

**COLLEGE OF SCIENCE, ENGINEERING AND TECHNOLOGY**  
**APRIL 2009**  
**GOOD NEWS**

**AUTOMOTIVE AND MANUFACTURING ENGINEERING TECHNOLOGY**

Dr. Craig Evers, Assistant Professor, has just received a certificate from CETL's Teaching with Technology Faculty Learning Community program. His project was "Using D2L's Discussion Feature to Create a Community in a Freshman Class".

Dr. Craig Evers received a \$2,500 Faculty Improvement Grant to attend an "Applied Vehicle Dynamics" seminar put on by the Society of Automotive Engineers in Greer, SC. The seminar will help him better prepare his AET 364 Chassis Engineering course and perhaps also develop an advanced chassis course.

**COMPUTER SCIENCE**

Dr. Jie Wang, Assistant Professor, has had two papers published: Towards Real-time Performance Data Value Hiding for Frequent Data Updates, accepted by the *International Journal of Granular Computing*, 2009; and Generalized Random Rotation Perturbation for Vertically Partitioned Data Sets (coauthored), 2009 Symposium on Computational Intelligence and Data Mining (IEEE CIDM 2009), Nashville, TN, March 30–April 2, 2009.

**CONSTRUCTION MANAGEMENT**

Assistant Professor Farid Jean Sabongi presented a research paper at the 45<sup>th</sup> Annual International Conference of the Associated Schools of Construction (ASC) in April. The conference was hosted by the Rinker School of Building Construction at the University of Florida. Professor Sabongi's paper, "The Integration of BIM in the Undergraduate Curriculum: an analysis of undergraduate courses," was part of the category of undergraduate construction education. The paper will be published in the annual proceedings of the ASC.

***Abstract***

*The purpose of the study is to investigate the existence and prevalence of undergraduate courses devoted to the study of building information modeling (BIM) and to discover the constraints on these programs. A survey was mailed to all members of the Associated Schools of Construction which offer four-year undergraduate programs. The survey asked about AutoCAD and BIM and whether they were offered as stand-alone courses or as part of other courses; which elements of BIM were offered; and what barriers could be identified to offering BIM in the curriculum. Fewer than 1% responded that BIM is taught as a stand-alone course, while 9% said BIM is addressed as part of existing courses. The most significant obstacles to including BIM at the undergraduate level are the already-existing requirements for graduation, the absence of room in the curriculum for additional elective courses and the lack of reference materials and established curricula.*

The Construction Management Department of the College of Science, Engineering and Technology hosted a reception at the Hotel Minneapolis on April 17 to recognize the achievements of Alan Gerhardt of the Class of 1980. Mr. Gerhardt is Chief Operating Officer of Kraus-Anderson Construction, a Minneapolis construction management and

general contracting firm. The reception was a special honor for Mr. Gerhardt, who will be given one of the Distinguished Alumni Awards at a ceremony on campus on April 24.



President Richard Davenport and Professor Farid Sabongi acknowledged the achievements of Mr. Gerhardt, who was accompanied by his wife, parents, family members, colleagues and friends. Mr. Gerhardt was recognized for his service to the university as an advisory board member, fundraiser, guest speaker, student intern sponsor and mentor. In addition to President Davenport and Professor Sabongi, MSU-Mankato was represented by Dr. Mary Davenport; Dr. John Knox, Dean of the College of Science, Engineering and Technology; Jen Guyer-Wood, Director of Alumni Relations/Special Events; Don Kohlenberger, Chairman of the Construction Management Advisory Board; Dave Semerad, Chief Executive Officer of AGC and representatives from the Construction Management Student Organization.



### **INFORMATION SYSTEMS AND TECHNOLOGY**

Dr. Mike Wells, Professor, reports that Maverick Software Consulting, MSU's corporate partner for Project Maverick, has agreed to fund three \$1,500 scholarships starting next academic year. One for an ISYS major, an IT major, and a CS major.

Dr. Mahbubur R. Syed, Professor, has been appointed as a Ph.D. thesis examiner for the thesis entitled "New Multicolor Illuminated Contour-based Markers and their use in Motion Capture" submitted to Berwick School of Information Technology, Monash University, Australia.

Dr. Mahbubur R. Syed has been invited to be a member of the International Program Committee (IPC) for the IASTED International Conference on Internet and Multimedia Systems and Applications (IMSA 2009), which is to take place in Honolulu, Hawaii, from August 17 - 19, 2009.

Visit [www.iasted.org/conferences/home-655.html](http://www.iasted.org/conferences/home-655.html) for IMSA 2009.

### **MATHEMATICS AND STATISTICS**

Dr. I.-J Kim, Assistant Professor, presented "Symmetric Sign Patterns with Maximal Inertias" at the Mathematical Association of America (MAA)-North Central Section meeting, hosted by Hamline University in St. Paul on April 24-25. In addition, another paper entitled "On Nilpotence Indices of Sign Patterns" was presented by the student coauthor, Craig Erickson, at the meeting.

Dr. Deepak Sanjel, Assistant Professor, presented a talk "Integrating Statistical Software Package R at the College Level Teaching" at the 2009 Minn MATYC/MCTM conference in Duluth, MN on Saturday, May 2, 2009

Namyong Lee and Ernest Boyd, "Bioinformatics: An Example of a Cooperative Learning Course", MAA Notes, Mathematical Association of America, 2009.

Dr. Gary Rockswold, Professor, gave the keynote address, *The Amazing Impact of Mathematics on Modern Society*, to about 1,000 mathematics educators at the joint mathematics meetings of the Minnesota Council of Mathematics Teachers and the Minnesota Mathematical Association of Two-Year Colleges on May 1, 2009 in Duluth.

Dr. Gary Rockswold, Professor, gave a presentation entitled *Why Mathematics Is Much More Than Computation* at the joint meetings of the Minnesota Council of Mathematics Teachers and the Minnesota Mathematical Association of Two-Year Colleges on May 2, 2009 in Duluth.

Dr. Christopher Danielson, Assistant Professor, presented two sessions at the Minnesota Council of Teachers of Mathematics meeting in Duluth May 1 and 2: "Are there really six tens in 268? The language of place value" and "See and sort shape sets: Challenging geometry activities for the middle grades".

Dr. Danielson had the following article published: Danielson, C. (2009). What can we do with a common numerator? *Mathematics teaching in the middle school*, 14, (9), 528-531.

### **MECHANICAL AND CIVIL ENGINEERING**

John Scheierl (ASME student chair) and 16 other students, along with Dr. Jin Park, Assistant Professor, attended the ASME (American Society for Mechanical Engineers) design conference in Milwaukee, WI from April 16 to April 18.

This was the largest annual event in ASME district C. The district C covers a large area in the Midwest (Canada: Manitoba, Saskatchewan, U.S.: Illinois, Indiana, Iowa, Kansas, Kentucky, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, Wisconsin).

Our students actually won the main event, design competition. It was the team of our seniors Michael Trombley (ME) and Andrew Scalzo (MET). They will go to Florida in November for the International Design Competition final with the full financial support from ASME.

We also received other major awards such as:

First Place Design Competition (\$500, plaque and trophy): Michael Trombley (ME) and Andrew Scalzo (MET).

Outstanding Student Award (\$300 and certificate): John Scheierl (student chair of ASME MSU)

Most Student Attendance Award (\$100 and certificate): 17 students from MSU (We have won this award three years in a row.) Thank you so much for your support and encouragement on this ASME students' activity.

Civil Engineering students won second place in the Regional Concrete Canoe Competition hosted by the American Society of Civil Engineers, held at the University of

Iowa. This was only their sixth year in the competition, which is against other schools in the region who have been competing for 20 years or more. The students designed, built, and then raced their canoe. The competition also includes a design report, professional presentation, and aesthetics criteria.

The 13-student team's canoe finished second in both design and on-water races against six other teams during the April 18 Midwest regional competition in Iowa City, IA. The annual competition included a design paper, technical presentation, beach display and races.

Minnesota State Mankato students spent a year designing and building the canoe for the contest. Students tested numerous concrete mixes to find a strong, lightweight mix suitable for a sleek canoe. Their final mixture included glass beads, Perlite (volcanic ash) and lightweight ceramics that were added to the concrete.

The team members, led by captains Aleigha Ahlstrom and Greg Mitchell, also organized fundraising, designed molds, tested construction techniques and practiced team paddling.

Seventy-five percent of the competition's team score is based on engineering design, construction, the written paper and oratory skills. The remaining 25 percent is based on canoe performance in five race events: men's and women's slalom/endurance races, men's and women's sprint races and a co-ed sprint race.

The use of concrete for floating vessels dates to 1848, when Joseph Louis Lambot built concrete boats in France. The first American Society of Civil Engineers competitions were held in the 1970s. Since then, student engineers have discovered and instituted many improvements in the canoes' concrete mixture, construction, design and racing technique.

Minnesota State Mankato's Mechanical and Civil Engineering program is the second-largest in Minnesota, providing a strong technical foundation that prepares students to become professional engineers or to pursue graduate study.

Minnesota State Mankato students have been part of the regional concrete canoe competition since 2004.

Eight Mechanical Engineering students and one Manufacturing Engineering Technology student participated in the EPA National Sustainable Design Expo in Washington DC April 18-20. They presented the results of two EPA funded P3 (People, Prosperity, and the Planet) projects; "Solar Collector and Storage Kit Made with Tire Inner Tubes" Joseph Dobmeier (ME), Matthew Simones (ME), Bradley Winynger (ME), Christopher Esser (ME), Michael Peterson (ME) and "Small-Scale Solar Chimney for Sustainable Power" Ryan Lindsey (ME), Derek Gramstad (ME), Andrew Scalzo (MET), Joseph Nuttall (ME).

### **PHYSICS AND ASTRONOMY**

Dr. Russ Palma, Professor, gave an invited departmental colloquium at Luther College in Decorah, Iowa entitled "NASA's Genesis and Stardust Missions: Exploring the Early Solar System", April 8, 2009.

Dr. Russ Palma, is a co-author on a paper submitted to American Mineralogist entitled "Brownleeite: a New Manganese Silicide Mineral in an Interplanetary Dust Particle".

Dr. Russ Palma, is lead author on a paper accepted for publication in Meteoritics & Planetary Science entitled "A Preliminary Light Noble Gas Investigation of Stardust Samples".

Dr. Russ Palma, is a co-author on a paper accepted for publication in Meteoritics & Planetary Science entitled "Carbon Raman Spectroscopy of 36 Interplanetary Dust Particles".

Dr. Russ Palma, will be making a presentation at the 72nd annual Meteoritical Society Meeting in Nancy, France this summer on his latest research with samples from NASA's Stardust Mission.

Dr. Youwen Xu, Professor, gave a poster presentation at the 55th Midwest Solid State Physics conference. The title of the poster is "Oxygen stoichiometry and fluorine doping in superconducting compound LaFeAsO".

### **CSET**

Our college has received a \$10,000 grant from AgStar Financial Services for the Department of Automotive and Manufacturing Engineering Technology. The purpose of the grant is for the proposed Renewable Energy and Emissions Lab.

Two alums, Dr. Larry Charbonneau, PhD, retired from DuPont Chemical and Dr. Russell Larsen, MD, retired, helped judge for the Undergraduate Research Conference. Thanks to Dr. Trent Vorlicek, Associate Professor in the Department of Chemistry and Geology, for facilitating the alumni involvement.