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9-2012

## ME-EM eNewsBrief, September 2012

Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University

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Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University (2012). ME-EM eNewsBrief, September 2012. 8(3)

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# ME-EM

Michigan Tech

eNewsBrief

Volume 8 Issue 3 - Sep 2012



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](http://www.mtu.edu/mechanical)



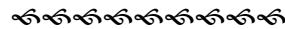
The Department of Mechanical Engineering - Engineering Mechanics invites you to join in the celebration of its 85th year of delivering a world class mechanical engineering education to its students. Go to [85th anniversary](#) to see how you can participate.

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## Upcoming Events

The 13th Annual ME-EM Alumni Winter Carnival Hockey Social will be held on Saturday, February 9, 2013 during the Michigan Tech versus Alaska Anchorage (Winter Carnival) game in the MacInnes of the Student Development Complex (SDC). Face-off is at 5:07 PM. Join us in the Huskies Suite - South. Seating is limited so call or email for your seats early. Call or email Kathy at (906) 487-2911 or [kagoulet@mtu.edu](mailto:kagoulet@mtu.edu). Refreshments will be served.



Watch for information on the following upcoming events:

- Fernstrum Family Classrooms dedication during Winter Carnival
- Annual SAE Reception in Detroit in April
- SAE Clean Snowmobile Challenge in Houghton, March 4-9, 2013

## Scholarship Created

After 18 years of service to Michigan Tech, Donna Michalek left in 2010 to fulfill her dream of leading an engineering program. Tragically, she died in April after less than two years as chair of the Department of Engineering at the University of Mount Union. Donna Michalek joined Michigan Tech's mechanical engineering faculty in 1993 and held a number of positions during her time at the University, including associate chair in the Department of Mechanical Engineering-Engineering Mechanics. She also served as assistant provost, spearheading the University's accreditation effort and leading the National Science Foundation ADVANCE program to improve faculty diversity in the engineering and science fields. A scholarship has been created by Michigan Tech and the ASME Foundation in her name. Visit [Scholarship](#) to read the article with information on how to contribute to the scholarship.



## New Faculty

**Dr. Mahdi Shahbakhti** joined the Department in August, 2012.



He received his Ph.D. from the University of Alberta in Canada in 2009. After receiving his Ph.D., he was a post-doctoral scholar at the

University of California-Berkely. He worked several years in the automotive, robotic and HVAC industries. His research interests are control of hybrid electric vehicles, alternative/renewable fuels and energy, modeling and control of energy use in buildings, developing clean and energy-efficient combustion en-

gines, and methods to reduce harmful vehicular emissions. Visit his webpage at [Mahdi Shahbakhti](#).



**Dr. Tolou Shokuhfar** joined the Department as an assistant professor in the spring semester, 2012.



She earned her PhD from Michigan Tech and held a post-doctoral appointment at Michigan Tech

for a year. Her research is in the areas of nanotechnology, nanomedicine, and orthopedic implants. Visit her web page at [Tolou Shokuhfar](#).



**Dr. Paul van Susante** joined the Department in August, 2012 as a lecturer. He received MS and PhD degrees in Engineering Systems interdisciplinary ME,

CE and EE) in May 2004 and December 2011, respectively, from Colorado School of Mines (CSM), in Golden, Colorado. He was an instructor and faculty advisor to the CSM student NASA Lunabotics Mining Competition and has worked for NASA Kennedy Space Center, the European Space Agency, and has other industry work experience. Visit his web page at [Paul van Susante](#).

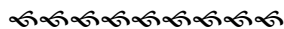
## Alumni and Friends News, Accomplishments, & Awards

IT IS OUR INTENT to highlight alumni accomplishments on a regular basis. We would like to hear from you about your accomplishments and those of other Michigan Tech ME-EM alumni who have achieved recognition. Please email information to Bill at [wwpredeb@mtu.edu](mailto:wwpredeb@mtu.edu) or Kathy at [kagoulet@mtu.edu](mailto:kagoulet@mtu.edu).

**Charles F. Hayes**, Mechanical Engineering (BSME '66) was inducted into the Packaging Hall of Fame on Oct 30, 2012.



**Douglas Parks** (BSME '84) has been appointed vice president of product programs at GM, a new role created to oversee GM's vehicle program leaders. Visit [Doug Parks](#) to read the article.



**Paul Rauscher** (BSME '70) President of EMT International, was highlighted in the New North Insight on Business article "Tyrannosaurus Next - EMT's Paul Rauscher shakes the dust from

manufacturing's fossilized image". Read the article at [Paul Rauscher](#).

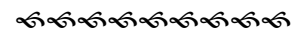


**Dr. Paul Rogers** (BSME '88, ME-EM PhD '04) a current ME-EM External Advisory Board member and Deputy Program Executive Officer for the US Army Ground Combat Systems, has been selected as the Director of the US Army Tank Automotive Research and Development Engineering Center (TARDEC) in Warren, MI. The official ceremony took place on August 13, 2012 in Warren with Dr. Predebon attending.



**Rudolph Smaling** (BSME '91) has

coauthored the book "Advanced Hybrid Powertrains for Commercial Vehicles", which takes a broad look at commercial applications of hybrids for engineers, and students. SAE Publishing is publishing the book. Visit [Rudolph Smaling](#) to see a description of the book and read the forward.



**Robert Waara** (BSME '09) had his work highlighted in the article "2013 Ford Shelby GT500 Trinity 5.8L V8—Power of Three". Rob works for Rousch and just finished up on the 2013 Mustang project, where he assisted in developing the fastest production V-8 engine ever built. Read the article at [Mustang](#). Note Rob's picture is at the bottom.

## Faculty/Staff Awards/Accomplishments

The article "Single Screw Extruder: Experiments and 3D Finite Element Simulations" coauthored by **M. Gupta** (professor, ME-EM) and **A. Altinkaynak** (Ph.D. '10, ME-EM), along with M. A. Spalding and S. L. Crabtree from Dow Chemical had Melting is currently the 6th most read article on the International Polymer Processing website. The paper appeared in International Polymer Processing 2011/02, Page 182-196. Visit [Abstract](#) to read the abstract

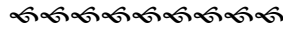


**Nina Mahmoudian** (assistant professor, ME-EM) was an invited speaker in the Academic Forum of the National Instrument Convention in Austin, Texas held August 6-9, 2012.



**Dr. Michele Miller** (associate professor, ME-EM) has accepted the additional appointment of Associate Chair and Director of Under-

graduate Studies in the Department. She replaces Prof. Charles Van Karsen who stepped aside to return to full time teaching and research.



**Fernando Ponta** (associate professor, ME-EM) was highlighted in the September ASME article "Small Wind Turbines Fulfill Their Promises". Visit [Turbines](#) to read the article.



**Jeremy Worm** (research engineer, ME-EM) recently joined the Mobile Lab Coalition, an international coalition of traveling laboratory based STEM education programs. They did a write-up on the Mobile Lab, which appears their newsletter. Read the article at [Coalition](#).



**Jeremy Worm** (research engineer, ME-EM) was highlighted in the

Michigan Tech News article "Hot Rods, Cool Technology: Michigan Tech and the Green Racing Initiative" regarding his green technologies research for the motor sports industry. Read the article at [Green Racing](#).



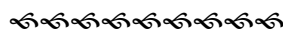
**Jeremy Worm** (research engineer, ME-EM), with a team of graduate and undergraduate students and members of the Michigan Tech Chapter of the National Society of Black Engineers, brought the Mobile Lab to Detroit. They met with engineers and training coordinators from two companies, Mahle Powertrain and Detroit, to showcase the Mobile Lab's offering of hands-on short courses. As well, the lab provided fun-filled STEM activities for inner city youth at the Parental Boot Camp organized by Heroes Alliance of Detroit.

## Current Contracts and Grants

**Bo Chen** (PI, ME-EM) and **Jeffrey Naber** (Co-PI, ME-EM, "Continued Engine Research - Summer 2012", sponsor: Nostrum Energy, LLC, total project amount: \$48,070.



**Seong-Young Lee** (PI, ME-EM), **Jaclyn Johnson** (Co-PI, MEEM), and **Jeffrey Naber** (Co-PI, ME-EM, "Characterization of Water Spray Injection at Elevated Temperatures", sponsor: Nostrum Energy, LLC, total project amount: \$28,900.



**Scott Miers** (PI, ME-EM), "Advanced Vehicle Characterization", sponsor: Argonne National Lab, LLC, total project amount: \$78,043.



**Scott Miers** (PI, ME-EM), "Marine Engines Fuelled with Gasoline/Alcohol Blends", sponsor: Argonne National Lab, LLC, total project amount: \$16,445.



**Nina Mahmoudian** (assistant professor, ME-EM) received a Michigan Tech 2012 Research Excellence

Funding in the amount of \$25,000 for her project, "Multi-vehicle platform for Lake Marine Research".

## Faculty and Student Invention Disclosures

**Dr. Amitabh Narain** (professor, ME-EM) had his research "High Effectiveness Microscale Condensers and Boilers for Terrestrial and Space Applications" highlighted on the NSF (CBET-Thermal Systems) on the NSF website. Read the article at [Research](#).



# CAPSTONE

# ORGANIZER

## Capstone Teams' Work Progressing...

As this goes to press, 30 Senior Capstone Design teams are heavily engaged in various stages of engineering design projects. Seventeen of these were just begun this fall, sixteen of which are focused on new product design and development. Based on past experience, there should be 2-5 of these that validate new IP for their customers.

Thirteen projects are in their home stretch, scheduled for completion in December. Six of these projects are focused on manufacturing process optimization, and look to improve production efficiencies and quality levels for their customers.

Given we begin new projects every September and January, Senior Capstone Design is always very active and engaged with customers.

We are in the middle of planning projects for January 2013 and September 2013 as you read this. If you would like to be a part of this Capstone Experience, benefit from the value of interacting with some of the nation's most promising engineers, and support the continuation of this top nationally ranked program, please contact us!

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



## Student Accomplishments and Awards

Jacob LaSarge (sr., ME-EM) has received the U.S. Air Force Cadet Research Award, given to only one cadet in the nation. He was chosen for showing leadership and technical ability as manager of a student

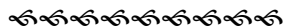


project that developed the prototype satellite, Oculus. He was highlighted in USA Today and the Detroit Free Press for receiving the award.

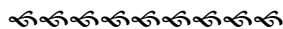


Brennan Tymrak (MS student, ME-EM) has been awarded a \$17,625 National Science Foundation award for his project "NSF Graduate Research Fellowship - Technologies for Developing Countries. The

award is the first increment of a potential \$126,000 award.



Byrel Mitchell (PhD student, ME-EM) received NSF 2012 graduate fellowship honorable mention.



Nathan Saliga (sr., ME-EM) was honored with the GLIAC Commissioner's Award for track and field for the spring season. The award is sponsored by Meijer Inc. and awarded each spring and fall to 6 male and 6 female students who excel in both the classroom and on the field. He also received the Capital One Academic All-American Second Team honors from the College Sports Information Directors of America.

Eric Wilkening, Sophomore, received 2012 Summer Undergraduate Research Fellowship (SURF) for the amount of \$3300 to work in Nonlinear and Autonomous Systems laboratory (NAS lab) on developing and educational underwater glider.

## Student Competitions and Team Awards

The Aerospace Enterprise had their vehicle "Oculus" mentioned in this year's AMOS Tech Conference promotional material that was sent to everyone in the space defense/surveillance community.



## University News



On August 22nd the Princeton Review rated

Michigan Tech one of the best universities in the Midwest for the second year in a row. Tech is one of 153 institutions the Princeton Review recommends in the "Best in the Midwest" section of its "2013 Best Colleges: Region by Region," on PrincetonReview.com. Michigan Tech was also included in Princeton Review's "Best 377 Colleges" publication, which spotlights the top 15 percent of America's 2,500 four-year colleges and three colleges outside the US. The publication includes detailed profiles of the colleges with rating scores for all schools in eight categories. It also ranks the top 20 schools in 62 categories. The rankings are based in part on Princeton Review's surveys of students attending the colleges. The website and publication focus on undergraduate education." Read the article at [Princeton Review](#).

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**Les Cook**, vice president for student affairs, received the 2012 Outstanding Service to NASPA (Student Affairs Administrators in Higher Education) IV-E Award. The award is presented to an individual demonstrating outstanding achievement to the student affairs profession and Region IV-East over an extended period of time.

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Michigan Tech reported the following enrollment data to the State of Michigan on September 14, 2012. The total number of students on campus this fall is 6,945, including 1,410 new undergraduates, both first-year and transfer students. Of those new undergraduates, 1,027 are Michigan residents, 349 are

women, 93 are underrepresented minorities and 54 are international students.

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Michigan Tech provided food and emergency housing for residents of Heritage Manor after a fire there on Aug. 20th. About 40 people were evacuated to Dee Stadium after a blaze erupted in the apartment complex, which is located on Montezuma Avenue in Houghton. The residents were then bused to Wadsworth Hall on campus, where they received temporary housing and meals through Dining Services. When it was safe for residents to return to retrieve their belongings, one-hundred-forty Tech students and staff from the Division of Student Affairs volunteered their time to help the residents.

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The Chronicle of Higher Education listed Michigan Tech among the top 157 universities for licensing income, licenses issued, research expenditures, start-up companies formed and patents applied for and issued. The report was based on statistics compiled by the Association of University Technology Managers. Read the story at [Chronicle](#) and see where we rank at [Table](#).

G.I. Joe magazine has recognized Michigan Tech as a "military friendly school" for 2013. Read the article at [Military](#).

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The National Science Foundation has announced 2012 graduate research fellowship awards and honorable mentions. Michigan Tech had a 12% success rate with 4 awards and a 18% success rate with 6 honorable mentions - both above the national 10% average (based on

past years until 2012 statistics released later this month). Overall NSF offered 2000 awards and 1835 Honorable Mentions.

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Michigan Tech was ranked 63rd by The Washington Monthly magazine as one of the top 100 universities in the nation and 4th for encouraging students to give service to their country through ROTC. Rankings are based on what the universities are doing for their students and the country and contribution to the public good in three broad categories: social mobility (recruiting and graduating low-income students); research (producing cutting edge scholarships and PhDs); and service (encouraging students to give something back to their country).

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The women's basketball team finished 10th in the WBCA Top-25 Team Academic Honor Roll for the 2011-12 season. The Huskies posted a cumulative team grade point average of 3.547.

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In July, the ASME news website published the article "Embedding Ethics in Engineering Education" about including ethics in engineering education. The story quoted College of Engineering **Dean William Worek**. Read the article at [Ethics](#).

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**William Worek** (Dean, College of Engineering) has been named to the ASME Board of Governors for a three year term which begins in June, 2013. Read the article at [Board of Governors](#).