
THE ACTION & REACTION

Newsletter of the Mid-Michigan Section of the American Institute of Chemical Engineers

Volume 22 Issue 3 November 2019

Apply Now! Engineering Exploration Scholarship

BY SHEILA GOMBAR-FETNER, SCHOLARSHIPS CHAIR



Mid-Michigan AIChE strives to promote the vision of the American Institute of Chemical Engineers (AIChE) by offering financial support to high school students who participate in the Summer Youth Program (SYP) at Michigan Tech. The program offers students with the opportunity to experience college life, learn new skills, and explore potential careers in a fun, engaging, and safe setting, in addition to meeting other exceptional young people from around the country and around the world.

Who: Students in grades 9 - 11.

What: Full scholarship covering tuition, room, and board plus a \$100 travel allotment to explore science and engineering through hands-on laboratory, classroom, and field experiences

Where: Summer Youth Program at Michigan Technological University (MTU) in Houghton, MI.

When: One-week session in the summer of 2020.

Deadline: Applications due by midnight on Monday, November 25, 2019.

Apply online: <https://www.aiche.org/community/sites/local-sections/mid-michigan/undergraduate-chemical-engineering-education-scholarships>

More information available: <http://www.syp.mtu.edu/index.php>

Questions? Contact Sheila Gombar-Fetner at SAGombar-Fetner@dow.com



Halloween Bash Science Fair

BY THU VI, K-12 STEM EDUCATION OUTREACH CHAIR



MMAICHe brought the fun and spookiness of science to the annual Halloween Bash hosted by the Midland Center for the Arts. The event took place on Saturday, October 26, and was well attended by hundreds of families and visitors in elaborated costumes. With thirty pounds of dry ice,

water, bubble solutions, LED lights, and a few simple setups, the MMAICHe team entertained audiences with multiple bubble demonstrations. In the crystal bubble experiment, a soap-soaked shoestring was run over the rim of a pumpkin bowl containing dry ice, water, and an LED light, creating a bubble that grew over time with changing colors. The special soap solution formulated by the team, following a recipe from Michigan Tech University, created a robust, high surface-tension bubble that grew to a significant diameter before bursting and covering the table with carbon dioxide gas, providing a spooky effect. Kids were excited when asked to participate in creating the crystal bubbles, guided by MMAICHe volunteers. The excitement continued when

they were able to hold multiple "boo" bubbles in their hands. These boo bubbles were created by filling a 1-liter soda bottle with dry ice and water and connected the bottle cap to a plastic tube dipped in the soap solution. The carbon dioxide gas created by the interaction of dry ice and water was also used to fill several smoked guns made with plastic cups and bags. These easy-to-make smoke guns created O-shaped smoke rings when lightly tapped on the bottom. Through these demonstrations, team MMAICHe introduced to the audiences the concepts of surface tension, density, and sublimation. In the last demonstration, called "the magic potion", the audiences



were wowed and puzzled by the strange behaviors of a mixture made of corn starch and water (sometimes called “oobleck”) in a cauldron. The audiences were

asked to insert a spatula into the mixture. If they did it slowly, they were able to insert the spatula into the liquid-like mixture and move it around. If they did it quickly, then the mixture behaved like a solid, causing the spatula to bounce off the surface. Moms and dads were invited to fist-punch the cornstarch and water mixture, and were surprised when the mixture did not splash and their fists were unsuccessful in penetrating the liquid surface. Through the audience’s astonishment, team MMAICHe introduced the concept of shear-thickening fluids: materials in which the viscosity increases with an increase in shear stress or strain rate.



The demonstrations brought by team MMAICHe to the Halloween Bash this year were simple, non-toxic, easy-to-do experiments with ingredients that parents can get access to. The team was pleased with the astounding effect that these simple experiments brought to audiences of all ages. MMAICHe hopes not only to inspire the young minds about STEM subjects but also encourage parents and families to further nurture their children’s engagement and excitement with STEM activities that they can do at home.

MMAICHe recognized the following individuals for their effort and time in helping the event to be a great success: Balamurali Sreedhar, Patrick Heider, Meagan Donaldson, Kil Ho Lee, Jyo Lyn Hor, De-Wei Yin, Joseph Dewilde, Deboleena



Chakraborty, Mrunmayi Kumbhalkar, Stacie Santhany, Jay Rose, and Thu Vi. Please reach out to our K-12 STEM Outreach Chair Thu Vi (tvi@dow.com) if you are interested in participating in future outreach events.

Words from the Chair & 2019/20 Kickoff

BY STACIE SANTHANY

Our 2019/2020 Mid-Michigan AIChE season is gearing up to be a great one! Our Executive Committee has been working together to plan for another fulfilling year together. We had a very successful kickoff at Oscars in Midland where we socialized and listened to our favorite saxophone band, The Saxxy Men (Thank you John, Patrick, Jon, and Tim – We appreciate you so much!). The ice breaker was a trivia game-based on famous chemical processes. As we played the game, we had some of our experienced team members share some interesting stories from their past. It was a great example of how we can come together and learn from each other. The evening also contained a review of our 2019/2020 plans, including introduction of our executive committee, seminar schedule, and community outreach.

Are you ever curious about our chapter ‘health’? We recently submitted our annual report to National AIChE, and it probably does not surprise you that we are

known as a very active chapter among the local sections of AIChE. During local section meetings, we share some of our best practices to help impact the greater AIChE organization. In fact, a new ‘local chapter to local chapter’ mentoring program is being discussed and MMAICHe would be at the forefront to help. Our impact seems to grow in different directions each year and it is fun to be a part of!

If you are interested in getting more involved, we are happy to have you! Feel free to contact anyone on the executive committee to find out how you can get engaged. Many hands make light work...and it is fun to be around people passionate about this great cause.

It is our hope that you will come out and join us in our various activities this season as we continue to learn via our seminar series and impact our community via our K-12 and Young Professional outreach. I



look forward to another great year of fellowship, continuous learning, and community outreach.

Sincerely,
Stacie Santhany

PSA: Email Addresses

There have been many changes in the Mid-Michigan area over the last couple years that impacted our email distribution list. If you have had an email address change,

please make sure to help us update our records. We ask that you email our current MMAICHe secretary, Michael DeLisle at mdelisle@sidockgroup.com if your email

preferences have changed. We also recommend you update your email address in your profile with National AICHe

New 2019-20 MMAICHe Officer in Profile

LAURA BASGALL, PUBLICITY CHAIR



Laura Basgall recently joined the MMAICHe Executive Committee as the Publicity Chair. Originally from northwest Kansas, she obtained a BS in Chemical Engineering from Kansas State University, during which she interned for Dow Corning in the Process Research and Development group. As a college student, Laura was involved in her student AICHe chapter, attending several national conferences, as a poster presenter and student chapter vice president.

Upon graduation, she joined Dow Corning full time and has spent the last seven years

in the Silicones HTV Elastomers and Polymers Process R&D group. Her work has focused on high viscosity processing and devolatilizing, commercializing new elastomer products, supporting manufacturing improvements, and coordinating the technology roadmap for Dow global silicone gum plants.

Outside of work Laura enjoys spending time outdoors with her husband and young son, cheering on Kansas State athletics, and baking and cooking for friends and family.

VICTOR SUSSMAN, PROGRAMMING CO-CHAIR



Hometown: New York, NY

Education: I received a B.A. in chemistry from Carleton College in Northfield, MN after which I earned a Ph.D. in inorganic chemistry with Prof. John E. Ellis at the University of Minnesota, where I studied the chemistry of low-valent polyarene complexes of niobium and tantalum.

Work/Professional Interests: I have worked for Dow for 12.5 years, all within Core R&D. An organometallic chemist by training, I started my career in the Organic

Chemistry & Catalysis group in 2007 focusing on homogeneous catalysis, but shifted shortly after my arrival to working on heterogeneous catalysis problems. I am currently a research scientist within the Chemical Science group. I have worked on a several programs supporting catalyst research for feedstocks for hydrocarbons, ethylene and propylene epoxidation, and acrylate monomers in a variety of individual contributor and project leadership roles. I enjoy collaborating with colleagues in business roles and other groups within Core R&D. I am interested in catalyst improvement and discovery, to develop and enable processes of interest to Dow. Additionally, I have an interest in process safety and serve on one of Dow's Reactive Chemical/Process Hazard Analysis (RCPHA) teams which has afforded me the opportunity to learn more about our manufacturing operations. These groups work to ensure safe operation of our plants in compliance with OSHA PSM.

Why Did I join MMAICHe: Early in my career I received some advice from a senior

colleague that chemists ought to learn more chemical engineering and chemical engineers should make an effort to learn more chemistry. As many aspects of heterogeneous catalysis exist at the interface between these two disciplines, participating in AICHe was a natural step in growing my knowledge in this area and enabling me to work more effectively with my chemical engineering colleagues. I have been a member of both the national organization and the local section since 2008. I am also a member of the American Chemical Society and the North American Catalysis Society. I am excited to be participating in the development of the MMAICHe seminar program for the 2019-2020 season, and I hope that the membership finds the speakers and topics we have selected to be engaging and broad.

Outside Interests: Outside of work, I have interests in naval history, current maritime affairs, and travel. I also play and referee ice hockey in a local league in the mid-Michigan area.

Donating to the MMAIChE Scholarship Committee Fundraising Program

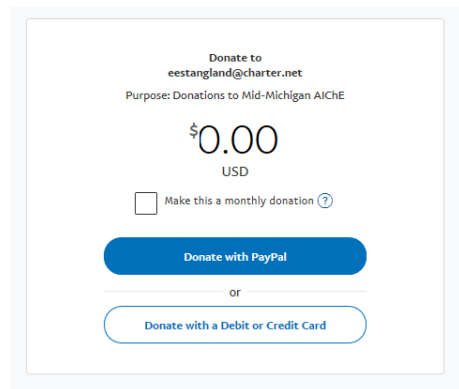
BY STACIE SANTHANY & SHEILA GOMBAR-FETNER

The Mid-Michigan AIChE strives to promote the vision of the American Institute of Chemical Engineers (AIChE) by providing opportunities to continuously develop our members professionally while working with the community to improve the understanding of science and engineering and their impact on society. One of the ways MMAIChE achieves its goals is by offering scholarships: the Engineering Exploration Scholarship sends a high school student to the Michigan Technological University Summer Youth Program, and the Undergraduate Chemical Engineering Education Scholarship, for high school graduates pursuing an undergraduate degree in Chemical Engineering at an accredited university/college.

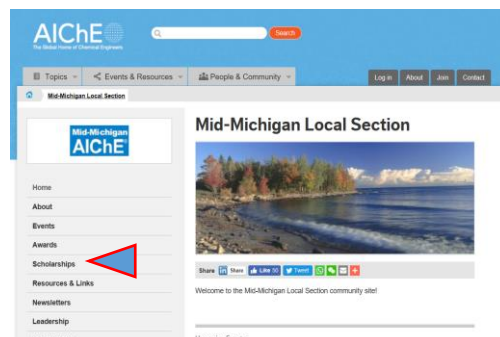
The MMAIChE Scholarship Committee Fundraising Program aims to fund and award two Undergraduate College Scholarships to students planning to study at an ABET-accredited Chemical Engineering Program (increasing the number of award-ees from one annually).

Your donations will be used to help MMAIChE to establish a sustainable fund to achieve this goal.

Help a future chemical engineer by donating to MMAIChE:



1. Donate online through PayPal by emailing Eric Stangland at ee-stangland@charter.net
2. Bring check or cash to donate at an MMAIChE event.



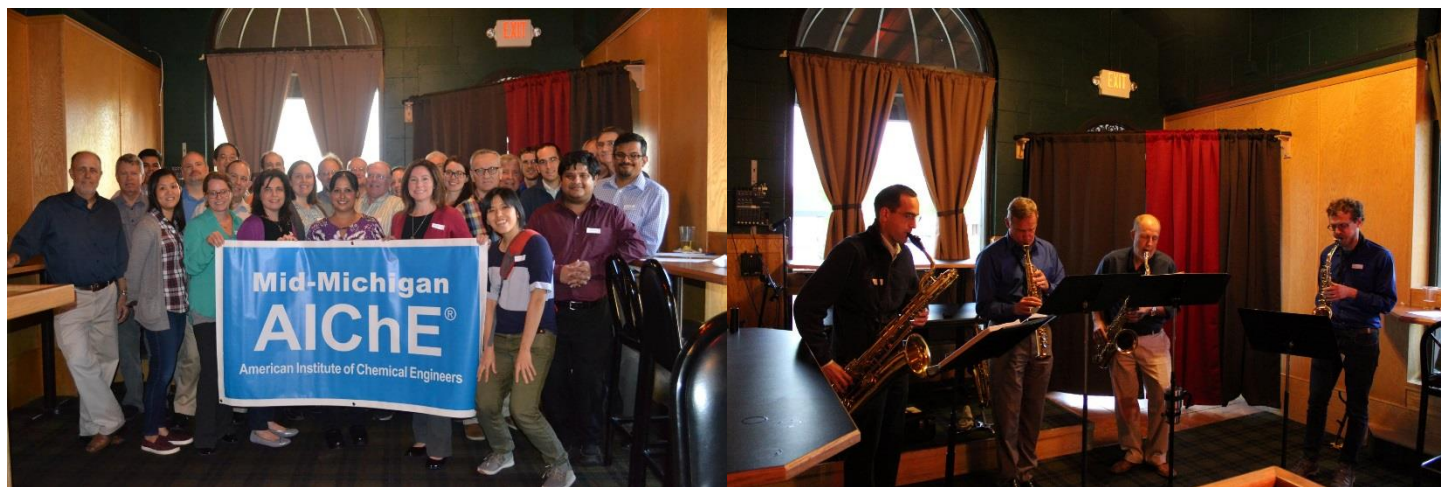
3. Donate through the MMAIChE website:

<https://www.aiche.org/community/sites/local-sections/mid-michigan>

Click on Scholarships on the left, scroll to the bottom and click donate through PayPal or credit card. Write a note and indicate that the donation is intended for the scholarship fund.

Donations are tax-deductible. Thank you for supporting MMAIChE.

Scenes from the 2019-20 MMAIChE Kickoff Meeting



Scenes from the 2019-20 Seminar Series



Jeffrey Koperski, *Engineering Ethics*



Sam Kean, *The Disappearing Spoon and Other table Tales*



Bruce Royce & Patrick Frazee, *Operations at Midland WWTP*



The Mid-Michigan Section of AIChE thanks the following companies:



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2019–2020 Seminar Schedule

Event	Date, Time, and Venue	Speaker and Topic
October	October 08, 2019, 11.30 am–1.00 pm Grand Traverse Pie Co., Midland	Jeffrey Koperski Saginaw Valley State University “Engineering Ethics: A Clash of Fundamental Principles”
November	November 14, 2019, 11.30 am–1.00 pm Grand Traverse Pie Co., Midland	Bruce Royce & Patrick Frazee City of Midland “Overview of Operations at Midland WWTP”
January	January 14, 2020, 6.00 – 7.30 pm Venue TBD	Ted Calverley Dow Topic TBD
February	February 11 2020, 6.00 – 7:30 pm Grand Traverse Pie Co., Midland	Ken First Consultant, Center for Chemical Process Safety (CCPS) “CCPS Process Safety Boot Camp”
March	March 10, 2019, Time TBD Venue TBD	Josh Siegel Michigan State University “Internet of Things”
April	TBD	Rich Helling Dow “Thinking about Sustainability”
May	TBD	Spring Banquet