

ME-EM

Michigan Tech

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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



photo: Michigan Tech

The **ME Scholarship Winter Carnival Alumni Hockey Social** will be held on Saturday, February 8, 2014 during the Michigan Tech versus University of Alabama Huntsville hockey game in the Husky Suite South Sky-box 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 and the hockey suite ticket. Pizza, hot dogs, soda, beer, wine, etc. compliments of the ME-EM Department. Please RSVP to Kathy at kagoulet@mtu.edu or 906-487-2911 to reserve yours.



For the 12th straight year, the ME-EM Department, along with the Keweenaw Research Center, will be hosting the **SAE Clean Snowmobile Challenge** on March 3-8, 2014. For more information on this event, please contact the department at 906-487-2551 or email me at wwpredeb@mtu.edu. Sponsorship is always welcome.



The ME-EM Department and Michigan Tech's Corporate Development will co-host a reception at the SAE International Conference in Detroit, MI the week of April 7th. Information on the reception will be sent in a separate email.

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Over the past twenty years, faculty members in ME-EM have developed and implemented ways to incorporate creativity, innovation and entrepreneurship into undergraduate education. These courses and activities provide students with skills in creative problems solving in addition to analytical and qualitative thinking.



Recently, the Mechanical Engineering Department helped to bring a national effort called the Pathway to Innovation Program (PIP) into the College of Engineering. Michigan Tech is one of 10 universities selected to pilot this national effort funded by NSF and lead by Stanford University and NCIIA (National Collegiate Inventors and Innovators Alliance). PIP is part of Epicenter whose mission is “to unleash the entrepreneurial potential of undergraduate engineering students across the United States to create innovators with knowledge, skills and attitudes to contribute to economic and societal prosperity.”

ME-EM has already taken many steps toward this ambitious national goal. We have begun to implement—over three years—our new curriculum which has opened the door for new course content more in tune with industry’s need for engineers who can innovate. This will allow us to concretely and incrementally incorporate the PIP goals with outstanding support and ideas. You can be an integral part of helping us achieve this goal through your support of the ME Curriculum Revision Fund. Please visit us at <http://www.mtu.edu/mechanical/department/giving/> to read more about this and other exciting initiatives or to donate.

Alumni and Friends News, Accomplishments & Awards

Daniel Bliss (BSME '83) and **Gerald McGlynn (BSME '84)** have joined their law firm, Bliss McGlynn with Howard & Howard, a legal firm based in Royal Oak that specializes in intellectual property.



A project that **Dr. Brandon Dilworth (MSME '06 & PhD-MEEM '09)** has been working on at MIT Lincoln Laboratory for the last four years has made it to space. Read the article at [space](#). Picture: NASA Ames / Dana Berry



Michael Engesath (BSME '11), Jeffrey Lauman (BSME '11), Bret Schulte (BSME '12) and Michael Suchomski (BSME '10) on behalf of Michigan Tech alumni, have teamed up to adopt a stretch of highway near Saginaw.



General Motors Chairman and CEO **Dan Akerson** presented the keys to a 2014

Chevrolet Silverado to the Achilles Freedom Team of Wounded Veterans during the December 14, 2013 Army Navy football Game. The truck will be used to haul hand cycles and equipment to regional competitions for the Team. During the 2012 Army Navy game one of the hand cycles the truck will be hauling was presented to the Wounded Warriors by the Michigan Tech ME-EM senior design team that designed the bike. Read the story at [Truck](#).



Eric Halonen (assistant vice president for advancement at Michigan Tech) was interviewed for Marquette Monthly on his role at the University. Read the interview at [advance](#).



John Jamar (BSME '83) has been elected to Board of Directors, American Transmission Co.



Nathan Klein (BSME '09) has joined Perrigo at their Allegan site as a production engineer. Perrigo is a global healthcare supplier.

Matthew Loew (BSME '95) has joined Maverick Innovation Lab at Delafield, WI as technical director. He also teaches at the Milwaukee School of Engineering part time.



James Niemczyk (BSME '82) was promoted to vice president and general manager of American Panel Corporation in Alpharetta, GA, where he has worked since 2001.



Kimberly L. Turner (BSME '94) of Goleta, California, was highlighted in a Michigan Tech Alumni Association article. She is a professor of Mechanical Engineering and Chair of the Department of Mechanical Engineering in the College of Engineering at the University of California Santa Barbara. Read the whole article at [Turner](#).



John Wehmanen (BSME '71) has retired from the federal government after a forty-year military and civilian career. His last position was as a facilities analyst on the Army staff in the Pentagon.

Department Accomplishments



In an agreement with Vidya Pratishthan University located in Baranmati, India, a 2-plus-2 PhD program in mechanical engineering for faculty with and a 1-plus-1 master of science program for students has been instituted. Through the program mechanical engineering faculty from a private Indian university will soon be pursuing their PhDs from Michigan Technological University. Qualifying faculty will complete the first two years of their PhD program in India, where they can take Michigan Tech courses online and graduate courses from any of the Indian Institutes of Technology (IITs). Then they will travel to the US and spend the final two years of their program conducting research with Michigan Tech faculty advisors. **Dr. William Predebon (professor and Department Chair) and Dr. Craig Friedrich (professor and Associate Department Chair and Director**

of Graduate Studies) both of ME-EM traveled to India to meet with officials of both the University and government to finalize the program. Read the article at [India](#). The Daily Mining Gazette and ASME's First Bell also ran the story.



The Michigan Tech **Mobile Lab** recently attended the Graphical System Design Conference in Chicago. Mobile Lab Director **Jeremy Worm (research engineer, ME-EM)** gave an invited talk on the importance of hands-on professional development. **Mobile Lab Operations Manager Chris Davis**, with graduate students Luke Johnston and Henry Schmidt, delivered a hands-on seminar on CAN Communications



The 2014 U.S. News & World Report: America's Best Graduate Schools ranked the **Michigan Tech ME-EM Graduate Program** 49th among doctoral granting mechanical engineering departments in the

U.S. The National Science Foundation has ranked the **Michigan Tech MEEM Department** 20th nationally with \$14.907 Million in research expenditures, this is up from 22rd last year out of over 300 ME departments in the U. S.

Faculty and Student Invention Disclosures

Ashley Kerschen (sr., ME-EM), Jacob Liimatta (sr., ME-EM), and Jacob Pederson (sr., ME-EM) have filed an invention disclosure, "The Martyboard - Portable Assisted Mobility Device".



Nina Mahmoudian (assistant professor, ME-EM), Wayne Weaver (assistant professor, ECE) have filed an invention disclosure, "Autonomous mobile power blocks for pre-positioned conversion and distribution".

Faculty/Staff Awards/ Accomplishments

Dr. Craig Friedrich (professor, Robbins Chair in Sustainable Manufacturing, Associate Department Chair and Director of Graduate Studies, ME-EM) has been reappointed to a five year term as the Robbins Chair in Sustainable Manufacturing. The chair was set up through the generosity of Richard (BSME '56) and Bonnie Robbins who felt that this investment in sustainability was important and timely in both a global and institutional context. The Robbins' support three additional chairs at Michigan Tech: Dr. David Shonnard (professor, Chem Eng and Richard and Bonnie Robbins Chair in Sustainable Materials), Dr. Guy Meadows (Director, Great Lakes Research Center and adjunct professor, GMES and Richard and Bonnie Robbins Chair in Sustainable Marine Engineering), and Dr. Terry Sharik (professor and dean of SFRES and Richard and Bonnie Robbins Chair in Sustainable Resources).



Mahesh Gupta's (professor, ME-EM) paper "Viscoelastic Simulation of Bilayer Coextrusion in a Square Die: An Analysis of Viscous Encapsulation was the Paper of the Month for December on the Extrusion Division web site.



Joseph Hernandez (research engineer, ME-EM) has received an NTC Fellow and will be starting at NIST in Maryland in March. Joe defended for his PhD in December and is currently working as a research engineer in MEEM while he finishes the process.



Dr. John H. Johnson (research professor and professor emeriti, ME-EM) has received the 2013 ASME Internal Combustion Engine Award. It was presented to Dr. Johnson during the ASME's Internal Combustion Engine

Division Fall Technical Conference, which was held in Dearborn, MI, Oct. 13-16, 2013. He was recognized for leadership in innovative research in the modeling of diesel engine particulate filters and aftertreatment systems based on extensive experimental data; for dedication in educating graduate students on diesel engines; and for leading and participating in national studies of technology to reduce internal combustion engine fuel consumption.



L. Brad King (professor, ME-EM) and Desheng Meng (associate professor, ME-EM) had their research highlighted in the College of Engineering 2013 Engineering Research Publication. Read it at [publication](#)



Michigan Tech News reported on Iver 3—a third-generation Autonomous Underwater Vehicle (AUV) that is charting new territories in the field of underwater exploration. **Dr. Nina Mahmoudian (assistant professor, MEEM)** is a part of the team working on Iver. The article was also printed on the Autonomous Undersea Vehicle Applications Center website. Read the stories at [AUV](#) and [News](#).



Dr. Nina Mahmoudian (assistant professor, ME-EM) was interviewed by CBS Detroit regarding her research at the Great Lakes Research Center. Also interviewed for the article was Dr. Ezra Bar Ziv (professor, ME-EM) on his research at the Advanced Power Systems Research Center. Read both interviews in the CBS Detroit Technology Report at [Detroit](#).



Ezequiel Medici (research engineer, MEEM/GMES), has received a \$3,000

Century II Campaign Endowed Equipment fund award for his proposal "Multipurpose Open End Shock Tube Facility Expansion".



Dr. Mo Rastgaar (assistant professor, ME-EM), Evandro Ficanha (PhD student, ME-EM) and Dr. Kenton Kaufman (ad hoc grad faculty, ME-EM and director of the Biomechanics/Motion Analysis Laboratory at the Mayo Clinic in Rochester, MN) had their research on a microprocessor-controlled ankle-foot prosthesis highlighted in Tech Today. Read about this research at [leg](#). The research was also reported on numerous sites internationally. Read at [Gigaom](#), [Yahoo News](#), [Gizmag](#), [The Mumbai Mirror](#), [Medical Design Online](#), [UPI Science News](#) and ASME's [First Bell](#) for the full stories. The research was also reported on CNN, The Times of India and Science World Report.



Jay Meldrum (Director, KRC) was quoted in the article "Snowy Solar" in the International Solar magazine. Read the article at [solar](#).



The Annual ME Scholarship Winter Carnival Alumni Hockey Social

Saturday, Feb. 8, 2014 - 5:07 PM
Tickets are \$30
Includes \$15 donation to a
ME scholarship

Hot dogs, pizza, pop, beer, wine, etc.
compliments of ME-EM

RSVP to Kathy at
kagoulet@mtu.edu or 906-487-2911

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For more information contact:

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906-487-2142



Student Accomplishments/Awards

Azhang Hamlekhan (PhD student, ME-EM) received a Biotechnology Research Center Travel Grant to attend the TMS 2014 Annual Meeting & Exhibition. His advisor is **Dr. Tolou Shokufar (assistant professor, ME-EM)**



Anza Mitchell (PhD student, ME-EM) assisted Chad Norman (science and technology specialist, Center for Science and Environmental Outreach) to teach a class on digital design to 4th through 7th grade students.. Her advisor is **Dr. Michele Miller (associate professor, ME-EM)**.



Mehdi Mortazavi (PhD student, ME-EM) had his paper, "In-Plane Microstructure of Gas Diffusion Layers with Different Properties for PEFC" published in The Journal of Fuel Cell Science and Technology. His advisor is **Dr. Kazuya Tajiri (assistant professor, ME-EM)**.



Last winter **Parshwa Patwa (jr., ME-EM)** organized an attempt to regain the Guinness world record for the biggest snowball that had been set by Dartmouth College who broke Michigan Tech's 2006 record. Guinness Records has



now certified that the 32.94 feet circumference of the current Tech attempt is in fact the new world record. Read the article at [snowball](#).

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Student Competitions and Team Awards



(Photo by Janette McVey for Chevrolet)

The ME-EM Senior Design team that designed the bike for the Achilles Freedom Team of wounded veterans are in the news again They were highlighted in articles in the [Detroit Free Press](#), [mlive](#) and [GM News](#).

University News/Awards



Photo: Michigan Tech

Michigan Tech has received the 2013 Higher Education Excellence in Diversity (HEED) award from INSIGHT for its efforts to create a more diverse and inclusive campus. Michigan Tech was one of only 55 universities honored. Read the article at [diversity](#)



General Motors presented a \$100,000 check from the General Motors Foundation to Michigan Tech on October 24, 2013. The grant will fund a number of activities including the Advanced Hybrid Electric Vehicle and Advanced Motorsports Enterprises, Environmental Engineering senior design, student groups, and diversity programs.



International Student Voice magazine



Photo: Michigan Tech

published a feature story about Michigan Tech's **Khana Khazana**, a weekly international lunch cooked by international students. See [Khazana](#) for story.



President Glenn Mroz was quoted in the Detroit News, Detroit Free Press, Crain's Detroit Business, Bloomberg

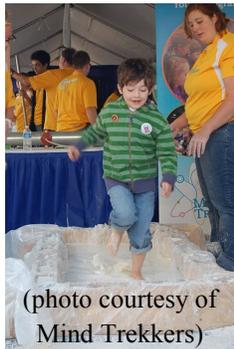
Businessweek, Associated Press wire service and news outlets through Michigan and the US, commenting on the Presidents' Council, State Universities of Michigan report on the economic footprint of Michigan's 15 public universities. Read the article at [News](#).



BuzzFeed has ranked **Michigan Tech** 3rd in the nation for providing the biggest bang for the buck. Read the article at [Buzz](#).



Michigan Tech and Delta College in Saginaw, MI joined forces to host the Great Lakes Bay Science and Engineering



(photo courtesy of Mind-Trekkers)

Festival at Delta College. Michigan Tech's **Steve Patchin (Director pre-college outreach)** was quoted extensively in the Midland Daily News. Seventy-five **Mind Trekkers** from Michigan Tech

participated in the event that was attended by about 4000 middle school students. Read the article at [Trekker](#).



The Michigan Tech Mind Trekkers attended the Bay Area Science Festival in San Francisco on Saturday, Nov. 2, 2013. A team of 12 student-volunteer **Mind Trekkers** and three professional staff flew to California where they led hands-on STEM demonstrations during a one-day science festival at AT&T Park in San Francisco. Visit the Mind Trekker website at [Trekker](#).



Michigan Tech students led a Family Engineering Night on Monday, Nov. 25, at Harrison Park School in Grand Rapids. Nearly 300 K-8 students and

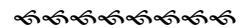
their parents attended. The students are part of the University's Society of Hispanic Professional Engineers student chapter.

Current Contracts and Grants

Jeffrey Allen, (PI, ME-EM), "A New Experiment for Determining Evaporation and Condensation Coefficients of Cryogenic Propellants and Development of an Efficient Computational Model of Cryogenic Film Stability in Microgravity", sponsor: National Aeronautics and Space Administration, amount: \$526,784.



Craig Friedrich (co-PI, ME-EM), Jacquelin Huntoon (PI, Grad School), Shekhar Joshi (co-PI, Bio Sci) and Chris Wojick (co-PI, CEE), "The Michigan AGEP Alliance for Transformation (MAA): Mentoring and Community Building to Accelerate Successful Progression into the Professoriate", sponsor: National Science Foundation, Amount: \$245,160.



Gordon G. Parker (PI, ME-EM), **Steven Goldsmith (co-PI, ME-EM)**, Wayne Weaver (co-PI, ECE), "Vehicle-to-Vehicle Resource Sharing" sponsor: Mississippi State University, amount: \$148,433.



Gordon G. Parker (PI, ME-EM), **Eddy Trinklein (co-PI, ME-EM)**, "SGAS Drive Train Model Calibration", sponsor: IMECO, amount: \$26,931.



Nina Mahmoudian (PI, ME-EM), "Low-Cost Underwater Glider Fleet for Littoral Marine Research", sponsor: Office of Naval Research, amount: \$128,801.