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ME-EM eNewsBrief, December 2009

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Greetings from William (Bill) W. Predebon, Chair, Department of Mechanical Engineering-Engineering Mechanics. For the latest news and information about our faculty, students, and staff please visit our web site at <http://www.me.mtu.edu/>.

Upcoming Events

The 10th Annual ME-EM Alumni Winter Carnival Hockey Social



will be held on Saturday, February 6, 2010 during the Michigan Tech versus Minnesota Duluth (Winter Carnival) game in the MacInnes Presidential Skybox of the Student Development Complex (SDC). The game has a 5:07 PM start time. Join us in the newly renovated SDC suites. Admittance is free for ME alumni and their guest and munchies and drinks will be provided. Complimentary tickets are required this year so please RSVP to Kathy at kagoulet@mtu.edu or 906-487-2911 to reserve yours. Please RSVP early. The complimentary tickets will be held at the will call window for pick up.



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Michigan Tech's **2010 Winter Baja Competition** will be held on Saturday February 20, 2010 at Lake Linden Community Park in Lake Linden MI.



The ME-EM Department, along with the Keweenaw Research Center, will again be hosting the **SAE Clean Snowmobile Challenge** on March 15-20, 2010. For more information on sponsorship of this event, please contact the department at 906-487-2551 or email me at wwpredeb@mtu.edu.

Faculty/Staff Awards Accomplishments

On November 12th, mystery novelist **Nancy Barr** (administrative associate, ME-EM) presented the talk, "The Mysterious North Woods," at the CLK Public School Library in Calumet..



Dr. Tammy Haut Donahue (associate professor, ME-EM) was highlighted in the article "Tissue Engineering Could Yield Cure, Prevention For Osteoarthritis" in Medical News Today. Dr. Haut Donahue's research "ranges from computer modeling to working with animals, could revolutionize medicine." Read the whole article at: <http://www.medicalnewstoday.com/articles/160767.php>.

Dr. Haut Donahue is also collaborating with the University of Michigan researchers highlighted in the following article: <http://www.wwj.com/Researchers-Grow-new-knee-ligaments-from-patients-/5580876>

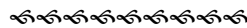


Dr. Gopal Jayaraman (professor, ME-EM) was highlighted in the October-November 2009 edition of the Engineering Society of Detroit's publication Technology Century for his research on helmets and head injuries. The article, "MTU Tackles Football Injuries Head-on" highlights the development of a new kind of helmet that mimics the structure of the human head. Jayaraman is quoted "Each (the skull, scalp, and spinal fluid) protects the brain in different ways. Our objective is to copy the biological system."

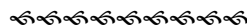


Dr. John Johnson (research professor and professor emeriti, ME-EM)

testified on March 24, 2009 at the hearing of the Subcommittee on Energy and Environment as part of the Committee on Science and Technology. His testimony had a major impact on the what was included in the bill on medium-to-heavy duty trucks. The Michigan House Committee on Science and Technology has approved the final version of bill HR-3246 - Advanced Vehicle Technology Act of 2009.



Dr. L. Brad King has been selected as an Associate Editor for the AIAA Journal of Propulsion and Power.



Dr. Sudhakar M. Pandit (professor, ME-EM) has been named one of nine new Fellows of the Society of Manufacturing Engineers, a professional society serving the manufacturing industry for his outstanding contributions to the field of manufacturing. A main contribution to the manufacturing industry has been development of a new methodology called data dependent systems and its applications to design and manufacturing. He has written two books and is author or coauthor of more than 150 peer-reviewed papers. He is one of only ten scholars in the US so honored.



Dr. William R. Shapton (professor emeritus, ME-EM) was elected to the SAE Fellow grade. The selection letter states that he "was selected based on his outstanding accomplishments in the development of experimental modal analysis and the use of transient excitations to identify the dynamic characteristics of mechanical systems."



MEEM 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 University. Please let the Department know if you would be available for a visit when he is in your area. (906) 487-2911.

Dr. Predebon will be traveling to the following cities this winter:

- Week of January 18th - Detroit, MI for the North American International Auto Show
- Week of March 21st - Mount Pleasant, MI for the 2010 Equity Conference
- Week of March 25th - Marina Del Ray, CA for the ASEE ME Education Conference
- Week of April 12th - Detroit, MI for the SAE International Congress

Dr. Sheryl A. Sorby (professor, ME-EM) had her work referenced in a letter, "Teaching, Not Testing, for Scientific Vision", published in the October 16, 2009 edition of Science. Dr. Sorby is the Engineering Education Innovation Research Group Director and Solid Mechanics Area Director in ME-EM.



Martin Toth (master machinist, ME-EM) received the Michigan Tech Staff Making a Difference Award in the Unsung Hero category in recognition of his contribution to the University's and the Department of Mechanical Engineering - Engineering Mechanics' educational, research and public service missions.

CAPSTONE

ORDER

January marks the beginning of Tech's spring semester, with 9 new design projects being initiated within the Capstone Design Program. These will join the 19 projects begun in the fall.

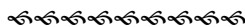
The Design Expo on April 15th will be showcasing the students' ingenuity in engineering! The Expo is an excellent opportunity to see these projects first hand and speak with some truly innovative emerging engineers. Can't make it to Houghton? Watch for news on live streams from the show floor, as well as interactive Q&A! And in the meantime, keep an eye out in your email for our periodic delivery of our new Senior Success series of past-project highlights.



The Michigan Tech Senior Design **Human Powered Off-Road Wheelchair Team** had their project highlighted in the December 19th edition of the Chicago Tribune. Read the article at: <http://archives.chicagotribune.com/2009/dec/19/science/chi-ap-mi-rowingchair>. The wheelchair is "rowed" around trails, allowing the disabled to enjoy the outdoors. A more in-depth article and video can be seen at: <http://www.mtu.edu/news/stories/2009/december/story21052.html>.



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A Senior Design project "Improving Airflow in Ventilated Improved Pit Toilets" received one of the two Graduate Student Council People's Choice First Place Poster Awards on October 16, 2009. Team members are **Craig Gossen** and **Stefan Marek** (undergraduate students, ME-EM), **Ashley Thode** (undergraduate student, ECE), and **Kim Landick**, **Krissy Guzak**, and **Cara Hanson** (undergraduate students, EEN). Their advisors are **Donna Michalek** (associate professor, ME-EM, and assistant provost), **Kurt Paterson** (assistant professor, CEE), and **David Watkins** (associate professor, CEE).

CAPSTONE
DESIGN PROGRAM

Alumni and Friends News, Accomplishments, & Awards

It is my intent to highlight alumni accomplishments on a regular basis. I would like to hear from you about your accomplishments and those of other Michigan Tech ME-EM alumni who have achieved recognition. Please email me this information at wwpredeb@mtu.edu or Kathy at kagoulet@mtu.edu.



Joseph Berger (BSME '04) was the starting center for the NFL's Miami Dolphins in the November 29th game against the Buffalo Bills.



James Schwerin (BSME '87), an application engineer with the Freudenberg Group, has branched out into brewing beer. He owns and is the brewer at Schmohz Brewery in Grand Rapids. The brewery produces 25 brands of beer, but the most widely distributed product is their root beer which can be purchased at Meijer stores.



Dr. Terry Woychowski (BSME '78); Vice President, Global Vehicle Program Management, General Motors Corporation; was quoted in the November 12th issue of the New Times article "After Bankruptcy, G.M. Struggles to Shed a Legendary Bureaucracy". He talks about some of the bureaucratic changes in GM. Read the article at: http://www.nytimes.com/2009/11/13/business/13auto.html?_r=1.

New Staff

Karen Bess joins ME-EM as a staff assistant. She was previously employed as the administrative assistant to the director of engineering at Porter Hospital in Valparaiso, Ind., and she holds a BA in anthropology from Michigan State University.



Current Contracts and Grants

Carl Anderson (PI, CoE, APSRC, and ME-EM); **Allen, Jeffrey**; **Beard, John**; **Chen, Bo**; **Naber, Jeffrey**; **Passerello, Chris**; **Worm, Jeremy** (Co-PIs, ME-EM); **Bohmann, Leonard** (Co-PI, CoE); **Hackney, Stephen** (Co-PI, Mat. Sci.); **Keith, Jason** (Co-PI, Chem. Eng.); **Meldrum, Jay** (Co-PI, KRC); and **Mork, Bruce** and **Weaver, Wayne** (Co-PIs, Elec. & Comp. Eng.); "Recovery Act - An Interdisciplinary Program for Education and Outreach in Transportation Electrification"; sponsor: US Department of Energy; amount: \$2,978,090.

Johnson, John (PI, ME-EM); **Naber, Jeffrey**; **Parker, Gordon**; and **Yang, Song-Lin** (Co-PIs, ME-EM); "Experimental Studies for DPF and SCR Model, Control System, and OBD Development for Engines Die-

sel and Biodiesel Fuels"; sponsor: US Department of Energy; total award amount: \$2,345,181.

Lee, Seong-Young (PI, ME-EM); "Visualization of Vaporizing Diesel Sprays in the Combustion Vessel"; sponsor: Ford Motor Company; total award amount: \$62,863.

Lee, Seong-Young (PI, ME-EM); "Development of P&W SDG's PIV and PLIF System Applicable to Non-Reacting Flow System"; sponsor: Pratt & Whitney; total award amount: \$45,000.

Miers, Scott (PI, ME-EM); "Demeter Fuel Catalyst Testing on Small, Internal Combustion Engines with Open-Loop Fuel Control Systems"; sponsor: Demeter Systems LLC; total award amount: \$129,855.

Department Accomplishments

Michigan Tech's research to develop cleaner, more efficient diesel engines led by **Dr. John H. Johnson** (presidential professor emeritus, ME-EM) was highlighted in the November 5, 2009 edition of the Chicago Tribune. Other faculty involved in the \$2.8M research project include **Drs. Gordon G. Parker and Song-Lin Yang** (professors, ME-EM), **Dr. Jeffrey Naber** (associate professor, ME-EM) and **Dr. Jason Keith** (associate professor, Chemical Engineering). Read the Tribune article at: <http://archives.chicagotribune.com/2009/nov/05/news/chi-ap-mi-cleandiesel> and the Michigan Tech article at: <http://research.me.mtu.edu/opus/news-view.php?id=50>.

Student Accomplishments and Awards

Kari L. Brown (PhD student, ME-EM and a GEM Fellow/King-Chavez-Parks Future Faculty Fellow), is featured in a web-based newsletter called "eGFI" (Engineering, Go For It), a publication of the American Society for Engineering Education.

Akhilesh Reddy Endurthy (MS student, ME-EM) was one of 17 graduate students and postdocs that were inducted into the SFI's Scholar Program on October 16th, 2009.

Faculty and Student Invention Disclosures

Dr. Desheng Meng (assistant professor, ME-EM), **Fei Teng** (post doctoral researcher, ME-EM), and **Sunand Santhanagopalan** (MS student, ME-EM) have filed an invention disclosure, "IC-compatible deposition of vertically-aligned CNT forests for micro-supercapacitors".

Dr. Craig Friedrich (Associate Chair, Director of Graduate Studies, and the Richard and Bonnie Robbins Chair of Sustainable Design and Manufacturing, ME-EM) and **Tolou Shokuhfar** (PhD candidate, ME-EM) have filed an invention disclosure, "Method and apparatus for automated fabrication of titanium dioxide nanotubes on an arbitrary surface shape using low cost electrodes".

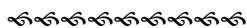




University News/ Awards

The November 9, 2009 issue of great lakes IT report announced that "Frontier Renewable Resources, the Michigan-based company building the state's first cellulosic ethanol plant in the Upper Peninsula, has provided a \$2-million grant to Michigan Tech and Michigan State University designed to strengthen the sustainable wood fiber supply, develop greater efficiencies in the harvest and transportation equipment and processes, and further reduce costs for the cutting edge project." Read the whole article at:

[http://www.wwj.com/pages/5635502.php?](http://www.wwj.com/pages/5635502.php)



At the Michigan Legislature's Joint Capital Outlay Committee meeting in Lansing on November 12, 2009, the committee authorized Michigan Tech to seek construction bids for its planned Great Lakes Research Center (GLRC). The \$25.3-million facility will be built on the waterfront adjacent to the campus. The state will pay 74 percent of the cost. The University's share is 26 percent or \$6.58 million.

The Michigan Tech Strategic Faculty Hiring Initiative was highlighted in the November 8, 2009 issue of the great lakes IT report. The initiative focuses on the hiring of possibly 20 new faculty members in multidisciplinary research in any aspect of 21st century energy, including smart transmission and distribution systems, cybersecurity, renewable energy, improved combustion and hybrid technologies, distributed power systems, advanced battery technologies, energy conversion, and the regulatory, policy, legal, social, environmental and economic aspects of sustainable energy and in health sciences and technologies, including biochemistry, bioengineering, bioethics, biomaterials, biomechanics, human factors, medical informatics, cell biology, physiology and statistical genetics. Read the whole article at:

<http://www.wwj.com/MTU-Seeks-20-Prof-In-Renewable-Energy-Health-Inf/5625533> or see the position descriptions at <http://www.mtu.edu/employment.html>.



A Memorial Tree Grove is planned for between the Rozsa Center for the Performing Arts, the Walker

Arts and Humanities Center and US-41. For a \$600 tax-deductible charitable contribution a tree will be purchased and the name of the person whom the tree honors or memorializes will be displayed on a plaque that maps the grove. People who want to sponsor a tree should contact Paula Nutini, director of annual giving, at 487-3609 or at pjnutini@mtu.edu. The official campaign has ended but late inquiries will be considered if received in the very near future.



The latest issue of "Car and Driver" Magazine published a story about the Keweenaw Research Center's winter testing tracks. They were called "perfect for cold weather testing." A spokesman from Michelin said, "The 500-acre facility is the most impressive winter proving ground we've ever experienced."



Michigan Tech and Michigan State University College of Human Medicine have entered into an agreement that provides a link between premedical students at Michigan Tech and MSU's medical school.



For the first time in school history, the Michigan Tech women's tennis team advanced to the championship match where they were defeated 5-1 by Northwood. Tech won eight straight matches including six regular season tilts and two GLIAC Tournament contests before falling in the championship match. Read more at: http://www.michigantechhuskies.com/SportSelect.dbml?DB_OEM_ID=18800&KEY=&SPID=10924&SPSID=90444



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February 3—6, 2010

