



**SFI weekly newsletter for the week of February 15, 2010**  
**A weekly service of SFI**



Please send announcements of your publications, presentations, awards, events, and names of awarded proposals to [melissad@mtu.edu](mailto:melissad@mtu.edu).

## SUSTAINABILITY NEWS

1. **CHINESE AND US STUDENT ENVIRONMENTALISTS DEBATED DURING COPENHAGEN TALKS**  
**[MTU STUDENT AURORA COWLEY ATTENDS PIONEERS FOR THE PLANET](#)** – Source, Global Times

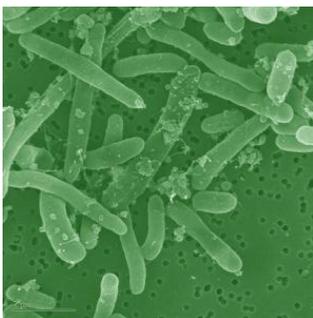


The Copenhagen Summit may not have been the success the planet hoped for and needed. But the summit did produce a remarkable meeting of minds between young Americans and Chinese.

Unnoticed by journalists covering the conference, students from both sides met during the December talks to figure out a greener future for the planet. After the disappointing UN-organized conference, they're working together to improve on the vague Copenhagen Accord reluctantly agreed by world leaders to finish the latest talks.

2. **[MICROBES PRODUCE DIESEL FUELS DIRECTLY FROM BIOMASS](#)**, - Source, Science Daily

"The fact that our microbes can produce a diesel fuel directly from biomass with no additional chemical modifications is exciting and important," says Jay Keasling, the Chief Executive Officer for JBEI, and a leading scientific authority on synthetic biology.



*Electron micrograph shows rod-shaped E. coli secreting oil droplets containing biodiesel fuel, along with fatty acids and alcohol. (Credit: Image by Eric Steen, JBEI)*

## SEMINARS

1. ENVIRONMENTAL ENGINEERING SEMINAR – LAUREN FRY and JARRON HEWITT  
Date: Monday February 15  
Time & Location: 3 pm, DOW 642  
Refreshments will be provided in the 8th floor DOW atrium following seminar.



**Speaker 1: Jarron Hewitt**

**Title: Phosphorous and Inland Lakes: A Tale of Two Cities**

Abstract: Crystal Lake is a small, inland lake located in the southwest portion of Iron Mountain, Michigan. It is a shallow lake with no natural inlets and outlets. Due to this, lake levels are highly impacted by the height of the regional groundwater table. Lake Alice in Fergus Falls, Minnesota is a similar case: an inland lake with no natural inlets or outlets. The thing that these two lakes have most in common however is that they have been used as storm water retention basins by their respective cities for a number of years. Now both lakes are highly affected by eutrophication due to phosphorus loading and serious action is required to restore the lakes. The focus of this talk will be on Crystal Lake with a short comparison to Lake Alice. The background of Crystal Lake's situation, the challenges facing the lake, and my current work towards restoring the lake will be covered.

**Speaker 2: Lauren Fry**

**Title: Quantification of potential health benefits resulting from rainwater harvesting in West Africa**

Abstract: Knowledge of the potential benefits resulting from different types of technological interventions informs decision making and planning of water, sanitation, and hygiene programs. The public health field has built a body of literature showing health benefits from improvements in water quality. However, the connection between improvements in water access and quantity and health is not well documented. Understanding the connection between technology and water use provides insight into this problem. We present results from an analysis that shows how increased water supply resulting from rainwater harvesting has the potential to reduce the disease burden from diarrhea in West African cities. A model was developed to determine how populations could reduce their risk of diarrhea when the water demands from incremental improvements in hygiene and sanitation improvements are met by rainwater harvesting. Although the model was applied specifically to rainwater harvesting in West Africa, similar analyses could be conducted for other interventions that improve water quantity in other locations where disease burden from diarrhea is known. We will present results from the analysis, as well as a discussion of the background in public health required to perform the analysis.

2. **Welcome to STARS** - a transparent, self-reporting framework for colleges and universities to gauge relative progress toward sustainability. STARS was developed by AASHE with broad participation from the higher education community. ([STARS website](#))





## FUNDING & AWARD OPPORTUNITIES

*To submit research proposals through the Sustainable Futures Institute, add "SFI" to the DEPT/CENTER/INSTITUTE(S) column for identifying the PI's and co-PI's. SFI Director, David Shonnard, will sign the transmittal sheet on page 3. (If David Shonnard is unavailable for signing transmittal sheets, Rick Donovan can also sign for SFI). Submitting proposals under SFI provides wider publicity and recognition for your research as well as a 10% return on your incentive account. Please feel free to contact SFI in regards to proposal development – SFI can serve as a hub for bringing together different faculty, merging concepts related to sustainability, providing literature review assistance, etc.*

### 1. Energy for Sustainability

Sponsor: NSF

Amount: \$100,000

Deadline: February 1 to March 3, 2010.

[Link to Program Guidelines](#)

This program supports fundamental research and education in energy production, conversion, and storage and is focused on energy sources that are environmentally friendly and renewable. Most world energy needs are currently met through the combustion of fossil fuels. With projected increases in global energy needs, more sustainable methods for energy production will need to be developed, and production of greenhouse gases will need to be reduced. Sources of sustainable energy include sunlight, wind/wave, biomass, and geothermal.

Hydrocarbons, alcohols, and hydrogen are potential energy carriers that can be derived from renewable sources. Research that generates enabling science and technologies for more efficient hydrogen generation and storage is supported by the program. Potential sources of hydrogen include conversion from biomass and from electrolysis, photolysis or thermolysis of water. Biomass is available from agricultural crop residues, forest products, aquatic plants, and municipal wastes. In addition to hydrogen, biomass can be a source of liquid and gaseous hydrocarbons and alcohols.

In the long term, fuel cells have the potential to convert fuels such as hydrogen and alcohols to electricity at high efficiencies and should play an increasing role in energy conversion. Critical components of fuel cells requiring additional research include catalysts and electrolytes. Development of these components also requires fundamental research on the reaction and transport mechanisms at the catalyst and membrane electrolyte interface. Advances in these areas are needed to address key challenges in efficiency, durability, power density, and environmental impacts. The engineering aspects of fuel-cell design and operation also require further study in areas such as water and thermal management.

Wind power is a growing source of electrical energy. Increased efficiency requires a fundamental knowledge of the interaction of wind with the blade structure. Understanding the fluid flow, and optimizing blade design are important aspects in developing more efficient wind generators. Photovoltaic devices have the potential to supply a significant fraction of electrical energy to the power grid. Although silicon-based materials have been most widely used, other semiconducting, quantum and organic materials also have potential. New materials and novel fabrication techniques for solar energy conversion are supported by the program.

### 2. Great Lakes Restoration Initiative Request for Proposals

**Note:** SFI will be coordinating several responses to this RFP. Please feel free to contact Richard Donovan, SFI's operations manager regarding how you can participate.

<http://epa.gov/greatlakes/fund/2010rfp01/index.html>

HUFY2010 Great Lakes Restoration Initiative Interagency Funding Guide U

U.S. EPA, August 24, 2009

Bob Shuchman's write-up of the summer EPA presentations on the GLRI is here:

<http://www.mtri.org/GreatLakesRestorationInitiative.html>

### 3. NSF Environmental Implications of Emerging Technologies

Deadline Mar 03, 2010

Upper Amount \$100,000 for one to three years. Equipment proposals for less will be considered



This program provides support to develop and test the environmental effects of new technologies. Fundamental and basic research is sought to establish and understand outcomes as a result of the implementation of new technologies such as nanotechnology and biotechnology. The program also supports research on the development and refinement of sensors and sensor network technologies that can be used to measure a wide variety of physical, chemical, and biological properties of interest in characterizing, monitoring, and understanding environmental impacts. The program emphasizes engineering principles underlying technology impacts. Innovative production processes, waste reduction, recycling, and industrial ecology technologies are of interest. All of these have implications that would be relevant to this program.

Current areas of support include

- understanding and mitigating how new developments in nanotechnology and biotechnology will interact with the environment;
- nanotechnology environmental, health, and safety implications and applications;
- predictive methodology for the interaction of nanoparticles with the environment and with the human body, including predictive approaches for toxicity;
- fate and transport of natural, engineered, and incidental (by-product) nanoparticles;
- risk assessment and management of the effect of nanomaterials in the environment;
- evaluation of the effect of increased usage of renewable resources on water supply and land use; and
- sensor and sensor network technologies as they relate to the measurement of these environmental implications.

All proposed research should be driven by engineering principles, and presented in an environmental health and safety or environmental sensor context. Proposals should include involvement of at least one engineering student. URL for more info [http://www.nsf.gov/funding/pgm\\_summ.jsp?pims\\_id=501030](http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=501030)

#### **4. Broadening Participation Research Initiation Grants in Engineering (BRIGE) - NSF 10-509**

Sponsor: NSF

Amount: \$175,000

Deadline: Feb 25, 2010

The Directorate for Engineering (ENG) at the NSF offers a research initiation grant funding opportunity with the goal of broadening participation to all engineers including members from underrepresented groups and persons with disabilities in the engineering disciplines. These grants are intended to increase the diversity of researchers in engineering disciplines to initiate research programs early in their careers, including those from underrepresented groups, engineers at minority serving institutions, and persons with disabilities. By providing these funding opportunities, ENG intends to further broaden participation of engineering researchers who share NSF's commitment to diversity in the following ways:

1. Expand the population of role models who will interact with an increasingly diverse student population, the workforce of the future.
2. Increase the number of engineering researchers at minority serving institutions actively and competitively engaged in research as independent investigators, thereby creating new research opportunities for students from underrepresented groups and persons with disabilities.
3. Fund engineering research projects that use innovative ways to attract and retain members of underrepresented groups and persons with disabilities to careers in engineering.

The participating ENG organizations are

- Electrical, Communications and Cyber Systems;
- Division of Chemical, Bioengineering, Environmental, and Transport Systems;
- Civil, Mechanical and Manufacturing Innovation;
- Engineering Education and Centers; and
- Industrial Innovation and Partnerships.

[http://fundingopps.cos.com/cgi-](http://fundingopps.cos.com/cgi-bin/getRec?id=110373& ksTicket=1adbf95f580b280eeacefdbabc0f3c& ksExpires=2010010100:00:00)

[bin/getRec?id=110373& ksTicket=1adbf95f580b280eeacefdbabc0f3c& ksExpires=2010010100:00:00](http://fundingopps.cos.com/cgi-bin/getRec?id=110373& ksTicket=1adbf95f580b280eeacefdbabc0f3c& ksExpires=2010010100:00:00)

#### **5. Fundamental Research Program for Industry/University Cooperative Research Centers (FRP) - NSF 10-507**

Amount \$50,000 to \$200,000 for ~10 awards No cost sharing required.

Deadline Feb 17, 2010 to Feb 02, 2011



Industry participation extends the scope and horizon of center research projects so as to drive innovation with industrially relevant fundamental research projects. Industry-defined fundamental research projects must demonstrate measurable industry collaboration and involvement that accelerates fundamental research.

The I/UCRCs contribute to the knowledge base of a large number of industrial manufacturing processes that involve a wide range of technological pursuits and are found in areas such as aerospace, electronics, chemicals, recovery of natural resources, the environment, petroleum, biochemicals, materials, food, power generation, and allied activities. To better enable these processes, the I/UCRC fundamental research program supports research that involves the development of fundamental engineering and science principles, process control and optimization strategies, mathematical models, and experimental techniques, with an emphasis on projects that have the potential for innovation and broad application in areas in industry. This fundamental research is leading to applications that include sensors, materials, pharmaceuticals, imaging, visualization, embedded systems, next generation computers, medical devices and instrumentation, alternative energy, ecological engineering, water and waste treatment, and robotics. Should the fundamental research proposals be awarded, there may be opportunities for additional funding for opportunities such as those listed below:

1. GOALI (NSF-09-516) - Graduate and Undergraduate Student Industrial Fellowship
2. Research Experienced for Undergraduates (NSF 09-598) - REU

Bookmark Url <http://fundingopps.cos.com/cgi-bin/fo2/getRec?id=115693>

URL for more info <http://www.nsf.gov/pubs/2010/nsf10507/nsf10507.htm>

#### 6. **ERDC BAA - Construction Materials Made From Recycled Wastes (CERL-11)**

Sponsor: DOD

Amount not listed

Deadline Continuous

The Construction Engineering Research Laboratory announces research opportunities involving construction materials made from recycled wastes. Research is currently being conducted on construction materials made from recycled, post-consumer wastes with a primary focus on products made from recycled plastics. Required research on these polymeric materials includes, but is not limited to, studies concerning the relationship of fabrication techniques to end-product properties, degradation mechanisms in various environmental exposures, long-term mechanical properties and durability in severe and varying environments, creep behavior at varied temperatures and loads, behavior and design of bolted connections, quality assurance techniques, design criteria for structural applications, and modeling techniques to predict material behavior in different loading situations over the life-cycle of the product.

Bookmark Url <http://fundingopps.cos.com/cgi-bin/fo2/getRec?id=41644>

#### 7. **Research Excellence Fund Calls for Proposals**

Deadline: 4 p.m. Thursday, Feb. 25.

Proposals are being solicited for the FY2010 Research Excellence Fund (REF), an internal award of the Office of the Vice President for Research.

The announcement, which includes a program description, proposal format, review criteria and process, award procedure and reporting requirements, is available online. A new REF category, Scholarship and Creativity Grants, has been added this year. [More information](#). Incomplete proposals or those received after the deadline will not be accepted for consideration by the review committee for this year and will be returned. Newly funded REF awards will begin on Thursday, July 1.

Submit your proposal to Laurie Stark, office assistant in Research Integrity and Compliance, located on the third floor of the Lakeshore Center.

### **JOB, POST DOCS, INTERNSHIPS, FELLOWSHIPS, SCHOLARSHIPS**

#### 1. **REFERRED BY SFI MEMBER Dana Johnson:**

Opening for a Graduate Researcher

"...I have an opening in my research lab for a Ph.D. student to be funded by an NSF grant, starting next Fall. Below is a very brief description of the research opportunity and links to my websites. The ideal student would be strong in math and/or CS, have an interest in energy and



the environment, as well as an interest in human decision making. But the most important qualities are intellectual curiosity and an interest in addressing public policy questions. Please circulate this announcement and have interested students contact me soon. I particularly encourage women and underrepresented minorities to apply. Moreover, UMass has an excellent program for underrepresented minorities who are citizens or permanent residents, including mentoring and additional funding opportunities.

*Energy Technology Policy in the Face of Climate Change.* Pursue a Ph.D. (or Ph.D./M.S.) in Industrial Engineering & Operations Research. Funded by NSF. Research entails mathematical modeling; and designing, implementing, and analyzing economic experiments. Background in mathematics, economics, computer science, or engineering preferred. See <http://www.ecs.umass.edu/index.pl?id=3984> and <http://mielsvr2.ecs.umass.edu/E3lab/> for more information.” Erin Baker, Associate Professor University of Massachusetts, Amherst; Visiting Associate Professor, Precourt Energy Efficiency Institute, Stanford University ph .650-723-0884; [edbaker@ecs.umass.edu](mailto:edbaker@ecs.umass.edu);

2. **[People, Ecology and Development Study Abroad Program - Thailand](#)**

Deadlines: Fall Semester, March 15; Spring 2011 Semester, September 15, 2010

The International Sustainable Development Studies Institute is now accepting applications for its Fall 2010 and Spring 2011 People, Ecology and Development study abroad semester in Thailand. Designed in partnership with local communities, courses focus on sustainable development by experientially studying the link between culture and ecology. Students will be learning from local activists and village elders, backpacking into remote Karen villages, and sea kayaking and skin diving the reefs and mangroves of Southern Thailand. Summer internships with Thai NGOs are also available for spring semester participants.

3. **[2010 Green Building in Higher Education Fellowships](#)**

Deadline March 15, 2010

The Kresge Fellowship Program within the Advancing Green Building in Higher Education Initiative will provide free registration, accommodations, and travel expenses (up to \$2000/fellow) for fellows to attend one national green building-related conference. As part of the program, Second Nature will award fellowships to 25 university executives who will learn the skills and technical information they need to be effective champions for green building at their own under-resourced campuses. Schools that have received Title III/V designation from the Department of Education are invited to apply. Senior Managers of colleges and universities including campus planners, facilities directors, or vice presidents of finance and business are eligible for the fellowships through which they will take part in learning and networking opportunities, such as AASHE's 2010 Conference and the U.S. Green Building Council's Greenbuild Conference 2010.

4. **[Coordinator, Community Carbon Fund Project, Yale U](#)**

Yale University (CT) is seeking applicants for the position of Yale Community Carbon Fund (YCCF) project coordinator. YCCF makes investments in local carbon offset projects within the City of New Haven and across the state of Connecticut. The coordinator will be directly responsible for managing, implementing, developing, and promoting YCCF in its second year. A bachelor's degree in a related field and a minimum of two years professional experience or the equivalent combination of education and experience in the energy and/or carbon area are preferred.

5. **[Adjunct Instructor, Sustainability, Rosemont College](#)**

Rosemont College (PA) invites applications for adjunct instructors to develop and teach new general education courses in the accelerated bachelor's degree programs. One instructor is sought in the area of sustainability. Desired qualifications include a doctorate in the field of the specific courses proposed and experience teaching and designing courses both online and on the ground to adult learners at the college level. The position is open until filled.

6. **[Assistant Professor, Environmental Studies, Southern Oregon](#)**

Southern Oregon University invites applications for a tenure-track position at the assistant professor level in the Department of Environmental Studies. Candidates in the geosciences, earth sciences, environmental sciences or related fields are encouraged to apply. The University seeks a scholar excited by problem-driven field-based research, committed to interdisciplinary undergraduate education, and enthusiastic about joining a department faculty that spans the natural and social sciences. A scientist



with a comprehensive knowledge of surficial processes: geomorphology, soils, slope stability, hydrology, water quality, and watershed science, with applied skills and facility with geospatial technologies is preferred. The position is open until filled.

7. [Sustainability Graduate Fellow, U Vermont](#)

**Deadline March 31, 2010**

The University of Vermont is hiring a sustainability graduate fellow. The sustainability education and outreach work involved in this position will be conducted under the supervision of the Director of the Office of Sustainability. The fellow's primary responsibility is to coordinate and manage the UVM Eco-Reps Program. The fellow will train previously hired students and update the program's curriculum and organize related activities, utilizing student help whenever possible. Applicants should be an enrolled graduate student with two to four years academic study or experience in sustainability-related field.

8. [Faculty – Alternative Energy Engineering Technology – Lansing Community College](#)

Qualifications: Required Bachelors Degree in energy management, energy efficiency, alternative energy engineering, HVAC/R, electrical engineering, engineering technology, construction management, [\(more\)](#)

9. [Student Internships in Energy Efficiency and Renewable Energy](#)

Ongoing

The United States Department of Energy's Office of Energy Efficiency and Renewable Energy (EERE) offers exciting student volunteer internships throughout the year in its Washington, DC headquarters. These volunteer internships provide exciting opportunities for students to learn through direct experience about the field of energy efficiency and renewable energy. In addition, some colleges and universities give academic credit for federal government internships - and an internship with the government could transition into a full-time paid position after graduation.

10. [Energy Manager, Meredith College](#)

Meredith College (NC) is seeking applicants for the energy manager position. The manager will monitor the energy use of the campus and assess and analyze the energy performance of each building through energy audits, reviewing the efficiency of electrical and mechanical systems, and developing energy management action plans in cooperation with the Facility Services Department, Sustainability Office, and the campus community. The manager will also seek to achieve energy savings, promote indoor air and environmental quality, and minimize the overall environmental impact of campus buildings and infrastructure. A bachelor's degree in a related technical, scientific or engineering discipline or equivalent is required, as is a minimum of three years experience in energy management, facility mechanical systems design, construction and/or maintenance.

11. [Research Chair, Oil Sands Env Sustainability, Northern Alberta IT](#)

Deadline: March 1, 2010

The Northern Alberta Institute of Technology is seeking applicants for an applied research chair in oil sands environmental sustainability. The position will provide scientific investigation and leadership in seeking solutions in oil sands operations, production, resource management, and conservation through the utilization of green chemistry and sustainable process technologies. The successful candidate will bring a strong record of achievement in applied research in the field and will have attained recognition for making a major impact in this field. Experience creating and directing research teams and excellent interpersonal and communication skills are needed to develop the role to its full potential. A doctoral degree in a relevant field or the equivalent in education and experience is required.

12. [Kathryn Fuller Fellowships](#)

Advancing Conservation through Science

World Wildlife Fund – US (WWF-US) is pleased to announce the availability of Kathryn Fuller Fellowships for 2010. For nearly 50 years WWF has committed to delivering science-based conservation results while incorporating the latest research and innovations into our work. As part of its commitment to advancing conservation through science, WWF established Kathryn Fuller Fellowships to support PhD students and postdoctoral researchers working on issues of exceptional importance and relevance to conservation in WWF-US priority places. This year, the Kathryn Fuller Science for Nature Fund will support doctoral and postdoctoral research in the following three areas: (1) ecosystem services; (2) measuring and monitoring carbon stocks in forests; (3) climate change impacts on and adaptation of freshwater resources.



## EVENTS, CONFERENCES, & CFPs

1. [SUSTAINABILITY VIRTUAL SUMMIT – Main Topic “Smart ITC”](#)  
**March 30 – April 1, 2010**  
First in a series of virtual events focusing on Information and Communications Technologies that will dramatically contribute to mitigating the effects of climate change. Topics covered will include, ICT (Information and Communications Technologies) for Virtualization and Dematerialization, ICT for Smart ICT. Event will be archived until May 10, 2010.
2. [Measuring the Real Cost of Parking and Alternative Transportation Options :: Webcast](#)  
**Tuesday, March 9, 2010**  
Institutions that are growing or are greening their campuses often face significant challenges with respect to parking. Before moving forward with new parking construction, replacing existing parking spaces, or implementing alternative transportation options, institutions must be able to quantify the true costs of parking. Having this data allows you to determine the right mix of transportation options for your campus.
3. [MIT Sustainability Summit 2010](#)  
**April 23, 2010 Cambridge, MA**  
**Conference Title - Mind the Gap: Communicate and Collaborate for a Sustainable World**  
All the technology and great ideas in the world cannot achieve sustainability by themselves. This summit focuses on the communication and collaboration necessary to make sustainability a reality. Attendees will learn and practice innovative methods for creating effective dialogue and working together during complex decision-making situations and multi-stakeholder engagements. The conference welcomes all attendees interested in sustainability, including but not limited to students, engineers, business leaders, nonprofit leaders, academics, environmental activists, and public servants.
4. [LCA Sustainable Supply Chain USA](#)  
**April 28-29 Merriot Chicago Midway**  
Benchmarking experiences on developing models, principles and standards for measuring and addressing environmental and social impacts throughout the entire life cycle and supply chain.
5. [Uptime Institute Symposium 2010](#)  
**May 17-19 NY, NY**  
The Uptime Institute Symposium, one of the most influential events on the IT industry and data center operator calendar, is the only event focused entirely on data center efficiency and green enterprise IT. The Symposium attracts stakeholders in enterprise IT, finance, executive management, data center facilities, and corporate real estate to deal with the critical issues surrounding enterprise computing, resource and energy efficiency, availability and productivity.

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