

*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.**

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The Section’s Kick-off Meeting was held September 10 at Oscar’s Cornerstone Pub in downtown Midland. See pages 4 – 6 for additional photos.

### *Words from the Chair...*

The heat and hues of summer are now just memories as the delightful processes in the flora around us shower the area with a profusion of fall color and we proceed into our Mid-Michigan AIChE year. We had a well-attended kick-off meeting last month at Oscar's with plenty of good humor and cheerful camaraderie with a nice mix of returning members and new people who are not yet members of the section. It was great that so many of you brought a friend or associate to this event. Dow Chemical was strongly represented but we did have only a very few engineers from Dow Corning and Hemlock Semiconductor. I hope in the coming year we are able to reach out more effectively to *all* of our ChemE colleagues in the area and develop some good engagement with them. I was happy to be able to introduce our Section's executive council with some entertaining facts and fictions. I'm still wondering about Dewey's fictional tale of losing his balance while swimming with dolphins. I was fortunate to speak with quite a few of the guests, including AIChE Fellows Bruce Holden, Tim Frank, Laura Dietsche (our section's chair-elect), and Karl Jacob, an AIChE Fellow who is also a member of the Institute's board of directors. Defne Kayrak-Talay, a member of the Institute's Women's Initiative Committee, was also among the attendees.

Our educational outreach program for the year has started with great momentum thanks to Dewey Yin's organizing efforts and our enthusiastic volunteers. This energetic group spent Friday and Saturday, October 4 and 5, presenting Mid-Michigan AIChE to the public at the Dow Chemical Great Lakes Bay Science & Engineering Festival held at Delta College. Our Section was very nicely identified by a new Mid-Michigan AIChE banner prominently displayed above our table at the exhibit. Dewey worked with Michigan Technological University's Mind Trekkers Science & Engineering Road Show, Delta College, and the Midland Section of the American Chemical Society (Midland ACS) on organizing this festival, and also brought Dow Chemical on board as the naming sponsor. Our section also helped engage 11 other professional societies and non-profit organizations to set up exhibits at the event. This festival was presented in conjunction with Midland ACS's SciFest and Fall Scientific Meeting. We had an experiment supplied by Ben Freireich that demonstrated the dispersion of forces and jamming of granular material using a simple tube-and-plunger toy, a UV light box with a variety of common and uncommon items which were fun to see glow, and a demonstration of a shear-thinning liquid that intermittently exhibited stream-ejection and droplet-hopping behaviors. The volunteers at the booth, along with Ben and Dewey and me, were Sam Green, Patrick Heider, David Couling, John McKeen, Anshul Agarwal, Megan Donaldson, Maya Gallagher, Paul Larsen, Abe Schuitman, Mike Staloch, Laura Dietsche, Kristen Gooshaw, Nancy Tseng, and Alan Stottlemeyer. I offer a big thank you to all of you for giving your time and energy to this outreach effort!

As many of you know, the Institute's annual meeting is coming up next month in San Francisco. If you are presenting there, please let us know. The Institute doesn't automatically communicate back to local sections when members present or win awards, so we're looking to you to tell us about what you are presenting. On the first day of the meeting, in conjunction with the Student Conference's ChemE car competition, the Institute's Societal Impact Operating Council (SIOC) will be having an outreach event for high-school students; the event will be held on Sunday, November 3rd, from 9:00 AM to 3:30 PM. If you are going to be in the area and interested in helping out even for a short time that day, please let us know and we'll get you in touch with Frank Petrocelli, Chair of the SIOC. It would be great to have you representing our Section there.

Our seminar series starts this month with one of our Engineering Exploration Summer Youth Program scholarship winners presenting a talk with some of his FIRST Robotics teammates and competitors about their experiences with the FIRST (For Inspiration and Recognition of Science and Technology) program. The FIRST Robotics Competition is an international high school robotics competition. Each year teams of high school students compete to build robots weighing up to 120 lbs that can complete a task which changes every year. As part of our section's charter to work with the community to improve the understanding of science and engineering and their impact on society, this first seminar of our season offers an excellent opportunity to interact with these students and their sponsors as they are coming to us with their story - and if the weather's nice, their robots too! I hope you are able to take the time to come out for this one-of-a-kind evening.

Finally, some resource news: Perry's Chemical Engineers' Handbook used to be available through Knovel, which many of us could access through our companies' virtual libraries, but McGraw-Hill, the handbook publisher, has ended its contract with Knovel. However as an AIChE member you have free access to Access Engineering, which is a portal to Perry's as well as to other references, through the AIChE elibrary ([www.aiche.org/resources/eLibrary](http://www.aiche.org/resources/eLibrary)). When you do renew your membership (ensuring uninterrupted access to this and other resources) remember to check the box for membership in your local section.

Thank you for engaging with AIChE and helping to make our section so vibrant and colorful. I hope to see you at a seminar or Euchre tournament soon!

*Maxine Cottrell*

Chair, Mid-Michigan AIChE



## Scenes from the Season Kick-off Meeting

Photos by Rich Helling

The September Kick-off Meeting was held Tuesday, September 10, 2013 at Oscar's Cornerstone Pub in downtown Midland. The meeting was held to introduce the new calendar of events for 2013 - 2014. See pages 7 to 10 for more information about this year's program.

Maxine Cottrell served as Master of Ceremonies and John Anderson and David Brown, saxophonist and pianist extraordinaire, provided the music. The following is a collection of scenes from the evening. The people in hardhats are members of the Executive Council: hardhats are much more visible than nametags.



Maxine Cottrell engages the group in a session of the ice-breaker game "Fact or Fiction". For each officer, Maxine cited three potentially true "facts" and asked the group to shout out which one was true.



Here the group attempts to discover the truth.



Dewey Yin explains how he lost his balance while swimming with dolphins (truth or fiction?).



And the group reacts (Do we believe him?) ...



John Anderson and David Brown delighted everyone with their musical musings.

## The Calendar of Events for 2013 – 2014

– *Upcoming Events Sponsored by the Mid-Michigan Section of AIChE* –  
*Be Sure to Reserve These Dates on Your Calendar!*

### Meetings with Invited Speakers

- **FIRST® Robotics team members**, Bullock Creek High School  
*FIRST® Robotics*  
Wednesday, **October 16, 2013**, 6:00 p.m. dinner (optional), 7:00 p.m. presentation
- **Galen Fisher**, Adjunct Professor, Chemical Engineering, University of Michigan  
*Automotive catalysis*  
TBD, **November, 2013**, 6:00 p.m. dinner (optional), 7:00 p.m. presentation
- **Bob Brentin**, NPDP, The Brentin Network, LLC  
*New Product and Market Development: What is Working*  
Wednesday, **December 11, 2013**, 6:00 p.m. dinner (optional), 7:00 p.m. presentation
- **Tour: Tri-City Brewing Company**, hosted by chemical engineer and co-owner Kevin Peil  
Thursday, **January 16, 2014**, 6:00 p.m. dinner (optional), 6:30 p.m. tour\*
- **David Hodge**, Assistant Professor, Chemical Engineering and Material Science, Michigan State University  
*Fuels, Chemicals, and Materials from Biomass: Current Status and Future Prospects*  
Wednesday, **February 12, 2014**, 6:00 p.m. dinner (optional), 7:00 p.m. presentation
- **Tour: B&P Process Equipment**, hosted by Doug Bartus, Global Product Manager – Centrifuges  
Wednesday, **March 12, 2014**, 6:00 p.m. dinner (optional), 7:00 p.m. tour\*\*

### Annual Spring Banquet

- **Ron Yocum**, Chairman, Michigan Molecular Institute  
*Keynote Speaker*  
Wednesday, **May 21, 2014**, 5:30 p.m. to 9:00 p.m.†

(See Meeting Locations, next page)

## Meeting Locations

Regular meetings with invited speakers will be held at:	Grand Traverse Pie Company 2600 North Saginaw Road Midland, MI 48640
*Tri-City Brewing Company tour will be held at:	Tri-City Brewing Company 3020 North Water Street Bay City, MI 48708
**B&P Process Equipment tour will be held at:	B&P Process Equipment 1000 Hess Ave Saginaw, MI 48601
#Spring Banquet will be held at:	Great Hall Convention Center, Valley Plaza Hotel and Resort, 5221 Bay City Road, Midland, MI 48642

Admission to regular meetings and tours is free, and may be accompanied by a limited supply of free sandwiches or pizza with other food available for purchase. Meeting times and locations are subject to change. Be sure to check <http://www.mmaiche.org> for meeting locations and any updates to the schedule.

## Meet the Invited Speakers

Contact Vishesh Shah, Program Chair, [vshah2@dow.com](mailto:vshah2@dow.com), for more information.

### FIRST® Robotics

Bullock Creek High School students and team members

Wednesday, October 16, 2013. Dinner at 6:00 p.m. Presentation at 7:00 p.m.

*FIRST Robotics teams from the Mid-Michigan area will be giving a presentation on the social, mechanical, and team-building aspects of FIRST Robotics. The teams would like to educate you on what FIRST Robotics is all about, as well as show you what our Michigan teams have accomplished. Come and find out how much FIRST Robotics has impacted many students, as well as our community. The FIRST Robotics Competition is an international high school robotics competition organized by FIRST (For Inspiration and Recognition of Science and Technology). Each year, teams of high school students compete to build robots weighing up to 120 lbs (not including battery and bumpers) that can complete a task which changes every year. While teams are given a standard set of parts, they are also allowed a budget and encouraged to buy or make specialized parts as long as they conform to FIRST safety rules. Game details are revealed at the beginning of January and the teams are given six weeks to construct a competitive robot that can operate autonomously as well as when guided by wireless controls to accomplish the game's tasks.*

### Automotive Catalysis

Galen Fisher

University of Michigan

TBD, November, 2013. Dinner at 6:00 p.m. Presentation at 7:00 p.m.

Galen Fisher is Adjunct Professor of Chemical Engineering at the University of Michigan. Galen obtained a BA degree from Pomona College followed by MS and PhD degrees in Applied Physics from Stanford University. His research interests lie in the areas of heterogeneous catalysis, lean NO<sub>x</sub> emissions control, fuel processing for fuel cells and emissions control, three-way catalysis and exhaust sensors. He has held several research positions at General Motors and Delphi Corporation. Galen has received numerous awards including an R&D 100 award and the Thomas Midgley Award from the American Chemical Society (Detroit section). He is also a Fellow of the American Association for the Advancement of Science, the Society of Automotive Engineers, the American Physical Society and the American Vacuum Society.



**New Product and Market Development: What is Working**

Bob Brentin

The Brentin Network, LLC

Wednesday, December 11, 2013. Dinner at 6:00 p.m. Presentation at 7:00 p.m.

*There are a lot of variables between concept and launch. That's why bringing new products to market is both challenging and exciting. The product development function has escalated in its complexity and its importance to company growth. While each project has its unique elements, we can benefit from experiences in our own company and what is working in other companies. This presentation will discuss frameworks and practices being used in the chemical and other industries to increase the success rate of new product developments. From business strategy and the front end of innovation to development tools and portfolio management, insights on what is working can be applied to current projects and adopted by businesses seeking a more robust innovation culture and more effective new product and market development practices.*

Bob Brentin is a new product and market development professional working in the chemicals and materials industry. In his career at Dow Chemical, he participated in and led a range of polymer and business development projects for a wide variety of applications and markets. He also worked in the business incubator at Dow Corning and was the technology transfer officer at Central Michigan University. Bob is currently working on several new business development projects with companies including a commercialization manager role at Omni Tech International in Midland. He received his chemical engineering degree from Case Western Reserve University, an MBA from Central Michigan University, and has served as President of the Product Development and Management Association ([www.pdma.org](http://www.pdma.org)). Bob is also a graduate of Leadership Midland and a coach for new companies in the Great Lakes Entrepreneur Quest business plan competition.

**Tour: Tri-City Brewing Company**

Hosted by Kevin Peil

Thursday, January 16, 2014. Dinner at 6:00 p.m. Tour at 6:30 p.m.

*Tri-City Brewing took its name from the three cities – Bay City, Saginaw and Midland – located in the eastern part of the lower peninsula of Michigan. These cities are collectively known as the Tri-Cities and at one time were quite the hub for brewing! But that time had long past with the likes of Kolb Brothers, Bay City Brewing, Phoenix Brewing, Saginaw Brewing and Midland Brewing all falling by the wayside. Tri-City Brewing opened its doors in 2007 as Mid-Michigan's first independent brewery in more than 50 years. Tri-City Brewing released its first commercial beer, Phoenix Golden Ale, in January 2007. Phoenix Golden Ale took its name from the last independent brewery that operated in Bay City, the Phoenix Brewing Company.*

**Fuels, Chemicals, and Materials from Biomass: Current Status and Future Prospects**

David Hodge

Michigan State University

Wednesday, February 12, 2014. Dinner at 6:00 p.m. Presentation at 7:00 p.m.

*As the global demand for energy grows, the need for sustainable energy alternatives as a supplement or replacement for fossil fuels is becoming imperative. Among possible technology options, the chemical or biochemical conversion of the structural polymers contained in plant cell walls (i.e. lignocellulosic biomass) to biofuels, biochemicals, and biomaterials has the potential to displace a substantial fraction of current petroleum consumption. However, technological and economic barriers still remain that prevent a wide-scale deployment of these technologies. Foremost, the lignified cell walls of vascular plants are the result of nearly half a billion years of evolution to resist biological degradation while serving the structural and physiological needs of the plant. It is believed that the majority of terrestrial carbon in the biosphere is sequestered within plant cell walls, yet this vast resource of reduced carbon is used primarily by humans for its existing structural value (as fiber/paper and as a building material), as a fuel for combustion, or as ruminant forage rather than for the value contained in its existing chemical constituents. This is due to the recalcitrance of the cell wall to deconstruction by chemical and biological treatments and is set by features that are both structural and chemical that cut across the length scales at the molecular, macromolecular, and cellular levels. This presentation will outline some of these technology options for producing fuels and chemicals from lignocellulose, highlight current challenges and future prospects for employing these technologies, and provide illustrative examples from recent work in the Hodge laboratory at MSU.*

David Hodge obtained his undergraduate degree in Chemical Engineering from Auburn University with a specialization in pulp and paper engineering and obtained MS and PhD degrees in Chemical Engineering from Colorado State University. This was followed by work at the U.S. Department of Energy's National Renewable Energy Laboratory as post-doctoral researcher and a subsequent research faculty position at Luleå University of Technology in Sweden. In 2009 Dr. Hodge began a position as an Assistant Professor at Michigan State University in the Department of Chemical Engineering and Materials Science with a joint appointment in Biosystems & Agricultural Engineering. The research performed by Dr. Hodge's group at Michigan State University addresses the challenges associated with the conversion and fractionation of plant cell wall biopolymers as well as food crops to renewable energy and fuels. This research has been funded by the Department of Energy Great Lakes Bioenergy Research Center, the Department of Transportation Northeast Sun Grant, and the National Science Foundation. Dr. Hodge has been a member of AIChE since 1994.

**Tour: B&P Process Equipment**

Hosted by Doug Bartus

Wednesday, March 12, 2014. Dinner at 6:00 p.m. Tour at 7:00 p.m.

*B&P Process Equipment, located in Saginaw, manufactures robust, rugged, reliable mixing and separation process solutions to meet the needs of a wide range of industries. A wide range of equipment is offered – from leading edge technology for ultra-precise applications to key large-scale production systems proven in thousands of installations worldwide. Solutions include extruders, horizontal and vertical mixers, and centrifuges (including Podbielniak® contactors). This tour will be an opportunity to visit B&P's process lab where process tests, product tests and long-term tests can be performed under pilot plant conditions.*

**Spring Banquet**

Ron Yocum

Keynote Speaker

Wednesday, May 21, 2014, 5:30 p.m. to 9:00 p.m.

Ron Yocum obtained a BA degree in Chemistry from Gettysburg College followed by a PhD in Organic Chemistry from the University of Pennsylvania. Ron is currently Chairman of the Board at Michigan Molecular Institute. Ron has also served as R&D Director and Global R&D Director for Product Development at Dow Chemical, President & CEO of Quantum Chemicals, Chairman & CEO of American Plastics Society and Chairman of the Board at Reilly Industries. Ron is a trustee and an executive committee member at Gettysburg College, a board member of the University of Cincinnati Foundation, a board member and an executive committee member of Munson Regional Healthcare Foundation, a National Advisory Board member of Boy Scouts of America, and Chairman of the Board of Cincinnati May Festival (the longest running classical choral festival in America).

## Mid-Michigan Section Contact Information

### AICHE Mid-Michigan Section 2013-2014 Officers and Committee Chairpersons

(all phone numbers are in the 989 area code unless otherwise noted)

Position	Name	Address	E-mail	Phone	Fax
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