THE MIDLAND CHEMIST

A publication of the Midland Section of the American Chemical Society

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Contents

Chair Column

Joel McDonald, Chair, Midland Section ACS

Chemistry is a science that binds. We in the American Chemical Society are enthusiasts of the field and admirers of its utility. I have made great bonds with its practitioners and specialists – many of which are members of the Midland Section – who have taught me of its elegant fundamentals and incredible applications. I attribute my ACS involvement to these friends, and I am excited and honored to give a little bit back to the organization and our broader community as the Chair of the Midland Section of the ACS in 2022.

I was born and raised in Midland. Growing up here gave me an appreciation for the chemistry of materials, and the scientists and engineers that invent them and tune them for the benefit of society. Many of my family members worked in and around Dow – in labs or in offices – and they shared their stories with great frequency and enthusiasm. They advertised the virtues of new products, debated the company's direction, and celebrated the impact "the Dow" had on our community and the world at large.

I selected Physics as a field of study inspired in large part by my grandfather who was a physicist at Dow, and a close friend's father who was a physicist at Dow Corning. First at Alma College and then at the University of Michigan, my interest in physics evolved from the fundamental to the applied, and I eventually completed a dissertation that mixed optics with material science. From there I was fortunate to land a Postdoctoral Scholar position at Sandia National Labs where I worked on energetic materials, picking up some exciting chemistry along the way, in particular the exothermic arts of mixing metals. When my wife, Melissa, and I had our first child we decided to move closer to home. I was lucky enough to find and fill an open role at Dow Corning, and in 2010 made the move back to Midland, back to my hometown to try my hand at the distinctly fascinating and uniquely challenging world of silicones.

The projects at Dow Corning were similarly stimulating – exploring Si-based materials for energy storage and LED lighting. Patient mentors taught me the chemistry and properties of siloxanes, and I learned – as many of you have as well – that our teams thrive when we bring together scientists and engineers with diverse backgrounds and expertise to solve challenges. Chemistry is at the heart of what we do in these teams – new molecules, new materials – and we make them better by getting input from across the spectrum of knowledge represented by the scientists in our region. Following a stint as Dow's R&D Strategy Leader, I have now found a new set of chemistries to learn in Dow Coating Materials where I am the Director of Application Development and Technical Service.

As Chair of the Midland Section ACS, I plan to focus on three areas: Programming, Membership, and Communication. We are fortunate to have a strong foundation in each of these areas, and my objective is to build upon that foundation from the perspective of mitigating challenges associated with the evolving global pandemic. Some aspects of our traditional programming have been stifled by the challenges of these times, and we will revisit and adjust our strategy for events to engage our members and the community both during the remaining months of the pandemic and going forward into the post-pandemic world.

Our local section membership has declined in recent years. We will explore how connecting with local companies and other professional societies locally might raise awareness of the unique benefits of the ACS, while also defining a proactive approach to engaging new members with the new, updated membership fee structure.

Our impact to the community of Midland and the surrounding Great Lakes Bay Region is incredible and recognized frequently with ChemLuminary Awards. I aspire to take the communication of these achievements to the next level, and in particular link the achievements of the local section to the responsible contributors in order to solidify an important aspect of active membership.

I look forward to your feedback and recommendations as we pursue these objectives and appreciate your confidence and support as we embark on another impactful year for the Midland Section of the ACS. And as chemistry binds us, we will stick together to assure the continued impact of our organization through the challenges and opportunities ahead.

ACS Spring 2022 National Meeting – Bonding Through Chemistry

Steve Keinath, Co-Editor, The Midland Chemist

Editor's note: This article is reprinted, in part, from the January 11, 2022, issue of the online *ACS Matters* newsletter, a publication of the American Chemical Society.

Mark your calendars: Registration for ACS Spring 2022 opened on January 17. The meeting theme, "Bonding Through Chemistry," will be at the core of programming for the hybrid event taking place March 20-24, 2022, virtually and in San Diego, CA. Explore the **Schedule-at-a-Glance** to review the overall meeting schedule, including hybrid, in-person, and live virtual sessions along with keynote events, expo hours, and poster events.

Book your housing by February 25, 2022, and receive exclusive rates and benefits by **making your hotel reservations** through ConferenceDirect, the official housing service provider for ACS Spring 2022 in San Diego, CA. Please note that the ACS does not endorse booking hotel reservations through any other sources.

Please note! ACS Spring 2022 will be a mask- and vaccination-required event for all attendees, exhibitors, vendors, and ACS staff who plan to participate at the meeting in-person. Everyone attending in person will need to be fully vaccinated by March 6, 2022, and also will be required to provide a mobile number during registration to complete the proof of vaccination process. For detailed information about the requirements and all other ACS safety measures, please visit the **ACS website**. We look forward to seeing you at ACS Spring 2022 – virtually or in-person!

Let's Celebrate Science Fairs – Tell Us about Your Experiences!

Gina Malczewski, Director and Outreach Committee, Midland Section ACS

Science fairs have a rich history in the Great Lakes Bay region – sometimes required for students, always producing interesting takes on the scientific method, and often addressing questions like: Will plants grow better when exposed to music? Or can you really make a light bulb work with lemons? Such projects are almost a rite of passage in science, and besides involving experiments, they usually require displays, documentation, and interviews – all great learning experiences.

As an ACS member, have you ever participated in a Great Lakes Bay Science Fair? Perhaps as a student you won an award – or did you use your skills to judge a project developed by a budding scientist? If so, please contact us. We would like to celebrate science fairs, document your recollections, and look at how such projects have changed over the years, and perhaps even explore how participation in science fairs may have set a few of us onto our career paths.

Pictures and anecdotes are welcome, and we hope to feature these on our updated centennial website, which was devoted in 2019 to our historical exhibit, but is now being revived for the new exhibit display planned for

Rowe Hall at CMU. (If you have a certificate that we can copy, we could also consider it for an actual exhibit artifact.) The website will focus on various historical aspects of chemistry (and the broader science), highlighting activities, events, and people in the Great Lakes Bay area. If you have a question or a story, etc., that you would like to share, please contact me at reginamalczewski@gmail.com.

ACS Fall 2022 National Meeting – Sustainability in a Changing World

Steve Keinath, Co-Editor, The Midland Chemist

Editor's note: This article is reprinted, in part, from the January 18, 2022, issue of the online *ACS Matters* newsletter, a publication of the American Chemical Society.

NOW ACCEPTING ABSTRACTS FOR ACS FALL 2022

Submit your abstracts for oral and poster presentations for ACS Fall 2022. The meeting theme, "Sustainability in a Changing World," will be the core of programming. Sessions for the planned hybrid meeting will be held in Chicago, IL, and virtually, August 21-25, 2022. Those who wish to submit an abstract will have the option of selecting a virtual or in-person presentation format during the abstract submission process.

ACS Meetings & Expositions bring 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.

While ACS Fall 2022 is planned as a hybrid event, we continue to carefully monitor the situation relative to the COVID pandemic and its potential impacts on the meeting.

Please visit the meeting website to find a list of the programming divisions and planned symposia that are open for submissions. **The deadline to submit abstracts is Monday, March 14, 2022.**

Looking for Electronic Versions of *The Midland Chemist*

Mark Jones, Director and 2020 Chair, Midland Section ACS

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

Specifically, three issues of *The Midland Chemist* are missing from the electronic archive: March 2004, October 2010, and December 2010.

Midland ACS Website Changes and Opportunities

Mark Jones, Director and 2020 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.

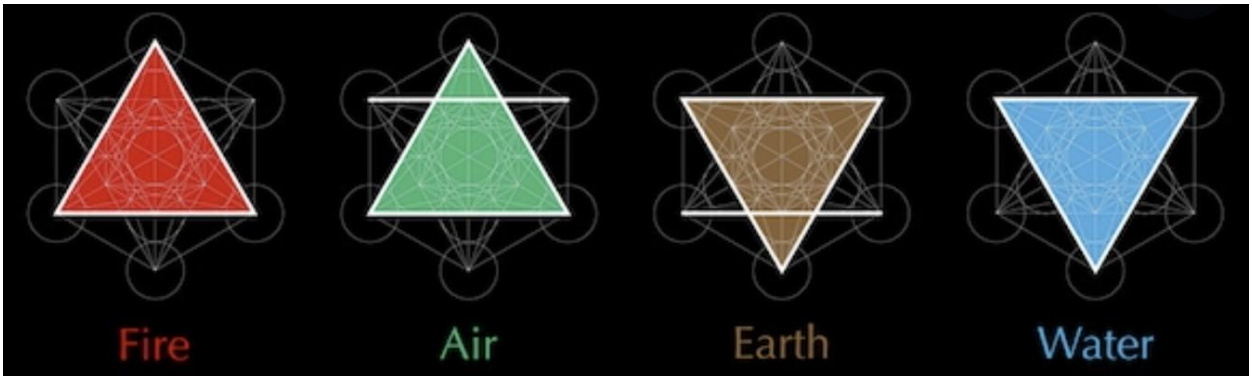
All data on the old websites have been retained. Nothing has been deleted. We have operating backups of the old site. We have removed sections of the old site that have not been updated within the past two years. Please notify the webmasters@midlandacs.org if there is content to be added back to the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

We've moved to a platform that allows effectively unlimited websites. Changes made allow better organization of information, increased ease of back-up, and an enhanced 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. If interested, please make inquires to webmasters@midlandacs.org.

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



Announcing the 2022 Spring Awards Banquet and Call for Nominations

Diana Deese, Awards Committee Chair, Midland Section ACS

The date for the 31st annual American Chemical Society Midland Section Spring Awards Banquet has been set for Wednesday, May 4, at the Great Hall Banquet & Convention Center in Midland, when we will, again, be recognizing outstanding educators, volunteers, and colleagues that you will have graciously taken the time to nominate.

Let's make this event a unique one since it is on May the 4th. Hmm … should I host this awards event as Darth Vader … or Chewbacca? Maybe another Wookie, or Obi-Wan? *"Oh, my dear friend(s) … how I've missed you" – C3PO.*

I promise, Star Wars garb is optional … we usually opt for business casual. Because there have been no awards banquets the last two years due to COVID, I will extend an invitation to the 2020 and 2021 award recipients to allow them to be recognized in front of an audience of their fellow science people and peers, too.

The awards banquet is a great way to connect with others in chemistry and the related sciences. We will recognize students and those in education and industry, … those who have gone before us, those who teach the next generation, and those who will be following in our footsteps. Please consider joining us for a night of good food and great fun!

As always, my goal is to have a representative outstanding student from each high school in the Midland Section area and to have a nominee for each award offered this year. I am counting on your help to make this happen as I know that we have very deserving people in every category! *"There's always a bigger fish" – Qui-Gon Jinn.*

The process of nominating is very easy. The minimum submission criteria for nominations are a quality nominating letter extolling the virtues of your nominee and supporting the criteria of the award, along with one supporting letter of recommendation (two letters are even better). Consider getting your colleagues together for lunch and putting together a packet. If you are in a managerial role and are worried about favoritism, consider nominating 2-3 qualified persons (you will remain anonymous, if required, and nominations are considered for three years). If you would like to be considered for an award, there is the option to self-nominate. If you are a parent, consider nominating your child's outstanding science or chemistry teacher, or a science volunteer you know. *"Fear is the path to the dark side" – Yoda.*

It only takes about one hour to put together an award-winning letter and an additional 15 minutes soliciting supporting letters. Think of what it will mean to that person and how good you will feel about your good deed. *"Do, or do not … there is no try" – Yoda.*

Nomination packets for all awards (except outstanding high school and collegiate awards) must, at a minimum, consist of a current resume or equivalent, and at least one supporting letter in addition to your letter of nomination, all stating why the nominee is deserving of the award with specific examples of professional involvement/growth, contributions to industry, and outside affiliations.

It is highly recommended that the nomination includes a publications and patent list where applicable. Additional letters of support can come from students, parents, community members, and/or administrators. An example nomination letter can be requested from the awards chair via e-mail. *"A cause that was worth it" – Cassian Andor.*

I have listed previous award recipients at the end of this article as nominees must not have received the award that they are being nominated for within the past 10 years. Nominations not meeting the minimum requirements, and submissions received after the March 25, 2022, deadline, will not be considered. *"Now I have nothing" – Maul.*

For those of you sequestered in labs who feel you might not be able to attend unless you nominate someone, I say save the date and come on out for a night of food, fun, and fraternization! Watch for more detailed information right here in *The Midland Chemist*! *"I chose to live for my people" – Riyo Chuchi.*

As always, contact me if you have any questions: Diana Deese, Midland Section ACS Awards Committee Chair (dkdeese@dow.com). *"I am no Jedi" – Ahsoka Tano.*

Call for Nominations: 2022 Teaching, Volunteer, Education, Chemical Sciences Awards

Diana Deese, Awards Committee Chair, Midland Section ACS

Each year, the Midland Section of the American Chemical Society presents awards to recognize outstanding achievement in the chemical sciences. Nominations for the 2022 awards are invited for the following areas:

- Outstanding Elementary Level Science Teaching
- Outstanding Middle Level Science Teaching
- Outstanding High School Chemistry Teaching
- Outstanding College Chemistry Teaching
- Science Education Volunteer of the Year
- Outstanding Achievement in the Promotion of Diversity in Chemistry, Related Sciences, and Engineering ***(Not offered this year; awarded every other year)***
- Outstanding Achievement and Promotion of the Chemical Sciences
- Outstanding Service to the American Chemical Society
- Outstanding Chemical Technician
- Outstanding High School / College Chemistry Students
- Team Innovation Award

Outstanding Science / Chemistry Teaching Awards

Candidates for the teaching awards must be educators at schools in the five-county geographical area of the Midland Section: Bay, Gratiot, Isabella, Midland, and Saginaw Counties. One candidate will be recognized for their teaching contributions in each of the following categories: Elementary, Middle Level, High School, and College.

Science Education Volunteer of the Year

The Science Education Volunteer of the Year award is presented to an individual who makes a substantial contribution to science learning in the Midland Section through voluntary efforts.

Outstanding Achievement in the Promotion of Diversity in Chemistry, Related Sciences, and Engineering (Not offered this year; awarded every other year)

This award recognizes a person or group residing in Midland, Bay, Saginaw, Isabella, or Gratiot County for outstanding achievement in enhancing the participation of under-represented groups in the study of chemistry, related sciences, and engineering. The nomination must come from a Midland Section ACS member. The

criteria for this award include teaching, mentoring, serving as a role model, and active and sustained participation in organizations that support diversity which have had a demonstrable impact on the promotion of diversity in chemistry, related sciences, and engineering. Members of the Midland Section Inclusion and Diversity Committee are ineligible to receive this award.

Outstanding Achievement and Promotion of the Chemical Sciences

Each year the Midland Section honors an individual residing within the Section's geographical area who has demonstrated outstanding achievement and promotion of the chemical sciences. This award recognizes dedication and service to the chemical profession, but the recipient need not be an ACS member.

Outstanding Service to the American Chemical Society

The Section sponsors an annual award to recognize outstanding service to the Midland Section of the ACS. This award recognizes achievement in the promotion of the goals and objectives of the Society. Nominees shall be members of the Midland Section. Nominations should include a history of service to the Midland Section and supporting letters from fellow ACS members.

Outstanding Chemical Technician

The Section presents an annual Outstanding Chemical Technician Award to an individual who has demonstrated an extremely high degree of professionalism as a chemical technician. Nominees must have worked for five years as a chemical technician, or in a related field, and whose primary job includes conducting experimentation or correlating information to help solve chemical problems or discover new chemical knowledge. The nominee must have successfully completed a two-year post-high school level chemistry curriculum leading to an associate degree, the equivalent course in a baccalaureate program, or equivalent experience. Chemical technicians do not need to be an ACS member to be eligible for this award. Nominations should include outside affiliations. *Request the National ACS nomination form from the awards chair to nominate in this category.*

Outstanding High School / College Chemistry Students

The Awards Committee also recognizes outstanding chemistry students at the high school and collegiate levels. Those students should be selected by their respective departments, and their names forwarded to the Awards Committee using the form attached to this call for nominations. One selection per school; no supporting letters are needed.

Team Innovation Award

Up to three awards per year recognizing the teams responsible for successful, commercialized product or process innovation taking place in the Midland Section area within the current or previous two calendar years. One award will be reserved for organizations with less than 300 employees. ACS membership is not required. Nominations will be judged on inventiveness, impact (economic, environmental, societal), and connection to the Great Lakes Bay Region. Work done outside the area will be considered provided that the contributions of Midland area-based team members are significant. Press releases or other public announcements are expected to be included with the nomination packets for commercialized products or processes (support letters from company leadership will be accepted in lieu of press releases). A $60 submission fee is required for each team innovation award nomination.

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Recipients of all awards will be selected by the Awards Committee with the exception of the Outstanding Achievement and Promotion of the Chemical Sciences award which is submitted to the Midland Section ACS

Executive Committee for approval. Nominators should write a letter indicating the award and describing the attributes of the candidate.

Nomination packets for all awards (except outstanding high school and collegiate awards) must, at a minimum, consist of a current resume or equivalent, and at least one supporting letter in addition to your letter of nomination, all stating why the nominee is deserving of the award with specific examples of professional involvement/growth, contributions to industry, and outside affiliations. It is highly recommended that the nomination includes a publications and patent list where applicable. Additional letters of support can come from students, parents, community members, and/or administrators.

The deadline for nominations is Friday, March 25, 2022. Nominations not meeting the minimum requirements, and submissions received after the March 25 deadline, will not be considered. Mail or fax submissions are acceptable; *electronic (e-mail) submissions are preferred*. All submissions must be accompanied by the name, position, address, and phone number of the nominator.

Award recipients as well as Chemistry Olympiad winners and Fifty/Sixty/Seventy Year ACS Members will be honored with certificates or plaques at the 2022 ACS Spring Recognition Dinner at the Great Hall Banquet & Convention Center, in Midland, on Wednesday evening, May 4, 2022. These individuals will also be featured in a follow-up article in *The Midland Chemist*.

The Awards Committee greatly appreciates the efforts involved in nominating someone, and wishes to thank you for helping to recognize deserving students, colleagues, and educators in our local section. Please pass this information along to anyone involved in our local science programs!

Now that you realize how exciting it is to nominate someone at the local level and you want to do more, I invite you to peruse the veritable cornucopia of awards that the American Chemical Society offers at the national level. I have listed the web addresses where you can find out more information relative to each award and the criteria for nomination. Now is the time to begin nominations for National ACS awards for 2022-2023 as most annual reviews have a deadline of around November 1.

For example nominations or more detail on any award, please contact Diana Deese. *Electronic submissions are acceptable and preferred*.

Diana K. Deese, Chair, Midland Section ACS Awards Committee, Phone: (989) 636-9915, E-mail: dkdeese@dow.com or awards@midlandacs.org

American Chemical Society – Midland Section

Nomination Form for 2022 Outstanding High School / Collegiate Chemistry Student

(Note: One nominee per school, please)

Dept. Chair or other Nominator: _____

Telephone number: _____

E-mail address (required): _____

School: _____

****

Student's name: (Mr./Ms.)_____
(*Indicate*) (*Please print legibly*)

Home address: _____

Telephone number: _____

E-mail address (required): _____

Student's career/postgraduate plans (if known):

_____

_____

_____

Please return this form to the following address no later than **March 25, 2022:**

Diana K. Deese, ACS Awards Committee Chair, Midland Section
Phone: (989) 636-9915 E-mail: dkdeese@dow.com

Previous Recipients of Midland Section ACS Awards

Diana Deese, Awards Committee Chair, Midland Section ACS

Elementary Level Science Education

1992	Karen Ziemelis
1993	Lela Wade
1994	Constance A. Dullock
1995	Joan Klopcic
1996	Mark Hackbarth
1997	Denise Koppleberger, Cheryl Ruthig
1998	Barbara McGivern
1999	John Clark
2000	Sue Burtch, Robin Harshman-Rogers, Vicki Richard, Clare Jorgensen
2001	Cathy Egerer, Amy Hindbaugh-Marr
2002	Maureen Becker
2003	Leon Katzinger
2004	Joan Roels
2005	Curt Moses
2006	Robin Allen
2007	Diane Huckins
2008	Rachel Pappas
2009	No Recipient
2010	No Recipient
2011	Beth Quimby
2012	No Recipient
2013	No Recipient
2014	No Recipient
2015	Molly Kelsey
2016	No Recipient
2017	Rebecca Field
2018	Suzanne Billette
2019	Nicole Roberts
2020	Amy Crosby
2021	No Recipient

Middle Level Science Education

1992	Derrell Steffen
1993	Laurie Hepinstall
1994	JoAnn Kraut
1995	No Recipient
1996	Barbara J. Bibbee
1997	Gary J. Johnson
1998	No Recipient
1999	No Recipient
2000	No Recipient
2001	No Recipient
2002	Joel Mikusko
2003	No Recipient
2004	Christine Brillhart
2005	No Recipient
2006	Matthew Miller
2007	John Hoving
2008	Mark Koschmann
2009	Carla Piazza
2010	Melinda Coyle
2011	Jennifer Lenon
2012	Jayme Swanson
2013	John Barnes
2014	No Recipient
2015	Mark Hackbarth
2016	No Recipient
2017	Allison Vandriessche
2018	No Recipient
2019	Darci Merillat
2020	No Recipient
2021	No Recipient

High School Chemistry Teaching

1989	Robert Wallace
1990	Gary Ronk
1991	No Recipient
1992	John Clark, Edna Konwinski
1993	Mary Irons
1994	Jo Ann Pelkki
1995	No Recipient
1996	Sandra Schafer
1997	Mary Fredell
1998	Dale Ressler
1999	Robert Enszer
2000	Steven Kelly
2001	William Stokes
2002	Robert Hansen
2003	No Recipient
2004	Doug Grezeszak
2005	Pamela Thompson
2006	Daniel Sealy
2007	No Recipient
2008	No Recipient
2009	Nancy Vossen
2010	Sandra Schafer
2011	David Allan
2012	David Bruessow
2013	Tom Short, Sarah Beery
2014	No Recipient
2015	Jeff Yoder
2016	Lisa Parsons
2017	Kenneth Quackenbush
2018	Jason Brown
2019	Rick Cahoon
2020	No Recipient
2021	No Recipient

College Chemistry Teaching

1989	Joan Sabourin
1990	Bob Howell
1991	Robert Kohrman
1992	Scott Hill
1993	Ajit Sharma
1994	Laura Vosejpka
1995	George Eastland
1996	Martin Spartz
1997	Philip Squattrito
1998	Thomas Delia
1999	Steven E. Keinath
2000	James Hutchison
2001	Sandra Smith
2002	Margaret Hill
2003	Dale Meier
2004	Katherine Blystone
2005	Ronald Sharp
2006	Arthur G. Smith
2007	Cynthia N. Peck
2008	No Recipient
2009	No Recipient
2010	Anton Jenson
2011	No Recipient
2012	David S. Karpovich
2013	No Recipient
2014	David Baker
2015	Estelle Lebeau
2016	Angela McGuirk
2017	Joel & Nancy Dopke
2018	No Recipient
2019	Jeffery A. Turk
2020	Choon Young Lee
2021	Janice Hall Tomasik

Science Education Volunteer of the Year

1992	Gregg Young	2003	John Blizzard	2014	Charles Nielsen
1993	Peter Bonk	2004	Jan Zanyk	2015	Gina Malczewski
1994	Peter Moehs	2005	Eldon Graham	2016	Dennis Klipa
1995	Gretchen Kohl	2006	Tom Chamberlin	2017	Nalayini Kogulan
1996	John Blizzard, Richard Van Effen	2007	Teri Bickmore, Cal Goeders	2018	Wendell Dilling
1997	Marvin Tegen	2008	Tim Drier	2019	Jennifer Reil
1998	Carlton Beyer	2009	Dave Stickles	2020	Michelle Rivard
1999	William Albe	2010	Lisa Thackery	2021	Brett Zimmerman
2000	Karol Childs	2011	Charles & Barbara Roth		
2001	Donald Petersen	2012	Estelle Lebeau		
2002	Joan McMahon	2013	No Recipient		

Outstanding Achievement in the Promotion of Diversity in Chemistry, Related Sciences, and Engineering

(Awarded every other year)

2002	George Gant, Richard Stringfield	2010	Theophilus Leapheart	2019	Karen Carter (CERM Award)
2004	Smallwood Holoman, Jr.	2012	Linneaus Dorman	2020	Anja Mueller
2006	Joan Sabourin	2014	Victor Atiemo-Obeng		
2008	Sandra Parker	2016	Roland Wallace		

Outstanding Chemical Technician

1997	Connie J. Murphy	2007	Debbie Bailey	2017	Stephanie Hughes
1998	David Stickles	2008	Sue Perz	2018	Joseph Harris
1999	Ronald L. Good	2009	Diana Deese	2019	Weston Tulloch,
2000	Kurt A. Bell	2010	No Recipient		Matthew Yonkey
2001	Gordon R. Roof	2011	Amy Tesolin-Gee	2020	Heidi Clements
2002	Cynthia J. Gould	2012	Amber Wallace	2021	Scott Boelter,
2003	Robert Krystosek	2013	No Recipient		Nicholas A. Paulik,
2004	Sherry Allen	2014	Jeff Seifferly		Matt McLaughlin
2005	Bill Rievert	2015	Brian Scherzer		
2006	Margo McIvor	2016	Dana Fuerst		

Outstanding Achievement and Promotion of the Chemical Sciences

1976	Dr. Turner Alfrey, Jr.	1992	Dr. Donald A. Tomalia	2008	Dr. Jack Kruper
1977	Dr. Etcyl H. Blair	1993	Dr. Dale J. Meier	2009	No Recipient
1978	Dr. David C. Young	1994	Dr. Philip T. Delassus	2010	No Recipient
1979	Dr. Vernon A. Stenger	1995	Dr. Duane B. Priddy	2011	Dr. James Falender
1980	Dr. Daniel R. Stull	1996	Dr. Hans G. Elias	2012	No Recipient
1981	Dr. Bob A. Howell	1997	Dr. Ludo K. Frevel	2013	No Recipient
1982	Dr. Wendell L. Dilling	1998	Dr. Patrick B. Smith	2014	No Recipient
1983	Dr. Donald R. Weyenberg	1999	Dr. David E. Henton	2015	Dr. James Tonge
1984	Dr. Edwin P. Plueddemann	2000	Dr. Steven J. Martin	2016	Dr. Ronda L. Grosse
1985	Dr. Raymond P. Boyer	2001	Dr. Edwin C. Steiner	2017	Dr. Mike Ferritto
1986	Stanley P. Klesney	2002	Dr. Thomas J. Delia	2018	No Recipient
1987	Dr. Warren B. Crummett	2003	Dr. Robert M. Nowak	2019	Dr. Jerzy Klosin
1988	Dr. A. Lee Smith	2004	Herbert D. (Ted) Doan	2020	Dr. Chris Goralski,
1989	Dr. Do Ik Lee	2005	Dr. Michael J. Owen		Dr. Brad Fahlman
1990	Dr. Joseph E. Dunbar	2006	Dr. Robert E. Kohrman	2021	No Recipient
1991	Dr. Thomas H. Lane	2007	Dr. Petar R. Dvornic		

Outstanding Service to the American Chemical Society

1989	Dr. David C. Young	2001	Dr. George W. Eastland, Jr.	2013	No Recipient
1990	Dr. Linneaus C. Dorman	2002	Joan Sabourin	2014	No Recipient
1991	Dr. Donald R. Petersen	2003	John Blizzard	2015	Amy Tesolin-Gee
1992	Dr. Wendell L. Dilling	2004	Dr. Steven E. Keinath	2016	Dr. Bob A. Howell
1993	Dr. Bob A. Howell	2005	Ann Birch	2017	Diana Deese
1994	Eldon L. Graham	2006	Dr. Philip Squattrito	2018	Dr. Regina Malczewski
1995	Gretchen S. Kohl	2007	David L. Stickles	2019	Dr. Dale LeCaptain
1996	Fran K. Voci	2008	Connie Murphy	2020	No Recipient
1997	Dr. Thomas H. Lane	2009	No Recipient	2021	Michelle Cummings
1998	Vicky S. Cobb	2010	No Recipient		
1999	Dr. Theodore E. Tabor	2011	No Recipient		
2000	Drs. Peter & Patricia Dreyfuss	2012	No Recipient		

Team Innovation Awards

2020 Dow Consumer Solutions: Hand Sanitizer for COVID-19 Response
Dow Performance Silicones: SILASTIC™ Moldable Optical Silicone
Impact Analytical: Leachable and Extractable Studies
2021 DuPont Nutrition and BioSciences: Increased Capacity for the Growing Meat-Alternative Vegetarian Market

Additional, Special Awards

2016	Corporate Leadership Award	Andrew N. Liveris	Dow Chemical Company
2017	Special Recognition (Kaliapparat)	Steven E. Keinath	Michigan Molecular Institute (retired)
2018	Special Recognition (Through a Different Lens)	Thomas H. Lane	Dow Corning Corporation (retired)
2019	Special Recognition (Chair, 2019 CERM)	Dimi Katsoulis	Dow
2019	Special Recognition (Chair, 100th Anniv. Cmte.)	Gina Malczewski	Dow Corning Corporation (retired)
2019	Special Recognition (Hospitality Star)	Emily Deese	Michigan State University
2019	Special Recognition (Section Centennial Cert.)	David Young	Dow Chemical Company (retired)
2019	MI Governor's Senior Volunteer Service Award	Gina Malczewski	Midland Section ACS

Midland Section ACS Salutes to Excellence Awards

2001 Thomas Lane
2005 Water Warriors (Ogemaw Heights High School), Eldon L. Graham, Chris Powley, Debra Green, Anne DeBoer, Richard Anderson, Max Bottomley, Harold Moll, Russel Tree, Jr.
2006 Norman Delisle, John Safranksi, Jr., Richard Anderson, Max Bottomley
2008 Harold Moll, Russel Tree, Jr., Norman Delisle, John Safranski, Jr.
2009 Saginaw Spirit Hockey Club, Bob Moyer, Nancy Vossen, Vicki Behe, Steve Gribble
2010 Linda K. Dielman
2013 David Allan
2015 Sue Perz, Anatoliy Sokolov, Jaime Curtis-Fisk, Aaron Gaertner
2016 Dow Corning Corporation, Cassie Fhaner, Wendy Flory, Gretchen Kohl, Diana Deese
2017 Mike Garlick (Dr. Slime), Michael Tulchinsky, Adrianne Cole, Brian Brutyn, Sean V. Murray
2018 Dorian Phelps, John Blizzard, Tim Drier, Art Ferruzzi
2019 John Metcalf, Jay Martin, Valentina Woodcraft, Clifford Todd, Patrick Smith, Bernadette Harkness
A.N. Sreeram, Congressman John Moolenaar (CERM presentations)

Mid-Michigan Technicians Group (MMTG) Outstanding Chemical Technology Student

1998	Rebecca Hall	2007	Laura Jaska	2016	Dave Starr
1999	Debbie Beuthin	2008	Gerald Rupprecht	2017	No Recipient
2000	Sara Shinavar	2009	Kyle Krauseneck	2018	Calyx Moore
2001	Dana Bitzer	2010	No Recipient	2019	Lindsay Alarie
2002	Sarah Bottke	2011	David Gutowski	2020	Elizabeth Bilicki
2003	No Recipient	2012	Jeremy Marchand	2021	No Recipient
2004	Fred Jackson	2013	Chadwick Roland		
2005	Chris Eicher	2014	James Nemeth		
2006	Phillip Jerewski	2015	Kelly Setula		

ACS National Awards for 2022–2023 Nomination

Diana Deese, Awards Committee Chair, Midland Section ACS

Editor's note: Several Midland Section ACS members have received various National ACS awards over the years. Please see their names, as noted, below.

ACS Award for Achievement in Research for the Teaching and Learning of Chemistry
ACS Award for Affordable Green Chemistry
- 2012 William J. Kruper

ACS Award for Computers in Chemical and Pharmaceutical Research
ACS Award for Creative Advances in Environmental Science and Technology
- 1986 Eugene E. Kenaga

ACS Award for Creative Invention
- 1984 Edwin P. Plueddemann

ACS Award for Creative Research and Applications of Iodine Chemistry
ACS Award for Creative Work in Fluorine Chemistry
ACS Award for Creative Work in Synthetic Organic Chemistry
ACS Award for Distinguished Service in the Advancement of Inorganic Chemistry
ACS Award for Encouraging Disadvantaged Students into Careers in the Chemical Sciences
ACS Award for Encouraging Women into Careers in the Chemical Sciences
ACS Award for Research at an Undergraduate Institution
ACS Award for Team Innovation
- 2015 Ryan Gaston, James R. Keenihan, Abhijit A. Namjoshi, Stephen Pisklak, Jason A. Reese
- 2017 Robert A. DeVries, Philip Garrou, Carol E. Mohler, Theodore M. Stokich, Jr., Eric S. Moyer

ACS Award in Analytical Chemistry
ACS Award in Applied Polymer Science
- 1970 Raymond F. Boyer

ACS Award in Chromatography
- 1991 Hamish Small

ACS Award in Colloid Chemistry
ACS Award in Industrial Chemistry
- 2022 Jerzy Klosin

ACS Award in Inorganic Chemistry
ACS Award in Organometallic Chemistry
ACS Award in Polymer Chemistry
- 1973 Turner Alfrey, Jr.

ACS Award in Pure Chemistry
ACS Award in Separations Science and Technology
ACS Award in Surface Chemistry
ACS Award in the Chemistry of Materials
ACS Award in Theoretical Chemistry
Award for Volunteer Service to the American Chemical Society
Roger Adams Award in Organic Chemistry
Alfred Bader Award in Bioinorganic or Bioorganic Chemistry
Earle B. Barnes Award for Leadership in Chemical Research Management

1987 Malcolm E. Pruitt
2009 Gregg A. Zank
2014 William F. Banholzer

Ronald Breslow Award for Achievement in Biomimetic Chemistry
Herbert C. Brown Award for Creative Research in Synthetic Methods
Alfred Burger Award in Medicinal Chemistry
James Bryant Conant Award in High School Chemistry Teaching
Arthur C. Cope Award
Arthur C. Cope Scholar Awards
Elias J. Corey Award for Outstanding Original Contribution in Organic Synthesis by a Young Investigator
F. Albert Cotton Award in Synthetic Inorganic Chemistry
Peter Debye Award in Physical Chemistry
Frank H. Field and Joe L. Franklin Award for Outstanding Achievement in Mass Spectrometry
Francis P. Garvan - John M. Olin Medal
James T. Grady - James H. Stack Award for Interpreting Chemistry for the Public
Harry Gray Award for Creative Work in Inorganic Chemistry by a Young Investigator
Ernest Guenther Award in the Chemistry of Natural Products
Kathryn C. Hach Award for Entrepreneurial Success
M. Frederick Hawthorne Award in Main Group Inorganic Chemistry
E. B. Hershberg Award for Important Discoveries in Medicinally Active Substances
Joel Henry Hildebrand Award in the Theoretical and Experimental Chemistry of Liquids
Ralph F. Hirschmann Award in Peptide Chemistry
Ipatieff Prize
Frederic Stanley Kipping Award in Silicon Chemistry

1990 John L. Speier, Jr.

Irving Langmuir Award in Chemical Physics
Josef Michl ACS Award in Photochemistry
E. V. Murphree Award in Industrial and Engineering Chemistry
Nakanishi Prize
Nobel Laureate Signature Award for Graduate Education in Chemistry
James Flack Norris Award in Physical Organic Chemistry
George A. Olah Award in Hydrocarbon or Petroleum Chemistry
Charles Lathrop Parsons Award
George C. Pimentel Award in Chemical Education
Priestley Medal
Glenn T. Seaborg Award for Nuclear Chemistry
Gabor A. Somorjai Award for Creative Research in Catalysis
George and Christine Sosnovsky Award for Cancer Research

Henry H. Storch Award in Energy Chemistry
E. Bright Wilson Award in Spectroscopy
Ahmed Zewail Award in Ultrafast Science and Technology

Criteria and deadlines for the National ACS awards, and other grants and considerations, can be found at http://www.acs.org/content/acs/en/funding-and-awards/awards/national/nominations.html

The full list of National ACS awards by title can be found at https://www.acs.org/content/acs/en/funding-and-awards/awards/national/bytopic.html

Midland Section Recipients of National, Division, and Regional ACS Awards

Diana Deese, Awards Committee Chair, Midland Section ACS

National ACS Fellows

2010 Wendell L. Dilling, Michael J. Owen
2011 Bob A. Howell, Thomas H. Lane, Connie J. Murphy
2013 Patrick B. Smith
2014 Janet M. Smith
2015 Gretchen S. Kohl
2016 Joan M. Sabourin
2017 Mark E. Jones
2018 Susan Beda Butts
2019 Jerzy Klosin, Regina Malczewski
2020 Christian T. Goralski
2021 Dimi Katsoulis (corrected 26 January 2022; Dimi's name did not appear in the released version)

National ACS Heroes of Chemistry

1999 Etcyl Blair, Ray Rigterink, Art Sexton
2000 L.C. Rubens
2015 David Devore, David Neithamer, Peter Nickias, Jasson Patton, James Stevens, David Wilson
2017 James Bohling, Stan Brownell

National ACS Helen M. Free Award for Public Outreach

2015 Regina Malczewski

National ACS Local Section Outreach Volunteer of the Year Award

2014 Regina M. Malczewski
2015 Michelle L. Rivard
2016 Dave Stickles
2017 Diana Deese
2018 Michael Tulchinsky
2019 Lauren McCullough
2020 Dimi Katsoulis

National ACS Women Chemists Committee (WCC) Rising Star Award

2015 Jaime Curtis-Fisk
2017 Beata A. Kilos
2021 Heather Spinney

ACS Division of Business Development and Management Henry F. Whalen, Jr. Award for Excellence in Business Development and Management in the Chemical Enterprise

2018 Thomas Lane
2020 A.N. Sreeram

ACS Division of Chemical Technicians National Chemical Technician Award

2000 David L. Stickles
2001 Susan Youngs
2006 Robert Krystosek
2007 Margo McIver
2008 Janet Smith
2014 Diana Deese
2015 Jeff Seifferly
2018 Michelle Rivard
2021 Nita "Qiuyin" Xu

ACS Division of Industrial & Engineering Chemistry Applied Chemical Technology (ACT) Award

2014 Janet M. Smith
2017 Michelle Cummings

ACS Division of Industrial & Engineering Chemistry Early Career Fellow Award

2018 Beata Kilos

ACS Division of Professional Relations Henry Hill Award

2016 Thomas Lane

Stanley C. Israel Regional Award for Advancing Diversity in the Chemical Sciences

2016 Thomas Lane (CERM, Covington, KY)
2019 Jim Fitterling (CERM, Midland, MI)

E. Ann Nalley Regional Award for Volunteer Service to the American Chemical Society

2013 Bob Howell (CERM, Mount Pleasant, MI)
2014 Patrick B. Smith (CERM, Pittsburgh, PA)
2019 Michelle Rivard (CERM, Midland, MI)

Commitment to Diversity and Inclusion Award – Midland Local Section Inclusion & Diversity Committee

2020 James Walker

Encouraging Women in the Chemical Sciences Award – Midland Local Section Women Chemists Committee

2019 Beata Kilos-Reaume

Shirley B. Radding Award – Santa Clara Valley Local Section

2015 Connie Murphy

Using Salt to De-Ice Roads

Mark Jones, Director and 2020 Chair, Midland Section ACS

Editor's note: This article is reprinted, in part, from the Thursday, January 20, 2022, issue of *ACS Industry Matters Newsletter*, an online news publication of the American Chemical Society. At the National ACS level, Mark Jones is a member of the ACS Committee on Public Relations and Communications and the Chemical Heritage Landmark Committee.

The ACS mother ship is preparing for another winter storm tight on the heels of the wintry blast that hit Washington, D.C., last week. Ten inches of snow debilitated the Washington area in early January, closing a section of I-95 south of the city. Snow-closed roads, both in the mountains and in flatter geographies, are a relatively common occurrence. Closing an interstate highway, even one of the nation's busiest, is not particularly newsworthy. Motorists, including a U.S. Senator, were trapped for up to 30 hours, pushing the I-95 closure into the national news. It caused no end of finger-pointing, with a chemical twist.

Some fault the I-95 response for inadequately preparing the road with deicing salt. No technology, chemical or otherwise, controls the weather. Our response to wintry weather is decidedly chemical. We throw salt when it snows, using a colligative property to melt ice and snow. Faced with snow, our generally anti-chemical society calls for broadcast spreading of chemicals, both mined and synthesized, with little thought about the long-term environmental impacts. The needs of future generations take a back seat when there is snow on the road.

Chemical road deicing is a relatively new technology, dating only back to the 1940s. For most of human history, salt was highly valued, as valuable as gold at times, too valuable to be tossed on the ground. Deicing compounds, for the seventy percent of the U.S. population living in areas that use deicing compounds, are something purchased directly for home use and with tax dollars. Deicing salts spread on roads are almost exclusively ionic chlorides of sodium, calcium, or magnesium. Sodium chloride, rock salt or halite, is the cheapest and the most widely used. It is mostly mined from geologic formations, layers deposited by repeated evaporation of primordial seas.

Thoughts about deicing led me to confront my own salt footprint. We all have one. The annual U.S. salt consumption is about 160 kg per person. Road deicing and use as a chemical feedstock account for 80% of salt consumption. Much of the chemical production makes organochlorine compounds, but about 25% of chemical production ultimately releases salt. About 110 kg per person annually is deposited into the environment during deicing and in wastewater. Salt in our urine accounts for only 2-3 kg per year. Just like with individual CO_2 emissions, metabolism is a small part of my own, personal salt footprint.

The normally black asphalt roads here in Michigan are white from applied salt, annually applied at about 100 kg per resident. Rock salt's damage to vegetation, metals, infrastructure, and the environment is largely overlooked. Spring rains will take the salt-laden roads back to black, washing salt into lakes and rivers – out of sight, out of mind. Salinity in the lower Great Lakes has increased 8 to 10 times historic levels and continues to rise over a milligram per liter per year. A recent national study of randomly selected lakes found 44% experienced long-term salinization and estimates nearly 8,000 lakes may be at risk from salinization. Other studies place the numbers even higher.

Deicing reduces accidents, estimated over 78% on average and up to 93% on highways like I-95, saving lives and preventing injuries. Consciously or unconsciously, we've determined that the immediate safety benefits are worth the deferred environmental costs. We've also determined that those immediate safety benefits are not worth the considerably higher cost of other deicing options. In deicing, the cheap solution wins.

Recent reports are more disheartening than uplifting, concluding that salt is necessary for public safety with little to be done to stem the environmental damage. There are things we can do, more costly but better for the environment. Homeowners, unbound by the cost constraints plaguing tax-funded road commissions, can choose more plant-friendly options, less damaging to infrastructure, and more environmentally benign. I personally, sparingly use urea, costing about five times as much as rock salt. Acetate salts of calcium and magnesium are available, costing about thirty times more than rock salt. Both avoid chloride runoff but are burdened by larger CO_2 footprints.

We can ask our public works to do better. Studies over the last 40 years conclude we can't afford to move away from salt. We can support initiatives to better apply salt to roads and improve mechanical removal. Application of liquid brines rather than crystalline salt reduces use by at least 40%. Recent studies conclude salt storage is also a problem. Infrastructure upgrades can eliminate contaminated runoff from storage facilities. Citizen science can play a role, too. The Izaak Walton League is offering free chloride test kits to better identify problem areas. Grab a sample, do some analytical chemistry, and be part of the solution. Most of all, if you are reaching for deicing salt, choose carefully and apply sparingly.

Please Consider the Midland ACS Scholarship Fund in Your 2022 Giving!

Gina Malczewski, Director and Scholarship Committee, Midland Section ACS

Last year in May, **Dr. Wendell and Marcia Dilling** (photo at right) issued a challenge relative to growing the Midland ACS Scholarship Fund. **Few have responded to that call so far, and the fund today currently stands at just over $72,000.** Please read more below about the history and purpose of this fund. Past scholarship recipients are often highlighted in issues of the *Midland Chemist*.

The application window for 2022 scholarships is currently open and will close on February 15, 2022. Please see Midland Area Community Foundation Scholarship Application for details about the online scholarship application process.

The Midland Section ACS has been proud to offer scholarships to deserving undergraduate students majoring in a chemical science since 2002. Annually, two to four scholarships are awarded to candidates who have

graduated from a high school in one of the Section's five counties (Bay, Midland, Saginaw, Isabella, and Gratiot), are studying at a Michigan university, and are ideally intending to pursue a career in some aspect of chemistry or chemical engineering. Selections are made by a committee and are based on academics, service and extracurricular contributions, and an essay on the student's sources of motivation as well as future plans.

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.

Wendell and Marcia Dilling, both trained chemists and stalwart supporters of our Local Section, are 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 $72,100. **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 + $72,100 = $108,100).**

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

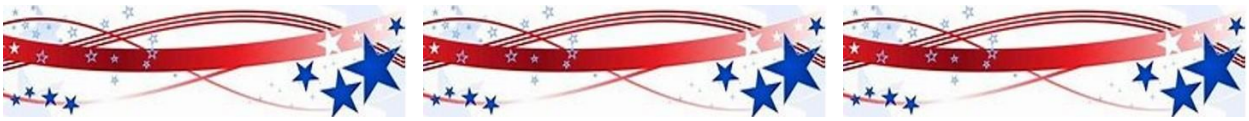
In Memoriam – Fred W. McLafferty

Steve Keinath, Co-Editor, The Midland Chemist

Editor's note: One of the Midland Section's former and more famous members, Fred McLafferty, passed away on December 26, 2021, at the age of 98. He was very active in Midland Section ACS leadership roles back in the 1950s before he left Midland to become the Founding Director of Dow's Framingham Eastern Research Laboratory. Fred was one of only a few members who have served in all four of the Section's top elective offices: Treasurer in 1953, Secretary in 1954, Chair-Elect in 1955, and Chair in 1956 until June of that year when he became Dow's Eastern Research Laboratory Director in Framingham, MA.

Fred's name is associated with and immortalized in the McLafferty Rearrangement, a reaction observed in mass spectrometry during the fragmentation or dissociation of organic molecules. It is sometimes found that a molecule containing a keto-group undergoes β-cleavage, with the gain of the γ-hydrogen atom. The rearrangement may take place by a radical or ionic mechanism.

The material that follows includes: (1) A news release from the Department of Chemistry and Chemical Biology at Cornell University, in Ithaca, NY. Fred was a Professor Emeritus at Cornell, having joined the faculty there in 1968. (2) An obituary notice from Bangs Funeral Home in Ithaca, NY. (3) Reminiscences from Midland Section ACS members, Gina Malczewski, Wendell Dilling, and Vickie Langer.



From the Department of Chemistry and Chemical Biology website, Cornell University, Ithaca, NY, in part: (https://chemistry.cornell.edu/fred-w-mclafferty-professor-emeritus-dies-98)

FRED W. MCLAFFERTY, PROFESSOR EMERITUS, DIES AT 98

January 4, 2022

The Department of Chemistry and Chemical Biology at Cornell University in Ithaca, New York, is saddened to note the passing of Dr. Fred W. McLafferty, the Peter J.W. Debye Professor of Chemistry Emeritus at Cornell University. Fred had a remarkable impact on the field of Chemistry, on our department, and on the lives of those with whom he interacted.

Fred obtained his Ph.D. in Chemistry at Cornell in 1950 and, after post-doctoral work at the University of Iowa, began his pioneering work in mass spectrometry with the Dow Chemical Company. He returned to Cornell in 1968 as a member of the faculty. Fred's numerous contributions to the field of chemistry include the development of the first Gas Chromatograph/Mass Spectrometer (GC/MS) with Roland Gohlke, the description of a complex chemical rearrangement now known as the "McLafferty Rearrangement," the characterization of large protein macromolecules by mass spectrometry, and the co-authoring and editing of over 500 articles, five books, and a widely adopted registry of mass spectral data. A true lion of chemistry, Fred revolutionized the field and inspired scholarship for peers and students alike.

The Department of Chemistry and Chemical Biology will hold a symposium in honor of Fred when conditions permit.

From the Online Obituary Notice for Fred McLafferty from Bangs Funeral Home, Ithaca, NY, in part: (https://www.bangsfuneralhome.com)

Fred W. McLafferty, the Peter J.W. Debye Professor of Chemistry Emeritus at Cornell University, passed away on December 26, 2021, in Ithaca, NY. He was 98 years old. He was an eminent scientist, a decorated veteran, and known for his quick wit, self-deprecating and friendly manner, and devotion to his wife, Tibby, and their family.

Born on May 11, 1923, in Evanston, IL, his family moved to his mother's family farm in Nuckolls County, Nebraska, following the start of the Great Depression. These difficult times included the death of his father, due to a staph infection when Fred was 16. His mother eventually got a job teaching in Omaha and he graduated from Omaha North High School in 1940. He entered the University of Nebraska that year and graduated in 1943 to enter the Army and WWII.

On the front lines with the infantry, he fought in France and Germany. He received a purple heart and five bronze medals for valor. His unit received the Presidential Unit Citation and liberated a concentration camp in Germany.

After the end of the war, he returned to the University of Nebraska where he received an MS in Chemistry in 1947 and met his wife, Elizabeth "Tibby" Curley. As her teaching assistant in a chemistry class, his

expert instruction raised her lab scores from "good+" to "exc." through the semester. They were married for over 73 years. He received his PhD in Chemistry in 1950 from Cornell University, and then did post-doctoral work at the University of Iowa.

He began his professional career at the Dow Chemical Company, where his pioneering work with mass spectrometry began. He, along with Roland Gohlke, built the first Gas Chromatograph/ Mass Spectrometer (GC/MS). He was also the founding Director of the Dow Framingham Eastern Research Laboratory. In 1964, he joined the faculty at Purdue University as a Professor of Chemistry, and in 1968 he moved to Cornell University.

His pioneering work in mass spectrometry included the study of gaseous ion reactions, instrumentation, high-resolution analysis, data interpretation, and the collection and use of reference spectra. In 1959, he wrote an article that insightfully described a complex chemical rearrangement. This became known as the "McLafferty Rearrangement." With this and subsequent articles, he brought a new understanding to many areas of chemistry beyond mass spectrometry. He co-authored/edited over 500 articles, five books, and a widely adopted registry of mass spectral data.

These approaches and innovations are widely used in analyzing, developing, and detecting compounds from environmental pollutants to pharmaceutical products to RNA. His book, *Interpretation of Mass Spectra*, remains a leading text in the field. More recently, he pioneered new techniques for identifying and characterizing large, complex proteins.

In recognition of his scientific advancements, he was awarded honorary doctorates from the Universities of Nebraska, Liege, and Purdue, along with numerous international medals and honors. He was a member of the U.S. National Academy of Sciences and the American Academy of Arts and Sciences.

He will be deeply missed by his wife, Tibby; his children, Ann (Koko Diaz), Martha (Jonathan Skinner), Joel, and Sara (Avijit Ghosh); daughter-in-law, Vera; and ten grandchildren. He was predeceased by his son, Samuel A. McLafferty; parents, Joel E. and Margaret Keifer McLafferty; and his sister, Lucy, and brother, Charles.

A symposium in Fred's honor will be held in the future when conditions permit. Burial will be family-only at Lake View Cemetery in Ithaca, NY.

In lieu of flowers, please send donations to the Fred McLafferty Fund in Chemistry and Chemical Biology (#0009443), Department of Chemistry, Cornell University, Ithaca, NY 14850. Bangs Funeral Home (209 West Green Street, Ithaca, NY 14850, Phone: 607-272-1922, https://www.bangsfuneralhome.com) is honored to assist Fred's family with the funeral arrangements.

Added Reminiscences from Midland Section ACS Members:

***Gina Malczewski* –** Fred's GC/MS invention brought a National Historic Chemical Landmark to Midland in recent years. This was celebrated in 2019 at the ACS Central Regional Meeting, hosted by the Midland Section ACS that year. In his early years, Fred worked at Dow, was an active ACS member, and his name was added to our 100th Anniversary Historical Exhibit's Periodic Table.

Wendell Dilling – Fred McLafferty is one of the Midland Section's more famous members. He was one of only a few members who have served in all four of the Section's top elective offices: Treasurer in 1953, Secretary in 1954, Chair-Elect in 1955, and Chair in 1956 until June of that year when he became Dow's Eastern Research Laboratory Director in Framingham, MA. Dave Young stepped in to finish Fred's 1956 Chair's term of office.

I have a copy of Fred's book, *Interpretation of Mass Spectra*, on my bookshelf at home. I'm not a mass spectroscopist, but I used mass spectrometry a lot in my research. My wife, Marcia, and I published a paper together on "Pentacyclodecane Chemistry – III: Fragmentation Patterns of Pentacyclodecane Derivatives on Electron Impact" (*Tetrahedron*, **1967**, *23*, 1225-1233). At the time, Marcia worked in the Mass Spec Section of Dow's Chemical Physics Research Laboratory.

I worked every unknown problem at the end of Fred's book and learned a lot. The book jacket from that book provided the information on what happened in 1956 when Fred left his position as the Midland Section ACS Chair.

Vickie Langer – The McLafferty *Interpretation of Mass Spectra* book is still one of the most common books that I see on office shelves at Dow, a testament to the importance and significance of Fred's work in this area. In fact, I have a copy of the 3rd edition of the McLafferty book on my shelf and I often recommend it to younger chemists if they are going to be doing any unknown compound identification work.

Upcoming Dates, Events, and Other Updates

- January 3 (7:00 – 8:00 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 Webex Board Meeting - January 2022, Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- January 12 (7:00 – 8:30 PM) – MSU St. Andrews Family Astronomy Night free virtual event. Presentation topic: The Milky Way: Our Home in Space. Please see https://standrews.msu.edu/family-astronomy-night/ for more information about these ongoing monthly programs and to access prior archived presentations.
- February 2 (7:00 – 8:30 PM) – MSU St. Andrews Family Astronomy Night free virtual event. Presentation topic: TBD. Please see https://standrews.msu.edu/family-astronomy-night/ for more information about these ongoing monthly programs and to access prior archived presentations.
- February 7 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at Webex Board Meeting - February 2022, Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- February 15 – **Deadline for applications for Midland Section ACS scholarships** available through the Midland Area Community Foundation (Fund #399). Please see Midland Area Community Foundation Scholarship Application for details about the online scholarship application process. For any questions, please contact Gina Malczewski at reginamalczewski@gmail.com or the Midland Area Community Foundation at 989-839-9661.
- March 7 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at Webex Board Meeting - March 2022, Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.

- 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.
- March 25 – **Deadline for Midland Section ACS Spring Awards nominations** to honor outstanding educators, volunteers, and colleagues. For more information, contact Diana Deese, Midland Section ACS Awards Committee Chair, at dkdeese@dow.com or 989-636-9915.
-
- April 4 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at Webex Board Meeting - April 2022, Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
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- May 2 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at Webex Board Meeting - May 2022, Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- May 4 (5:30 – 9:00 PM) – Midland Section ACS Spring Awards Banquet, Great Hall Banquet & Convention Center, 5121 Bay City Road, Midland. Cost: TBD. For more information or any questions, please contact Diana Deese, Midland Section ACS Awards Committee Chair, at dkdeese@dow.com or 989-636-9915.
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- June 6 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at Webex Board Meeting - June 2022, Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
-
- August 1 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at Webex Board Meeting - August 2022, Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
- August 21-25, 2022 – ACS Fall 2022 National Meeting and Exposition, Chicago, IL. This meeting is being planned as an in-person and virtual hybrid meeting. Meeting theme: *Sustainability in a Changing World*. For more information, please see ACS Meetings & Expositions - American Chemical Society.
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- September 12 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at Webex Board Meeting - September 2022, Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771. **Please note: This Board meeting is being held on the second Monday of September, not the usual first Monday of most months due to the Labor Day holiday.**
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- October 3 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at Webex Board Meeting - October 2022, Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
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- November 7 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at Webex Board Meeting - November 2022, Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.
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- December 5 (7:00 – 8:00 PM) – Hybrid Midland Section ACS Board meeting, MSU St. Andrews, Midland (in person), and via a WebEx conference call connection at Webex Board Meeting - December 2022, Meeting number: 2651 874 4771, or by phone at Phone number: 650-215-5228, Access code: 2651 874 4771.

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

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