ravenna and applied a mentality characteristic of those years to live an incredibly abundant and generous life. Dick never met a stranger and will be remembered for his willingness and ability to engage in conversation with anyone he met.

He graduated from Ravenna High School in 1945, where he was a student manager for athletics from 1941 through 1945. He attended the University of Nebraska, where he was student manager for the varsity football team for three years. He participated in intramural basketball and softball as a member of the Sigma Phi Epsilon fraternity. Dick graduated in 1949 with a major in chemistry. He received a PhD in Physical Chemistry in 1954 from Iowa State University. While there, Dick met Nancy Ruth McClenahan. They were married on June 27, 1953.

After a year of post-doctoral work, he joined Dow Chemical in Midland in 1955. He advanced to the rank of Associate Scientist while working mainly in research on plastic foams such as Stryofoam and Ethafoam. Dick authored papers and book chapters on plastic foams and had several patents in this area. Later in his career, he worked on the development of engineering plastics. He was awarded Dow Patent of the Year for a patent on filled plastic blends that were used in automobile bodies.

Dick was a 72-year member of the American Chemical Society, a past president of Sigma Xi, and a Society of Plastics Engineers member. He was active in Aldersgate Church (formerly Aldersgate United Methodist Church) as a youth teacher, missions chairman, choir member, and Boy Scout leader for over 20 years. He received the Trail Blazer and Silver Beaver Awards in scouting. He joined the Kiwassee Kiwanis Club in 1978, was president and lieutenant governor, and worked on alcohol and drug prevention programs and youth activities. Dick was active in peace initiatives, including as a member of the Nonviolent Peaceforce and Global Zero.

He had a life-long interest in sports and participated in golf, tennis, skiing, hunting, and fishing. Dick also enjoyed camping, traveling, visiting family and friends, and spending time with his grandchildren.

Dick was survived by his wife of 71 years Nancy (McClenahan) Skochdopole (who followed him in death on January 17, 2025), four children, seven grandchildren, and one great grandchild: Jill (Andrew Smith) of East Ryegate, VT, and their children, Rachel (Tanya Ocker) and Daniel; Todd (Angela) of Savoy, IL, and their children, Megan (Josh Huser) and Nolan (Ella); James (Nancy) of Dallas, TX, and their children, Katherine (Tyler Minnich) and Ellen (William Wolfe); and Mark (Janet) of Manhattan, KS, and their son, Michael; and great-grandson Samuel Minnich. Dick was preceded in death by his brother, Robert Allen Skochdopole.

A celebration of life service and reception for Dick and Nan were held on Saturday, April 5, 2025, at Aldersgate Church (in the morning) and at Creative 360 (later that same day).

Those planning an expression of sympathy may wish to consider the Midland Kiwassee Kiwanis Foundation, the Boy Scouts of America, or Habitat for Humanity.

Smith-Miner Funeral Home (2700 West Wackerly Street, Midland, MI 48640-6957, Phone: 989-832-8844) is honored to be serving the Skochdopole family. To share a special memory please visit www.smithminer.com.

In Memoriam – John Douglas Oleson

Steve Keinath, Co-Editor, The Midland Chemist

Editor's note: John Oleson's obituary notice as it appears here is reprinted, in part, from the Wednesday, January 15, 2025, issue of the *Midland Daily News*. John was no longer an ACS member at the time of his death, but he had been active with the Midland Section ACS for a few years back in the 1999-2002 era. According to Midland Section ACS Past Historian Wendell Dilling, John served as co-chair of the Public Affairs/Environment Committee in 1999; chair of the Environmental Affairs Committee in 2000, a joint activity at that time with AIChE; and then chair of the Environmental Affairs Committee in 2001-2002.

John Douglas Oleson, 88, of Midland, died Friday morning, January 10, 2025, at Bickford Senior Living, in Midland. He was born October 19, 1936, in Wausau, WI, son of the late Douglas John and Elva (Hochtritt) Oleson. On June 6, 1959, he married the former Carol A. Reider in Milwaukee, WI. John was a veteran of the United States Army during the Korean War, stationed in France. After his service to his country, he returned to Wisconsin to attend the University of Wisconsin where he played football and achieved his Bachelor of Science in engineering. John sought employment with Dow Corning as the director of process engineering while furthering his education, receiving a Master of Business Administration from Central Michigan University. He later wrote and published a book entitled *Pathways to Agility*, a book on manufacturing processes in today's market.

An avid Green Bay Packers fan, John is survived by his children: sons, Douglas (Bill Brewer) Oleson of San Fransico, CA, Robert (Connie Gunter) Oleson of Fort Collins, CO, daughters, Mary Elizabeth Oleson of La Crosse, WI, Ann (Dan) Perry of Princeville, HI, and Cathy (Rob Kempf) Oleson of Midland; grandchildren, Abbey Carter and Arjuna Perry; and a brother, Jim Oleson of Scottsdale, AZ. In addition to his parents, he was preceded in death by his wife Carol on March 3, 2016, and a brother, Tom Oleson.

Per John's wishes, cremation has taken place and no services were planned. Those planning an expression of sympathy are asked to consider the Alzheimer's Association.

All of us at Ware Smith Woolever Funeral Home (1200 West Wheeler Street, Midland, MI 48640-2891, Phone: 877-631-2292, www.wswfh.com) are honored that the Oleson family has entrusted us with the care of their loved one.

Upcoming Dates, Events, and Other Updates

- May 1 – H2O Q Middle School Outreach Volunteer Opportunity, indoors at Midland middle school science lab (Northeast Middle School). Please see the article on page 20 for details and registration link.
- May 5 (7:00 – 8:30 PM) – Hybrid Midland Section ACS Board meeting, Rotunda Room, MSU St. Andrews, Midland (in person), and via a Microsoft Teams videoconference call connection at May 2025 ACS Board Meeting Teams Link, Meeting ID: 938 651 597 463 5, Passcode: FV2oA7.
- May 6 (8:30 AM – 4:30 PM) – 21st Annual MSU ChEMS Department Research Forum, Michigan State University, MSU Union, 49 Abbott Road, East Lansing, MI. Please note that this year's ChEMS Research Forum is being held much earlier in the year (May instead of August) than that of the past several Research Forum programs. Please also note that this year's ChEMS Research Forum is being held at a different location than that of the past several Research Forum programs. Pre-registration for the forum is requested. Please register for the event at 2025 ChEMS Research Forum. For more information, call the MSU ChEMS Department at 517-355-5135, or send an inquiry by email to chems@egr.msu.edu.
- May 7 – H2O Q Middle School Outreach Volunteer Opportunity, outdoors at Chippewa Nature Center, in Midland. Please see the article on page 20 for details and registration link.
- May 8 – H2O Q Middle School Outreach Volunteer Opportunity, indoors at Midland middle school science lab (Jefferson Middle School). Please see the article on page 20 for details and registration link.

- June 1 – **Preregistration deadline to attend the 2025 Turner J. Alfrey Visiting Professor Lecture Series** program, Tuesday, June 3, 9:00 AM – 4:00 PM, featuring Prof. Karen I. Winey from the University of Pennsylvania. Please register by clicking on 2025 Tuner J. Alfrey Visiting Professorship Lecture Registration. For more information or any questions, please contact Karol Miller at mill2785@msu.edu.
- June 2 (7:00 – 8:30 PM) – Hybrid Midland Section ACS Board meeting, Rotunda Room, MSU St. Andrews, Midland (in person), and via a Microsoft Teams videoconference call connection at June 2025 ACS Board Meeting Teams Link, Meeting ID: 938 651 597 463 5, Passcode: FV2oA7.
- June 3 (9:00 AM – 4:00 PM) – 2025 Turner J. Alfrey Visiting Professor Lecture Series program, featuring Prof. Karen I. Winey from the University of Pennsylvania. For more details, please see the article on pages 18 and 19. **This** is a free event, but pre-registration is required to help plan for the networking luncheon. **Please register no later than Sunday, June 1, 2025,** by clicking on 2025 Tuner J. Alfrey Visiting Professorship Lecture Registration. For more information or any questions, please contact Karol Miller at mill2785@msu.edu.

- June 4-6, 2025 (Save the Date) – 2025 Great Lakes Regional Meeting (GLRM), Appleton, WI, hosted by the Central Wisconsin and Northeast Wisconsin Local Sections. Meeting theme: *Chemistry for a Better Planet*. For more information, please visit the **GLRM 2025 website**.
- June 12 (3:00-4:30 PM) – Midland Section ACS outreach program, *BUBBLE-ology*, with Dr. Gina Malczewski, Curtis Hall, Room 129, Saginaw Valley State University. To register, go to BUBBLE-ology. For more information or any questions, please contact Gina Malczewski at reginamalczewski@gmail.com.
- June 23-27 (9:00 AM-12:00 PM) – Middle School STEAM Camp, co-sponsored by Midland Section ACS and MSU St. Andrews. Camp theme: *Sniff and Savor Science*. Location: MSU St. Andrews, in Midland. Please contact Gina at reginamalczewski@gmail.com if you can help or have any questions.

- July 17 (5:30-6:30 PM) – Midland Section ACS outreach program, *Are You a pHoodie?*, with Chef Timmi Boxey and Dr. Gina Malczewski, St. John's Episcopal Church, in Midland. To register, go to pHoodie. For more information or any questions, please contact Gina Malczewski at reginamalczewski@gmail.com.

- August 4 (7:00 – 8:30 PM) – Hybrid Midland Section ACS Board meeting, Rotunda Room, MSU St. Andrews, Midland (in person), and via a Microsoft Teams videoconference call connection at August 2025 ACS Board Meeting Teams Link, Meeting ID: 938 651 597 463 5, Passcode: FV2oA7.
- August 17-21, 2025 (Save the Date) – ACS Fall 2025 National Meeting & Exposition, Washington, DC. This meeting will be a hybrid in-person and virtual meeting. For more information, please see https://www.acs.org/events/fall.html.

- September 8 (7:00 – 8:30 PM) – Hybrid Midland Section ACS Board meeting, Rotunda Room, MSU St. Andrews, Midland (in person), and via a Microsoft Teams videoconference call connection at September 2025 ACS Board Meeting Teams Link, Meeting ID: 938 651 597 463 5, Passcode: FV2oA7. **Please note: This Board meeting is being held on the second Monday of September, not the usual first Monday of most months, due to the Labor Day holiday.**

- October 6 (7:00 – 8:30 PM) – Hybrid Midland Section ACS Board meeting, Rotunda Room, MSU St. Andrews, Midland (in person), and via a Microsoft Teams videoconference call connection at October 2025 ACS Board Meeting Teams Link, Meeting ID: 938 651 597 463 5, Passcode: FV2oA7.
- October 16-17, 2025 (Save the Date) – Joint CERM 2025 and Midland Section ACS 2025 Fall Scientific Meeting, Central Michigan University, Mount Pleasant. Meeting theme: *Chemistry Reconnected: Empowering Scientists in a Disconnected World*. See the article on pages 21 and 22 for more details. For more information or any questions, please contact Dale LeCaptain, General Meeting Chair, at lecap1dj@cmich.edu.

- November 3 (7:00 – 8:30 PM) – Hybrid Midland Section ACS Board meeting, Rotunda Room, MSU St. Andrews, Midland (in person), and via a Microsoft Teams videoconference call connection at November 2025 ACS Board Meeting Teams Link, Meeting ID: 938 651 597 463 5, Passcode: FV2oA7.

- December 1 (7:00 – 8:30 PM) – Hybrid Midland Section ACS Board meeting, Rotunda Room, MSU St. Andrews, Midland (in person), and via a Microsoft Teams videoconference call connection at December 2025 ACS Board Meeting Teams Link, Meeting ID: 938 651 597 463 5, Passcode: FV2oA7.

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