THE MIDLAND CHEMIST

A publication of the Midland Section of the American Chemical Society

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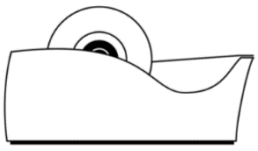
Contents

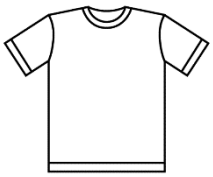
Chair Column – The Gift of Chemistry

Robbyn Prange, Chair, Midland Section ACS

As each year nears its end, I try to intentionally reflect and celebrate. This year, I'm thinking about the intersection of chemistry and the gift giving of Hanukkah, Christmas, and Kwanzaa.



The National Retail Federation forecasts holiday spending to be ~$850 billion, with individuals spending ~$650 on gifts for family, friends, and co-workers. That's a lot of gifts to wrap; an act that wouldn't be possible without the chemistry of pressure sensitive adhesives and release liners. Excluding gift cards, clothing is expected to be the top gift given this year. Whether made from synthetic (e.g., polyester), plant (e.g., cotton), or other fibers (e.g., animal, cellulose), the chemistry to produce an article of clothing and then to wash it is simply amazing. From textile production, dyeing, weaving, finishing— making a ubiquitous t-shirt that is colored, soft, wrinkle-free and resistant to tears, stains and odors would not be possible without chemistry. Indeed, the top ten requested gifts this year would not be possible without chemistry. A few examples: electronics (OLEDs, adhesives, microlithography), home décor (textiles, synthetic leathers, coatings, adhesives), and personal care (rheology modifiers, surfactants, solvents, synthetic fragrances).



These gifts, made possible through chemistry, make me think about how future holiday wish lists might be influenced by our next generation of chemists. And I think about the future chemists who will have entered the field thanks in part to the outreach and education of the Midland Section and our volunteers. In that very real way, you contribute to amazing, life-changing gifts.

I have appreciated the opportunity to have served as the 2021 Chair of the Midland Section. It has been a gift. I have learned and grown through this role and have come to better appreciate the influence our section has on the next generation of chemists.

As 2021 closes out, I invite you to reflect on how you can bring the gift of chemistry to others in the new year, through ACS involvement and beyond. Happy holidays and warm wishes to you and your loved ones.

Regards,
Robbyn

Reference: NRF and Prosper Insights & Analytics October 2021 Consumer Holiday Survey
NRF | Winter Holidays

Midland Section ACS Officers and Board of Directors Elections Results

Shuting Feng, Chair, Nominations and Elections Committee, Midland Section ACS

Editor's note: Initial results from the election of 2022 Midland Section ACS officers and board of directors were printed in the November 2021 issue of *The Midland Chemist*. Updated final certified results are presented here.

The Midland Section elections opened on Monday, October 11, 2021, and closed on Monday, November 1, 2021. Approximately 24% of the membership chose to participate in voting. Thank you to all the nominees and all the Midland Section members!

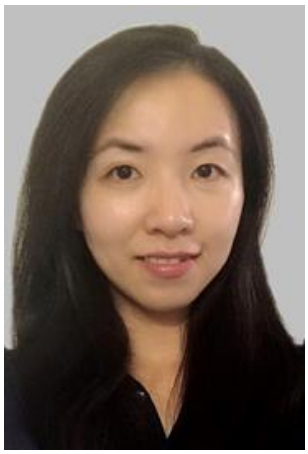
Congratulations to our candidates that have been elected for 2022. You can find biographical information on our elected officers in the October 2021 issue of *The Midland Chemist*.

Chair-Elect: Hunter Woodward

Treasurer: Elena Montoto

Secretary: Krishnaja Duvvuri

Nominations and Elections Chair: Shuting Feng



Director (3-year): Mark Jones

Director (3-year): Leanna Foster

Director (3-year): Michael Servinski

Website Changes and Opportunities

Mark Jones, Past-chair, Midland Section ACS

The Midland ACS Local Section websites have been upgraded. You'll note the new look when you visit midlandacs.org. Changes that can't be seen offer the Section flexibility and room for growth. We've also improved security in several ways after the hacking events of the past year.

All data on the old websites have been retained. Nothing has been deleted. We have operating backups of the old site. We have removed sections of the old site that have not been updated within the past 2 years. Notify the webmasters@midlandacs.org if there is content to be added back to the main site.

We've moved to a platform that allows effectively unlimited websites. Changes made better organize information, increase the ease of back-up, and enhance the user experience. These changes include:

- Creation of the midlandchemist.org site. This clean archive allows easy searching just within only past *Midland Chemist* issues, in addition to providing an organized backup of this valuable history of the Section.
- Creation of an archive site is underway where an organized backup of important Section information can be maintained.
- Migration of the midlandacs100.org site to the new server. This site chronicles the 100-year history of the Local Section, leading up to the centennial celebration in 2019.

Changes made mean that any groups needing a web presence may now be given that presence within the Midland ACS web properties. Producing either subdomains or full sites is easily done. Make inquires to webmasters@midlandacs.org.

Unlimited email accounts and forwarders are also available. Contact webmasters@midlandacs.org to establish either.

Chemists Catalyze Change—Inaugural Push!

Gina Malczewski, Director and Outreach Committee, Midland Section ACS

In alignment with an effort at the National ACS level, and as part of the 2021 National Chemistry Week campaign "Fast or Slow…Chemistry Makes it Go!," Midland ACS set up two sets of opportunities for community volunteering this fall. The program was called "Chemists Catalyze Change."

The first, on November 6, was coordinated with Midland Parks and Recreation, who supported a clean-up along Airport Rd between Lowe's and North Sturgeon (about a mile). Six ACS volunteers picked up trash that included plastics, masks, drink cans, syringes, cardboard, and glass—a total of 16 hours of work. Some of the materials were taken to the Midland Recycling Center.

Several opportunities to do sorting work with the Midland Volunteers for Recycling were also arranged. Ten volunteers including several high school students and two younger children provided at total of 25 hours of effort at the Recycling Center.

Hopefully such projects will recur throughout the year and participation will grow—we thank all those involved who made a difference in our community!

Photo of Wenyi Huang (far right) and daughter Emma Huang (6th grade, Jefferson Middle School) volunteering at the Midland Recycling Center. Photo by Gina Malczewski.

Looking for Electronic Versions of *The Midland Chemist*

Mark Jones, Past-chair, Midland Section ACS

Electronic versions of *The Midland Chemist* are available only back to the year 2000, and some of those are missing. Anyone having electronic versions of old *Midland Chemists* is asked to notify webmasters@midlandacs.org. Please see midlandchemist.org for the missing issues.

Midland Section ACS Receives Seven ChemLuminary Awards for 2020 Programs
Mark Jones, Past-chair, Midland Section ACS

The Midland Section of the American Chemical Society received seven 2020 ChemLuminary awards, once again including Outstanding Section Performance in the Medium Size Category. 2020 presented challenges we hope never to face again. It is gratifying that our reduced programming still received six awards. Once again, the commitment, inventiveness, and creativity of our volunteers are being recognized as some of the best in the nation.

A watch party was held on Thursday, October 21 for the for the 23rd Annual ChemLuminary Awards Ceremony. This virtual event streamed the National award ceremony while participants from Midland were able to talk, celebrate, and interact. The event included a keynote address by Mary K. Engelman, recipient of the 2021 Award for Volunteer Service to the American Chemical Society. Presentations of the ChemLuminary Awards followed. The complete program is now available on the ACS website at www.acs.org/content/acs/en/funding/awards/chemluminary.html.

The ChemLuminary Awards received by the Midland Local Section are:

Outstanding Performance by a Local Section – Medium Size Category Award: The Midland section conducted a series of virtual events using web-based tools to offer hands-on activities to extend our programming to a wider audience. Programs included a well-attended series of virtual seminars on the environment and in the wake of the George Floyd tragedy, a diversity and inclusion seminar highlighting racial injustice impacting their community.

Best New Public Relations Program of a Local Section: The Midland section created excitement for the 50th Earth Day by posting a Facebook countdown with 50 posts. They educated and encouraged thousands of members of the public to take personal action in celebration of Earth Day.

Outstanding U.S. National Chemistry Olympiad: 184 students from nine schools participated. Retiring teachers shared Olympiad experience with new teachers, educating them about the benefits of the program. The section provided recommended chemistry topics to encourage the students to prepare for the U.S. National Chemistry Olympiad.

Best Event or Activity Organized by, or Benefiting, the Applied Chemical Technology Professional Community: The Mid-Michigan Technician group invited chemical technology students and ACS students from local universities to a networking lunch and tour of Dow's Research and Development Campus. Included were presentations, outreach, networking events, and demonstrations regarding chemical technicians.

Outstanding Regional Meeting for 2019 Central Regional Meeting: CERM 2019 was hosted by the Midland Local Section in Midland, Michigan. An estimated 7,000 students participated in CERM's unique Regional Experiment programming during the 2018-2019 school year. The event featured world-class technical programming for both chemistry and public audiences.

Outstanding Ongoing National Chemistry Week Event: The Midland Local Section has hosted events for National Chemistry Week continuously for over 30 years. While the Section typically organizes "walk-by" activities led by students and members, last year was the first time the Section made videos and hosted a virtual poem contest in response to the pandemic and a major flood, which **a**ffected venues, business partners, and event supplies. Midland's virtual celebration of chemistry speaks to their resilience and on-going commitment to STEM outreach.

Outstanding Virtual Event for Chemists Celebrate Earth Week or National Chemistry Week: Pivoting quickly in the wake of COVID-19 shutdowns, the Midland Local Section hosted four Zoom seminars and filmed three educational videos with demos and activities for Chemists Celebrate Earth Week 2020. More than any other section, Midland offered a variety of virtual programs to inform the public on environmental issues, educate across age ranges, promote actions that instill "green" habits, and provide resources for families and educators seeking virtual Earth Day activities.

The Local Section was a finalist for three additional awards. These are Membership Affairs Committee Industry Engagement & Outreach Award, Best Continuing Senior Chemists Activity within a Local Section, and Most Innovative New Activity or Program in a Local Section

Knowing When to Kill a Project, and Knowing When to Fight to Save a Project

Mark Jones, Past-chair, Midland Section ACS

Editor's note: This article is reprinted from the Thursday, December 2, 2021, issue of *ACS Industry Matters Newsletter*, an online news publication of the American Chemical Society.

Knowing when to kill a project, and knowing when to fight to save a project

Dimi Katsoulis shares a wealth of key insights from his 33 years with Dow

Dimi Katsoulis, Principal Research Fellow,
Dow Performance Silicones

Dimi Katsoulis joined Dow in 1988 after receiving a PhD from Georgetown University in inorganic chemistry. He is a principal research fellow at Dow Performance Silicones, supporting corporate growth by developing sustainable new technology platforms in silicones and silicone-organic hybrid materials.

During his 33-year career with Dow, Dr. Katsoulis has served as:

- satellite leader of Central R&D group in Yamakita, Japan
- principal investigator in cooperative research and development agreement projects with NIST, FAA, US Navy, and the Air Force Office of Scientific Research
- interim director of the Polymer and the Solid-State Program at NSF
- member of Dow Corning's Technical Advisory Board

His areas of technical expertise include metal oxides, silicone resin science and resin design, sol-gel chemistry, composites, and films. And his current research focus is in homogenous and heterogeneous catalysis, synthesis, and processing of organosilanes. Dr. Katsoulis has been granted 64 US patents and has published 77 peer reviewed articles. He is Fellows of ACS (2021) and AAAS (2018), as well as a member of NAE (2017).

Your story is one of taking a very fundamental approach to understanding a technical issue and using that understanding to create very successful products. Many industrial scientists feel they can't invest the time to gain fundamental understanding. What advice do you have for early career professionals regarding fundamental studies?

When it comes to making products, the fundamental approach to understanding technical issues ensures sustainable competitive advantage.

In an industrial environment where the bottom line is the generation of value via sales of products, it is imperative to have in-depth understanding of the inter-relationships of performance (of the product in the application), to the properties of the material(s) (in the product), to the structure and composition of the components, and the process required to generate the product.
Achieving understanding of these relationships requires investment of time and focus on the fundamentals. Even if one is first in the market with a successful product, the competition will attempt to enter quickly by identifying gaps in the technology, which are usually reflected in the patent claims. The concepts of "new and improved" or "differentiation" can only be achieved when good science and technology support the product line. Patent claims will be much more insightful and difficult to undermine.

Importantly, as well, by having a good grasp of the fundamentals, one gets early notice of the limitations of the product (or technology) and can devise a prudent change of course to continue to address market needs with new products (or different technologies). The fundamental studies must be directly coupled to a technology gap (need) that, when addressed successfully, removes barriers, which prevent entering and participation in the market application space.

For mature, and even for younger industries, two types of fundamentals must be pursued.

1. **Fundamentals that are foundational to the science and technology that the industry is based on.** A healthy R&D organization will always maintain fundamental work on its foundational technologies. Early career professionals can learn very quickly from the senior technical leadership what the foundational technologies are for the company and the fundamental work that is needed to keep maintaining competitive advantage of the technology.

2. **Fundamentals that are specific to a technology or a product line.** For these, the timing and the extent of fundamental studies depend on the specific technology and products. Early career professional should be paired with senior R&D personnel who have mature judgement of where fundamental understanding "connects" with the technology or the product to get advice and guidance for the work.

In some instances, products can be successfully launched via 'an empirical approach, and the need for fundamental work appears soon after, and in other instances the technical gap has been identified and must be closed to allow for successful commercial success. One should always question what these gaps are and how impactful their resolution would be to the product success. As the experience of the professionals increases within the industry it becomes easier to make the judgement call and to prioritize where fundamental work should be funneled at any time to maximize the value and impact.

Can you describe a case where focusing on the fundamentals didn't deliver the hoped-for results? How did you know when to call it quits? How did you manage the situation with the business leaders?

In my career, more commonly, I was faced with situations where focusing on the fundamentals revealed limitations or issues on the technology or the product concept that was pursued, and provided the justification for dropping (stopping) the particular approach and the project.

Some common reasons for calling it quits were the high cost of the approach or inferior performance when compared with competitive technologies and alternative approaches. Focusing on the fundamentals was very advantageous in these instances as it helped us "fail fast," which is an important guiding principle in business. Naturally, technical and business leaders agreed about the output and the role of the fundamentals in these cases. The fundamental knowledge that was developed was captured and documented properly in the company's reports.

Proper documentation is an essential and critical task. I have seen many times technical issues and analogous product concepts resurface, even many years later. And thus, I learned to appreciate this underexploited knowledge and frequently witnessed its utility at a later time.

In contrast, I have also witnessed circumstances where fundamental studies had weak or indirect association (links) to the technology and/or product to be developed. Then their value was marginal or non-existent. It is in these cases where senior technical leadership can provide early guidance through internal peer review to either strengthen the hypotheses or make the necessary course correction. The type of projects that come to mind and fall under this category are the Holy Grail type of projects, and those who focus on "model systems." More often than not, practical reality is far away from these projects.

What about the inverse, where the business wanted to move on, but you remained convinced success was soon to come? Any advice on keeping a project alive when others are ready to abandon?

Everyone in industrial business knows that the R&D time window and the business time window differ. The latter is usually much shorter. The longer span of synchronization of these timelines, the more harmonious the business and technical relation is and the probability for success in the marketplace increases.

Healthy R&D organizations recognize upcoming technology trends and have the foresight to start technical work on the underlying science, so that it can be ready when business and customers come to them demanding solutions and products. In my career, I have experienced these situations. Sometimes we started R&D work way early and invested resources in fundamental and applied work, and then we had to stop when the business lost patience and was not willing to keep funding the work any longer.

The market came much later (in two instances, 20 plus years later). In one instance we were fortunate to have retained the expertise and knowledge, and we were able to restart with minimum penalties. In the second instance we almost had to start from the beginning, although we had all the prior knowledge documented internally. Things had taken a different trajectory.

I do not think there is a magic bullet as an answer for these circumstances. One has to make a call where one believes things are heading and take action. It is part of the risk and reward nature of the business. The only areas where there should be continuity of the fundamental work without disruption, as I mentioned above, are the areas of the foundational technologies, which are the core of the particular industry. It is the responsibility of the senior technical leaders to educate the business leaders of the value of these technologies and advocate for their ongoing investment.

The areas where you've ventured cover several different technology areas. I see catalysis, polymer design, and more. Many appear far removed from your thesis training. How do you approach a new problem in an area where you have limited knowledge?

Very frequently in industry, employees find themselves in scientific fields that are not within their "comfort zone." Business growth relies increasingly on complex technologies, which command multidisciplinary approach and a variety of skills and expertise.

When I joined the company as an inorganic chemist to work on aluminum and zirconium metal oxides, I quickly realized that these were just a periphery technology for a company that was founded on silicon and siloxane chemistries. I realized at the time that I would quickly need to broaden my knowledge if I were to succeed in R&D. My feeling was proven correct, as three years after I joined, the aluminum-zirconium business was sold and the company maintained its core focus on silicon chemistry exclusively.

The dual nature of the siloxane polymer, PDMS, that of inorganic via the siloxane bonds, and the organic via the silicon-carbon bonds was an attractive and convenient bridge to expand from my original metal oxides comfort zone. I was also fortunate to be the last class of R&D professionals to interact directly and in-person with the original pioneer scientists who had developed the foundational technologies upon which the company was established. This strong silicone R&D environment became a school of continuous education for me. I became a devoted student of silicon chemistry, through continuous reading, association, and work with those scientists; readily accepting coaching, mentorship, and guidance; and attending every seminar and organosilicon meetings that I could.

In my experience with industrial R&D, there is minimum or no segregation of disciplines, knowledge, and skills. One works with whomever is needed for the work to succeed. From there on, it became easier to navigate in adjacent fields, and even new fields, by seeking to collaborate and work with those who were experts in these new fields. I needed to be willing to do my part in the collaboration and to obtain education to remain productive throughout the project.

Looking back, I can divide my career into about six or so 5+ year segments. I found each of them to be analogous to a PhD thesis. So, for those early in their career who find themselves in analogous situations, I would suggest viewing the new project as another PhD training and embrace it. It is well worthy, as it will add significantly into professional growth and will increase impact within the organization. I would like to conclude here by emphasizing that in my career as a chemist I found great benefit by direct collaborations with chemical engineers. In my experience, the nature of their training brings pragmatic questions to a project from the beginning.

Who are the mentors that influenced you, what made them good mentors, and how do you approach mentoring others?

The mentors who influenced me most were the first two R&D directors that I encountered when I joined the company, and an MIT professor with whom I collaborated during several of my early years. They took a genuine interest in me, my projects, but also on my personal life as a whole. They provided direct guidance regarding the research work, but also were direct to provide input, privately, when corrections were needed in my behavior to help me navigate within the organization.

It was critically important that they took action to remove obstacles and to back me up. They set up various "tests" (without me knowing at the time) by setting me up in different challenging situations to explore my strengths and determine my weaknesses. They were simultaneously working with me on my short- and long-term career goals.

They gave me advice on how to work with molecules and with people. The latter is more challenging, as everybody knows. They helped me understand the different types of communications when I was discussing technology with business people vs technical colleagues. They shared openly their experiences and issues and challenges that they faced during their careers.

In my current role I have been fortunate to work closely with young talented colleagues, and I take every opportunity to pass along many of the messages that I learned from my own mentors, share my own experiences, and show examples of how to do the work and how to communicate to maximize the company and personal impact.

It is important to also mention how much I benefit from the learnings I obtain from my younger colleagues—so-called reversed mentoring. They help me keep pace with the technological and social changes that are taking place during our times. It does work both ways.

How has your family influenced your leadership style?

During my upbringing, my family, a low middle-class family, instilled in me the principles of hard work, loyalty, integrity, and frankness. My own family today shows me patience, openness, and unconditional support. I do want to believe that these principles and behaviors are reflected in my work and in my interactions with my colleagues and others within the organization.

What is a lesson you've learned that you wished you knew from the start of your career?

The lesson I refer to here I learned early in my career. It relates to the old saying, "It is never too late." During one of my first interactions with a customer, I remember that naively and maybe a bit self-importantly, I mentioned to a manager of the customer company that, "it is never too late to bring him a product solution." (I thought I had the concept in my head and only needed time to execute.)

I vividly remember that he leaned toward me and with a stern voice corrected me: "In business, timing is everything." This interaction has stuck with me, and I witnessed the reality of the statement many times during my career—not only its impact on business, but equally importantly, on technical work. Being either early or late can make a good technical contribution useless.

You worked for a company that was acquired. What were the challenges posed by that acquisition, and what led to your success navigating the transition?

I think that by its nature the R&D function offers advantages over other functions, for example, accounting or legal, in tempering some of the headwinds and the "sour taste" that always accompany these types of acquisitions. So, it is a matter of where one focuses and channels one's energy.

For me, this acquisition opened the opportunity to get involved and explore new chemistry sets (the organic chemistry of Dow), build professional relationships and collaborations with a new set of colleagues, and take

advantage of new and greater capabilities in the lab and instrumentation. Even more importantly, such situations have allowed me to identify the new intersections/synergies that emerge when various chemistry sets and supply chains, such as silicon and organic, are brought together.

I saw great potential in exploring these intersections, and I funneled a great deal of energy to learn and exploit this new space. Both companies can teach and learn from each other on business, science and technology, and eventually new products. As anyone in this business knows, chasing synergies results in bringing out the worst of both sides (making lemonade), but here is where the challenge becomes interesting: exploiting the non-obvious. So, almost six years after the acquisition, I find myself still enjoying my research and making meaningful contributions with new science, technologies, and products.

What is the one personality trait that has been most instrumental in your career success? What trait do you wish you had in greater supply?

I would start with curiosity as the driver to stick with a question/topic and to persevere and to work hard at it until the answer is found. This has helped me undertake challenging tasks and drive them to completion. On the other hand, I think more patience and a more tempered bias style would have been helpful to have in a greater supply.

You are most associated with silicones chemistry. What are the sustainability challenges silicones face and how do you think they'll be addressed?

Silicon chemistry and engineering offer very valuable guiding principles toward the generation of sustainable products and solutions, as well as good options for recyclability of silicone materials. Silicone materials are used in thousands of applications, very frequently in small amounts and in conjunction with many other materials as mixtures or additives. This extensive penetration in all markets is the main challenge that I see on sustainability of silicones. One needs to be able to track the material throughout its useful lifetime, collect it, separate it from the other components, and go through the appropriate recycling or other utilization approaches via a cost effective and efficient manner. It is truly a serious challenge that we must tackle.

Silicones find application where more traditional polymers fail. What applications of silicones have most surprised you during your career, and what nascent applications are you most excited about?

I am still intrigued by one of the earliest applications of silicones: adhesives, sealants, and structural silicone glazing on building facades. Silicones have a unique combination of properties that ensure extensive longevity on building structures under severe conditions of wind and earthquakes.

These properties include great adhesion (with excellent transparency when needed) to substrates, excellent weather and temperature stability, fire resistance, ozone and oxidation resistance, extreme low-temperature flexibility, UV resistance, low reactivity, high gas permeability, and low water/liquid permeability. One can find numerous 40- and 50-year-old structures that are still in fine working conditions. In addition, spectacular designs of new skyscrapers can be made possible by use of silicone sealants and adhesives.

The new technologies that are currently emerging on energy, electrification, healthcare, transportation, and other areas offer new opportunities for silicon-based materials. In addition to numerous recent applications due to electric vehicles, I foresee new application opportunities on lightweight composite structures, taking advantage of the excellent fire-resistant properties of silicones. I also see applications on wearable electronics

(smart e-textiles) and electroactive materials as well as applications based on the optoelectronic properties of nano-silicon and other inorganic silicon alloys and silicides.

As a native Greek, can you share an underappreciated destination in Greece that visitors should be sure to put on their itinerary?

I would suggest places on the mainland outside the main cities of Athens, Thessaloniki, and Patra. One will find thematic and cultural centers and the unique landscape of the mainland amenable to visitors throughout the year, not just the summer. Some examples are Halkidiki (Chalkidiki) peninsula, the Zagori villages on the mountainous northwest of the mainland, Pelion peninsula in the central part of the country, Plastiras Lake in the central mainland, the rock formation of Meteora, and the town of Arachova for winter holidays.

What is a place you can't wait to get back to?

For me, there are two places that I would like to be able to visit again. They are completely different in lifestyle and culture, but each one has made a great impression on me. They are Paris and Tokyo. If I had to pick only one, it would be Paris.

This article has been edited for length and clarity. The opinions expressed in this article are the author's own and do not necessarily reflect the view of their employer or the American Chemical Society.

Midland Section ACS Scholarship Fund Challenge

Gina Malczewski, Director and Scholarship Committee, Midland Section ACS

The Midland Section of the 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.

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 Section has been to raise the base amount to $100,000 to serve more students.

Dr. Wendell and Marcia Dilling (photo at right), both trained chemists and stalwart supporters of our Local Section, are now prepared to help us reach that goal by donating up to $18,000 as part of a Challenge Grant to the Scholarship Fund, which currently stands at $64,953.22.

They will match 1:1 any new contributions to the fund at the Midland Area Community Foundation over the next couple of years ($18,000 X 2 + $64,953.22 = $100,953.22).

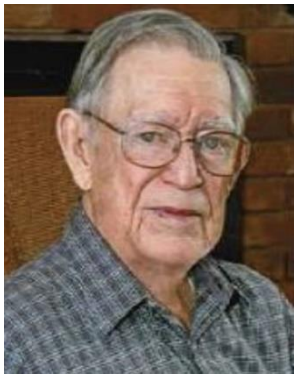
Please consider contributing to this worthwhile cause. **Your donations will help shape the future of chemistry!** If you have any questions about contributing to the Midland ACS Scholarship Fund, please call the Midland Area Community Foundation at 989-839-9661. Thank you.

An online donation form can be found through the following link:
Midland Section American Chemical Society Endowed Scholarship Fund #399

In Memoriam – Robert (Bob) Edward Lemmer

Steve Keinath, Co-Editor, The Midland Chemist

Editor's note: The obituary notice for Robert (Bob) Lemmer as it appears here is reprinted, in part, from the Tuesday, November 16, 2021, issue of the *Midland Daily News*, along with additional information provided in an updated obituary notice from W.L. Case & Company Funeral Directors of Saginaw. Bob joined the American Chemical Society in 1955 and at the time of his passing he was a 66-year member of the ACS.



A life-long resident of Saginaw and retired, longtime Dow Chemical Company employee Robert Lemmer passed away peacefully in his sleep on Sunday, November 14, 2021, at the age of 95 years. The son of the late Benjamin and Caroline Lemmer was born on July 26, 1926, in Saginaw. Robert and his wife, Marie, resided in Saginaw, MI, and retired to Traverse City, MI, with winters spent in Bradenton, FL, and Phoenix, AZ.

Robert is survived by his wife, Marie A. Lemmer, whom he married on October 8, 1960, in Traverse City, MI. He also leaves his son, Richard Lemmer, Beaverton, MI, and granddaughters, Megan and Michelle; his son Scott Lemmer, Hope, MI, and granddaughter, Kayla; his daughter, Diane (Denis) Conroy, Portarlington, Ireland, and grandchildren Aodhan and Niamh, and great-grandchildren, Maison and Kayden; his sister, JoAnn Brechtelsbauer; a sister-in-law, Jean Lemmer; a brother-in-law, John F. Doyle; and several nieces and nephews.

Robert was the Valedictorian of the 1944 graduating class of Arthur Hill High School in Saginaw. He then served in the US Navy as an Aviation Electronics Technician's Mate 2/c and was assigned to the heavy cruiser, the USS Fall River, near the conclusion of World War II. Following his discharge in 1946, he studied at the University of Michigan and graduated second in his chemical engineering class with a Bachelor of Science degree in 1950. His honor societies included Tau Beta Phi, Phi Kappa Phi, and Phi Lambda Upsilon. Robert went on to receive his Master's degree in mathematics from the University of Michigan in 1951.

Robert spent a year working for the Laboratory Division of the FBI in Washington, DC. He then spent the rest of his working career at the Dow Chemical Company in Midland, MI, where he was a highly regarded employee and the recipient of many patents, cash awards, and stock options. Robert's grandchildren were amazed to learn that he was an integral member of the research team that developed Saran Wrap. At the time of his retirement in 1989, Robert was Planning Manager for Research Services for Dow USA Research and Development.

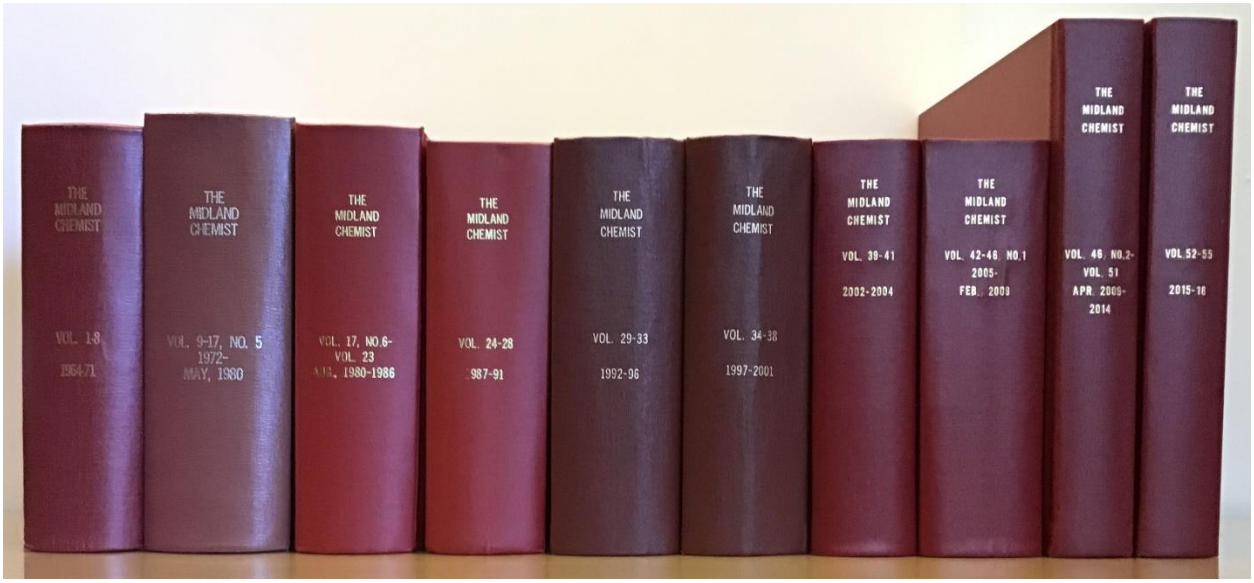
Robert was a member of Countryside Presbyterian Church (now Countryside Trinity Church) in Saginaw, MI, and the Presbyterian Church of Traverse City, MI. Being an elder was only one of many positions that he held in the church. Robert was also an avid member of the Elks Lodge #323 in Traverse City, MI, and a 50-plus year member of the American Chemical Society. In his retirement years, Robert served as an AARP Volunteer Tax Aid. Throughout his life, Robert enjoyed bowling, golf, reading, Bridge, and traveling. All who knew Robert will remember his keen sense of humor.

Cremation has taken place and a memorial service will take place at a later date. In lieu of flowers, those planning an expression of sympathy may wish to consider Countryside Trinity Church, 4690 Weiss Street, Saginaw, MI 48603, or Alzheimer's Association, 225 North Michigan Avenue, Floor 17, Chicago, IL 60601.

W.L. Case & Company Funeral Directors of Saginaw (4480 Mackinaw Road, Saginaw, MI 48603, Phone: 989-793-9700, https://www.casefuneralhome.com/) is honored to assist Robert's family with the funeral arrangements.

In Past Issues of *The Midland Chemist*

Wendell L. Dilling, Director and Historian, Midland Section ACS



From these volumes . . .

50 Years Ago, *The Midland Chemist* **1971**, *8*, No. 8, 6.

In *Midland Section Holds Symposium On Energy Production And Use* by D. R. Petersen, Energy/ Environment Symposium: "On October 1-2, the Midland Section of the American Chemical Society sponsored an important symposium on Energy and the Environment. It was held in the new Midland Center for the Arts and included invited presentations by six distinguished speakers, each a recognized authority in his field. The symposium was

designed to be of interest not only to ACS members, but also to the general public. Special invitations to attend were extended to students in nearby schools and universities, and to federal and state legislators and local government officials."

40 Years Ago, *The Midland Chemist* **1981**, *18*, No. 9, 10.
Under photo of "*14th Central Regional Meeting committee members during a recent planning session* (left to right): Abel Mendoza, Housing and Meals; Wilhelm E. Walles, Exhibits; Cecil Frye, Kipping Symposium; Marion H. Whittaker, Activities; Linneaus C. Dorman, Meeting Facilities; Donald R. Petersen, Finance & Secretary; Wendell L. Dilling, General Chairman; Neal R. Langley, Registration; John Gaul, member, Registration Committee; Carl Snipes, member, Printing Committee; Jim Renga, member, Publicity Committee; Chris T. Goralski, Technical Program; Charles E. Reineke, Transportation. Not Pictured: Joseph E. Dunbar, Printing; Harold G. Fravel., Jr., Publicity; Eldon L. Graham, Social Program."

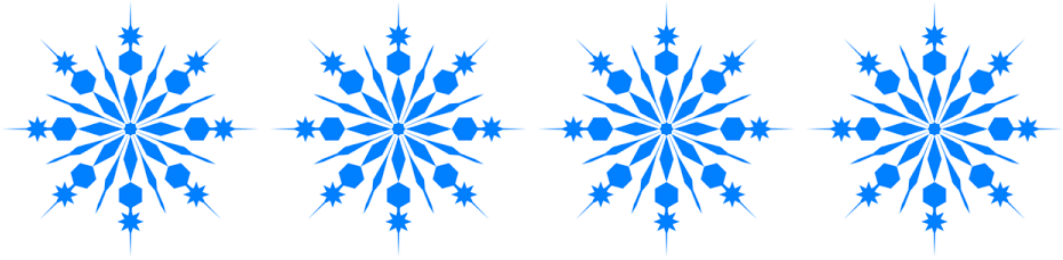
30 Years Ago, *The Midland Chemist* **1991**, *28*, No. 8, 14.
In *Letter to the Editors:* by Wendell L. Dilling and Linneaus C. Dorman, Midland Section Councilors: "We would like to congratulate all the Midland Section officers, committee chairpersons and members, and others who contributed to the Midland Section's winning the 1991 ACS Award for Outstanding performance by Local Sections in the medium large section category (for 1990 activities). This award is significant because the Midland Section has had a lot of competition in recent years from other outstanding local sections, primarily the Rochester, Cincinnati, and St. Louis Sections. The Midland Section last received this award for 1973 activities."

20 Years Ago, *The Midland Chemist* **2001**, *38*, No. 8, 26.
In *News and Election Results from MMTG* by Phyllis Anderson: "In August, the Mid- Michigan Technician Group (MMTG) again cosponsored a booth with the Midland Section ACS. This year's theme was "Plastics and Polymers". The event took place on two evenings from 6:00 p.m. to 8:00 p.m. A glass blower entertained the audience while we were setting up the demonstrations. This year's demonstrations included: Pufa-Top Hat, Green Slime, Silly Putty, Swelling Diaper, Invincible Balloon, Synthesis of Nylon, Marshmallow Inflation Polaroid light and Glow Worms. We gave away Coozies with MMTG/ACS logos and glow-in-the dark necklaces.
I am very proud to announce that MMTG received the best overall TAG at the ChemLuminary Awards for 2000 at this year's National ACS meeting in Chicago. This is a very prestigious award and we are very honored to receive it.
We recently held our annual elections. This year we switched to voting electronically. We had a whopping 80% return with no glitches reported."

10 Years Ago, *The Midland Chemist* **2011**, *48*, No. 6, 2.
In *Howell, Murphy, Lane Named National ACS Fellows* by Amy Tesolin-Gee, MC Editor: "The American Chemical Society announced the selection of 213 members as 2011 ACS Fellows; an honor recognizing distinguished individuals for their significant contributions to science, and for providing excellent service to the ACS.
Midland Section members honored by election to the 2011 Class of Fellows are Connie J. Murphy, Dr. Thomas Lane, and Dr. Bob Howell. They were recognized for this honor at the Fall ACS National Meeting in Denver where each received a lapel pin and certificate. The complete list of awardees is available at http://cenm.ag/fellows."

Upcoming Dates, Events, and Other Updates

- December 1 (7:00 – 8:30 PM) – MSU St. Andrews Family Astronomy Night free virtual event. Presentation topic: Double stars, multiple stars, and star clusters. Please see https://standrews.msu.edu/family-astronomy-night/ for more information about these ongoing monthly programs.
- December 6 (7:00 – 8:30 PM) – Hybrid Midland Section ACS Board meeting, Primrose Retirement Community Clubhouse, 5600 Waldo Avenue, Midland (in person), and via a WebEx conference call connection at Cisco Webex Meeting - December 2021. For those attending in person, the evening will conclude with an end of year celebration, networking opportunity for new and old board and committee members, and a volunteer appreciation and recognition period. Drinks and appetizers will be provided. For more information, or to help coordinate and facilitate the post-Board meeting activity, please contact Robbyn Prange at chair@midandacs.org.
- January 3 (tentative date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, tentative location is Primrose Retirement Community Clubhouse, 5600 Waldo Avenue, Midland (in person), and via a WebEx conference call connection at Cisco Webex Meeting - January 2022.
- February 7 (tentative date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, tentative location is Primrose Retirement Community Clubhouse, 5600 Waldo Avenue, Midland (in person), and via a WebEx conference call connection at Cisco Webex Meeting - February 2022.
- March 7 (tentative date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, tentative location is Primrose Retirement Community Clubhouse, 5600 Waldo Avenue, Midland (in person), and via a WebEx conference call connection at Cisco Webex Meeting - March 2022.
- March 20-24, 2022 – ACS Spring 2022 National Meeting and Exposition, San Diego, CA. This meeting is being planned as an in-person and virtual hybrid meeting. Meeting theme: *Bonding Through Chemistry*. For more information, please see ACS Meetings & Expositions - American Chemical Society.
- April 4 (tentative date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, tentative location is Primrose Retirement Community Clubhouse, 5600 Waldo Avenue, Midland (in person), and via a WebEx conference call connection at Cisco Webex Meeting - April 2022.
- May 2 (tentative date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, tentative location is Primrose Retirement Community Clubhouse, 5600 Waldo Avenue, Midland (in person), and via a WebEx conference call connection at Cisco Webex Meeting - May 2022.
- June 6 (tentative date) (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, tentative location is Primrose Retirement Community Clubhouse, 5600 Waldo Avenue, Midland (in person), and via a WebEx conference call connection at Cisco Webex Meeting - June 2022.



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