

SFI CHRONICLE

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Issue 2



MichiganTech

SPECIAL POINTS OF INTEREST:

- > Links to faculty and student web pages can be found at www.sfi.mtu.edu
- > For more information on the SFI W2W Enterprise program and industry involvement, contact: Dr. John Sutherland jwsuther@mtu.edu 906-487-3395

We're on the Web:
www.sfi.mtu.edu

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Wood-to-Wheels Graduate Enterprise: Sustainability Applications for Industry

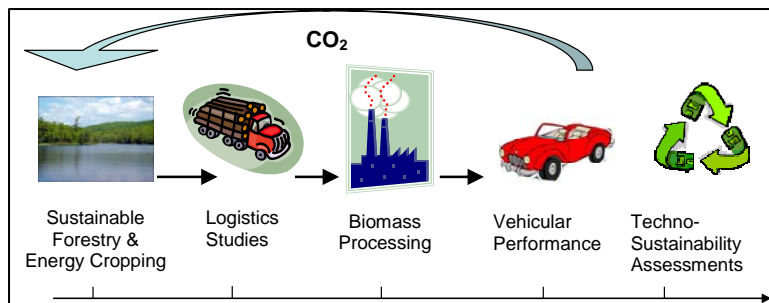
This year SFI introduced MTU's first Graduate Enterprise program. In the Wood-to-Wheels (W2W) Enterprise students and faculty will work with a variety of companies, agencies, and foundations in an effort to develop technologies that reduce fossil energy consumption and greenhouse gas emissions over the life cycle, and increase forest bio-

mass productivity.

Though already technically feasible, the development of ethanol and other transportation by-products still requires considerable research before it can achieve economic, technological, and environmental objectives. Benefits of further research include improved national security, a more favorable trade balance,

rural U.S. job creation, decreased demand for petroleum, and lower emissions of fossil-derived CO₂.

Faculty members from the Departments of Mech. Eng., Chem. Eng., Civil & Env. Eng., Geology, Biology, Social Science, and the Schools of Forestry and Business are involved in this initiative.



RESEARCH HIGHLIGHTS

In 2005, SFI members won 18 awards for over \$5 million. SFI researchers published 209 articles/books/proceedings. Space prohibits us from listing them all – please contact us for more information.

NSF REU

SFI's "Research Experience for Undergraduates" received an additional \$106,625 from NSF to continue its focus on sustainability issues for UG student research. This program offers a valuable way to stimulate interest in sustainability among

young people and develop their research skills.

DOE EARMARK

Michigan Tech has received a \$500,000 earmark from the Department of Energy for the Center for Nanostructure and Lightweight Materials. Several sub-projects on fuel cell research are funded by this earmark.

3 CATERPILLAR AWARDS

SFI members received \$150,000 for **Water for the World**, \$180,000 for **Evaluation of Gas Bio-Based Energy Technologies** and \$141,311 for **Predicting Environmental Perform-**

ance of Manufacturing Operations. These projects relate to environmental issues of water, renewable energy from biomass, and environmental performance of manufacturing operations.

RAYTHEON

DOD awarded the Center for Environmentally Benign Functional Materials (an SFI Center) \$1.7 million to develop structural foams for security applications. The lightweight, portable barriers will protect vulnerable targets, provide safe crowd control, be environmentally benign, be fire-resistant, and pose no health hazards.

EVENTS SCHEDULE FOR
CAMPUS SUSTAINABILITY
WEEK

- > **Annual SFI Advisory Board Meeting, Sept 20-21.**
- > **SFI poster session at 4:30 at the Rosza. SFI banquet begins at 6:30, Sept 20th.**
- > **September 25, David Gallo lecture, Extreme Deep, 7:30 pm at the Rosza.**
- > **Sept 26th, Gallo speaks on the Global Water Crisis, 12:00 to 1:00 in 135 Fisher.**

SFI's Advisory Board will meet on campus during Campus Sustainability Week. The Board is comprised of seven representatives of industry, government, academy, and non-profit organizations.

Mike Hales is the Director of Dow Corning's corporate environmental compatibility program. His responsibilities are focused on the risk management of high impacting EHS issues and on leading the initiative to integrate Dow Corning's eco-design philosophy into its business processes. Mike holds Bachelor of Science degrees in both Chemistry and Biology from Michigan State University and joined Dow Corning upon graduation in 1979.

Mike Johnson is the Program Manager for Caterpillar's metals development and modeling work at its Technical Center in Mossville, Illinois. Mike's group is charged with optimizing sustainable resource use by applying new technologies and by modeling materials behavior for processes such as heat treatment. Mike has also been involved in defining the overall research program for Sustainability at the Tech Center and has helped initiate co-funded research projects with the National Science Foundation and Department of Energy. Mike received BS, MS, and PhD degrees in Metallurgical and Ma-

terials Science Engineering from MTU and has been at Caterpillar since 1997.

Tina Behr-Andres is the program director of the Water Stewardship program at Los Alamos National Laboratory. Her responsibilities are in operations, program management, and program development in strategic research and threat reduction. She has a Ph.D. in Environmental Engineering from Michigan Tech, an M.S. in Geochemistry and a B.S. in Geology. She is a registered professional engineer in two states. Her research experience is in environmental management of legacy wastes from nuclear weapons production, treatment of hazardous wastes and wastewaters, environmental site remediation, marine and terrestrial oil spill response, and water quality monitoring and toxicity testing. Her previous work experience includes: Associate Professor of Civil and Environmental Engineering at the University of Alaska Fairbanks, environmental remediation consulting, and technical adviser to State Government organizations for environmental issues.

A. Harvey Bell, IV was appointed Executive Director, GMNA Advanced Vehicle Development in March 2006. In this capacity, he is responsible for developing future vehicles for North America. He had been the Executive Director, Vehicle Performance

for North America Product Development since September of 2001. His responsibilities included the HVI Innovation Program, Noise & Vibration, Vehicle Dynamics & Control Systems, and Vehicle Concept Engineering. Bell began his career with General Motors in 1967 as a summer intern. He graduated with a bachelor's degree in mechanical engineering in 1970 from the University of Michigan, and did post-graduate work at the University of Pennsylvania and the University of Michigan.

Victoria Pebbles is associate program manager for the Great Lakes Commission. In this capacity, she works with the eight Great Lakes states and two provinces on education, outreach and regional coordination related to land use, urban revitalization, and smart growth. As part of the Commission's transportation and sustainable development program, Pebbles also works on a variety of other Great Lakes issues, from water diversions, to habitat protection and dredged material management—all with a focus on sustainability. With the Great Lakes Commission for 13 years, she has written numerous reports, articles and technical papers, served two terms on a International Joint Commission Science Advisory Board workgroup to address the impacts of urbanization on water

quality and has been a member of the State of the Lakes Ecosystem Conference Steering Committee since 2000.

Damien Ejigiri is Dean of the Nelson Mandela School of Public Policy & Urban Affairs at Southern University A & M College, Baton Rouge, LA. He received his Ph.D. in Urban and Regional Science from Texas A & M University in 1986. Prior to being named Dean, he was Director of the Urban Recreation Research Center and Chairman of the Master's Public Administration Department at Southern. He specializes in methodology, computer application, research survey approach, and statistics. Ejigiri earned a Master of Urban and Regional Planning from Virginia Polytechnic Institute and State University, and a B.A. in Urban Affairs from George Washington University.

Alexander L. Friend is currently the Director of the North Central Institute of Applied Carbon Science (NIACS) and a research ecologist at the USDA Forest Service North Central Research Station. He researches forest root physiology, nutrient acquisition, and carbon allocation and how they are affected by soil nitrogen, atmospheric CO₂, tropospheric ozone, organism interactions, and other environmental variables. He has a Ph.D. in tree ecophysiology from the University of Washington, M.S. in Forest Resources from North Carolina State University, and a B.S. in Forestry and Geology from The University of the South.

YOUTH AWARD TO WESTERN UPPER PENINSULA CENTER

SFI affiliate, the Western U.P. Center for Science, Mathematics, and Environmental Education, received the 2005 Youth Award from the Lake Superior Binational Forum for the organization's outstanding contributions to protecting and restoring Lake Superior basin natural resources. The award recognizes the Center's many K-12 educational outreach programs delivered to students, teachers, and communities from 2002-04.

The Lake Superior Binational Forum initiated this basin-wide awards program to honor the outstanding

achievements of individuals or groups working to protect and restore the environment of Lake Superior's basin.

The Center's programs, serving students and teachers in 20 school districts and communities represent the most expansive and diverse K-12 environmental education programming in the Lake Superior watershed including educational programs for children about science and math, summer institutes for teachers, forest field trip programs, a website for UP teachers of environmental education as well as several publications.



Joan Schumaker-Chadde and Anne Collins of the Western Upper Peninsula Center for Science, Mathematics, & Environmental Education display their Youth Award from the Lake Superior Binational Forum. They wish to acknowledge many others for their help, especially the K-12 students and teachers of the Copper Country, community organizations, the Wege Foundation, Michigan DEQ, and the U.S. EPA.

NSF GRADUATE FELLOWS OF SFI

Two more graduate students join SFI's previous winners of NSF Graduate Fellowships. Our 2003 winner, Jennifer McConville, worked in sustainable development research with the Peace Corps in Mali before completing her MS degree at MTU. She is now pursuing her Ph.D. at the Royal Institute of Technology in Sweden. Valerie Fuchs, last year's winner, is working on wetlands treatment and the rhetoric of sustainability in engineering education. New winner Nancy-Jeanne Bachmann is studying storm-water retention issues for rain gardens. New winner Erin Satchell is developing models for water use based on various stakeholder interests.

DR. BARRY SOLOMON AT UN MEETING

SFI member Barry Solomon, Professor of Geography and Environmental Policy at MTU and past president of the International Society of Ecological Economics (ISEE) attended the "UN Decade of Education and Sustainable Development (2005-2014)" in Washington DC in May. Ecological economics is a transdisciplinary field of inquiry that facilitates understanding between economists, ecologists, and many others interested in real solutions to environmental problems and the integration of new ideas to create a sustainable world. The meeting enabled several non-profits and NGOs to exchange ideas about sustainability issues, especially as they relate to higher education and campus sustainability. Dr. Solomon has contributed his expertise to SFI, campus, and local sustainability efforts for many years.

Announcements

SFI's first spin-off center, the Michigan Tech Center for Water and Society (MTCWS) (www.mtcws.mtu.edu), was created in Fall 2005 and is under the direction of Dr. Alex Mayer. Its mission is to support research, education, and outreach in all disciplines at Michigan Tech related to water issues. This center takes MTU one step closer to being an international leader in sustainability issues and, in particular, in interdisciplinary approaches to solving water-related problems. Expanding Cities-People, Water and Infrastructure (ExCit) is part of the new center's effort to provide student exchange opportunity for MTU. This exchange allows students in a consortium of six universities in Canada, Mexico, and the U.S. to focus on how to meet the growing demands on urban water resources systems.

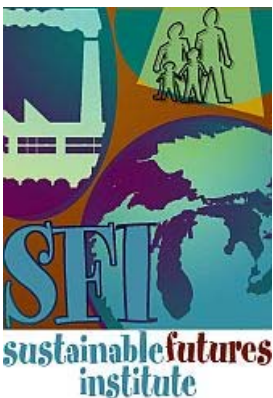
Dr. David Gallo, Director of Special Projects, Woods Hole Oceanographic Institution, will give a lecture entitled "Extreme Deep: Exploring the Ends of the Earth—Neptune's Basement," on Sept 25th, at 7:30 in the Rozsa in which he addresses the last two decades of deep ocean exploration leading up to the current challenge: designing a robot to reach 5 miles into the ocean depths. He will also speak about the Global Water Crisis on the 26th from 12:00 to 1:00 in 135 Fisher. Dr. Gallo's visit is jointly sponsored by several MTU organizations as part of Campus Sustainability Week.

SFI GRADUATE STUDENTS WIN PRESTIGIOUS MONDIALOGO WORLDWIDE ENGINEERING AWARD

Graduate students from MTU and Southern University and A&M College — all members of SFI's interdisciplinary IGERT program — won the prestigious Mondialogo Worldwide Engineering Award (MWEA) in 2005. The MWEA was created by DaimlerChrysler and UNESCO and is awarded annually to students who have formed international teams to create projects aimed at improving the quality of life in a developing world. The MWEA recognizes young engineers for developing concepts to combat poverty and promote sustainable development. Our student team won in the "Development of Appropriate & Sustainable Construction Materials" category for their work with MTU Peace Corps partners and students at Partido State University (Philippines). The winning project, "Investigation on the feasibility of substituting natural pozzolans for Portland cement in the construction of engineering infrastructure in developing countries," first evolved from interest in a previous MTU Senior Design class that blossomed to include additional students at the partner sites. The students designed low cost, eco-friendly ferrocement construction materials that were made into water storage tanks and housing units by the Partido State University team under the guidance of MTU Master's International student Dan Nover. The partnership of the three universities produced a truly multidisciplinary team that resulted in a positive intercultural exchange.



Pictured above are representatives from the team that won the Mondialogo Worldwide Engineering Award: Environmental Engineering Undergraduate James Walker and Environmental Engineering doctoral student Helen Muga. They are flanked by U.S. Congressman Bart Stupak (left) and SFI co-Director Dr. James Mihelcic (right).



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