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9-2013

ME-EM eNewsBrief, September 2013

Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University


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ME-EM

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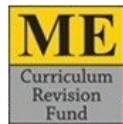
Volume 9 Issue 3 - SEP 2013



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](#).



Every day we face challenges to our ability to deliver an exceptional educational experience for our students. The most acute of these is financial. State support is declining dramatically and increasingly our ability to provide financial aid to students, hire excellent faculty, and deliver a quality education is dependent on private support. That is why we are embarking on two new fundraising efforts for the coming year. Please click on any of the icons for information.



It's apparent across every sector of the US economy: unprecedented technological change. To prepare our students for the dynamic workplace of the future, our undergraduate curriculum is also undergoing a transformation. However, to keep up with the pace of change, we need your help. Please click on the icon to the left to read more about this initiative or to make a donation



Support a one-of-a-kind program, and help us make a world of difference. Michigan Tech offers the nation's first and only Peace Corps Master's International program in Mechanical Engineering, which allows students to combine Peace Corps service with a Master of Science in Mechanical Engineering. Please click on the icon to the left to read more about this initiative or to make a donation.

IN THIS ISSUE:

Chair Travel	1
Past Events	1
Alumni and Friends News, Accomplishments and Awards	2
Department Accomplishments	2
Capstone Corner	3
Student Competitions and Team Awards	3
Student Awards and Accomplishments	3
Student Awards and Accomplishments Cont.	4
Faculty and Staff Awards and Accomplishments	4
Upcoming Events	4
Current Contracts and Grants	5
Retirements	5
University News/Awards	6
New Hire	6

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 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 coming spring:

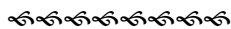
- * Nov 7—10 - Pittsburgh PA, alumni visits
- * Nov 15—21 - San Diego, CA for the ASME IMECE Conference

Past Events

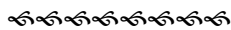
The Annual ME-EM Alumni Boat Cruise, held on August 1, 2013, raised \$1,940 for ME-EM scholarships. This was the first time we have used a Department event to raise funds. To all those who participated, thank you again, your generosity is greatly appreciated.

Alumni and Friends News, Accomplishments & Awards

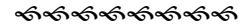
Paul Fernstrum (BSME '65) from Menominee was presented the Distinguished Alumni Award for his success with RW Fernstrum Company, which creates heat exchangers for marine operations. Paul has contributed to a new high-tech classroom in ME-EM and has sponsored Senior Design teams. He is also a member of the Mechanical Engineering and Engineering Mechanics Academy.



The Woodrow Wilson National Fellowship Foundation announced that **Bailey Gamble** (BSME '07, MSME '12), is one of 51 Fellows selected for the 2013 W.K. Kellogg Foundation's Woodrow Wilson Michigan Teaching Fellowship. She is a former water/sanitation engineer for the U.S. Peace Corps in the Dominican Republic and an instructor for Osborn Earn-a-Bike program. She will receive a \$30,000 stipend to complete a special intensive master's program and in return must make a commitment to teach for at least three years in a high need urban or rural school in the state of Michigan.



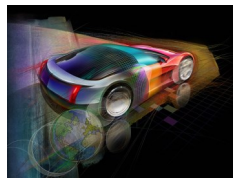
Raymond Trehella (BSME '56) passed away on September 27th. Ray retired as Chairman & CEO of Glassmaster Co. in 2007. He was a member of the Mechanical Engineering and Engineering Mechanics Academy and the Michigan Tech Sports Hall of Fame.



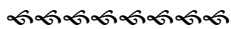
Robert Waara (BSME '09), chief engine engineer with the SRT Viper racing team, was featured in the Michigan Tech News story Local Alumnus Engineers a Trip to Le Mans and a Career in Racing. Read the article at [Racing](#). The article also ran on the [CBS Detroit website](#)

Department Accomplishments

The HEV Enterprise received a 2012 all-electric Ford Focus on September 18th from Ford. The team is advised by **Dr. John Beard** (associate professor, ME-EM), **Robert Page** (Manager Lab Facilities, ME-EM), John Lukowski (associate professor, ECE), Steven Hackney (professor, MSE), and Jeffrey Burl (associate professor, ECE). John Lukowski and Robert Page are the HEV coordinators. The story was covered by TV6 News, read the article at [Enterprise](#). Read about

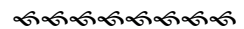


the Enterprise at [HEV](#).



Partners for the Advancement of Collaborative Engineering Education (PACE) notified **Dr. VC Rao Komaravolu** (principal lecturer, ME-EM, and PACE advisor) that Michigan Tech has been awarded the PACE Silver Certification. PACE links GM, Autodesk, HP, Oracle, Siemens PLM Software, and their global operations to support strategically selected academic institutions worldwide to develop the automotive product lifecycle management (PLM) team of the future. PLM, as it relates to PACE, is an integrated, parametrics-based approach to all aspects of a product's life-from its design incep-

tion, through its manufacture, marketing, distribution and maintenance, and finally into recycling and disposal." The award is for work on furthering the PACE mission, and for their collaborative student projects. The award was given at the 2013 PACE Annual Forum at the Art Center in Pasadena, California July 22-26 during the Awards Ceremony.



The web site MechanicSchools.com featured Michigan Tech's Department of Mechanical Engineering—Engineering Mechanics as one of the top five mechanical engineering schools for students to consider. See [Mechanical](#).



Thanks to a generous donation from **Titan/Titan Wheel International, Inc.**, **Morry Taylor** (BSME '68) Chairman and CEO, the ME-EM Lobby has a new look. The lobby renovation, which was recently completed, is a comfortable space for students to meet and congregate. The space has Wi-Fi and plenty of charging connections. It will be formally dedicated at a later date.

CAPSTONE
CORNER

Rewarding Weekend for One Capstone Team

One superstar Capstone Design team just returned from a hugely rewarding weekend at the Detroit Marathon. The team is developing an improved hand-cycle for the Achilles Freedom Team of Wounded Veterans. We had about 30 vets on hand tuning up their machines the morning before the marathon, and they gave some great feedback on the design as it stands. The team hustled to fabricate an alpha prototype in time for the event, bringing a road-worthy machine for evaluation. INSPIRING!



We are looking for new projects for this coming January. They will begin the week of 13 January 2014. Please consider backing a project. Contact me with any questions.

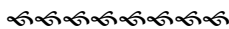


Thank You. *Bob De Jonge*
rdejonge@mtu.edu
906-487-2142



Student Competitions and Team Awards

The Michigan Tech men's basketball program earned the Team Excellence Award from the National Association of Basketball Coaches. The award is given to teams that have a cumulative grade point average above a 3.0.



The Michigan Tech men's and women's track teams received awards from the United States

Track and Field Cross Country Coaches Association. Both teams earned Div. II All-Academic Team honors. The men's team finished tied for 10th with a cumulative grade point average of 3.25. The women's team tied for 22nd with a cumulative grade point average of 3.4. Overall, 42 men's and 92 women's teams earned the award which is given to teams with a cumulative grade point average of 3.0 or higher.



The ME-EM softball team, Tools of

Ignorance, won the 2013 Graduate Student Government (GSG) Co-ed Softball Division B Championship. The league is held every summer and is open to all Michigan Tech-affiliated persons including students, faculty and staff. This year, the team was managed by **Vinaykumar Konduru** (PhD student, ME-EM)



Student Accomplishments/Awards

Edmond Meyer (PhD candidate, ME-EM) has been selected as the 2013 Winnikow Fellow. The fellowship (bequeathed by Dr. Svitlana Winnikow, the first female professor at Michigan Tech) is awarded

to a graduate student pursuing the study of energy thermo-fluids. His advisor is Dr. L. Brad King (professor, ME-EM). Finalists receiving certificates are **Ranjeesh Naik** and **Anqi Zhang**, both PhD candidates in ME-EM.



Brian Page (jr., ME-EM) had his research highlighted on CBS Detroit and in the Daily Mining Gazette. Brian was awarded a Summer Undergraduate Research Fellowship and is working to develop two autonomous underwater gliders. Read the article at [SURE](#). His advisor is **Dr. Nina Mahmoudian** (assistant professor, ME-EM).

Student Accomplishments/Awards Continued

Nathan Saliga (sr., ME-EM) earned United States Track and Field Cross Country Coaches Association All-Academic honors. The Leonard, Mich., native finished third in the decathlon at the GLIAC Championships with a school record and a NCAA provisional qualifying score of 6,424 points. He was a five-time All-GLIAC performer

and holds the school record in the 400-hurdles with a time of 54.27. Saliga earned Capital One CoSIDA Academic All-America honors as a junior and senior and graduated this spring with a 3.88 grade point average in mechanical engineering.

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The Great Lakes Intercollegiate Athletic Conference announced that **Nathan Saliga** (sr., ME-EM) received a Spring 2013 Meijer Commissioner's Award. The award, sponsored by Meijer, Incorporated, is presented after the Fall, Winter and Spring athletic seasons to six female and six male student-athletes who excel both in the classroom and on the fields of play.

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Cole Welch (sr., ME-EM) has been named a 2013 co-captain for the Michigan Tech Huskies football team.

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## Faculty/Staff Awards/Accomplishments

**Dr. Jaclyn Johnson** (instructor and research engineer, ME-EM) was a recipient of the 2013 SAE Excellence in Oral Presentation for her presentation titled "Investigation of Key Mechanism for Liquid Length Fluctuations in Transient Vaporizing Diesel Sprays Using Experimental Results and CFD Modeling".

his work developing a new type of satellite engine and focuses on its serendipitous aspects. Read the article at [Satellite](#).

**Dr. Tolou Shokuhfar** (assistant professor, ME-EM) had her research on dental implants highlighted in Michigan Tech News. Read the article at [Dental](#). A paper she coauthored on the research was published in RSC Advances, an international journal to further the chemical sciences. Read the abstract at [Abstract](#) or listen to her interview with Dentist News Network at [Dentist](#). This research was also highlighted on [ScienceDaily](#) and [Phys.org](#).

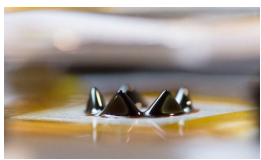
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Dr. L. Brad King (professor, ME-EM) had his research on nanosat micro rockets highlighted in Michigan Tech News. Read the article at [Rocket](#).

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Dr. L. Brad King (professor and the Ron and Elaine Starr Professor in Space Systems Engineering, ME-EM) is featured in a story in The Economist. "Satellite Propulsion: It's Not Rocket Science" describes



Dr. Jeffrey Naber (professor and the Ron and Elaine Starr Professor in Energy Systems, ME-EM) was a cohost for a six week research experience for teachers (RET). As a part of the Sustainable Futures Institute at Michigan Tech, seven middle and high school teachers from Michigan and Wisconsin were on campus to conduct state of the art biofuels research.

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**Dr. Reza Shahbazian Yassar** had his research on lithium ion batteries highlighted in the July 9, 2013 issue of Tech Today. His research will focus on observing the changes in the host electrode at the very early stages of charging, finding the problems and developing strategies to fix them. Read the article at [Batteries](#).

## Upcoming Events



The 14th Annual ME-EM Alumni Winter Carnival Hockey Social will be held on Saturday, February 8, 2014 during the Michigan Tech versus University of Alabama Huntsville (Winter Carnival) game at the MacInnes 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. Cost for this event is \$35 per ticket, all proceeds will go to a ME-EM scholarship. Call or email Kathy at (906) 487-2911 or kagoulet@mtu.edu. Refreshments will be served.

## Current Contracts and Grants

**Dr. Nina Mahmoudian** (co-PI, ME-EM) and **Dr. Guy Meadows** (PI, Great Lakes Research Center), "Advanced Underwater Sensing", sponsor: Enbridge Energy, amount: \$375,249.

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Dr. John Beard (PI, ME-EM), "Titan Agricultural and Off-Road Tire Test Fixture", sponsor: Titan Tire Corporation, amount: \$120,275.

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**Jeremy Worm** (PI, ME-EM), "An Overview of Powertrain Test Cell Technologies", sponsor: Affiliated Construction Services, amount: \$5,979.

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Dr. William Predebon (PI, ME-EM), "Development of Biomass Torrefaction for Coal-Fired (CF) Power Industry", sponsor: Eb Clean Energy, Ltd, amount: \$150,000.

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**Dr. L. Brad King** (PI, ME-EM), and **Kurt Terhune** (co-PI, ME-EM), "In-situ Visualization of the Local Electric Field Around and Ionic Liquid

Taylor Cone Using Electron Holography", sponsor: National Aeronautics and Space Administration, amount: \$68,000.

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Dr. John H. Johnson (PI, ME-EM), **Dr. Jeffrey Naber**, and **Dr. Gordon G. Parker**, (co-PIs, ME-EM), "MTU Consortium in Diesel Aftertreatment Research", sponsor: Various Sponsors, amount: \$130,935.

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**Dr. Jason R. Blough** (PI, ME-EM), "Assist in Planning of Development of RMCP Platform Concepts", sponsor: Quantum Engineering Design, Inc., amount: \$10,000.

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Jeremy Worm (PI, ME-EM), "High Impact STEM Outreach Utilizing the Michigan Tech Mobile Laboratory at the 2013 Heroes Alliance Parental Boot Camp", sponsor: US Department of Defense, Army, TARDEC amount: \$19,099.

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**Jeremy Worm** (PI, ME-EM), "Mobile Lab HEV Courses for Ford Motor Company", sponsor: Ford Motor Company, amount: \$20,997.

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Dr. Gordon G. Parker (co-PI, ME-EM) and **Dr. Wayne Weaver** (PI, ECE), "Modeling and Control Technologies for Near-Term and Long-Term Networked Microgrids", sponsor: Argonne National Laboratory, amount: \$250,000.

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**Dr. Jeffrey Naber** (PI, ME-EM) and **Dr. Bo Chen** (co-PI, ME-EM), "Nostrum Energy Statement of Work for Continued Engine Research", sponsor: Nostrum Energy, LLC, amount: \$56,800.

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Dr. Seong-Young Lee (PI, ME-EM) and **Dr. Jaclyn Johnson** (co-PI, ME-EM), "NSF/DOE Partnership on Advanced Combustion Engines: Ignition and Combustion Characteristics of Transportation Fuels under Lean-Burn Conditions for Advanced Engine Concepts", sponsor: National Science Foundation, amount: \$348,189.

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**Dr. Ossama Abdelkhalik** (PI, ME-EM), "Trajectory optimization for Solar Electric Propulsion Satellites", sponsor: ExoTerra Resource LLC, amount: \$10,000.

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Retirements

Paul Kilpela

(research associate, ME-EM) has retired after 36 years of service to Michigan Tech.

Michael LaCourt

(research engineer/scientist II, ME-EM) has retired after 35 years of service to Michigan Tech. Mike was also an instructor in the Department.



University News/Awards



The Online College Database, a directory of U.S. Colleges has ranked Michigan Tech" College of Engineering 14th in the top 50 U.S. Colleges & Universities for Engineering. Read the article at [Online](#).

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Dan Greenlee (chief financial officer, Michigan Tech) was included on the cover of the Michigan Retailers Association (MRA) 2012 Annual Report. He and Mary Yeo, manager of banking operations and auxiliary accounting, were profiled because of Michigan Tech's partnership with MRA for electronic payments processing.

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Washington Monthly magazine has ranked Michigan Tech 29th among national universities and 58th among all schools as a school that delivers the Best Bang for the Buck. Read the article at [Bang](#). See the rankings at [Rankings](#).

Luminosity has ranked Houghton 20th as one of the 100 smartest cities in America according to VB/Offbeat. Read the article at [Houghton](#)

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In a letter to President Barack Obama and Congress, 165 university presidents and chancellors--including Michigan Tech President Glenn Mroz urged the nation's policymakers to address what they called an "innovation deficit." The letter was published as an advertisement in Politico, a national political news website. Read the letter at [Letter](#)

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Michigan Tech is participating in the state's University Center for Regional Economic Innovation, with a project designed to inform entrepreneurs of opportunities in the Upper Peninsula while identifying gaps in resources and possible ways to bridge those gaps. Jim Baker, executive director of Innovation and Industry Engagement at Michigan Tech, presented the project at the Innovate Michigan Summit in East Lansing on Sept. 4. An article about the endeavor was published in [CBS Detroit](#).

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Michigan Tech has again been

listed in Princeton Review's Best 378 Colleges. In the 2014 edition, Michigan Tech was named a Best Midwestern College for the third consecutive year. The Best 378 Colleges report focuses on undergraduate education. Read the article at [Princeton](#).

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The 2014 US News and World Report Best Colleges ranked Michigan Tech undergraduate programs in all disciplines at 57th in the nation. Michigan Tech also was named an "A-Plus School for B Students" in the latest US News undergraduate rankings. The category lists top-ranked universities that consistently consider and admit promising students whose high school grade point average is less than an A. Today Tech was also named a Military Friendly School, an honor earned by only 20 percent of the colleges and universities in the country. The Military Friendly School designation recognizes best practices in recruitment and retention of students with military experience.

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A record number of companies were represented at this fall's Career Fair with 264 companies on campus on Tuesday, Sept. 24.

## New Faculty

**Dr. Lucia Gauchia Babe** has joined Michigan Tech as an assistant professor and the Richard and Elizabeth Henes Assistant Professor of Energy Storage Systems with dual appointments 1/3 in ME-EM and 2/3 in ECE. She earned a B.Eng. Degree in Industrial Engineering specializing in Electric Power Systems, a M.Sc. in Electrical, Electronic and Automation Engineering, and a PhD in Electrical, Electronic and Automation Engineering all from the University of Carlos III of Madrid, Spain. Her research interests are energy storage systems and state estimation for batteries and supercapacitors. She comes to Michigan Tech from McMaster University, where she was a postdoctoral research associate and Canada Excellence Research Chair in the Hybrid Powertrain Program.

