

THE MIDLAND CHEMIST

A publication of the Midland Section of the American Chemical Society

March 2018, Vol. 55, No. 3

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ACS National Meetings: Have you gone? Why or why not?

Dale LeCaptain, Councilor, Midland Section ACS

I will be working on a strategic planning task force for ACS National Meetings of the future at the upcoming spring meeting in New Orleans, AND I want your input, ideas, and thoughts about how to make them better, relevant, cheaper, etc.



PLEASE join me for an “open conversation” about ACS National Meetings! I really want to hear your thoughts and ideas.

- Visit me: Tuesday, March 6, 5:00 – 7:00 PM, Pizza Sam’s conference room, downtown Midland. Free appetizers for your thoughts and comments!
- E-mail me: dale.lecaptain@cmich.edu
- Call me: 989-774-3993

I hope to hear from you! Thank you.

Photo of 2018 Midland Section ACS Officers and Board Members
Steve Keinath, Co-Editor, The Midland Chemist



Photo of the members of the 2018 Midland Section ACS leadership team taken at the Monday, January 8, 2018 Board meeting held Creative 360 in Midland (photo courtesy of Tom Lane).

Front row (left to right): **Tami Sivy** (Director), **Michelle Cummings** (Director), **Amanda Palumbo** (Chair-Elect), **Janice Tomasik** (Director), and **Gina Malczewski** (Director).

Middle row (left to right): **Wendy Flory** (Chair, Nominations & Elections), **Aswini Dash** (Director), and **Bryan Stuppert** (Director).

Back row (left to right): **Pat Smith** (Director), **Kevin Wier** (Director), **Wendell Dilling** (Director), **Wenyi Huang** (Chair), **Kshitish Patankar** (Secretary), and **Steve Keinath** (Alternate Councilor).

Officers and Board members missing from the group photo: **Michelle Rivard** (Treasurer), **Anne Kelly-Rowley** (Past Chair), **Dale LeCaptain** (Councilor), **Tina Leaym** (Councilor), and **Jessica Huang** (Alternate Councilor).

WCC Skills Beyond the Bench Panel Discussion and Networking Event, March 10
Lauren McCullough, Women Chemists Committee, Midland Section ACS

The Detroit and Midland Sections of the American Chemical Society's Women Chemists Committees are collaborating on a joint panel discussion and networking event for all area scientists. The title of the event is *Skills Beyond the Bench: How to Advance Your Career in Industry* and it will be held on Saturday, March 10, from 12:00 – 4:00 PM at UM-Flint.

The event will feature short talks from five speakers representing different companies and different career stages, followed by a panel discussion with the audience. Lunch will be served and there will be a coffee and cookies networking session following the formal program. The cost to attend is \$5 and preregistration is requested to ensure an accurate headcount. Please see the flyer (below) for more details.

This is a great opportunity to learn about “Skills Beyond the Bench” and it is an amazing opportunity to network with our colleagues in the area. Jamie Cohen and Tina Leaym from Dow Chemical Company in Midland are two of the five speakers. It would be great to have a good turnout from the Midland Section to support this program, so please plan to attend! Thank you, and please let me know if you have any questions (LRMcCullough@dow.com).



SKILLS BEYOND THE BENCH: HOW TO ADVANCE YOUR CAREER IN INDUSTRY

Guest Speakers:

Dr. Jamie Cohen, Director of R&D, Chemical Science, Core Research & Development at Dow Chemical

Tina Leaym, Senior Product Steward, Consumer Solutions Business at Dow Chemical

Dr. Amy Hamlin, Senior Process Development Scientist at Ash Stevens

Janine Luesing, Scientist III at BASF

Dr. Megan Szyndler, Senior Scientist at BASF

SATURDAY, MARCH 10, 2018

12:00—4:00

The Detroit and Midland Sections of the American Chemical Society's Women Chemist Committees present a panel discussion and networking event for all area scientists. The selected speakers represent different companies and different career stages. They will discuss what skills beyond basic chemistry they found helpful to both get their job and advance through their careers beyond just beakers and bench work. Stay after the panel discussion to network with other ACS members and scientists over coffee and sweets. Cost to attend the event is \$5. Please register by March 5th to ensure an accurate headcount. Click on the reservation link for event updates and view the list of speakers.



You are invited!

Speakers from different points in their career at Dow, Ash Stevens, and BASF will present

Network with other industry professionals

Lunch will be served followed by a Coffee and Cookies Networking event

UNIVERSITY OF MICHIGAN-FLINT

Harding Mott University Center, Michigan Rooms
umflint.edu/maps

RSVP by 3/5/18

Registration is \$5

Use link below

<https://tinyurl.com/yc8g7aq8>

Save the Date: Congressman John Moolenaar Reception, April 23
Amanda Palumbo, Chair-Elect, Midland Section ACS

SAVE THE DATE

For a reception featuring

Congressman John Moolenaar



An Overview of the Congressional Chemistry Caucus
Where Chemistry and Policy Meet

Opening remarks by A.N. Sreeram, Senior Vice President and
Chief Technology Officer of the Dow Chemical Company

Monday, April 23		Event Details
5:30 – 6:00 PM	Reception	H Hotel in Midland, MI
6:00 – 7:00 PM	Program	Heavy hors d'oeuvres
6:00 – 7:30 PM	Networking	Cash bar

RSVP starting March 19 at www.midlandacs.org
Event limited to first 100 people

Sponsored by the Midland Section of the American Chemical Society



Upcoming Lectures Sponsored by the Mid-Michigan Section of AIChE

Ron Leng, Program Chair, Mid-Michigan AIChE

All Midland Section ACS members are cordially invited to attend any of several invited-speaker events hosted by the Mid-Michigan Section of the American Institute of Chemical Engineers (AIChE). The evening meetings will be held at the Grand Traverse Pie Company, 2600 North Saginaw Road, Midland. Admission is free and complimentary sandwiches will be available, first come, first served at 6:00 PM with the presentations starting around 6:30 PM. Meeting times and locations are subject to change, so please check the [Mid-Michigan AIChE Events](#) website for updates to the schedule. For more information or questions, contact Ron Leng at 989-636-6158 or rbleng@dow.com, or Ted Calverley at 989-636-2881 or emcalverly@dow.com.

- **Paul Vosejpka**, Dow Automotive R&D Director
The Future of Transportation
Wednesday, March 21, 2018, 6:00 PM dinner (optional), 6:30 PM presentation
- **Open**
Wednesday, April 25, 2018, 6:00 PM dinner (optional), 6:30 PM presentation
- **Mark Weick**, Dow Global Sustainability Director – Keynote Speaker, Annual Spring Banquet
Sustainability: The Chemical Engineer's Role in the Future
Tuesday, May 22, 2018, 5:30-9:00 PM, Great Hall Banquet & Convention Center, 5121 Bay City Road, Midland

2018 Spring Awards Banquet and Call for Nominations

Diana Deese, Chair, Midland Section ACS Awards Committee

The deadline for nominations is fast approaching – April 1, 2018!

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 include a publications and patent list where applicable and additional letters of support which can come from students, parents, community members, and/or administrators. An example nomination letter can be requested from the Awards Committee Chair via e-mail (dkdeese@dow.com). 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 April 1, 2018 deadline, will not be considered.

Nominations for the 2018 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
- Outstanding Achievement and Promotion of the Chemical Sciences
- Outstanding Service to the American Chemical Society
- Outstanding Chemical Technician
- Outstanding High School / College Chemistry Students

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

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 Minority Affairs 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.*

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 additional supporting letter included with your nomination all stating why the nominee is deserving of the award. Specific examples should be given in areas such as professional involvement/growth, contributions to industry, and outside affiliations. It is highly recommended that the nomination include 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 Sunday, April 1, 2018. Nominations not meeting the minimum requirements, and submissions received after the April 1 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.

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 (see the next page). One selection per school, please; no supporting letters are needed.

Award recipients as well as Chemistry Olympiad winners and Fifty/Sixty/Seventy Year ACS Members will be honored at the 2018 ACS Spring Recognition Dinner at the Great Hall Banquet & Convention Center in Midland, on Wednesday evening, May 2, 2018.

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!

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 2018 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 **April 1, 2018**:

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

Midland Section ACS 100th Anniversary Committee Update

Steve Keinath, Co-Editor, The Midland Chemist

An ACS Antiques Roadshow event was hosted on Thursday afternoon, March 1, by the Midland Section ACS Silver Circle group. The event was held at the Carriage House Hall on the campus of the Midland County Historical Society and featured Gary Skory, Director of the Midland County Historical Society, as a guest speaker. Gretchen Kohl, a member of the 100th anniversary planning committee, also offered a few additional comments and then it was time for audience participation and the bringing forth and sharing for loan of a number of ACS, chemistry, and science in general artifacts that could become part of the 100th anniversary exhibit being planned for 2019.

The *Midland Daily News* ran an article announcing the Antiques Roadshow event in their Wednesday, February 28, 2018 issue. That article was written by Kate Carlson, a reporter for the *Midland Daily News*, and was based on a phone interview that she conducted with Gretchen a few days earlier. A copy of the *Midland Daily News* article is reprinted below, in part, for the benefit of our local section members.

The 100th anniversary historical exhibit team is still looking for additional artifacts that may be in your closets, attics, basements, garages, etc. The types of things being sought include written materials, photographs, and physical objects. Try not to judge whether some of the items in your own personal eclectic collection is of any historical significance. That task will be up the historians and display designers that make up part of the 100th anniversary historical exhibit team. Any items that you may wish to donate for potential display in 2019 will be taken on a loaned basis with full documentation coming back to you for what it is that you have donated. At the end of the exhibit, your loaned materials will be returned to you. If you think you may have something to share, please reach out by e-mail to exhibit@midlandacs.org and someone will get in touch with you.

Chemical Society Planning Ahead for Historical Exhibit

Kate Carlson (kcarlson@mdn.net), *Midland Daily News*

Members of the Midland Section of the American Chemical Society (ACS) are compiling historical information from the community to create an exhibit that will be on display next year.

Founded in 1876, the ACS is the world's largest scientific society. The Midland Section encompasses five counties – Midland, Bay, Saginaw, Isabella and Gratiot – and was chartered in 1919 with Herbert H. Dow as the first chairperson.

To commemorate the local section's 100th year, an exhibit will be on display from May until December 2019 at the Doan History Center, in Midland. The exhibit will highlight members, their discoveries, community contributions, and the educational impact that the society has had in the region.

“Over the course of this hundred years we've really managed to make Midland a recognized hub of chemistry internationally,” said Gretchen Kohl, a fellow of the ACS, and committee member of the centennial exhibit.

People with a special story or anything that could be included in the exhibit can send an e-mail to exhibit@midlandacs.org or come to the ACS Antiques Roadshow from 1:30 to 3:00 PM on Thursday, March 1. Gary Skory, Director of the Midland County Historical Society, will speak at the event at the Carriage House Hall, 3200 Cook Road, in Midland.



A conceptual rendering created by John Metcalf from Good Design Group portrays an exhibit design that the Midland Section of the American Chemical Society is putting together for its centennial anniversary year exhibit in 2019.

People with personal ties to the organization or who know of it through family members who were members may have items or information to help with the exhibit, Kohl said. “Even with our archives, we need help identifying people and fleshing out things that we already have,” Kohl explained.

“We want to know what people have and would like to see,” Kohl said. “The exhibit will be free, and we’ll have special programs along the way as well.”

The exhibit will be interactive, and hopefully include a way for attendees to look up more information on a computer device, Kohl said.

Over the past 30 years, the Midland Section of the ACS has sponsored many free educational outreach programs, such as Chemistry Olympiad, Sci-fest, Project SEED, and Earth Day at the Midland Center for the Arts.

Preferential Election Procedure Needs Revision

Wendell L. Dilling, Historian and Director

A shortened version of the following letter to the editor of *C&EN*, sent December 4, 2017, was not accepted for publication. The letter had been shortened to abide by the 400-word limit for such letters. This letter and the following explanatory sections were then sent to the National Committee on Nominations and Elections and a few other officers of the national and local ACS. Questions or comments from Midland Section members are welcome.

– (Letter to the Editor of *C&EN*) –

The results of the last two elections for Directors-at-Large (*C&EN*, Nov. 7, 2016, p 7; Nov. 6, 2017, p 5) demonstrate that the election procedure needs to be changed. The pertinent part of the General Procedure 2.b. (<https://www.acs.org/content/dam/acsorg/about/governance/councilors/procedures-balloting-and-preferential-voting.pdf>) as currently written states “If there are multiple positions for the same office to be filled and only one candidate receives a majority of first-preference votes cast, then the candidate receiving the majority shall be declared elected. The elected candidate’s second-preference votes are redistributed to the remaining unelected candidates. Additionally (or if no candidate receives a majority of first-preference votes cast), the candidate with the fewest first-preference votes is eliminated from further consideration; the second-preference votes of the eliminated candidate are redistributed to the remaining unelected candidates. The procedure continues until one candidate receives a majority. When a candidate receives a majority and is declared elected, the elected candidate’s second-preference votes are redistributed to the remaining unelected candidates. After the second-preference votes are redistributed and no remaining candidate receives a majority, then the candidate with the lowest number of votes is eliminated and the eliminated candidate’s second-preference votes are redistributed to the remaining unelected candidates. The process is repeated until the number of elected candidates equals the number of positions available.”

If a candidate receives a majority of the first-preference votes, and is thus elected, then the second-preference votes on those ballots where the elected candidate was the first-preference are distributed to the remaining unelected candidates, i.e., all the remaining candidates. If candidate/s need to be eliminated in order for a winning candidate to be elected by a majority, then the second-preference votes on the ballots where the elected candidate was the first-preference are not distributed to all the remaining unelected candidate/s. In other words, the disposition of these second-preference votes depends on how the first candidate elected was elected.

In the 2017 election, the effect of this procedure was to eliminate Fivizzani and Lawlor before the vote counting for the second candidate was started and the second-preference votes on the ballots where Jones was the first-preference were distributed only to Sawrey or not at all. They should have been distributed to all three of the remaining candidates. An analogous result occurred in the 2016 election.

Because no more than one candidate can receive a majority of the first-preference votes and to fix the problem noted above, the first and third sentences of the procedure above should be written as “If there are multiple positions for the same office to be filled and a candidate receives a majority of first-preference votes cast, then the candidate receiving the majority shall be declared elected.” and “If no candidate receives a majority of first-preference votes cast, the candidate with the fewest first-preference votes is eliminated in this stage of the vote counting; the second-preference votes for the eliminated candidate are redistributed to the remaining unelected candidates.”

With these changes in the vote counting any of the three remaining candidates could have been elected as the second Director-at-Large. I am not implying that the two candidates elected should not have been elected, only that the results could have been different with a corrected procedure.

Wendell L. Dilling
Midland, Mich.

– (End of the Letter to the Editor of *C&EN*) –

In an attempt to make this problem clearer I will go through the present procedure and then show what should have been done using a revised procedure with a hypothetical set of vote counts.

The results of the Director-at-Large, 2018-20, election were as follows (*C&EN*, Nov. 6, 2017, p 5):

	Round 1	Round 2	Round 3
Wayne E. Jones, Jr.	146	159	187
Barbara A. Sawrey	101	120	159
Bonnie (Helen A.) Lawlor	68	81	
Kenneth P. Fivizzani	50		
Total	365	360	346

In the present procedure in Round 1, Jones did not have a majority of first-preference votes ($146/365 = 40.0\%$) so the candidate with the fewest first-preference votes, Fivizzani with 50 votes, was “eliminated from further consideration.” The second-preference votes on the ballots where Fivizzani was the first-preference were 13 for Jones, 19 for Sawrey, and 13 for Lawlor (5 voters did not select a second-preference). Adding these votes to those in the Round 1 column gave the numbers in the Round 2 column. Jones still did not have a majority of first-preference votes ($159/360 = 44.2\%$) so Lawlor was “eliminated from further consideration.” The next-preference votes (a combination of second- and third-preference votes) on the ballots which gave Lawlor 81 votes were 28 for Jones and 39 for Sawrey (none for Fivizzani because he had been “eliminated from further consideration”) (14 voters did not select a next-preference). Adding these votes to those in Round 2 gave the numbers in the Round 3 column where Jones then had a majority of the votes ($187/346 = 54.0\%$) so Jones was elected. Because two Directors-at-Large were being elected and Sawrey was the only candidate remaining, she was elected. Or one could have distributed the second-preference votes on those ballots where Jones was the first-preference. Because Sawrey was the only candidate remaining, she was the only candidate to receive any of these second-preference votes and thus automatically won the second Director-at-Large position. Those voters who voted for Jones as their first-preference and either Fivizzani or Lawlor as their second-preference didn’t have their second-preference votes counted.

If the candidates that were “eliminated from further consideration” above were only “eliminated in this stage of the vote counting” the results could have been different. Because these possible vote distributions were not reported a hypothetical set of votes was used as an example as follows:

	Round 1	Round 2	Round 3	Round 4	Round 5
Wayne E. Jones, Jr.	146	159	187		
Barbara A. Sawrey	101	120	159	148	169
Bonnie (Helen A.) Lawlor	68	81		139	173
Kenneth P. Fivizzani	50			60	
Total	365	360	346	347	342

Rounds 1-3 were the same as reported in *C&EN*. These vote counts were only used to determine the first winner (Jones). At this point Lawlor and Fivizzani had not been eliminated for determining the second winner. They were only “eliminated in this (the first) stage of the vote counting” to determine the first winner.

To determine the second winner the vote counters reverted to the vote counts in Round 1 and added the second-preference votes on the ballots where Jones was the first-preference. These hypothetical second-

preference votes were distributed as follow: 47 votes to Sawrey, 61 votes to Lawlor, and 10 votes to Fivizzani (28 voters who voted for Jones as a first-preference did not vote for a second-preference). The addition of these second-preference votes to the original first-preference votes in the Round 1 column gave the results in the Round 4 column. No candidate had a majority in Round 4 so Fivizzani was eliminated. The 60 next-preference votes were distributed 21 votes to Sawrey and 31 votes to Lawlor (8 voters did not vote for a next-preference) which gave the results in the Round 5 column where Lawlor had a majority of the votes and was the second Director-at-Large elected.

Thus, counting all the pertinent next-preference votes could have resulted in a different winner than the one actually reported.

15th Annual ChEMS Research Forum, May 10

Philip Eisenlohr, MSU ChEMS Department

The Department of Chemical Engineering and Materials Science (ChEMS) at Michigan State University would like to invite you to join us at the 15th annual ChEMS Research Forum on Thursday, May 10, 2018. The forum is a full-day event, running from 9:00 AM to 4:30 PM, and will be held at the Huntington Club at Spartan Stadium, 325 West Shaw Lane, East Lansing, on the campus of MSU.

The 15th annual ChEMS Research Forum will showcase departmental research advances in the areas of:

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

The one-day program will feature three invited plenary speakers, oral presentations from faculty and students, and an extended poster session describing the latest department research results.

Keynote Speakers:



- **Brad L. Boyce** – Materials, Physical, and Chemical Sciences Center, Sandia National Laboratories
- **V. Bobby Bringi** – AFEX Project Director, Chemical Engineering and Materials Science, Michigan State University
- **Shiwang Cheng** – Chemical Engineering and Materials Science, Michigan State University
- **Balsu Lakshmanan** – General Motors
- **Adam Pilchak** – Air Force Research Laboratory

Keynote Topics:

- **Stochastic performance of additively manufactured alloys**

Agile qualification of additively manufactured (AM) structural components requires rapid, high-throughput post-process measurements of material properties. To this end, we have developed a tensile testing methodology that permits >200 tensile tests per day with no compromise in data quality. This method has been used to explore stochastic mechanical property distributions of alloys produced by laser powder bed fusion (selective laser melting). Substantial differences were revealed between vendors, and between builds for a single vendor. Detailed microstructural and fractographic analysis of weak statistical outliers reveals rare processing defects that limit reliability. For example, in one study on 945 tensile bars from 8 builds on one machine, a small subset suffered from exceedingly low ductility associated with large internal, interconnected pore networks oxidized during heat treatment. The high-throughput testing provides a pathway to rapidly qualify process improvements that eliminate such rare defects. For example, Hot Isostatic Pressing (HIP) is a well-known manufacturing process to mitigate internal porosity. Using the same testing methodology, we demonstrate a ~100% improvement in ductility with a simultaneous ~15% increase in strength and a 7% increase in modulus associated with the elimination of internal porosity. In spite of these improvements, there remain latent defects in the additive manufactured material that prevent the material from achieving a mechanical performance envelope equivalent to the conventional wrought product.
- **Challenges in Commercializing Early-Stage Technologies: The AFEX Story**

AFEX technology, developed at MSU, is an ammoniation process that makes the sugars comprising hemicellulose and cellulose more accessible to enzymatic hydrolysis. Using AFEX treatment, agricultural residues such as rice straw and corn stover can be upgraded into a nutritious cattle feed ingredient or into a fermentation feedstock for production of bio-based fuels and chemicals. MSU is leading a global consortium to evaluate the potential of AFEX technology in developing nations and to promote technology scale-up and adoption. This lecture will cover some of the technical and regulatory challenges that are being addressed in this project and will reflect on the challenges inherent in transitioning promising technologies toward market and greater societal impact.
- **Big effects of small sticky nanoparticles on the macroscopic properties of polymer nanocomposites**

Polymer nanocomposites (PNCs) with small nanoparticles, such as fullerene, polyhedral oligomeric silsesquioxane, and their derivatives, typically end up in a reduction in the glass transition and viscosity at low nanoparticle loadings and a gelation at high loadings of nanoparticles. Consequently, the usage of small nanoparticles is largely eliminated, and the role of small nanoparticles is not well understood. In this presentation, we demonstrate that well-dispersed, small (diameter ~1.8 nm) nanoparticles with attractive interactions can lead to unexpectedly large and qualitatively new changes in PNC structural dynamics in comparison to conventional composites based on particles of diameter ~10–50 nm. At the same time, the zero-shear viscosity at high temperatures remains comparable to that of the neat polymer, thereby retaining good processibility and resolving a major challenge in PNC applications. Our results suggest that the nanoparticle mobility and relatively short lifetimes of nanoparticle–polymer associations open qualitatively new horizons in tunability of macroscopic properties in nanocomposites with high potential for the development of new functional materials.
- **Balancing performance and risk in fracture-critical aerospace components**

Registration, lunch, and refreshments are complimentary, but pre-registration for the forum is requested. Please register for the event at [2018 ChEMS Research Forum](#).

For more information, call the MSU ChEMS Department at 517-355-5135, or send an inquiry by e-mail to chems@egr.msu.edu.

Cancelled Meeting Event – 49th ACS Central Regional Meeting (2018 CERM) Brenda Snyder, 2018 Chair, Toledo Section ACS

It is with deep regret that the Toledo Section of the ACS must announce the cancellation of the 49th ACS Central Regional Meeting (2018 CERM), originally scheduled to be held June 13-16, in Toledo, OH. Please understand that this decision was not made lightly or without considerable thought. If you have any questions, please do not hesitate to contact me at brenda.snyder@utoledo.edu.

For more information or questions, you may also contact Midland Section ACS Ex Officio Director Tom Lane at maingee1@gmail.com.

Upcoming Dates, Events, and Other Updates

- March 5 (7:00 – 8:00 PM) – ACS Board meeting, Midland Center for the Arts Board Room (in person), or via a WebEx conference call connection at [Midland Section WebEx Board Meeting March 2018](#), meeting number/access code: 712 725 291 (does not require a passcode), phone number: 989-633-1166.
- March 6 (5:00 – 7:00 PM) – Open conversation session about *ACS National Meetings: Have you gone? Why or why not?* with Midland Section ACS Councilor Dale LeCaptain, Pizza Sam's conference room, downtown Midland. Free appetizers for your thoughts and comments. For more information, contact Dale LeCaptain at dale.lecaptain@cmich.edu or 989-774-3993.
- March 10 (12:00 – 4:00 PM) – ACS Women Chemists Committee (WCC) *Skills Beyond the Bench: How to Advance Your Career in Industry* panel discussion and networking event, Harding Mott University Center, University of Michigan–Flint. Lunch will be served and the cost to attend is \$5. Preregistration is requested to ensure an accurate headcount. For more information, please contact Lauren McCullough at LRMcCullough@dow.com.
- March 18-22 – 255th ACS National Meeting & Exposition, New Orleans, LA. For more information, see <https://www.acs.org/content/acs/en/meetings/national-meeting.html>.
- March 19 – **RSVP opportunity opens to register for the Congressman John Moolenaar reception, program, and networking event (limited to the first 100 people) on Monday evening, April 23.** Congressman Moolenaar will be speaking on the topic *An Overview of the Congressional Chemistry Caucus: Where Chemistry and Policy Meet*. For more information or questions, please contact Amanda Palumbo at amanda.palumbo@dow.com.
- March 21 (6:00 – 8:00 PM) – MMAICHe sponsored lecture, *The Future of Transportation*, presented by Paul Vosejka, Dow Automotive R&D Director. Location and time: Grand Traverse Pie Company, 2600 North Saginaw Road, Midland, 6:00 PM dinner (optional), 6:30 PM presentation. Meeting times and locations are subject to change, so please check the [Mid-Michigan AIChE Events](#) website for updates to the schedule. For more information or questions, contact Ron Leng at 989-636-6158 or rbleng@dow.com, or Ted Calverly at 989-636-2881 or emcalverly@dow.com.

- April 1 – **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 9 (5:30 – 6:50 PM) – ACS Board meeting pre-meeting pizza and networking session sponsored by the ACS CMU Student Chapter, The Cabin Restaurant, 930 West Broomfield Road, Mount Pleasant. For more information or questions, please contact Dale LeCaptain at dale.lecaptain@cmich.edu or 989-774-3993.
- April 9 (7:00 – 8:00 PM) – ACS Board meeting, CMU Chemistry Department, Dow Science Building, Room 108, Mount Pleasant, MI (in person), or via a WebEx conference call connection at [Midland Section WebEx Board Meeting April 2018](#), session ID: 739 814 648, phone number: 650-479-3208. **Please note the change of venue from MCFTA to CMU.**
- April 23 (5:30 – 7:30 PM) – Reception, program, and networking event featuring Congressman John Moolenaar, speaking on the topic *An Overview of the Congressional Chemistry Caucus: Where Chemistry and Policy Meet*, H Hotel, Midland. 5:30 – 6:00 PM, reception; 6:00 – 7:00 PM, program; 7:00 – 7:30 PM, networking. Heavy hors d'oeuvres will be served and a cash bar will be available. Watch for the opportunity to RSVP for this event (limited to the first 100 people) starting on March 19. For more information or questions, please contact Amanda Palumbo at amanda.palumbo@dow.com.
- April 25 (6:00 – 8:00 PM) – MMAICChE sponsored lecture, *Open Topic (TBD)*. Location and time: Grand Traverse Pie Company, 2600 North Saginaw Road, Midland, 6:00 PM dinner (optional), 6:30 PM presentation. Meeting times and locations are subject to change, so please check the [Mid-Michigan AIChE Events](#) website for updates to the schedule. For more information or questions, contact Ron Leng at 989-636-6158 or rbleng@dow.com, or Ted Calverly at 989-636-2881 or emcalverly@dow.com.
- May 2 (save the date, evening program) – Midland Section ACS Spring Awards Banquet, Great Hall Banquet & Convention Center, 5121 Bay City Road, Midland. For more information, contact Diana Deese, Midland Section ACS Awards Committee Chair, at dkdeese@dow.com or 989-636-9915.
- May 7 (7:00 – 8:00 PM) – ACS Board meeting, MCFTA Board Room (in person), or via a WebEx conference call connection (TBD), phone number: 989-633-1166.
- May 10 (9:00 AM – 4:30 PM) – 15th Annual ChEMS Forum, Huntington Club at Spartan Stadium, 325 West Shaw Lane, East Lansing, on the campus of Michigan State University. Registration, lunch, and refreshments are complimentary, but pre-registration for the forum is requested. Please register for the event at [2018 ChEMS Research Forum](#). For more information, call the MSU ChEMS Department at 517-355-5135, or send an inquiry by e-mail to chems@egr.msu.edu.
- May 22 (5:30 – 9:00 PM) – MMAICChE Annual Spring Banquet, Keynote Lecture – *Sustainability: The Chemical Engineer's Role in the Future*, presented by Mark Weick, Dow Global Sustainability Director. Location: Great Hall Banquet & Convention Center, 5121 Bay City Road, Midland. Meeting times and locations are subject to change, so please check the [Mid-Michigan AIChE Events](#) website for updates to the schedule. For more information or questions, contact Ron Leng at 989-636-6158 or rbleng@dow.com, or Ted Calverly at 989-636-2881 or emcalverly@dow.com.
- June 4 (7:00 – 8:00 PM) – ACS Board meeting, MCFTA Board Room (in person), or via a WebEx conference call connection (TBD), phone number: 989-633-1166.
- June 13-16 – **Please note: Cancelled meeting event** – 49th ACS Central Regional Meeting (CERM 2018), Seagate Centre, Toledo, OH. For more information, see <https://www.cerm2018.org/>. For more information or questions, please contact Midland Section ACS Ex Officio Director Tom Lane at maingeeek1@gmail.com.
- August 6 (7:00 – 8:00 PM) – ACS Board meeting, MCFTA Board Room (in person), or via a WebEx conference call connection (TBD), phone number: 989-633-1166.
- August 19-23 – 256th ACS National Meeting & Exposition, Boston, MA. For more information, see <https://global.acs.org/events/256th-acn-national-meeting-exposition/>.

- September 10 (7:00 – 8:00 PM) – ACS Board meeting, MCFTA Board Room (in person), or via a WebEx conference call connection (TBD), phone number: 989-633-1166.

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

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