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ME-EM eNewsBrief, March 2015

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ME-EM

Michigan Tech

eNewsBrief

Volume 11 Issue 1 - MAR 2015



Greetings from William (Bill) Predebon, Chair, Department of Mechanical Engineering-Engineering Mechanics at Michigan Tech. For the latest news and info about our faculty, students and staff, please visit our website at www.mtu.edu/mechanical. Visit us on Facebook, [MEEM](#).

Upcoming Events

**Michigan
Tech/ME-EM
SAE
Reception**

The ME-EM Department and Michigan Tech's Corporate Development will co-host the annual Michigan Tech Alumni Reception at the SAE International Conference in Detroit, MI on Wednesday, April 22, 2015 in room 430A at Co-bo Hall. A Department and University update will be given by Dr. William Predebon. Food and drinks will be served. Students will be there with their vehicles. Please stop by to network with other alumni and students.



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Early Bird Notification - ME-EM Reunion Scholarship Cruise.



Come join us for an afternoon cruise down the Portage Canal on the Ranger III on Thursday, August 6, 2015. We depart at 1:00 p.m. and will return at 3:30 p.m. (plenty of time to attend the Pasty Picnic). Cost of the cruise is \$35 per person which covers the ticket for the Ranger and a \$15 donation to a department scholarship. Food (by the Library Bar) and beer, wine, water and soda are compliments of the ME-EM Department. If you think you

may be interested, please contact Alumni Relations at 906-487-2400 to put your name on the early bird list. Alumni Relations will then contact you when registration is open to confirm your interest and arrange payment.

ME-EM Department Chair Travel

When on travel for the Department, Dr. Predebon visits with alumni to get their feedback on our programs and their career and to give an update on the Department and the University. Please let the Department know if you would be available for a visit when he is in your area. (906) 487-2551.

- Dr. Predebon will be traveling to the following cities this coming spring
- April 15—19, Phoenix AZ to attend a workshop
 - April 19—23, Detroit MI to host reception at the SAE World Congress and to meet with alumni



Current Contracts and Grants

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**Ossama Abdelkhalik** (PI, ME-EM); “Advanced Control of Wave Energy Converters”; sponsor: Sandia National Laboratories; Total award amount: \$50,000.

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Ossama Abdelkhalik (PI, ME-EM); “CPS: Breakthrough: Toward Revolutionary Algorithms for Cyber-Physical Systems Architecture Optimization”; sponsor: National Science Foundation; Total award amount: \$261,135.

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**Chang Kyoung Choi** (PI, ME-EM) and **Jeffrey Allen** (Co-PI, ME-EM); “Technical Survey on High Efficient Intensive Cooling Control Technology”; sponsor: Chung-Ang University; Total award amount: \$176,724.

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William Endres (PI, ME-EM) and **Kazuya Tajiri** (Co-PI, ME-EM); “Technology Review and Design Concept for an Oil Sampling System for Application”; sponsor: Cummins Inc; Total award amount: \$12,250.

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**Scott Miers** (PI, ME-EM); “Emissions Evaluation of a Yamaha Viper with a MPI Turbocharger”; sponsor: Mountain Performance Inc; Total award amount: \$9,576.

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Jeffrey Naber (PI, ME-EM), **Seong-Young Lee** and **Mahdi Shahbakhti** (Co-PIs, ME-EM); “Continuation of Ignition Studies Ford Motor Co”; sponsor: Ford Motor Company; Total award amount: \$115,000.

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**Jeffrey Naber** (PI, ME-EM), **Seong-Young Lee** and **Jaclyn Johnson** (Co-PIs, ME-EM); “Chrysler Spray Test”; sponsor: Chrysler Group LLC; Total award amount: \$176,046.

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Jeffrey Naber (PI, ME-EM) and **Bo Chen** (Co-PI, ME-EM); “Closed Loop Combustion Control (CLCC) for SI Engines”; sponsor: Ford Motor Company; Total award amount: \$89,861.

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**Jeffrey Naber** (PI, ME-EM) and **Paul Dice** (Co-PI, ME-EM); “Nostrum Injector Evaluation and Validation of a Single Cylinder DI SI Engine with Exhaust Emissions”; sponsor: Nostrum Energy, LLC; Total award amount: \$59,089.

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Jeffrey Naber (PI, ME-EM) and **Paul Dice** (Co-PI, ME-EM); “Nostrum Engine Dynamometer Studies and Analysis of Nostrum Cycle and Injectors on Cummins 6.7L ISB Diesel Engine”; sponsor: Nostrum Energy, LLC; Total award amount: \$128,090.

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**Jeffrey Naber** (PI, ME-EM), **Jeremy Worm** and **Paul Dice** (Co-PIs, ME-EM); “Hitachi NG Gasoline Engine Studies”; sponsor: Hitachi America, Ltd; Total award amount: \$109,825.

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Gregory Odegard (PI, ME-EM); “Center for Novel High Voltage/Temperature Materials and Structures”; sponsor: University of Illinois at Urbana-Champaign; Total award amount: \$14,091.

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**William Predebon** (PI, ME-EM); “Torrefied Wood Biofuel”; sponsor: Michigan State University; Total award amount: \$2,435.

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Kazuya Tajiri (PI, ME-EM); “Proton Exchange Membrane Characterization at Subzero Temperature”; sponsor: Toyota Motor Corporation; Total award amount: \$40,000.

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**Kazuya Tajiri** (PI, ME-EM); “Study of Two-Phase Flow Behavior in PEMFC Flow Channels”; sponsor: Toyota Motor Corporation; Total award amount: \$26,000.

## Promotion

**Dr. Paul van Susante’s** recommendation for promotion from lecturer to senior lecturer has been approved and is effective in August 2015. He received a Master of Science from Delft University of Technology in 2001 in Civil Engineering with an emphasis on Building Engineering. He then went to the Colorado School of Mines (CSM) to participate in NASA research and received a Master of Science in Engineering Systems from CSM in 2004 followed by a Ph.D in Engineering Systems from CSM in 2011. He joined the ME-EM Department in 2012 as a lecturer. Visit his web page at [Paul](#).



## Come Join Us

**Michigan Tech/ME-EM SAE Reception**

**Michigan Tech Alumni Reception** at the SAE International Conference in Detroit, MI on Wednesday, April 22, 2015 in room 430A at Cobo Hall 5:00 - 8:00 pm

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Early Bird Notification ME-EM Reunion Scholarship Cruise



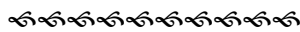
Please contact Alumni Relations at 906-487-2400 to put your name on the early bird list. See page 1.

Alumni and Friends News, Accomplishments & Awards

Cynthia Hodges (BSME '87 and MSME '90), representing Ford Motor Company, returned to campus February 16th to award \$10,000 to the Women in Engineering Program. About 150 pre-college women come to



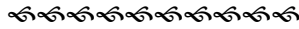
Michigan Tech to experience the Women in Engineering (WIE) scholarship program—a fun and intensive weeklong look into engineering careers.



Margot J. Hutchins (BSME '02, MSME '07, PhD '10) is the recipient of a 2015 SME Outstanding Young Manufacturing Engineer Award. The award recognizes exceptional contributions and



accomplishments in the manufacturing industry. She is a senior member of the technical staff at Sandia National Laboratories. She currently conducts systems analysis in support of U.S. national security objectives, including cyber resilience of critical infrastructure and international engagement on the implementation of nuclear detection architectures.



Britta Jost (MSME '04) has been selected to receive the 2015 Michigan Tech Outstanding Young Alumni Award. The award will be presented at the Alumni Reunion Dinner on August 7, 2015.



The award is presented to alumni under the age of 35 who have distinguished themselves in their careers. It recognizes the achievement of a position or some distinction noteworthy for one so recently graduated. Her MS faculty advisor

was **Gordon Parker** (professor, ME-EM).



Greg Ives (BSME '03) was highlighted in the USA Today article "For Dale Earnhardt Jr., Greg Ives, devil in the details". Read it at [details](#).

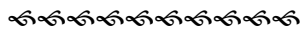


Robert Loukus' (BSME '71) company REL Machine was mentioned on Natural Gas Index.com, a website for news about the natural gas industry. Michigan Tech and Calumet-based REL Inc. received a \$2.1 million grant from Southwestern Energy to develop a natural gas fuel tank for light pick-up trucks. The Daily Mining Gazette also published a front-page story about the grant. Read about the grant at [grant](#) and [natural gas](#). PI on the project is **Dr. Gregory Odegard** (professor, ME-EM).



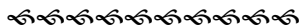
University News/Awards

The Upper Peninsula Education Partnership, of which Michigan Tech is a member, received the **2015 Collaborate Award** at the Michigan Governor's Economic and Education Summit in Detroit in March. The partnership was recognized for uniting a network of community colleges, intermediate school districts and business leaders to meet the unique talent needs of the region. Read the story at [Award](#).

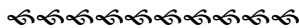


The **College of Engineering's distance learning graduate engineering programs** have been ranked 40th in the nation in online graduate engineering program rankings announced in January by U.S. News and World Report. The rankings are based on five categories: student engagement, faculty credentials and training, student services and technology, peer reputation

and admissions selectivity. This year, 79 online graduate engineering programs were ranked.



Dr. Les Cook (vice president, student affairs and advancement) has been appointed to a three-year term on the Board of Directors of the NASPA Foundation. He began his appointment at NASPA's annual conference in New Orleans in March.



The Detroit News quoted **Dr. Glenn Mroz** (president, Michigan Tech) on February 25th regarding [tuition cap](#) and on the retirement of Mike Boulus, CEO of the Presidents Council, State Universities of Michigan. See [retirement](#).



According to Payscale.com, a Michigan Tech graduate earns an average of \$661,700 more over 20 years than a person with a high school diploma does after 24 years of work. That places Michigan Tech among the top 30 colleges and universities in the nation with the best return on investment (ROI). See the report at [Payscale](#).

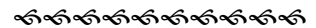


College of Engineering Dean **Dr. Wayne**

Pennington joined representatives of more than 120 other engineering schools and colleges at the White House on March 24th to celebrate a commitment to educate a new generation of engineers expressly equipped to tackle some of the most pressing issues facing society in the 21st century.



Michigan Tech's **Mel Pearson** has been named the 2014-15 College Hockey News Coach of the Year.



Michigan Technological University has earned high marks from the Business Insider financial news website for the salaries its graduates earn at mid-career. In its latest list of "most underrated colleges in America," Business Insider ranked Michigan Tech 15th in the nation for mid-career salaries and 10th in starting salaries among public universities. To determine the most underrated colleges, the website compared US News' rankings of the best universities and national liberal arts colleges with Payscale's 2013-2014 College Salary Report, which ranks colleges and universities based on their graduates' mid-career salaries. See the rankings at [Business Insider](#).

Faculty/Staff Awards/ Accomplishments

Dr. Andrew Barnard (assistant professor, ME-EM) has been named to the board of directors for the Institute for Noise Control Engineering (INCE-USA) for a 1 year term beginning on April 1 2015.



Dr. James De Clerck (professor of practice, ME-EM) has been selected as a 2014 SAE Outstanding Faculty Advisors Program for Student Branch and Collegiate Design Series Team Advisors. "This award recognizes your dedication and contributions to SAE and your Collegiate Chapter." He is the faculty advisor for the SAE Formula Car Enterprise Team. He will receive the award on Tuesday, April 21st at the SAE 2015 World Congress & Exhibition in Detroit, MI.

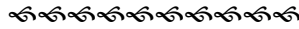


Dr. Gregory Odegard (professor, ME-EM) received the Merit Award for Exceptional Graduate Student Mentor. The award recognizes advocacy for graduate students, being available and encouraging to students, and creativity/interdisciplinary collaboration in new opportunities for graduate students.

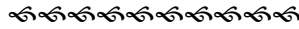


Dr. Gordon Parker (the John and Cathi Drake Professor in the Mechanical Engineering-Engineering Mechanics Department) was the January 23rd Dean's Teach-

ing Showcase nominee. Read the article at [showcase](#).



Dr. Mohammad Rastgaar Aagaah (assistant professor, ME-EM) had his work on a prosthetic leg with eyes highlighted in the Michigan Tech News. Read the story [here](#). His research was also highlighted in the Daily Mining Gazette on March 12th. See the article at [Gazette](#).



Dr. Mohammad Rastgaar Aagaah (assistant professor, ME-EM) will be an organizer of a workshop on Rehabilitation Robotics and Human-Robot Interaction at the upcoming ICRA Conference. ICRA is the Institute of Electrical and Electronics Engineers Robotics and Automation Society's flagship conference and is a premier international forum for robotics researchers to present their work.



Dr. Reza Shahbazian-Yassar (Richard & Elizabeth Henes Associate Professor in Nanotechnology, associate professor, ME-EM) was interviewed in the article "Atomic scale evaluation of lithium-ion batteries" in the January issue of Tribology & Lubrication Technology.



The Michigan Tech Staff Council sponsored the annual Staff Making a Difference Awards in January. **Ryan Towles** (Engineering Academic Advisor, ME-EM)

and **Danise Jarvey** (Senior Engineering Academic Advisor) were nominated for Serving Others. **Steven Lehmann** (Research Associate, ME-EM) was nominated for the Rookie Award.



Dr. Gordon G. Parker (professor, ME-EM) has been selected as a 2014 Fellow of SAE International. SAE Fellows represent SAE International's highest grade of membership and are honored for making a significant impact on society's mobility technology through leadership, research, and innovation: less than 1% of the total members are elected to the Fellow grade of Membership. He will be recognized at the Tuesday, April 21st, during the SAE Congress in Detroit, MI.



Jeremy Worm (mobile lab director and instructor, ME-EM) was quoted in Michigan Tech's Tech Today regarding the College of Engineering's distance learning graduate engineering programs being ranked 40th in the nation in online graduate engineering program by U.S. News and World Report. The Mechanical Engineering - Engineering Mechanics Department is one of two departments offering online graduate programs. ME-EM offers a Master of Science and PhD in Mechanical Engineering and a certificate in hybrid electric drive vehicle engineering. Read the article at [Mobile](#).



Student Accomplishments/ Awards

The following ME-EM students have received the Michigan Tech Graduate Student Government Outstanding Scholarship Award in February:

- **Ranjeeth Naik** (PhD student)
- **Gaurav Pandit** (MS student)
- **Anqi Zhang** (PhD student)
- **Mehran Bidarvatan** (PhD student)
- **Jordan Klinger** (PhD student)
- **Udit Shrivastava** (PhD student).

The award recognizes academic perfor-

mance in areas such as excellent GPA, originality in research, leadership and teamwork.



The following ME-EM students received the Michigan Tech Graduate Student Government Outstanding Teaching Award in February:

- **Mehran Bidarvatan** (PhD student)
- **Troy Bouman** (MS student)
- **Madhu Kolati** (PhD student)
- **Luting Wang** (PhD student).

The award recognizes graduate students

who have exhibited exceptional ability as a teacher, have received excellent evaluations from students, as well as gaining the respect of faculty in their departments.



Muraleekrishnan Menon Menon Muralledharan Nair (PhD student, ME-EM) received the Michigan Tech Graduate Student Government Outstanding Service Award in February. The award recognizes excellent service to Graduate Student Government and the University community.

Student Competitions and Team Awards

Michigan Tech's Clean Snowmobile Challenge (CSC) Team



in the Internal Combustion Class placed 6th overall. The CSC faculty advisor is Dr. Jason Blough (associate professor, ME - EM) with advising assistance for the engine by Dr. Scott Miers (associate professor, ME-EM). A record-setting 11 of the 19 teams entered completed the 95.5 mile endurance run to Copper Harbor, Michigan including Michigan Tech. The event



has historically winnowed out half the competition's sleds. One of the highlights of this year's competition was entrance of the Lapland University of Applied Sciences team from Finland. They not only won for distance traveled, but for their electric snowmobile in the zero emissions category. Read more about the [challenge](#). Visit the CSC [webpage](#).



Mind Trekkers were in Green Bay on January 10th to participate in the Einstein Project Science Expo. With more than

5,200 STEM enthusiasts in attendance, the Science Expo is the biggest annual STEM event in Green Bay. Providing a full day of hands-on science fun



for the local community, it promotes innovation and creative thinking for young, inquiring minds. See pictures at [Einstein](#). On February 12th they presented to middle schoolers at the Northeast Wisconsin Technical College. See pictures at [roadshow](#). They then took their hands-on science and engineering demos to Houston on March 12 and 13, where 7,000 children and adults attended the Dow Chemical's Adventures in STEM, a science and engineering festival held at the San Jacinto College central campus in Pasadena, Texas. Read the article in [Deer Park Broadcaster](#). Visit their webpage at [Mind Trekkers](#).

CAPSTONE

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Fall project planning is underway! These projects will start 1 September, and we should be starting 18-20 projects. Anyone interested in getting involved is encouraged to contact us as soon as possible.

We are also coming up on our 'Senior Design Day' on 21 April, where 19 project teams that began their work last fall will be presenting their final work and go-forward development recommendations. Please consider taking in these presentations if you are curious as to just how much a team of 5-6 Tech students can accomplish in 28 weeks!

If you are interested in getting involved in a fall-2015 project and engage our nationally recognized program, please contact us today!

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906-487-2142

