THE ACTION & *REACTION*

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

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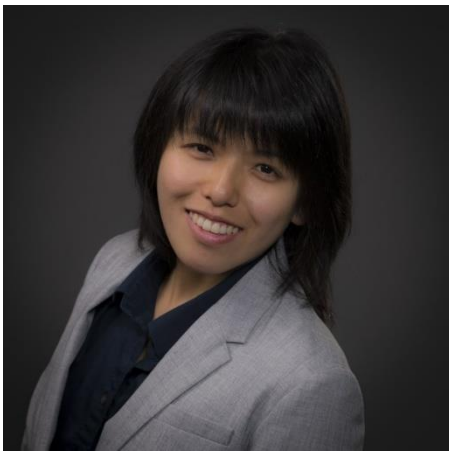
MMAIChE Banquet 2023

Words from the Chair

BY JYO LYN HOR, CHAIR

Recently, I had the opportunity to attend an in-person conference, meeting with attendees representing various industries and institutions. Throughout the duration, I was able to encounter and interact with people working on projects and ideas that I have either rarely or never thought of. Mid-Michigan AIChE strives to provide a similar platform on a community level and connect professionals regionally, as well as disseminate knowledge and connect younger generations to STEM education and career opportunities. In the last few years of my participation in MMAIChE, I observed the resilience of the organization in continuing its traditions of celebrating people and organizing seminar programs in uncertain times by pivoting to an outdoor or virtual meeting format. In addition, a new EDI chair position was introduced to emphasize the intersectionality of identities and promote inclusion and diversity in our programs.

I thank all the committee members for keeping our local chapter active and organized: Miao kept us organized and focused on our missions as a local section through his leadership; Mark and Eric diligently kept our records, communications, and finances in good order; Seshasayee brought a spritz of creativity to the newsletters (occasionally with the collaboration of ChatGPT); Carlos, Pat, and Kim continuously engaged with the community for STEM outreach and career development opportunities; Preetam and Rich organized various seminars in diverse and relevant topics; Mike and Ted for organizing the awards and scholarship committee; and our directors Laura, Victor, and Shawn who provide helpful guidelines and suggestions to steer MMAIChE to our vision; as well as Laura, Greg, and Bala who helped with publicity, membership, and our website. As we usher in a new season, it is a bittersweet time as we part with some familiar faces on the committee. I'd like to again thank Mark for his contribution as secretary for the past 2 years, as well as Pranav for all the wonderful programs he put together as program chair. I'd also like to welcome Molly Eller as our new secretary, as well as Roque Gochez as our new vice chair. If you are interested in becoming involved or volunteering in any capacity for MMAIChE, feel free to reach out to me or anyone else to learn more about our available roles and upcoming opportunities!



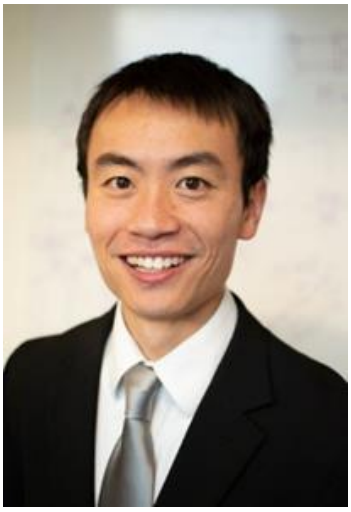
As things ease back into our new normal, I encourage you to get outside and enjoy this beautiful summer! We will be back in the fall with our kick-off (stay tuned for the announcement!) and seminars.

Sincerely,

Jyo Lyn Hor

Words from the ex-Chair

BY MIAO WANG, FORMER CHAIR



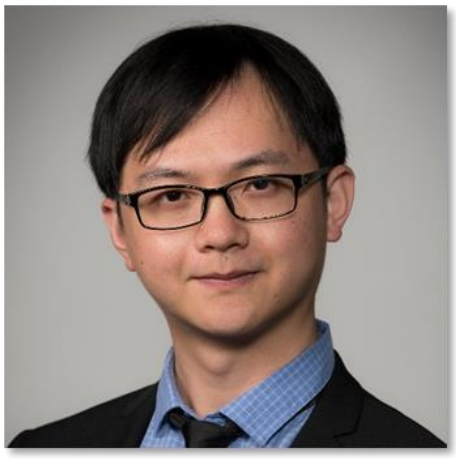
Greetings, MMAIChE members! I hope you are enjoying the cool Michigan summer (at least the morning hours) and taking advantage of the various outdoor activities. At the Midland Country Club, we successfully hosted our Spring banquet where we commemorated our achievements in the 2022-23 year and accomplishments of our chemical engineering award recipients and scholarship winners. Reflecting on the past year, our section leaders, chairs, and officers have worked together to engage our members and the community, creating opportunities for in-person interactions while expanding our reach through virtual experiences. Our commitment to bringing back in-person events demonstrates our desire to foster a strong sense of community within the organization. And our goal is to foster a vibrant and engaged community of engineers who are empowered to collaborate and drive innovation.

We couldn't have achieved our programming goals without the dedicated individuals in our organization. I want to thank our section leadership, committee chairs, and officers for their invaluable contributions. Through our collective efforts, we've created an inclusive environment that welcomes and supports everyone. Additionally, I also want to express my gratitude to all our members for your ongoing support. Your participation is essential for the continued success of our organization. With this passionate community of individuals, we remain committed to advancing STEM education, fostering member development, and promoting diversity, equity, and inclusion in all our programming efforts.

As we transition to new section leadership, I want to express my appreciation for the opportunity to serve as your leader. It has been an honor to work alongside such a wonderful group of people. I'm excited about the future under the leadership of Jyo Lyn and our new executive committee. MMAIChE serves as a nurturing community that fosters inspiring leaders, and I look forward to welcoming new members to join our collective efforts. With this team in place, I have confidence that we will continue making a positive and lasting impact.

Jing Luo Receives Mid-Michigan American Institute of Chemical Engineers' Young Chemical Engineer of the Year Award

BY MIKE MOLNAR, AWARDS CHAIR



On May 4th, Jing Luo, Research Scientist in Engineering and Process Sciences Core R&D, The Dow Chemical Company, was awarded by the Mid-Michigan Local Section of the American Institute of Chemical Engineers (AIChE) as the Young Chemical Engineer of the Year for the 2022-2023 program year. This award recognizes technical and professional expertise, and leadership that is superior for an early-career engineer.

Jing Luo joined The Dow Chemical Company in 2017 following completion of his PhD from The University of Pennsylvania in Chemical Engineering. During his time at UPenn, he published fifteen peer reviewed papers in prestigious journals such as Applied Catalysis and AIChE Journal.

During his career to date, Jing has been instrumental in supporting multiple business projects for Dow as part of Core R&D's Engineering and Process Sciences organization. He has led process development on multiple new technologies by running 5,000-hour long experiments in the laboratory to de-risk new technologies and optimize process conditions prior to moving to pilot or plant scale. Using the expertise gained from miniplant operations, he was instrumental in designing, building, and safely commissioning two additional miniplants of increasing complexity, leading to an expansion in the team supporting miniplant experimentation.

During his career at Dow, Jing has clearly demonstrated a strong knowledge of chemical engineering as well as an innate ability to master new technologies in support of his many projects. He has published an additional three peer-reviewed journal papers while at Dow, greater than fourteen Dow internal technical reports, and has given ten technical presentations to both industry and academia. He currently has four U.S. patent applications and continues to be one of the Process Sciences team's most prolific inventors.

In addition to significant contributions to Dow internally, Jing has also demonstrated exceptional technical leadership with Dow's external partners. He is the Principal Investigator of a University Partnership Initiative (UPI) program with the University of Illinois at Urbana–Champaign (UIUC). During the past five years, he has actively contributed to this university program by sharing Dow in-house catalyst samples with the students and professor for concept validation, providing research direction and focus, coordinating with catalyst vendors to obtain more catalysts, and recently leveraging Dow's analytical expertise on characterization of several leading catalysts to understand the reaction fundamentally. As a result, this UPI has delivered outstanding documentation including multiple oral/poster presentations, three US patent filings, and three journal papers of which he is the co-author/co-inventor. As the initial funding for this project was ending, he wrote a proposal to extend funding and received the highest score from the UPI review team resulting in additional funding for this program. Furthermore, the novel approach to generate bio-solvents collaboration with UIUC recently received recognition as an IChemE 2022 Global Research Project Awards Finalist.

In addition, Jing's leadership activities in both professional societies and his local community involvement exemplify his life-long passion for promoting engineering excellence and encouraging more chemical scientists' interests and pursuit of science in technical communities. Noteworthy are the years of service and leadership he has contributed to the American Institute of Chemical Engineers (AIChE), where he is involved in the Process Development Division (PDD) for over five years. He has chaired or co-chaired five sessions at the AIChE Annual Meeting and is currently the coordinator for the Process Intensification & Microprocess Engineering focus area within the PDD.

On behalf of the Mid-Michigan Local Section of AIChE and its awards committee, we would like congratulate Jing for this well-deserved accomplishment.

Teresa Datz-Siegel Receives Mid-Michigan American Institute of Chemical Engineers' Chemical Engineer of the Year Award

BY MIKE MOLNAR, AWARDS CHAIR

On May 4th, Teresa Datz-Siegel, Manufacturing Fellow, Hemlock Semiconductor Operations LLC, was awarded by the Mid-Michigan Local Section of the American Institute of Chemical Engineers (AIChE) as the Chemical Engineer of the Year for the 2022-2023 program year. This award recognizes exceptional career accomplishments and leadership in Chemical Engineering.

Terri joined Hemlock Semiconductor Corporation (HSC) in 1985 following the completion of her B.S. degree in chemical engineering from The Ohio State University. She joined the company at a historic time of evolution as they underwent a dramatic shift in technology development to improve manufacturing productivity of its high purity polycrystalline silicon production. In her role within HSC's Science and Technology group, Terri was instrumental in the early operation of its AHOST (Advanced Hydrogenation of Silicon Tetrachloride) conversion process and chlorosilane purification processes. The hydrogenation reactor technology enabled the recycle of co-produced silicon tetrachloride generated in the chemical vapor deposition of silicon from trichlorosilane back to trichlorosilane and hydrogen chloride, the latter of which is reacted with metallurgical-grade silicon at HSC's Trichlorosilane Operations facility located in the Michigan Operations Chemical Park.

Following the successful start-up of HSC's PHARO capacity expansion, she transferred to Dow Corning Corporation. Between 1989 and 1996, as a process engineer, Terri worked in process scale-up and new product development supporting the development of anti-foams and silicone-organic dispersions. Her work focused primarily on Dow Corning's pulp and paper markets, where silica-containing, silicone-glycol copolymer formulations are essential to the performance of foam control within pulp and black liquor streams handled in paper processing plants. She also worked on development of Dow Corning's Flowable Oxide (FOx) dielectric materials, a platform

of hydrogen-containing silsesquioxanes that have been used in integrated circuit (IC) fabrication that today by DuPont Electronic Materials' product portfolio.

In 1996, Terri rejoined Hemlock Semiconductor, where she led the start-up and commissioning of the S-73 HOST and Distillation manufacturing as part of HSC's PHARO III expansion and she later as the manufacturing team leader for S-73 building. She spent significant time leading HSC's Management of Change process and process safety, including the coordination of multiple HAZOP and LOPA studies of HSC chemical processes. She has served as both Operations Area Leader for the polysilicon deposition processes along with management of multiple production buildings during HSC's SOLAR expansion projects during the mid and late 2000's. She has led teams of manufacturing and quality engineers aligned with deposition, chlorosilane, and finishing processes and she has served as a manufacturing consultant for HSC's core technologies. In 2018, she was promoted to Manufacturing Fellow at HSC, and she has most recently also assumed the leadership for HSC's manufacturing expansion project as the lead project manager.

Terri is considered an expert in the safe handling of chlorosilane materials and the successful management of process start-ups for the manufacture of semiconductor and solar grade polycrystalline silicon, including over $3 billion of capital investment at HSC. In 2022, she was recognized by the Michigan Manufacturing Association as their Manufacturing Woman of the Year.

Terri is a senior member of the American Institute of Chemical Engineers. During her professional career, she has authored more than 25 technical reports and numerous start-up summaries and RCI reports. She is a recognized inventor with two granted patent families. Outside of work, she has served as a volunteer coach for St. John's Lutheran Church in Midland for both girls' volleyball and basketball. She enjoys being active whether it be attending her regular spin or yoga classes or one of her many trips around the country to go hiking.

On behalf of the Mid-Michigan Local Section of AIChE and its awards committee, we would like congratulate Terri for this well-deserved accomplishment.

2023 Chemical Engineering College Scholarship Awarded to Shubhan Nagarkar

BY TED CALVERLY, SCHOLARSHIP CHAIR

Shubhan Nagarkar, a graduate of H.H. Dow High School has been awarded the 2023 Mid-Michigan AIChE Undergraduate Scholarship. The scholarship provides $2,000 over 4 years for a graduating senior from the Great Lakes Bay region and neighboring counties who plan to study chemical engineering at an accredited university or college. The scholarship awards academic performance as well as school and community involvement. It is intended for a student who has a high probability of obtaining a chemical engineering degree and becoming a practicing engineer.

Shubhan plans to attend Michigan State University where he will major in Chemical Engineering with a Biomedical Concentration. His impressive 4.0 GPA (4.9 weighted), numerous awards in mathematics and science competitions along with a research internship at MSU attest to Shubhan's academic excellence and commitment to a science-centric career. In addition, he is involved in many academic-oriented school clubs such as First Robotics, NHS, Computer and Math clubs as well as being a member of the Dow High tennis team and the marching band. Away from school, Shubhan is also involved with the Midland Tennis Center, tutoring through The Rock and volunteering at the Grace A Dow Memorial Library. Congratulations Shubhan for this well-deserved honor.

2023 Engineering Exploration Scholarship Awarded to Sterling Tomac

BY TED CALVERLY, SCHOLARSHIP CHAIR

Sterling Tomac, a sophomore at Chesaning Union High School, has been awarded the 2023 Engineering Exploration Scholarship to atttend the Summer Youth Program at Michigan Technological University (MTU). The MMAIChE Engineering Exploration Scholarship provides an opportunity for high school students to explore science and engineering careers through laboratory, classroom, and field experiences at the MTU Engineering Exploration Summer Youth Program in Houghton, MI. The scholarship is open to students in grades 9 – 11 in the Great Lakes Bay region and neighboring counties.

Inspired by his father's work in water control structures in natural waterways, Sterling is clearly motivated to create practical solutions to real-world problems. He realizes that an Engineering background would be an excellent platform to help society solve the challenges that face us.

His many extracurricular activities show an interest in making things and solving problems, especially as related to his many 4-H activities. Also active in the FFA (Future Farmers of America), Sterling has advanced to the state level finals in FFA public speaking competitions for 3 consecutive years. He also won first prize in the National FFA Agriscience Fair in 2020 for his project "Impacts of Biodegradable Hydraulic Oils on Plant Life". He rounds out his extracurricular interests by playing on his school's Baseball and Tennis teams. Coupled with his solid 3.8 GPA and on an accelerated mathematics track, Sterling clearly has the academic skills to make his engineering career aspirations a reality.

MMAIChE learns to brew!

BY PATRICK HEIDER, YOUNG PROFESSIONALS CHAIR

On April 20, the MMAIChE hosted Dr. Nicole Shriner from MSU to talk about the science of beer brewing. The event was hosted at Midland's own Mid-Michigan Brew Supply. Prior to the talk, Nicole Kris, owner of the brew supply, gave a tour of the store highlighting many pieces of equipment and ingredients discussed by Dr. Shriner in her talk. The MMAIChE brewing team also had samples of the three beers entered into the AIChE competition at the Annual Meeting last fall in Phoenix.

MMAIChE and ACS co-hosted Trivia Night at the Park

On June 23, the Equity, Diversity, and Inclusion Committee and Midland ACS Diversity and Inclusion Committee co-hosted their 3rd annual Trivia Night in the Park at Emerson Park. Approximately 50 people attended to network, socialize, eat tacos, and participate in trivia with an emphasis on diversity and inclusion. Team “Leftovers” took home the trophy. Thank you to everyone who helped with organizing and attended!

Career Paths of Chemical Engineers

The Equity, Diversity, and Inclusion Committee collaborated with Mid-Michigan SWE to co-host a seminar series entitled "Career Paths of Chemical Engineers" this past winter and spring. Funded by a Project Connect Grant from AIChE and targeting undergraduate students, the virtual seminar series highlighted the diversity of career paths of chemical engineers. Over the course of 4 months, we had four speakers:

- Dr. Itzel Marquez, Assistant Professor, Central Michigan University
- Alix Schmidt, Senior Data Scientist, Dow
- Kyle Mick, Sr. Business Development Manager, Encapsys LLC
- Janelle Trowhill, Environmental Engineer, Michigan Department of Environment, Great Lakes and Energy

These four speakers highlighted a degree in chemical engineering can take you many places! Students who attended came from Kettering, Michigan Tech, Western Michigan, and Central Michigan. We are looking forward to improving this seminar series for the next year. Thank you to our speakers for volunteering their time and speaking with students!

Welcome Molly Eller and Roque Gochez to MMAIChE committee!

About Molly (Joins as Secretary):

Molly Eller is a Senior Research Specialist in Core R&D Chemical Science. In her current role, Molly is responsible for catalyst discovery and reactor capabilities of heterogeneous catalysis. Molly is based in Midland, MI.

Molly joined Dow in December 2020. She recently completed three very different rotations across Dow including Core R&D, Manufacturing & Engineering, and Business R&D. Molly is a chemical engineer by training. In academia, Molly demonstrated a track record of creating and delivering on projects as captured in >15 peer-reviewed publications and 1 patent. Prior to joining Dow, Molly developed plasma etch equipment and processes at Lam Research.

Molly holds a B.S. degree in Chemical Engineering from the Tsinghua University in Taiwan, a Ph.D. in Chemical Engineering from the University of Illinois at Urbana-Champaign, and a postdoc at the University of Texas at Austin.

About Roque (Joins as Chair-Elect):

Roque Góchez is an Associate Research Scientist in the Copolymers group of Dow Consumer Solutions Process R&D. His role at Dow is to enable the commercialization of innovative siloxane polymers through process design & simulation. Research interests include fluid mixing simulation, separation process modeling, and estimation of thermodynamic properties. Roque is currently involved in AICHE's Process Development Division, where he serves as a session chair for Fall meetings. Additionally, he is the Industry Liaison for AICHE's LatinX in CHE affinity group.

Roque joined Dow in 2018 shortly after obtaining his PhD. degree in chemical engineering from Clemson University in South Carolina. Prior to joining grad school, he worked for three years as research engineer in coatings at Sherwin Williams of Central America, El Salvador. On his free time, Roque likes to hike, create digital illustrations, and play piano.

Donating to Support a Future Engineer through Mid-Michigan AIChE is Easy!

The Mid-Michigan Section of AIChE is involved in STEM educational outreach. We provide classroom demonstrations and support aspiring engineers through scholarships for summer camps and chemical engineering degrees. Your donation will be used to help Mid-Michigan AIChE sustain the scholarship fund that sends high school students to the Michigan Technological University Summer Youth Program or to an accredited university or college for a degree in chemical engineering.

You can choose to donate using a PayPal account or with a Debit or Credit card.
The PayPal link is:
https://www.paypal.com/donate/?cmd=_donations&business=eestangland%40charter.net&item_name=Scholarships+donations+to+Mid-Michigan+AIChE&currency_code=USD

OR scan the QR Code on your smartphone – it takes seconds!

Donations are tax-deductible and our secretary can provide you with a receipt.
We sincerely thank you for financially supporting aspiring chemical engineers.

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The Mid-Michigan Section of AIChE gratefully acknowledges the support provided by the following sponsors.

2023 Kick off announcement – Stay tuned for more details!

Mid-Michigan AIChE to Hold the Annual Summer Kick Off

Featuring some real good food from MI Element Grains & Grounds

Mark your calendar! The Mid-Michigan Section of the American Institute of Chemical Engineers (AIChE) cordially invites you to attend the annual Summer Kick Off on Tuesday, Sep 12th, 2023, at the MI Element Grains & Grounds in Midland from 5 to 8 pm. We will be discussing all the events that we plan to have in the next calendar year and more during the event. Stay tuned for more details to follow in the coming days!

When: Tuesday, Sep 12th, 2023, 5 – 8 pm

Where: MI Element Grains & Grounds

Follow us on Facebook for events, updates and more
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