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ME-EM eNewsBrief, December 2016

Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University

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ME-EM

Michigan Tech eNewsBrief Volume 12 Issue 4 - Dec 2016



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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

The **ME Scholarship Winter Carnival Alumni Hockey Social** will be held on Saturday, February 11, 2017, during the Michigan Tech versus Ferris State hockey game in the Husky Suite South Skybox of the Student Development Complex (SDC). The game has a 5:07 PM start time. Join us for this fun filled event. Cost of the hockey social is \$30 per person which covers a \$15 donation to a ME department scholarship fund and the hockey suite ticket. Pizza, hot dogs, soda, beer, wine, etc. compliments of the ME-EM Department. Please RSVP to [Hockey](#) to reserve yours. For more information contact Kathy at kagoulet@mtu.edu or 906-487-2911.



The **SAE Clean Snowmobile Challenge** will be held March 6—11, 2017 at the Keweenaw Research Center. If you are interested in becoming a CSC 2017 sponsor, please contact Jay Meldrum at 906.487.2750 or email jmeldrum@mtu.edu.

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 winter:

* Week of January 23rd - Memphis, TN

Aubrey Gibson professor emeritus,



ME-EM) passed away on October 5, 2016 at the age of 97. A memorial service was held for him on November 12, 2016. Read about his [career](#) at Michigan Tech.

Alumni and Friends News, Accomplishments & Awards

Denise Rizzo (PhD '14) was honored by the Michigan Chapter of Women in Defense last October. She was the recipient of the 2016 Women in Defense Horizon Award for her contributions to the defense industry. Read about the [event](#).



NHL All-Star MVP **John Scott** (ME '10) returned to Michigan Tech for the Husky hockey home opener for the 2016-17 season. The Huskies hosted the John Scott Night on Friday, Oct. 14th at the John MacInnes Student Ice Arena. John and his family dropped the puck during



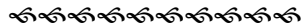
Friday night's game with the Alabama Huntsville Chargers. On November 6, 2016, John announced his retirement from professional hockey. Read about his [career](#).



Allen Waitkins (BSME '83) will have all three of his sons attending Michigan Tech in mechanical

Current Contracts and Grants

Allen, Jeffrey (PI, ME-EM) and Tajiri, Kazuya and Medici, Ezequiel (Co-PIs, ME-EM); "Novel Ionomers and Electrode Structures for Improved PEMFC Electrode Performance at Low PGM Loadings"; sponsor: 3M; total award amount: \$813,925.



Chen, Bo (PI, ME-EM); "Modeling and Control Development for Electric Vehicle and Smart Grid Integration"; sponsor: Argonne National Laboratory; total award amount: \$24,000.



Morgan, Chris (PI, ME-EM) and Naber, Jeffrey and Worm, Jeremy (Co-PIs, ME-EM); "Engine Dynamometer System Build for 1kW Generator Engine Application"; sponsor: MAHLE Powertrain LLC; total award amount: \$24,500.

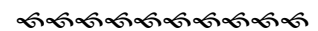


Robinette, Darrell (PI, ME-EM) and Worm, Jeremy (Co-PI, ME-EM); "High Speed Single Cylinder Engine Torsional Dynamics Analysis"; sponsor: Raven Engineering; total award amount: \$16,765.

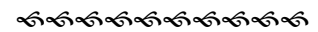


Miers, Scott (PI, ME-EM); "Engine Heat Transfer Analysis"; sponsor: IR Telemetrics, Inc.; total

award amount: \$7,500.

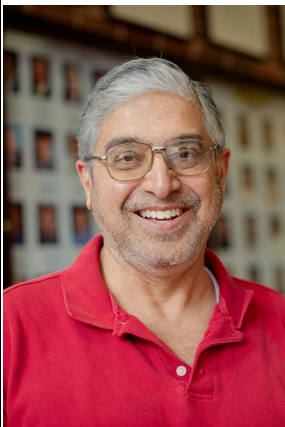


Korde, Umesh (PI, ME-EM); "Collaborative Research: On Making Wave Energy an Economical and Reliable Power Source for Ocean Measurement Applications"; sponsor: National Science Foundation; total award amount: \$167,379.



Ra, Youngchul (PI, ME-EM) and Naber, Jeffrey (Co-PI, ME-EM); "Development of Advanced Model for Pre-Ignition Prediction in Gas Engines"; sponsor: Mitsubishi Heavy Industries LTD; total award amount: \$275,000.

Dr. Madhukar Vable (associate professor, ME-EM)



has retired after 32 years of service to the Mechanical Engineering-Engineering Mechanics Department. See his [Webpage](#).

Dr. Gopal Jayaraman professor, ME-EM)



has retired after 36 years of service to the Mechanical Engineering-Engineering Mechanics Department. See his [Webpage](#).

Dr. Carl Vilmann (associate professor, ME-EM)



has retired after 37 years of service to the Mechanical Engineering-Engineering Mechanics Department. See his [Webpage](#).

Faculty/Staff Awards/ Accomplishments

on December 1, 2016.

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**Dr. Chunpei Cai** (assistant professor, ME-EM) has been elected Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA). In recognition of this honor he was an invited guest at the ceremony and dinner on Monday, January 9th at AIAA SciTech Forum in Grapevine, Texas.

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Drs. Andrew Barnard and Ye (Sarah) Sun (assistant professors, ME-EM) were two of 13 researchers from across campus that presented rapid-paced samplings of their work on November 10th, 2016, both published and unpublished. Via warp speed talks, attendees got a quick taste of the cutting edge research and can follow up with one-on-one discussions that lead to collaborative ventures and strengthen our community. The Michigan Tech Research Forum is a new University presentation series showcasing the work of Michigan Tech faculty, postdocs, and researchers.

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**Drs. Darrell Robinette, Trisha Sain** (assistant professors, ME-EM), and **Dr. Jeffrey Naber** (professor, ME-EM) presented rapid-paced samplings of their work

**Lucia Gauchia** (assistant professor, ME-EM) discussed graphene batteries in a Business Insider post about Henrik Fisker's new electric car model. A number of other business, tech and science news media picked up the story including Yahoo! News, the San Francisco Chronicle, seattlePI.com and Latest Nigerian News. Read the [article](#).

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On Friday, October 28, 2016, **Dr. Gordon G. Parker** (professor, ME-EM) was invited by a group at University of Edinburgh to attend and be on the panel session "Future Research Challenges for Smart Grid" for the research workshop event ADVANTAGE Research held at the Royal Society of London.

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**Dr. Jeffrey Naber** (professor, director APS, ME-EM) received notification that his team in partnership with General Motors will receive a \$2.8 million award from the US Department of Energy to develop next-generation control systems for light-duty hybrid electric vehicles. Read the article at [DoE](#). The story was also carried by [WJMN-TV Channel 3](#), [WLUC-TV6](#), and [MITech News](#).

**Aneet Narendranath** (lecturer, ME-EM) was the invited speaker at a conference at Wolfram Tech on Tuesday, October 18th. The title of his talk was Dynamics of Thin Liquid Films in Zero Gravity: Stabilization and Destabilization, Track: Engineering and Science, where he solved a fourth order nonlinear PDE (Cahn-Hilliard type with finite time degeneracy and attractors) LIVE and manipulated the results towards "control of liquid film structures towards attaining definite patterns" using Wolfram Mathematica.

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Dr. Umesh Korde (professor, ME-EM) is the author of the textbook Hydrodynamic Control of Wave Energy Devices that was published in September 2016. [Textbook](#).

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The following ME-EM staff members received nominations for the University Staff Making a Difference Awards:

**Julie Foster** (office assistant), Rookie Award

**Robert Page** (manager laboratory facilities), Outstanding Supervisor Award

**Henry Schmidt** (research engineer), Serving Others Award

## Student Competitions and Team Awards

Michigan Tech's **Society of Women Engineers Collegiate Section** and Caterpillar Inc. took first place in the Team Tech competition at WE16, the world's largest conference and career fair for women in engineering and technology, with more than 9,000

women at all stages of their engineering careers. The winning project was titled "Wheel Tractor Scraper Bowl Optimization System." **Mackenzie Brunet, Jocelyne Denhop, Jessica Geroux, Laura Schimmel, and Lilly Williams** (mechanical engineering students) were five of the 16 Michigan Tech students that participated in the conference. They also were awarded the Silver Colle-

giate Section Award for their involvement in SWE. Read the complete article at [SWE](#).

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The WCHA named **Mitch's Misfits**, the longstanding Michigan Tech student group, as the WCHA Fans of the Week, Powered by E Group the week of November 5th.

Student Accomplishments/ Awards

Mohammad Reza Amini (PhD student, ME-EM) had his paper selected as the top 6 papers (Best student paper award finalist) among 233 technical papers at 2016 ASME Dynamic Systems Control Conference in Minneapolis, Oct 12-14, 2016. **Dr. Mahdi Shahbakhti (assistant professor, ME-EM)** is his advisor.

Mario Calabria (sr., ME-EM) had his EMT training put to the test this fall while when biking on the Tech Trails with his family, his father suffered heart attack. Read about Mario's [heroic efforts](#) that saved his dad's life.

The Michigan Tech Volleyball program announced its 2016 team awards. **Kristine Fink (fr., ME-EM)**

received the 2016 Harold Meese Sportsmanship Award and **Rachel Pohlod (sr., ME-EM)** was named a co-Most Valuable Player.

Ethan Klein (so., ME-EM & a minor in German) was chosen to participate in a Cultural Vistas Fellowship program in Germany. The fellowship awards a select group of students the opportunity to travel abroad, with the goal of increasing understanding of innovation and entrepreneurship in a global market. The two-month program destinations include Germany, India and Argentina. The students undergo an intensive two-day training program in New York prior to departure, preparing them to live and work in their selected countries; they then share their experiences in New York once again, when they return.

Rachel Kolb (jr., ME-EM) has been named a University Innovation Fellow. The program empowers students to become agents of change at their schools. Fellows work to ensure that their peers gain the knowledge, skills and attitudes required to compete in the economy of the future and make a positive impact on the world. Read the [article](#).

Jaci Mielke (sr., ME-EM) was named to the NSCAA NCAA Division II All Midwest Region soccer second team.

Rachel Pohlod (sr., ME-EM), was named to the CoSIDA Academic All-America® Second Volleyball Team as selected by the College Sports Information Directors of America. Read about her [accomplishments](#).

CAPSTONE CORNER

Some numbers as we head into 2017...

186 students passed through one of America's premier Capstone programs

34 projects successfully completed

16 projects and...

93 students...

—>began in September and successfully passed through their critical design review stage gate

15 projects and...

75 students...

—>being prepared for a 12 January launch window

Thanks to all (you know who you are) who continue to make this Number One program possible~!

Bob De Jonge
rdejonge@mtu.edu
906-487-2142



Got Capstone?

CAPSTONE
CORNER

Department

Accomplishments

The Department of Mechanical Engineering-Engineering Mechanics hosted the semi-annual NSF I/UCRC Industrial Advisory Board meeting for the Center for Novel High Voltage/Temperature Materials and Structures (HVT) at the Great Lakes Research Center on October 18th and 19th. The meet-

ing is organized by Site Director **Dr. Greg Odegard (professor and associate chair and director of undergraduate studies, ME-EM)** and Co-Directors Julie King (CM) and Paul Sanders (MSE). The mission of the HVT Center is to develop and evaluate new materials and structures for a range of HVT technological applications, particularly for the power transmission and aerospace industries.

The National Science Foundation has ranked the **Department of Mechanical Engineering - Engineering Mechanics** 23rd in the nation for research expenditures, the highest ranked of all research fields at Michigan Tech. The University was ranked 116th in the nation among public universities. See the [rankings](#).



Friendly designation. Michigan Tech has received a Silver Award from Military Friendly Schools. The award recognizes Tech for being a small public school with outstanding programs and support for military personnel, veterans and their families.

Michigan Tech was one of 33 universities included in an NBC12 in Richmond, Virginia story about a new study of campus tour operations. TV stations all over the country ran the [story](#).

University News/Awards

Michigan Tech has been ranked 36th in the top 50 universities nationally offering online engineering programs. The top 50 schools were ranked by a web site called [College Choice](#).

Michigan Tech was named the number 1 snowiest campus in the country by FreshU, a website for and about college and university students. See the [video](#).

In newly released US News & World Report global university rankings, Michigan Tech ranked 136th out of 1,000 universities around the world in international collaboration. Tech's College of Engineering was 356th of the 1,000 universities ranked and as a whole, Michigan Tech ranked 676th out of the top 1,000 research universities worldwide, tied with Chongqing University in China and the University of Sofia in Bulgaria.

Michigan Tech has been named a Military Friendly school by Victory Media, publisher of G.I. Jobs, STEM Jobs and Military Spouse. Michigan Tech is one of 1,160 schools to receive the Military

Channel 9 & 10 from downstate Cadillac was on the Michigan Tech campus Tuesday Sept. 27th to film a part of their "Michigan This Morning" segment. The program ran six three-minute segments on campus.



**Michigan Tech
Winter Carnival Presents:**

**Snow Cascades
Across The Decades**

February 8–11, 2017

Come join the fun.

Follow the link for this year's [schedule](#).

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Follow us on [Instagram](#) #mtuwc.