ME-EM eNewsBrief, June 2011

Department of Mechanical Engineering-Engineering Mechanics, Michigan Technological University

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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 Department of Mechanical Engineering - Engineering Mechanics will again host a boat cruise during the Michigan Tech Annual Alumni Reunion. Please join us aboard the Ranger III for an afternoon cruise down the Portage Canal on Thursday, August 4th. Board the Ranger III at 12:30 p.m. at the National Park Service dock east of the Dee Stadium and right behind the Franklin Square Inn. We depart at 1:00 p.m. and will return at 3:30 p.m. (plenty of time to attend the Pasty Picnic). Space is limited and reservations are required so RSVP as soon as possible to kagoullet@mtu.edu or phone (906) 487-2551. Refreshments and the cruise are compliments of the ME-EM Department.

**Faculty Promotions**

Dr. Lyon Brad King has been promoted from an associate professor to professor.

Dr. Charles Margraves has been promoted from lecturer to senior lecturer.

Dr. Jeffrey Naber has been promoted from associate professor to professor.

Dr. Fernando Ponta has been promoted from assistant professor to associate professor with tenure.
The Academy of Mechanical Engineering and Engineering Mechanics Induction

On Saturday, April 9, 2011, the Department of Mechanical Engineering - Engineering Mechanics inducted five alumni into the Mechanical Engineering and Engineering Mechanics' Academy. The purpose of the Academy is to honor outstanding graduates of the Michigan Technological University Department of Mechanical Engineering – Engineering Mechanics. Selection into the Academy recognizes excellence and leadership in engineering and civic affairs. This induction honors some of the most successful mechanical and engineering mechanics alumni of Michigan Tech. Academy members serve as inspirational role models for future mechanical engineering and engineering mechanics students. The following alumni were inducted:

Paul W. Fernstrum (BSME '65) is President of Menominee-based RW Fernstrum & Co, a third-generation family-owned company that invented -- and continues to manufacture and market -- the Gridcooler keel cooler, which was developed during WWII to prevent engine overheating. Paul began his career at RW Fernstrum as a draftsman. In 1975 he designed the first of a series of engineering programs for sizing the Gridcooler, cutting the engineering time from 40 hours to 30 minutes. Some of the unique applications of the Gridcoolers include cooling of turbine oil in hydro-electric stations, engines and offshore wind and tidal generators, gear oil on flood control pump stations (such as those that ran throughout Katrina), and electronics on tsunami early warning buoys and ROV submersibles. In 1995, he became president of the company. As a student, Paul was in the Air Force ROTC, and a member of the American Society of Mechanical Engineers and Alpha Phi Omega. Paul is a Michigan Tech Fund Trustee, has been active in local and civic organizations as a Director of the Stephenson National Bank & Trust, past president of the Rotary Club, past Scoutmaster and District Chairman for the Boy Scouts of America and has received the Boy Scouts of America Silver Beaver Award, past Commander of the U.S. Power Squadron, and an Elder at the Presbyterian Church. Sandy and Paul's two sons, Sean and Todd, are also Tech alumni and work with their father.

Dr. James C. Gerdeen (BSME '59) retired as Professor and Department of Mechanical Engineering Chair from the University of Colorado - Denver. After graduation, Jim worked in industry before completing his MS in 1962 from Ohio State University and later his PhD from Stanford in 1965, both in mechanical engineering. He returned to Michigan Tech as a faculty member from 1968 to 1989. He received his M. Divinity, Theology, Association of Free Lutheran Seminary, Medicine Lake, MN in 1980 and has served various churches as lay pastor. Jim continues to teach on-line courses in Industrial Management at Missouri State University and technical English classes at the University of Missouri. Internationally recognized for his research and expertise in pressure vessel design, structural analysis, metal working manufacturing, and mechanical design, he is the author or co-author of 65+ papers and 100+ research reports. His honors and awards include the Michigan Technological University Faculty Research Award (1974), Society of Manufacturing Engineers, Educator of the Year - Western Region (1998), University of Colorado Faculty Service Award (2001), and a Decade of Excellence Award from the University of Colorado Denver (2003). Jim has served as treasurer of the Michigan Tech Alumni Association Board of Directors from 1970 – 1974. He and his wife Wanda have three children; Lori, Sonya, and Timothy. The Gerdeens reside in Columbia, MO.

Douglas J. Hamar (BSME '84) is president of Hamar Group, president/CEO/co-owner of Horner Flooring, president of Denver Hardwood Co Inc, Denver CO, president of Cascade Pacific Floor Distributors, Portland OR and Seattle WA, president and treasurer of Rio Grande Flooring Distributors, Albuquerque NM, and president/co-founder/principal of CRT & Associates, a firm specializing in custom computer software and hardware. Horner Flooring, a privately owned company is known worldwide for its Pro-King basketball floors. In 2002, Horner Flooring Inc received the Business of the Year Award from the 15Keweenaw Peninsula Chamber of Com-
Academy of Mechanical Engineering and Engineering Mechanics (continued)

merce and in 2003 the US Dept of Commerce's Export Achievement Award. Doug is the inventor or co-
inventor on more than 10 patents with several patents pending, the creator or co-creator of various trademarks and
holds several software copyrights. He serves on the Board of Directors of Superior National Bank, the Keweenaw
Financial Corporation, and Northern Mutual Insurance Company. He was a member of the Chassell Township
Schools Board of Education and the Chassell Township Planning Commission. He teaches Sunday school. He is a
past member of the Copper Country Salvation Army Advisory Board, Copper Country Community Schools Board
of Education, and the Copper Country Association of School Boards. He also is a member of the ME-EM Build-
ing for the Future, Phase II Committee. He received the Michigan Tech Outstanding Young Alumni Award in
1994, and is a life member of the Michigan Tech Alumni Association. He was also the keynote speaker at the ME-
EM Senior Banquet in 2008 where he was inducted into the Order of the Engineer. Doug and his wife Shelby have
a daughter, Leslie, and a son, Reid. The Hamars reside in Hancock and Chassell, MI.

Daniel R. Kapp (BSME '76) is Director, Powertrain Research and Advanced Engineering at
Ford Motor Company. He is also a graduate of the Ford College Graduate Program (FCG). After graduation from Michigan Tech, Dan went to work at Ford Motor Company as an engi-
neer in the Car Product Development Group and has spent his entire career at Ford in positions
of increasing responsibility in the area of engine and Powertrain product development. His
work at Ford included work on the 3.0L Vulcan Engine Team through its launch in 1986, de-
velopment and launch of all of the modular engine derivatives including the 4.6L 2V & 4V Rameo, the Duratec V6’s, and the Triton truck engines, the design and development of the
Modular V8 and V6 engines as Ford revamped its engine line-up to overhead cam designs. He
currently has responsibility for directing Ford Motor Company's EcoBoost engine strategy. In
2001, Dan assumed the role as the executive champion for Michigan Tech in the Ford Advanced Education Part-
nership program. He serves on the College of Engineering External Advisory Committee, is a past member of the
ME-EM External Advisory Board, has been a keynote speaker at the ME-EM Senior Banquet & Order of the Engi-
neer Ceremony (2005), and was the guest speaker, Groundbreaking Ceremony, ATDC, June 2003. Dan and his
wife Linda Lavastida-Kapp have two children, a son Colin, and a daughter, Sydney. The Kapps reside in Ann Ar-
bor, MI and New Bern, NC.

Dale J. Roberto (BSME '69) is President/Owner of Smalley Manufacturing Co. Inc. in Knox-
ville, TN. Prior to working for Smalley, Dale worked for the Post Company in Battle Creek,
MI. He was the project manager responsible for installing the Fruity Pebbles line. Smalley
Manufacturing Company Inc. was founded by the Smalley family and is a privately owned
company that incorporated in 1940. It has progressed from designing and manufacturing a nut
shelling machine to become one of the most respected designers/ manufacturers of customized
product conveying, storage and distribution systems equipment for the dry food industry, e.g.
belt conveyors, bucket lifts, vibrating conveyors for Hershey, Ralston, Kraft, etc. The company
had eight employees when Dale started with Smalley and currently employs 73 and operates in
a 50,000 square - foot facility. Smalley is the leading manufacturer and supplier of food con-
veying systems in the United States and Canada. Dale holds one patent for a storage and discharge apparatus. He
is a trustee of the Michigan Tech Fund and while at Michigan Tech, Dale was president of Blue Key, chair of the
Memorial Union Board, member of the President’s Commission for the Expansion of the Memorial Union, a mem-
ber of the Michigan Tech Flying Club, and a member of the student chapter of ASME. Dale and his wife Sarah
reside in Knoxville, TN. He has three sons: Scott, Patric, and Brett.
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 wwpreddeb@mtu.edu or Kathy at kagoulet@mtu.edu.

Tony R. Laituri (MSME ’88) recently received a US Government Special Award of Appreciation. This international award, bestowed every other year, was “in recognition of and appreciation for outstanding leadership and special contributions in the field of motor vehicle safety” and “for his airbag depowering research, real world data analysis, and injury risk analyses leading to improved regulations and enhanced safety systems.” For example, one of his injury risk equations is used in the USA New Car Assessment Program which assigns star ratings to all new light passenger vehicles sold in the United States. Read the press release at: http://www.nhtsa.gov/About+NHTSA/Press+Releases/2011/ci.Global+Vehicle+Safety+Conference+Convenes+In+Washington,+D.C..print. Mr. Laituri is a technical specialist in biomechanics and occupant simulation at Ford Motor Company, where he has worked since 1989. He currently lives in Ann Arbor, MI.

Gerald F. Philo (BSME ’80) was appointed to the Board of Mechanical Rules by Governor Rick Snyder. The board makes recommendations for mechanical code rules, issues mechanical contractor's licenses to qualified applicants and makes necessary orders, rules, and regulations. Philo will represent professional mechanical engineers.

Tony Raimondo (BSME ’62) was in attendance for the announcement by President Barack Obama on the Expansion of the Skills for America’s Future initiative. The initiative “links schools and business, creating pipelines right from the classroom to the office or the factory floor,” Obama said. Raimondo is part of the “Dream It Do It” program in Nebraska that tries to persuade the state’s students to consider jobs in manufacturing.

Michigan Tech's Mechanical Engineering Department continues to be the only Peace Corps Master's International program in mechanical engineering. There are currently four mechanical engineering students enrolled in the program. Michigan Tech once again has more Peace Corps Master's International (PCMI) graduate students actively serving as Peace Corps volunteers than any other college or university in the nation. The University has 32 PCMI students currently on assignments. There are also a number of PCMI students on campus fulfilling the academic portions of their master's degrees.

PowerBlock TV on the Spike network was on the Michigan Tech campus to film an episode that will air on their Horsepower TV show next fall. An article in the Daily Mining Gazette interviewed Jeremy Worm (research engineer) about the filming. Read the article at: http://mininggazette.com/page/content.detail/id/520728/Tech-on-Spike-TV.html.

University News

Michigan Tech Mind Trekkers, a traveling science road show sponsored by the Center for Pre-College Outreach, was featured in the latest (April 26) newsletter, published by the USA Science and Engineering Festival. Mind Trekkers staged a popular exhibit at the first USA Science and Engineering Festival in Washington, DC, in 2010, and the group plans to participate in the next festival in 2012. To view the article, see http://archive.constantcontact.com/fs057/1102686599425/archive/1105298863864.html.
**Current Contracts and Grants**

- **Bo Chen** (PI, ME-EM), **Jeffrey Naber** (Co-PI, ME-EM); "Engine Studies Phase IV"; sponsor: Nostrum Energy, LLC; total award amount: $27,957.


- **Jeremy Worm** (PI, ME-EM), **Scott Miers** (Co-PI, ME-EM); "Investigation of Ethanol as a Fuel in a High Performance SI Engine"; sponsor: E3 Spark Plugs; total award amount: $15,600.

- **Tammy Haut Donahue** (Co-PI, ME-EM); "Effect of Simulated Low Gravity on Compressive Material Properties of Porcupine Meniscus"; sponsor: University of Michigan - Michigan Space Grant Consortium; total award amount: $5,000.

- **Jeffrey Naber** (PI, ME-EM), **Seong-Young Lee** (Co-PI, ME-EM); "High-Pressure Diesel Spray Characterization"; sponsor: AVL Powertrain Engineering, Inc.; total award amount: $49,761.

- **Gregory Odegard** (PI, ME-EM); "Multiscale Model Development and Validation of Graphene/ULTEM Composites for Structural and Noise Reduction Applications"; sponsor: NASA; total award amount: $150,567.

- **Gordon Parker** (PI, ME-EM); "Control System Design for Cargo Transfer from Offshore Supply Vessels to Large Deck Vessels"; sponsor: Craft Engineering Associates, Inc.; total award amount: $274,900.

- **Kazuya Taijiri** (PI, ME-EM); "Water Management in Unitized Regenerative Fuel Cells"; sponsor: Michigan Space Grant Consortium (seed grant); total award amount: $5,600.

**Faculty/Staff Awards Accomplishments**

- **Nancy Barr** (Technical Communication and Senior Design Program Administrative Associate, ME-EM) has received her Masters of Science in Rhetoric and Technical Communication from Michigan Tech.

- **Dr. Tammy Haut Donahue** had her research on the prevention of osteoarthritis highlighted in Medical News Today on April 23, 2011. Read the article at: [http://www.medicalnewstoday.com/releases/223198.php](http://www.medicalnewstoday.com/releases/223198.php).

- **Dr. John Hill** (assistant professor, ME-EM) was interviewed regarding his research on the demographics of seat belt and cell phone use. Read the article at: [http://mininggazette.com/page/content.detail/id/520408/-Click-It-or-Ticket--in-effect.html](http://mininggazette.com/page/content.detail/id/520408/-Click-It-or-Ticket--in-effect.html).

- **Dr. Greg Odegard** (associate professor, ME-EM) has been named winner of a Society of Automotive Engineers (SAE) 2011 Ralph R. Teetor Educational Aerospace Program Award. The national award recognizes outstanding engineering educators and enables them to meet and exchange views with practicing engineers in their fields. As a Teetor award recipient, Odegard will attend the 2011 AeroTech Congress and Exhibition in October in Toulouse, France, as an invited guest.

- **Dr. Mohan Rao** (professor, ME-EM) has been selected to receive the Institute of Noise Control Engineering 2011 Outstanding Engineering Educator Award at the 2011 Institute of Noise Control Engineering Conference in Portland, OR, July 25-27. The award recognizes individuals who have significantly advanced the technology and practice of noise control engineering through unique contributions to the education of future noise control engineers.

- **Dr. Sheryl Sorby** (professor, ME-EM) received the Orthogonal Medal on April 16, 2011. The award is given by the Technology, Education, and Design Education Program at North Carolina State University in Raleigh, North Carolina. It recognizes individuals who have made outstanding contributions to the field of graphical science and technical graphics education.

- **Dr. Sheryl Sorby** (professor, ME-EM) has received the 2011 American Society for Engineering Education (ASEE) Sharon Keillor Award for Women in Engineering Education. The award recognizes and honors a woman engineering educator who has an outstanding record in teaching engineering students, conducts research, and performs service within an engineering school.
Nine Capstone Design teams are at the midway point in their projects this summer. This diverse set of projects is promising some very interesting results as they reach conclusion this coming December. Among these are projects focused on designing a low-power water purification system, household appliance design improvement, and an ultra-lean assembly process.

Eighteen Capstone teams presented their final work this past April. We had another incredible group of projects (thanks to sponsors such as John Deere, Whirlpool, and General Motors!). Another sponsor, new to the program, Peterson Salt Company based near Minnetonka, MN, received delivery of their new vehicle this spring. This unit, built from the ground up by one super Capstone team, promises to expand market share for the project sponsor.

Michigan Tech’s Capstone Design Program is now actively looking for industry sponsored projects for the Fall 2011 semester. If you can support this world-class engineering design program, and would like to be a part of this Capstone Experience, please contact us!

Bob De Jonge
Project Manager
906.487.2142

Senior Design in the News

Tech Today highlighted the Fernstrum Senior Capstone Design Projects on May 6, 2011. The R.W. Fernstrum and Company has partnered with the Michigan Tech Senior Capstone Design program by sponsoring three projects this past year. The family-owned company is run by three Michigan Tech alumni. Paul Fernstrum (BSME ’65) is the company President, Michigan Tech Fund Board of Trustees member, and was recently inducted into the ME and EM Academy. Sean Fernstrum (BS Scientific & Tech Comm. ’90) is Vice President of Operations, an Alumni Association Life Member and a past member of the Alumni Association Board of Directors. Todd Fernstrum (AAS Electromechanical Tech ’92) is Vice President of Manufacturing and an Alumni Association Life Member. Read the article at: http://www.admin.mtu.edu/urel/ttoday/previous.php?issue=20110506.

Student Accomplishments and Awards

Seyyed Hessam Mir Shah Ghassemi (PhD candidate, ME-EM) was awarded a Summer Finishing Fellowship. The fellowship provides support to a PhD candidates who expects to complete their degrees in the semester provided the support. His advisor is Dr. Reza Shahbazian Yassar (assistant professor, ME-EM).

Joseph Hernandez (PhD candidate, ME-EM), along with other Michigan Tech graduate students, was in Lansing the week of April 10th for Michigan Graduate Education Week in the Capitol Building. The students had a chance to meet their legislators and presented plaques to Representative David Rutledge (D-Ypsilanti) and Senator Rebekah Warren (D-Ann Arbor) for sponsoring Michigan Graduate Education Week. His advisor is Dr. Jeffrey Allen (associate Professor, ME-EM).
Student Accomplishments and Awards (continued)

On April 19th the following ME-EM students were awarded Air Force ROTC awards:

Trevor Birr, so. - Air Force ROTC Achievement Award
Andrew Buday, sr. - Air Force ROTC Commendation Award
Timothy Cencer, jr. - Veterans of Foreign Wars Award, Physical Fitness Award
Trevor Clearwater, sr. - Air Force ROTC Achievement Award
Benjamin Jensen, PhD candidate - College Scholarship Award, Physical Fitness Award
Sean Keyes, sr. - American Legion Award for Scholastic Excellence, The National Defense Industrial Association Award, the National Defense Transportation Association Award, Greater Michigan ROTC Awards
Jon Knutson, jr. - Reserve Officers Association Award, Air Force ROTC Commendation Award, Honor Guard Membership, Drill Team Membership, Physical Fitness Award
Michael LaFevre, jr. - Daughters of the Founders and the Patriots of America Award
Jacob LaSarge, sr. - American Legion Award for General Military Excellence, Air Force ROTC Commendation Award
Michael Leveille, jr. - American Legion Award for Scholastic Excellence
Austin Merkel, sr. - Physical Fitness Award
Dylan Penn, sr. - Military Order of the Purple Heart Award, Air Force ROTC Commendation Award
Daniel Polakowski, so. - Air Force ROTC Achievement Award
Nathan Ralph, sr. - Reserve Officers Association Award, Air Force ROTC Commendation Award
Taylor Rathsack, jr. - American Legion Award for General Military Excellence, Society of the War of 1812 Award, Greater Michigan ROTC Awards, Physical Fitness Award
Sophia Rizzo, fr. - Air Force ROTC Achievement Award
Jameson Smits, so. - Air Force ROTC Achievement Award
Mark Torres, so. - Air Force ROTC Achievement Award
Wesley Woodhouse, sr. - Greater Michigan ROTC Awards, Physical Fitness Award (second time).

The following students have been awarded $5,000 grants through the Michigan Space Grant Consortium sponsored by the National Aeronautics and Space Administration:

Sarah Gray (MS student, ME-EM): "Bear Parathyroid Hormone as a Treatment for Osteoporosis in Duchenne Muscular Dystrophy", advisor: Seth Donahue (associate professor, BioMed).


On Friday, April 15th the following students were recognized at the Michigan Tech 17th Annual Student Leadership Awards ceremony:

Michael Wood (jr., ME-EM), Exceptional Leadership in Student Governance
Anahita Pakzad (PhD student, ME-EM), Student Employee of the Year. Her advisor is Dr. Reza Shahbazian Yassar (assistant professor, ME-EM).

On April 22nd, two ME-EM students were named to the all-GLIAC Tennis First Team:

Luka Stupar (sr., ME-EM) compiled a 9 - 9 singles record playing the top position all season. This was his second year earning first team honors.

Douglas Yossida (sr., ME-EM) posted the second best singles record with a 13-5 singles record, all but one at No. 3 singles. Doug earned an honorable mention last year.
Student Competitions and Team Awards


Michigan Tech's EcoCar is on tour. On June 9th, team members loaded the car onto a truck for the trip to Detroit. After seven days in Detroit, the car was shipped to Washington DC. Students were on hand at each stop. The program was established by the US Department of Energy and General Motors and is managed by Argonne National Laboratory. Read the article at: http://mininggazette.com/page/content.detail/id/520565/Tech-EcoCAR-ready-for-challenge.html. EcoCar co-advisors are Dr. Adam Loukus and Dr. Josh Loukus (instructors, ME-EM).

Faculty and Staff Years of Service Honored

On Wednesday, May 11th, Michigan Tech honored faculty and staff with 25 or more years of service at an awards dinner at the Rozsa Center. The following ME-EM faculty and staff were recognized for their service:

Carl Anderson, professor - 30 years
Gopal Jayaraman, professor - 30 years
Thomas Grimm, associate professor - 35 years
Paul Kilpela, research associate, 35 years
Sudhakar Pandit, professor - 35 years
William Predebon, professor and Department Chair - 35 years

On June 9th, Michigan Tech's Staff Council honored the following staff for years of service at a Staff Service Recognition luncheon:

Peter Bingham, senior design training specialist - 5 years
Connie Dillman, research accounting coordinator - 20 years
Danise Jarvey, senior advisor - 10 years
Paul Kilpela, research associate - 35 years
Tina Sarazin, office assistant - 20 years
JoAnne Stimac, administrative aide - 10 years
Robert Whipple, research engineer - 30 years
Paula Zenner, director of operations and finance - 20 years

The Department of Mechanical Engineering—Engineering Mechanics Invites you to the

Join us on August 4, 5, & 6th

- Thursday, August 4th—Cruise down the Portage Canal with other ME-EM Alumni on board the Ranger III
- Friday, August 5th—Open House with tours of the ME-EM Labs

For a list of all the activities, visit the Alumni Relations web page at http://www.mtu.edu/alumni/connect/reunion/
Call (906) 487-2551 or email kagoulet@mtu.edu for Department event information