

The Newsletter of

The Mid-Michigan Section of AIChE

American Institute of Chemical Engineers

Mission: To provide 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.

Published by the American Institute of Chemical Engineers
Mid-Michigan Section
P.O. Box 2496
Midland, MI 48641-2496
Volume 18, Issue 1 (February, 2015)
Website: www.mmaiche.org

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Mid-Michigan AIChE Chair Laura Dietsche (right) discusses STEM education outreach with Prof. Cynthia Drake of Delta College at the Dow Great Lakes Bay Regional Science & Engineering Festival VIP luncheon. (Photo by Justin Dalke, Delta College). See page 7 for more information.

Words from the Chair...



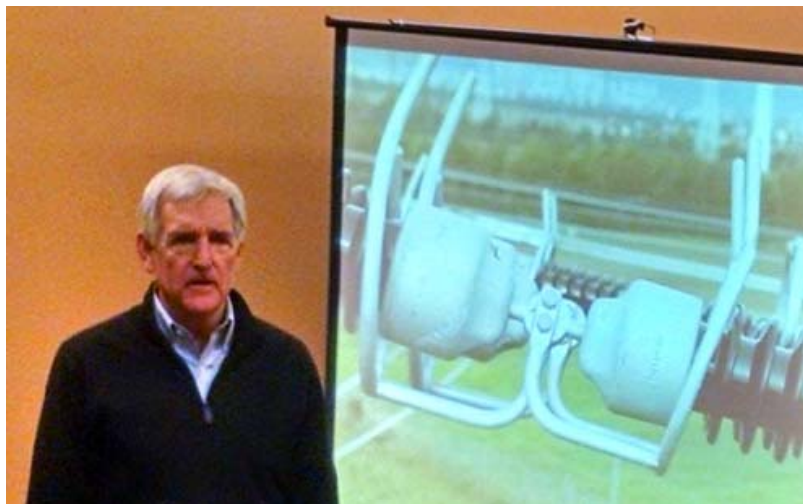
Time flies. It's up to you to be the navigator. (Robert Orben)

They say time flies faster as you get older, so I should not be surprised that my term as Mid-Michigan AIChE Chair is already two thirds over. They also say that time flies when you are having fun, so as I look back on the past eight months, I have an alternative explanation as to why they have passed so quickly. There was certainly a lot of fun going on at the tasting event for the beer brewing contest held this past year (see pages 9 – 14). We have also had four great seminars so far in our 2014-15 series. In October, we invited a couple of students (Jacob Annibal and Carl Herman) from Michigan State University to share their experiences and innovations as part of the MSU Chem-E-Car team. It is exciting to see the development of talent and passion.



Jacob Annibal and Carl Herman from Michigan State University discuss their participation in the AIChE Chem-E-Car competition for an audience of like-minded engineers.

In November, Jozef Bicerano (consulting scientist) gave a seminar on the current trends in environmentally sustainable polymers. We were reminded of our professional responsibility to look for sustainable engineering solutions. In December we took to the air (in our minds at least) with a fascinating talk by Bill Donberg (Aetos Group) on the emerging use of unmanned aircraft and land rovers to perform infrastructure inspections, environmental monitoring, and disaster relief in the chemical and oil & gas industries. Bill has also been a key player in Northwestern Michigan College's entry into unmanned aircraft training as part of their aviation program.



Jozef Bicerano and Bill Donberg.

In January we were privileged to have Dan Hickman, the winner of Mid-Michigan AIChE's 2014 Chemical Engineer of the Year award, give us a personal history on his contributions to identifying the right laboratory data to use in creating kinetic models for the scale-up of trickle bed hydrogenation reactors. Dan is well known for his expertise in kinetic and reactor modeling as was evidenced by the great turn out for this seminar.



Dan Hickman discusses the finer points of trickle-bed reactor design ...



... while members of the Section pay close attention.

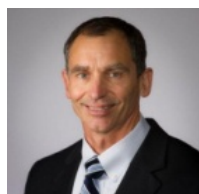
We also had a good turnout from our section at the Annual AIChE meeting in Atlanta last November. Two members of Mid-Michigan AIChE and a third AIChE member in our local area were recognized with awards at the meeting.



Tim Frank received the Separation Division's Clarence G. Gerhold Award for outstanding contributions in research, development, and application of chemical separations technology.



Karl Jacob received the Particle Technology Forum Award for outstanding scientific and technical contributions to the field, as well as leadership in promoting scholarship, research, development, and education in this field.



John Wassick received the Computing Practice Award from the Computing and Systems Technology Division for outstanding contributions in the practice and application of chemical engineering to computing and systems technology.

We also continued the tradition of having members of Mid-Michigan AIChE stepping up to leadership positions within AIChE. Recently, Alan Nelson was elected to serve as a Director on the AIChE Board. Two members were elected to serve on two of the three AIChE operating councils. Dewey Yin will be serving on SIOC (Societal Impact Operating Council), where he can share his passion and organization skills for K-12 educational events. Laura Dietsche (yours truly) will serve on CTOC (Chemical Technology Operating Council), which oversees the meetings, publications, and Technology Communities. At the risk of missing some names (please let me know if I have), I would like to acknowledge other Mid-Michigan AIChE members that are serving in leadership roles throughout AIChE:

- Megan Donaldson is the Chair of the Women's Initiatives Committee (WIC) and a Director of the AIChE Separations Division
- Defne Kayrak Talay is serving as Immediate Past Chair of WIC
- Ben Freireich is an Executive Committee Officer for the Particle Technology Forum
- Tim Frank is the Chair of the AIChE Separations Division
- Eric Stangland is a Director of the AIChE Catalysis and Reaction Engineering Division
- Jonathan Moore is Vice-Chair for the Computational Molecular Sci. & Engineering Forum.
- Jeffrey Fox is the 2nd Vice-Chair of the AIChE Safety & Health Division
- Fred Justice is the Immediate Past Chair of the AIChE Fellows Council and a member of SIOC.

The list would definitely be longer if we included all the folks that are volunteering on various committees and task forces. Thank you for your willingness to serve our profession.

Speaking of leadership, we have had a couple of changes in the committee chairs for Mid-Michigan AIChE. Defne Kayrak Talay has taken over as Chair of the Programming Committee which plans and runs our seminar program. She would love to hear about any ideas you might have for seminars or field trips as we begin planning the 2015-16 series. Our thanks go out to Vishesh Shah for the great job he did in this position and we wish him the best as he moves on. We also welcome Maureen Ferries as Co-Chair of the Young Professionals Committee as our current Chair, Anshul Agarwal, begins transitioning to a new job. Maureen would love to have your ideas and help in organizing activities for our YP members. If you would like to get more involved on any of our committees, please contact the committee chair listed at end of the newsletter. Also, our officer elections are coming up, so if you know of any potential nominees (including yourself), please let me know.

There is one other change that we are working on. We are in the process of transferring our Mid-Michigan AIChE webpages to the AIChE web server. This will allow us to divert the money we are paying for our current web host service provider to other section activities. In the near term, both sites will be active. We invite you to take a look at the new site (<http://www.aiche.org/mid-michigan>) and give us your feedback.

Even though time is flying, the year is not over yet. Please take a look at the articles below to see some of the seminars and activities that you can participate in the coming months. I would like to highlight the Spring Banquet to be held on Wednesday, May 20th, where our guest speaker will be Cheryl Teich, current President of AIChE. I hope to see you there. If you have any questions or suggestions, please do not hesitate to contact me or any member of the leadership team.

Laura Dietsche

Chair, Mid-Michigan Section of AIChE



Current and Upcoming Events for

Mid-Michigan AIChE

American Institute of Chemical Engineers

Mid-Michigan AIChE to Host Three More Seminars This Year

By Defne Kayrak Talay, Programming Chair

Don't miss out on three exciting events coming our way. Be sure to mark your calendars:

- Margie Pierce, the owner of Sourcing Engineers, Inc., will give a talk on “Entrepreneurship in Engineering” on February 18, 2015. The talk will cover the history of entrepreneurship in engineering, the skill set needed for starting a business, as well as Margie’s advice from her own experience. Even if you are not considering starting your own business in the near future, the learning can be applied to any initiative or new business efforts you may lead in your current role.
- The March seminar will feature Aaron M. Johnson of the Dow Chemical Company. Aaron is Global Application Development Leader for Dow Water & Process Solutions and his talk will focus on “Potential and Controversies of Fracking”. The seminar will take place on March 11, 2015.
- Have you ever wondered about the huge effort behind building the brand new Winter Olympics venue in Sochi and making sure there was plenty of snow for the events? Then join us on April 7, 2015, as Joe VanderKelen, President of SMI Snow Makers (a Midland based company), tells us about snow making technology and relates some of the engineering and construction challenges in getting ready for the 2014 Olympics.

The seminars are held from 6:00 PM to 8:00 PM at the Grand Traverse Pie Company in Midland, Michigan. The talk starts at 7:00 PM, and prior to each talk, you will have an hour to network with the speaker and other chemical engineers with various backgrounds, while enjoying some light snacks. The seminars also qualify for one professional development hour (PDH). PDH certificates will be provided to interested attendees.

Don't forget to mark your calendar for the annual Mid-Michigan AIChE Spring Banquet to be held on May 20th. Our Keynote speaker is Cheryl Teich, the current AIChE president. More details will be coming soon. For more information about any of the seminars or the banquet please contact Defne Kayrak-Talay (DKayrakTalay@dow.com) or visit www.mmaiche.org.

Mid-Michigan AIChE K-12 STEM Education Outreach Activities

By De-Wei Yin, STEM Education Outreach Chair

In addition to our scholarships program (see pages 16 – 17 in this issue of the newsletter), Mid-Michigan AIChE continues to be an advocate of education in science, engineering, technology, and mathematics (STEM) subjects by directly engaging with educators and pre-college students through our Section's outreach activities, both locally in the Mid-Michigan area and reaching out across the nation. Some of our activities in the past year are highlighted below.

Dow Great Lakes Bay Regional Science & Engineering Festival

Following a successful inaugural in October 2013, Mid-Michigan AIChE returned to the second Dow Great Lakes Bay Regional Science & Engineering Festival on Friday and Saturday, September 26 and 27, 2014. As in the first year, the Festival was hosted by the Science Division of Delta College in University Center, MI and produced by the Mind Trekkers STEM Road Shows from Michigan Technological University in Houghton, MI.

Close to 3,300 grade 6 to grade 8 students and 289 teachers from 29 middle schools in the Midland, Bay City, and Saginaw School Districts attended the Festival on the opening Friday on school field trips. The students explored various topics on anatomy and biology, automotive engineering, chemistry, geometry, energy, environmental science, food science, manufacturing, materials and polymer science, medical science, metallurgy and welding, physics, robotics, security and logistics, and transportation. The Festival was open to the general public on Saturday and attracted approximately 1,500 attendees of all ages. The Mid-Michigan AIChE exhibit was staffed by 27 volunteers over the two days and featured hands-on activities that demonstrated the concepts of friction in granular packings, particle fluidization, and the exploitation of density differences in separation processes.

Besides being one of the 44 nonprofit and corporate exhibitors, Mid-Michigan AIChE is actually a founding collaborator of the Dow Great Lakes Bay Regional Science & Engineering Festival, and our partnership with the Center for Pre-College Outreach at Michigan Tech University traces back to a chance encounter between the leaders of the two organizations at the second U.S.A Science & Engineering Festival in 2012. Mid-Michigan AIChE has played two important roles in the Dow Great Lakes Bay Regional Science & Engineering Festival: (1) working with the Midland Section of the American Chemical Society as liaisons to bring other organizations into the Festival, including local representatives from the American Foundry Society, the American Society of Metallurgy, the American Physical Society, the Society of Plastics Engineers, the Society of Women Engineers, and the National Oceanic and Atmospheric Administration; (2) helping to secure support and sponsorship from The Dow Chemical Company, the Department of Transportation of the State of Michigan, and the Bay Area Community Foundation and Saginaw Community Foundation.

Beyond the Mid-Michigan region, Mid-Michigan AIChE has provided planning and staffing support for AIChE's exhibit at the third U.S.A. Science & Engineering Festival in Washington, D.C. in April 2014, and is currently serving in an advisory capacity to the Dow Houston Area Science & Engineering Festival to be held in March 2015.

Local Middle School Science Classroom Outreach Program

Currently during the winter 2015 school semester we are working with several science teachers to revamp our classroom outreach program. Mid-Michigan AIChE volunteer instructors visit science classes at local middle schools and spend an hour leading students in activities and discussions.

A new surface tension program was piloted at Northeast Middle School in Midland in early February, and will be launched in late February and early March in Midland and Auburn. The hour-long lesson plan combines two popular surface tension demonstrations — placing as many clean or soapy water droplets as possible on a penny, and using food coloring to visualize the breaking of surface tension in whole milk — and integrates these two activities with the practice of the scientific method, with emphasis on hypothesis testing, graphing, and data analysis.

Teachers and parents who are interested in learning more about our program and prospective volunteers who wish to help with classroom instruction may contact De-Wei Yin for more information (contact information is listed on page 19).



Ben Freireich (left) and Justin and Lindsay Walker prepare the particle friction demo at Dow Great Lakes Bay Regional Science & Engineering Festival. (Photo by Adam Sohn, Delta College)



Sam Green talks about particle fluidization with an adult, while Seth Alson explains to a student how a mixture of two types of polymer beads can be separated by exploiting the difference in their densities. (Photo by Pete Milliman, Delta College)

Homebrew Tasting and Competition – Part II

By Michael Vagnini and Anshul Agarwal

The Mid-Michigan Section of AIChE (MMAICChE) collaborated with the Younger Chemists Committee of the Midland Section of the American Chemical Society (Midland ACS YCC) to sponsor and organize the area's first Homebrew Tasting and Competition on October 25. This was the first time such an event has been organized by MMAICChE, and it provided a casual medium for professionals in and around Midland to interact through the friendly competition of beer-making! This article is Part II of a two part series. Part I, which appeared in volume 17, issue 3, pages 12 - 14 (October, 2014), is available from the MMAICChE website at www.mmaiche.org.

There were 95 entries from fifty participants submitted for judging, and they included nearly every major style category of beer. During the week of October 12, the participants brought two 12 oz. bottles of each entry to WhichCraft Taproom for the closed judging session on October 18. A team of fourteen judges evaluated each beer a week prior to the tasting event, and the panel included two brewers from Tri-City Brewing Company and the Craft and Import Beer Manager for O'Sullivan Distributing. The rubric used for judging was similar to the BJCP guidelines. Each beer was tasted twice, and the judges recorded detailed feedback on aroma, appearance, flavor, and mouthfeel. Scores for each entry were averaged, and the top eight brews proceeded to a final round of judging, where they were ranked by four tasters. Here is a snapshot of the judging event.



The judging event for the Homebrew Competition at the WhichCraft Taproom.

The winners were announced at the main tasting event at Midland's WhichCraft Taproom on Saturday October 25 from 1-4pm, graciously hosted by taproom owners Richard and Sharon Caldwell. Due to the high level of participation and the capacity of the host facility, the event was open only to the competition participants and one guest of each brewer, co-brewer, and

tasting event volunteer. Approximately 100 people were in attendance, including the eight volunteers from the area who poured samples of all the homebrew that was judged the previous week. Welcomes were given by Rich Helling and Tom Gregory of MMAICHe, John McKeen of Midland ACS YCC, and Mike Vagnini, a local homebrewer and chemist who helped lead the organization of the tasting event.

WhichCraft was abuzz for three hours as beer enthusiasts tasted each other's creations and talked about everything from flavor profiles to water chemistry. Some guests developed their own rating system to compare their own winners to the official ones to be announced that day. Throughout the afternoon, brewers and beer tasters were commenting that it was about time that an event like this was held in the area, as it brought together a large part of the local homebrew community for the first time.

Suspense built until the winners were announced near the end of the tasting event. The winners are listed below, and they each received a prize package from a local beer-centric establishment. There were style category awards for best stout, India pale ale, American ale, and French/Belgian ale, since each of those categories had at least ten entries. From the top eight beers that advanced to the final round, the second runner-up, first runner-up, and best in show brews were recognized. There were four first-time homebrewers among the participants, and they also received special recognition.

Best IPA: Devo's IPA, brewed by Devon Benedict. Awarded 1 lb. of Falconers Flight hops from Hop Head Brew Supply in Bay City, MI.

Best Stout: Iorick, a Russian imperial stout brewed by David Thomas, Megan Thomas, and Mike Vagnini. Awarded a \$20 gift card to Michigan Brew Supply in Midland, MI.

Best French/Belgian Ale: Happy Camper: Wild Ride, a Belgian saison brewed by Chad Anders. Awarded a maple mash paddle from Hop Head Brew Supply.

Best American Ale: Rocking Horse Shite, a pale ale brewed by David Thomas, Megan Thomas, and Mike Vagnini. Awarded a \$20 gift card to Hop Head Brew Supply.

Second Runner-up: Iorick, a Russian imperial stout brewed by David Thomas, Megan Thomas, and Mike Vagnini. Awarded a \$30 gift card to Hop Head Brew Supply and one WhichCraft mug club membership.

First Runner-up: Satan Was Here, a blackberry Berliner weisse brewed by David Thomas, Megan Thomas, and Mike Vagnini. Awarded a \$50 gift card from Hop Head Brew Supply and a 5 gal. keg from Michigan Brew Supply.

Best in Show: Polar Vortex, an imperial stout brewed by Chad Anders and Cody Smith. Awarded the unique opportunity to scale up the recipe on the half-barrel pilot system at Saugatuck Brewing Company. They also won a 5 gal. keg from Hop Head Brew Supply.

The organization of the judging and tasting required the joint effort of many people in the local brewing and beer community. The core organizing team consisted of Anshul Agarwal, Mike Vagnini, John McKeen, Kristen Gooshaw, and Kyle Andrews. Michigan Brew Supply and Hop

Head Brew Supply not only provided prizes, but they also offered brewing ingredient discounts and recipe advice to competition participants. All of the judges, stewards, and volunteers ensured a smoothly-run event, and the event was promoted by Oracle Brewing Company, a new brewery opening in Saginaw in 2015. The event would not have been possible without Richard and Sharon Caldwell of WhichCraft Taproom, who helped with assembling the panel of judges and hosted both the judging and tasting sessions.

At the close of the event, brewers were already talking about next year's competition and had plenty of ideas to offer. The first Mid-Michigan Homebrew Tasting and Competition was certainly a roaring success, and it has hopefully set a strong precedent for local MMAICHe-sponsored events in the future. AICHe's Young Professional Committee is interested in holding a similar competition at the national level and MMAICHe is actively involved with them in order to ensure its success.

The next several pages show scenes from the tasting event.









Nominations will Soon be Open for Mid-Michigan AIChE Annual Awards

By Michael Molnar, Chair of the Awards Committee

Each year the Section recognizes distinguished members by presenting awards at the Annual Spring Banquet. Honors are given in up to four categories:

Chemical Engineer of the Year - This award generally is given to a distinguished chemical engineer in the Mid-Michigan Section with about 20-30 years of professional experience following graduation. Publications, patents, company recognition of achievement, and other accomplishments in the field of chemical engineering are key criteria for consideration. The individual must be an active participant in AIChE at either the local or national level to be considered. This is normally an annual award.

Young Chemical Engineer of the Year - This award recognizes service to AIChE, technical and professional expertise, and leadership that is superior for an early-career engineer. It is generally given to a person with approximately 4-12 years of service following graduation. This is normally an annual award.

Service to Society Award - This award recognizes long-time service to the profession through role modeling for other engineers and leadership of community activities that benefit area students and residents. Recipients usually have about 25-30 years of service following graduation. Active membership within the local section is not required for nomination.

Noland Poffenberger Award - This award is given to a high-level manager who has shown great support of the Mid-Michigan Section by encouraging employees within the recipient's organization to participate in professional organizations such as AIChE. Noland Poffenberger was a former founding member of the Mid-Michigan Local Section during his career at the Dow Chemical Company.

A request for nominations will go out at the beginning of March, so please start considering who you might like to nominate. The nominations will close on Friday, April 17th and the awardees will be announced at the MMAICHE Annual Spring Banquet in May. The following information should be included in the nomination:

- Identify the specific award category that you feel is most appropriate for the individual you are nominating.
- Include several paragraphs explaining why this individual is deserving of special recognition.
- Include background information in support of the nomination, such as a listing of professional accomplishments and service to AIChE.
- Also include a phone number where you as the person making the submission can be contacted for more information.

For more information, and to review the 2014 awardees, please visit www.mmaiche.org and click on the Section Awards link.

Mid-Michigan AIChE Announces Scholarship Applications for 2015

By Nancy Tseng, Chair of the Scholarship Committee

Mid-Michigan AIChE sponsors two scholarship programs each year. One is for a high-school senior who will be going on to college to major in chemical engineering. The other is for a high school freshman, sophomore, or junior wanting to attend the Summer Youth Program at Michigan Technological University in Houghton, Michigan. Details on how to apply are given below.

Mid-Michigan Section of AIChE Scholarship Opportunity

Undergraduate Chemical Engineering Education Scholarship



- Who:** High school seniors who plan to major in chemical engineering
- What:** Renewable scholarship awarding \$2000 over the course of four years to study chemical engineering
- Where:** A college or university of your choice with an undergraduate chemical engineering program accredited by the Engineering Accreditation Commission of ABET
- Eligible programs are listed on:
<http://main.abet.org/aps/Accreditedprogramsearch.aspx>
- Sponsor:** American Institute of Chemical Engineers Mid-Michigan Section
- Deadline:** Applications due by **April 17, 2015**
- Contact:** **Apply online at www.mmaiche.org**

Questions? Contact Nancy Tseng at 248-703-9136 or scholarships@mmaiche.org




Mid-Michigan Section of AIChE Scholarship Opportunity
Engineering Exploration Scholarship



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

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

When: One-week session in the summer of 2015

Deadline: Applications due by **April 3, 2015**

Contact: **Apply online at www.mmaiche.org**

Questions? Contact Nancy Tseng at 248-703-9136 or scholarships@mmaiche.org



Mid-Michigan Section Contact Information

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