ME-EM eNewsBrief, June 2015

Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University

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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

Space is running out - 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. Please contact Alumni Relations at 906-487-2400 to register.

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 fall:

- Nov. 13–19, Houston, TX to attend the ASME IMECE conference

ME-EM Faculty and Staff Honored for Years of Service

Faculty and staff with 25 or more years of service were honored at a banquet on May 6, 2015. The following were honored from ME-EM:

- Amitabh Narain—30 years
- Madhukar Vable—30 years
- Song-Lin Yang—25 years

At the Annual Staff Council Service Recognition Luncheon held on June 17, 2015, the following staff were honored for years of service (includes staff with years of service that are a multiple of 5):

- Karen Bess—5 years
- Robert de Jonge—10 years
- Jillian Isaacson—5 years
Alumni and Friends News, Accomplishments & Awards

Ted Cole (BSME '75) was published in Lloyd's Register Energy "Download Technology Insight 4: New technologies and innovations". His article "Shear Ram Force Study" starts on page 15 of Download Technology Insight Issue 4: New technologies and innovations. Read the article at Bronz.

Thomas Bronz (BSME '89) has been appointed President and CEO of Hadley. Hadley is focused on products for heavy duty truck and trailer, transit bus, motorcoach, recreational vehicle markets. Thomas will be working at the Grandville, MI, facility. Read the article at Bronz.


Current Contracts and Grants


Seong-Young Lee (PI, ME-EM), ‘Travel to Attend the 3rd Laser Ignition Conference, April 28-30, 2015, at Argonne National Laboratory, USA’, sponsor: National Science Foundation, total award amount: $5,000.


Area News

Houghton has been named in the top 100 of most livable small towns in America. Houghton.

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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, following which he will go up for election for a 3 year term.

Nancy Barr (Communications and Senior Design Program Advisor, ME-EM) has been appointed to a national advisory board to develop a digital learning platform called Core Grammar for Engineers. This project, run by Carnegie Mellon, Stanford, and UN-Chapel Hill, is based off the Core Grammar for Lawyers program that is now in use by more than half of the country's law schools. It helps students build written communication skills, from the general to the discipline-specific.

Dr. Nina Mahmoudian (assistant professor, ME-EM) is a recipient of a 2015 Office of Naval Research Young Investigator Program (YIP) Award. Her proposal was selected from 383 research proposals based on merit and potential breakthrough advances for the Navy and Marine Corps. “These recipients demonstrate the type of visionary, multidisciplinary thought that helps the U.S. Navy anticipate and adapt to a dynamic battlespace,” said Dr. Larry Schuette, ONR’s director of research. Read at Naval, Investigator, and DMG.

Dr. Nina Mahmoudian has received the prestigious NSF CAREER Award. It is a five year award of $500,442 starting May 15, 2015. The project title is "CAREER: Autonomous Underwater Power Distribution System for Continuous Operation". CAREER. The award was also highlighted on techcentury.com.

Dr. Amitabh Narain (professor, ME-EM) has been notified by Elsevier that his article “RESULTS FOR HIGH HEAT-FLUX FLOW REALIZATIONS IN INNOVATIVE OPERATIONS OF MILLIMETER SCALE CONDENSERS AND BOILERS”, published in August 2014, has been downloaded or viewed 295 times since publication.

Dr. Gordon Parker (professor, John and Cathi Drake Chair Professor of Mechanical Engineering, and co-director of the Agile and Interconnected Microgrid (AIM) Center) was elected SAE International Fellow, "the society's highest grade of membership recognizing and honoring long-term members who have made a significant impact on society's mobility technology through leadership, research, and innovation. Dr. Parker is being recognized for his work in control system design. Fellow.

Dr. William W. Predebon (professor and department chair, ME-EM) has been named the recipient of the 2015 Michigan Tech Diversity Award. The award recognizes the accomplishments of a faculty or staff member who contributes to diversity and inclusion through exemplary leadership and actions. He was co-principal investigator on Michigan Tech’s ADVANCE grant, awarded by the National Science Foundation (NSF) to increase the representation and advancement of women in academic science and engineering careers. He served on the steering committee for the University’s first two climate studies. He also was a member of a Michigan Tech team that attended an NSF workshop to develop strategies for recruiting underrepresented minorities faculty.

Dr. William W. Predebon was quoted in GoodCall: NACE Report Reveals Which Graduate Degrees Employers Want Most.

Dr. Rush D. Robinett III (Richard and Elizabeth Henes Chair Professor in Mechanical Engineering, co-director of the Agile & Interconnected Microgrids Center at Michigan Tech, and Director of Research, ME-EM) was selected to receive the Department of Aerospace Engineering at Texas A&M University Outstanding Aerospace Engineer to their Aerospace Alumni Academy. He was honored with the award at the Aerospace Engineering Annual Awards Banquet on May 7, 2015 at the Presidential Conference Center at Texas A&M, College Station, TX.

Dr. Mo Rastgaar (associate professor, ME-EM) had his research highlighted in The Associated Press (AP), an international wire service published in newspapers and broadcast on radio and TV stations worldwide. They reported on the prosthetic ankle equipped with a camera to help it “see” where it is going. Times, Ankle.

Dr. Tolou Shokuhfar (assistant professor, ME-EM) and Dr. Reza Shahbazian-Yassar (associate professor, ME-EM) had their 3D bioprinting research featured as the top story on May 12th on Science 360, a science news website published daily by the National Science Foundation.

Dr. Reza Shahbazian Yassar had his research on Lithium-Ion Batteries highlighted in Nano Letters, R&D Magazine, Lab Manager, Azo Nano and Technology Century.

Dr. Tolou Shokuhfar is the recipient of Insight Into Diversity Magazine’s 100 Inspiring Women in STEM Awards. The award honors women whose work and achievements encourage others in their individual STEM (Science, Technology, Engineering and Mathematics) fields and inspire a new generation of young women to consider careers in STEM.

Dr. Tolou Shokuhfar was mentioned in an article in Microfabricator about her research on 3D printing of nerve cells. The research was also mentioned in an article about graphene published in the Economist, the Daily Mining Gazette and the MicroFabricator.
**Department Accomplishments**

In May ME-EM hosted the semi-annual NSF I/UCRC Industrial Advisory Board meeting for the Center for Novel High Voltage/Temperature Materials and Structures (HVT). The meeting was organized by Site Director Greg Odegard (Richard and Elizabeth Henes Professor of Computational Mechanics and Associate Chair and Director of Undergraduate Studies, ME-EM) and Co-Directors Julie King (ChE) and Paul Sanders (MSE). Meeting.

ME-EM participated in a visit by the Engineering Society of Detroit to set up a student chapter on the Michigan Tech campus. The visit was highlighted in Tech Century and featured a photo of Dr. Lyon Brad King (Ron & Elaine Starr Professor & Director, Space Systems Research Group, ME-EM). Read about it at ESD and photos.

The Department of Mechanical Engineering - Engineering Mechanics at Michigan Tech is one of five universities selected to participate in the NSF Diversity Training Program. The program was highlighted in the ASEE First Bell on June 11, 2015, the article is titled "Purdue Mechanical Engineering Program To Be Part Of NSF Diversity Training Program". Dr. Gregory Odegard (professor, ME-EM is the PI on the proposal). Read about the program at Education and TECAID.

**Student Accomplishments/ Awards**

The 4x400 meter women's relay team placed sixth and broke the Michigan Tech record at the GLIAC Outdoor Track and Field Championship at Hillsdale College Friday, May 1, 2015. Team members are Aimee Allen (so., ME), Liz Bloch (so., EBE), Jamie Dompier (jr., SSFM), and Lauren Raiford (sr., ME). The foursome posted a time of 3:53.82, five seconds off the previous Michigan Tech record. Lauren Raiford also posted an eighth-place finish in the 400 m. She ran a 58.92 for the fourth-best time in Tech history.

Khanh Cung (PhD Candidate, ME-EM) has earned a 2015 Doctoral finishing Fellowship.

David Anna (fr., ME) and Andrew Garrod (sr., ME) was a member of a team of nine Michigan Tech students that participated in the Environmental Protection Agency's Sustainable Design Expo as a part of the P3 program for People, Prosperity and Planet. The event was held in Washington DC on April 11-13, 2015. The team won the AIChE Youth Council on Sustainable Science and Technology P3 Award and an Honorable Mention P3 Award from the EPA. Read about it at Winners and EPA.

Noah Kelly (fr., ME) plans on biking more than 4,000 miles this summer with the organization, Bike and Build, to help low-income families with their housing needs. Read the story at Biking.

Lily Kraft (ME, fr.) was featured in the Gannett Media report on Academic All-Stars from Central Wisconsin. Lily commented on her first year at Michigan Tech. Article http://www.wisinfo.biz/wdh/academic-allstars/where-are-they-now/single.php?id=97

Jani Lane (sr., ME-EM) was named all-region by the U.S. Track & Field and Cross Country Coaches Association (USTFCCCA). He was also named to the Capital One Academic All-District First Team. The top five individuals in each event from each region earn all-region distinction.

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Lauren Raiford (sr., ME) took 2nd place in the St. Norbert Invitational held on April 5, 2015 with a 59.16 in the 400 meters. Her clocking was just 16 hundredths off the school record of 59.00.

Dylan Steman (fr., ME-EM) received the Norbert Matovich Memorial Award for the hockey team's outstanding freshman. He played in all 41 games with 20 total points on eight goals and 12 assists.
Student Competitions and Team Awards

The Michigan Tech SAE Formula Car Team finished 23rd out of 110 teams at the 2015 Society of Automotive Engineers (SAE) National Competition at the Michigan International Speedway, Brooklyn, MI, May 13-16, 2015. They took 25th in Acceleration, 26th in Endurance, 31st in Design, and 31st in Business Presentation. They also won the 2015 Mac-Lean Fog Fastening Challenge earning them a trophy and $1000. Their faculty advisor is Dr. Jim DeClerck (professor of practice, ME-EM).

The Michigan Tech Supermileage Systems Enterprise placed fourth out of the 29 teams that competed at the SAE Supermileage Challenge held at the Eaton Corporation Marshall Proving Grounds in Marshall, MI on June 4-5, 2015. The vehicle was completely new, it took two years to design, build, and test. The team logged over 5,000 hours over two years. They were one of only 3 teams eligible for the Endurance Award, the combined verbal written report scored 360 out of 450, placing in the top 1/3. Supermileage.

Visit their Facebook page for photos and videos.

ME-EM Senior Design Team 21 won the Air Force Research Lab Design Challenge in April. This is a national event in which Michigan Tech competed against eighteen other universities including the military academies. The team developed a system that Air Force Special Forces members would wear to keep them cool in desert climates. Team members (all seniors in ME-EM) are Jessica Buck, Sophia Rizzo, Nicholas Sill, Mikhail Alexander, Joshua Kizer, Sean Mackey, and John Schuman. Their advisors are Dr. Jaclyn Johnson (lecturer, ME-EM) and Kevin Johnson (research engineer, ME-EM). Read about it at Challenge and Michigan Tech. The team was also highlighted in an article in a publication of the Engineering Society of Detroit.

The ME-EM Design Expo was held on April 21, 2015. ME-EM team Velovations placed third and The Chrysler 300 Split Tailgate earned an honorable mention. Results and pictures can be seen at Expo.

CAPSTONE CORNER

Fall Projects Coming Up...

Fall project planning is underway! Our next group of projects will start on September 1, and we should be kicking off 18-20 projects.

MEEM’s Capstone program is the reigning champion of Air Force Research Labs’ National Invitational Design Challenge. At the design competition held this past April, one of our Capstone teams represented Michigan Tech very well, and won the competition! The task posed by AFRL for the fifteen institutions in the completion was to design a ‘cool suit’ or ‘heat stress prevention kit’ for ground troops in hot climates.

Stop by and see the ‘Lombardi Trophy’ presently in residence at Tech, along with a prototype of the winning design! 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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University News/Awards

In May almost 200 high school students from nine schools in the western UP are spent a day at Michigan Tech, exploring science, technology, engineering and math (STEM) careers.

More than 80 researchers from across the Americas met at Michigan Technological University (MTU) as part of an international, interdisciplinary effort to discuss the bioenergy industry and its impact on society. The meeting was highlighted on Science Around Michigan and was sponsored by the NSF Partnerships for International Research and Education. Read about more of the research of the Sustainable Futures Institute at Michigan Tech.

Ossama Abdelkhalik started at Michigan Tech in 2007. He earned his Ph.D in Aerospace Engineering from Texas A&M in 2005. He completed a year of post doctoral experience at Texas A&M and was a visiting assistant professor in the College of Engineering, Embry-Riddle Aeronautical University, Daytona Beach, for a year. Dr. Abdelkhalic's areas of expertise are space mechanics, spacecraft dynamics and control, optimization, dynamics and control, and wave energy conversion.

Chang Kyoung Choi started at Michigan Tech in 2008. He earned his PhD in Mechanical Engineering from the University of Tennessee in 2007. He was a post-doctoral fellow at the University of Tennessee from 8/2007 through 1/2008 and for one year in the Biosciences Division at the Oak Ridge National Laboratory, Oak Ridge, TN. His areas of interest include microscopic imaging techniques, micro-/nano-fabrications, cellular sensing & single protein tracking.

Mohammad Rastgaar started at Michigan Tech in January of 2011. He earned his Ph.D. at Virginia Polytechnic Institute and State University. After graduation he was a postdoctoral researcher at MIT for two years. His research interests are in the areas of dynamic systems and controls, human-robot interactions, robotic prostheses, and assistive robotics. He is the Director of the Human-Interactive Robotics lab. He has also received the prestigious CAREER award.

An evaluation by Brookings Institute ranks Michigan Tech first among colleges and universities in Michigan and ranked fourth in the nation in a new kind of evaluation. Brookings, a private, nonprofit research and policy think tank based in Washington, DC, calls its new assessment of two- and four-year colleges and universities “Beyond College Rankings.” It measures what Brookings calls “value-added” factors such as the kinds of majors offered—particularly in STEM (science, technology, engineering and math), graduation rates, student loan repayment rates and the difference between predicted earnings and graduates’ actual earnings at mid-career and over a lifetime. Brookings.

On Monday, June 17, 2015, 9-12 grade students from eight different high schools in the Detroit area came to Michigan Tech to explore careers in natural resources, environmental science and engineering, forestry, environmental, civil and mechanical engineering and more. Detroit.

Television station WSAW, in Wausau, Wisconsin, covered a visit by the Michigan Tech Mind Trekkers on May 9 and 10. Thousands of children and other community members turned out for the visit, held at Northcentral Technical College in Wausau. Trekkers. Visit their website for upcoming appearances.

The Detroit News quoted President Glenn Mroz, among other Michigan public university leaders, commenting on Governor Rick Snyder’s proposed budget and urging a hike in the tuition cap.

Dr. Wayne D Pennington (professor and Dean of the College of Engineering) was interviewed by science Dr. Wayne Pennington (professor and Dean of the College of Engineering was interviewed by science around Michigan concerning the Nepal earthquake.