



# MECHANICAL ENGINEERING NEWS

November 6, 2008

A newsletter for the UML Mechanical Engineering community (also available online at <http://mechanical.uml.edu>)

## ME Seniors Partnering with the City of Lowell for Green-Energy Contest

By Prof. Sammy Shina

Several ME seniors are participating in a contest to assist the City of Lowell in its "Getting to Zero Energy Challenge", which is a competition organized in partnership with National Grid, Advanced Building Analysis, UMass Lowell and the State Department of Energy Resources. The City held a challenge kickoff on Nov. 18 at 10 a.m. in the Mayor's Reception Room at City Hall to introduce details. The introduction was attended by Professor Sammy Shina of the ME department.

The term "Net zero energy homes" refers to buildings where people can live without relying on energy that contributes to global warming. Contest participants are asked to come up with strategies to make their existing homes and residential buildings as close to zero energy as possible, by making them more energy efficient and/or using renewable energy sources. The best proposals will each receive a \$25,000 award.



The Massachusetts State Energy and Environmental Affairs Secretary, Ian Bowles stated, in the release for the kickoff meeting, that "with buildings responsible for 40 percent of all U.S. energy use, two-thirds of all electricity consumption and half of all greenhouse gas emissions, moving toward zero net energy buildings has the potential to dramatically lower costs for residences and businesses, while

spurring development of the clean energy sector and creating jobs." Aaron Clausen, associate planner for the city and organizer of The Getting to Zero Energy Challenge, indicated that this contest "is expected to place the city of Lowell at the cutting edge of the green building industry, particularly with respect to energy efficiency and implementation of renewable energy sources."

The challenge has two separate tracks -- one for projects that currently or will house low- to medium-income residents under the U.S. Department of Housing and Urban Development classification, and the other one for all homes with no limit to income levels. The city of Lowell's initiative is different from many other competitions around New England because it specifically targets residential buildings in urban settings.

In preparation for the contest, Professor Shina organized two training sessions for ME seniors towards the basics of zero home energy use. The training was donated by National Grid and delivered by Kohta Ueno, of the Building Science Corporation, a leading zero energy consulting company in Somerville, MA. Eleven ME senior students participated in the training in Westford, MA, 8 who volunteered for the contest, and 3 alternates. The students were Ashton DePasquale, Mat Durette, Eric Favini, Roger Gyebi, Nic Anderson, Jonathan Hillman, Tim Matook and Alecander Stith. Student Alternates were Henry Jamijian, Glenn Ratcliffe and Than, Quang-Vinh.

Professor Duffy of the ME and Energy Programs attended the training as well. Professor Duffy will be leading the students in two senior capstone teams into the future phases of the assistance to the city of Lowell applicants as well as assisting the competition finalists develop detailed design proposals for the final winners selection. The judges of the finalists in the contest will be from the consulting firm of Advanced Building Analysis, of Amesbury, MA.

The ME department wishes to thank National Grid for contributing \$10,000 toward the training. To learn more about this contest, visit <http://gettingtozero.lowellma.gov/>.

## **Teacher Education Assistance for College and Higher Education (TEACH) Grant Program**

Recently, UML became a TEACH GRANT eligible institution which means that math and science candidates who want to become teachers, and work in a high need district, can receive \$8000 in federal grant money toward their graduate program.

Further information is on the financial aid website

<http://www.uml.edu/financialaid/graduate/TEACH-Grant-Program.html>

or contact Christine Robbins at the Financial Aid office at 978-934-4230 or Vera Ossen at the Graduate School of Education at 978-934-4604

## **Faculty Member Presents Paper**

Prof. Majid Charmchi of the ME department is presented a paper on **biomass gasification** in the 2008 ASME Winter Annual Meeting, Boston. The title of the paper was *"Modeling Biomass Gasification: a New Approach to Utilize Renewable Sources of Energy"*.

Prof. Charmchi was also invited to be a panelist for the National Science Foundation (NSF) "Thermal Transport Processes Program", November 20, 2008.

## **Research Awards**

**Prof. Christopher Nierzrecki** has been awarded a \$94,635 grant from Robert Bosch LLC, for research on *"Impedance Modeling Applications for Electric Power Steering Systems"*.

**Profs. Julie Chen and James Sherwood** have been awarded a \$42,875 grant from US Automotive Material Partnership, for research on *"Drape Analysis of an SMC Structural Floor Plan"*