Carnegie Mellon

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SEER BULLETIN

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BREAKING NEWS: Carnegie Mellon University Receives $6.9 Million to Create New Climate Decision Making Center

Carnegie Mellon University's Department of Engineering and Public Policy will receive $6.9 million over the next five years from the National Science Foundation to study climate-related decision making.

Most climate researchers promise to reduce uncertainty. Carnegie Mellon's new Climate Decision Making Center is different. It begins its work by acknowledging that many of the uncertainties about future climate, and the human actions that are changing climate, can not be resolved ahead of time. The center will develop methods to support decision makers in the face of this "irreducible uncertainty."

"There is virtually universal agreement among the world's scientists that climate will change because of carbon dioxide that is released when we burn coal, oil and gas, but many of the details of the changes remain uncertain," said Granger Morgan, head of Carnegie Mellon's Department of Engineering and Public Policy and the Climate Decision Making Center. Morgan says that the new Center will try to get past the arguments about those details to examine how private and public decision makers can begin to prepare in the face of all the uncertainties.

"When you think about it, situations involving high uncertainty are pretty common," Morgan said. "Personal decisions to go to college, take a job, get married and have a family are always made in the face of great uncertainty about the future. The same is true for public decisions. The thing that is different about climate change is that it will play out over several hundred years. But, decisions we make in the next decade will have a big impact on how it plays out," Morgan said.

The new Center will focus on helping people and organizations use available but uncertain information to improve their decisions.

"We will address a variety of climate-related decision problems faced by insurance managers, mangers of forests and fisheries, people who live in villages of the higher Arctic (where climate change will come soonest and be largest) and electric power executives who must decide what kinds of power plants to build." Morgan said.

In addition to researchers at Carnegie Mellon, the new Climate Decision Making Center will involve leading researchers at Stanford University, the University of California at Berkeley, the University of British Columbia, the University of Calgary, the German-based Potsdam Institute for climate impact research and several other institutions. In addition to research, the interdisciplinary center will give faculty and students the opportunity to participate in a variety of outreach and decision-making projects. (Press Release by Chriss Swaney, Carnegie Mellon Media Relations)

Additional note: Granger Morgan was also recently appointed as chair of the U.S. Environmental Protection Agency Scientific Advisory Board.

Granger Morgan

Sustainability is the biggest challenge of the 21st century….at Carnegie Mellon, we are capable, motivated and positioned to make a global difference.

BREAKING NEWS: Setting the Example

Carnegie Mellon recently renewed its partnership with local vending company, AVI. As a result, AVI will be installing 'VendingMiser' devices on all cold bottle machines on campus. These energy saving devices include motion sensors which will power the machines up and down based on traffic past the machine. Based on Carnegie Mellon's environment and the placement of our machines, Carnegie Mellon anticipates an annual electricity savings of $10,000+ from the use of VendingMisers.

VendingMiser sensor

BREAKING NEWS: National Recognition of Faculty

Civil and Environmental Engineering Professor Dave Dzombak has been appointed to the US Environmental Protection Agency's Environmental Technologies Subcommittee of the National Advisory Council for Environmental Policy and Technology.

RESEARCH: SEER Center Spotlight: Institute for Green Oxidation Chemistry

The Institute for Green Oxidation Chemistry has been established at Carnegie Mellon as a research, education and development center in which a holistic approach to *sustainability science* is being developed. According to Terry Collins, Director of the Institute, there are three major problem areas where green chemists can make major contributions to sustainability.

First, *renewable energy technologies*, especially *solar technologies*, will be the central pillar of a sustainable high technology civilization. The contribution chemists can make here relates to the development of the economically feasible conversion of solar into chemical energy and the improvement of solar to electrical energy conversion.

Second, *chemical feed stocks* must increasingly be obtained from renewable sources to reduce our dependence upon fossilized carbon and to protect the atmosphere.

Third, *polluting technologies must be replaced by benign alternatives*. This third area is the concentration of the CMU-based initiative. Research carried out in the Institute is focused on the pollution reduction component of green or sustainable chemistry. Research programs are evolving around the scientific and technological development of TAML® hydrogen peroxide activators which where invented in the Collins Group and which have been extensively patented and trademarked by Carnegie Mellon.

For more information regarding the Institute, please visit: http://www.chem.cmu.edu/groups/collins/research/

EDUCATION: Environment Across the Curriculum Initiative

The Environmental Across the Curriculum (EAC) initiative is funded by the Steinbrenner Institute for Environmental Education and Research. The vision of the EAC is to enable our students to develop an ethic of environmental care as they begin their adult lives as consumers, citizens, and professionals in making decisions that help move society toward a more sustainable state. The initiative began in July 2004 with roughly two dozen faculty members from all seven colleges. These individuals are developing lectures, laboratories, or studios that address environmental issues for courses they are teaching in the current academic year. Nearly 30 courses are represented. Here are a few examples of EAC modules.

Environmental Rhetoric is taught by Linda Flower of the English Department. In this course, Prof. Flower asks her students to put together "environmental dialogue books" that analyze how a diverse set of perspectives contribute to public understanding and environmental deliberation about an issue. Examples of topics for the current semester include construction sites, recycling, green buildings, sustainable business practices, and many other topics.

The City in History: Delhi and London is taught by Jayeeta Sharma of the History Department. Prof. Sharma presents a history of air pollution in industrial London over the past century, and discusses the challenges of passing legislation that ultimately removed much of the smoke. She compares this with air quality problems and other environmental issues in modern Delhi.

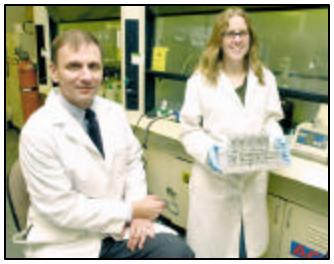
Semiconductor Chemical Sensors for Environmental Monitoring: Issues for Thin Film Materials is taught by Lisa Porter of the Materials Science and Engineering Department. Prof. Porter considers the use of metal-insulator-semiconductor structures as sensors for certain pollutant gases. She examines the effects of metal film morphology and other factors on the response of the sensor to specific gaseous compounds.

HEINZ ENVIRONMENTAL SCHOLARSHIP WINNERS

The Teresa Heinz Scholars for Environmental Research program demonstrates commitment to the environment. Working with respected academic institutions, the program seeks to:

- Enrich the public's understanding of emerging environmental issues
- Provide effective solutions for environmental problems

Specifically, the program provides enhancement support for doctoral dissertation and master's thesis (or project) research. A total of 16 one-time, one-year awards are offered annually: eight $10,000 awards for doctoral dissertation support and eight $5,000 awards for master's thesis support.



Kathleen McDonough, Heinz Environmental Scholar, with her advisor, Professor Dave Dzombak

This year's Carnegie Mellon winners:

Kathleen McDonough is a PhD candidate. She has a bachelor's of science degree in Civil & Environmental Engineering from Cornell University and a master's degree in Environmental Engineering from Georgia Tech. She worked as an Environmental Engineering Consultant for Law Engineering and Environmental Services and Earth Sciences Consultants. She is currently finishing her Ph.D. in Environmental Engineering at Carnegie Mellon University. Kathleen's research is entitled: Temperature Effects on PCB Fate and Transport in Anaerobic Near-Surface Sediment.

Paulina Jaramillo is a MS candidate. She was born in Colombia, South America. After graduating from high school, her family immigrated to the United States. She completed her undergraduate studies at Florida International University in Miami, where she was honored with the Outstanding Civil & Environmental Engineering Student Award. Continuing her education at Carnegie Mellon University in Pittsburgh, she has been involved with the Green Design Institute. Over the last year, she has been working on a cost-benefit analysis of landfill-gas-to-energy projects that includes environmental costs and benefits. Her future work deals with life-cycle issues of photo-voltaic cells and the materials used to manufacture them. Some emphasis will be placed in comparing this technology with more traditional sources of energy such as coal, nuclear, and natural gas.

Paulina Jaramillo

Kimberly Kinder is a MS candidate She moved to Pittsburgh from Alaska to pursue a BS in Architecture at Carnegie Mellon. She is now studying Urban Design and Environmental Policy, and helping to establish a graduate level collaboration program with Carnegie Mellon and University of Oxford. Her thesis will be joint between Urban Design in Pittsburgh and Nature, Society and Environmental Policy in the UK. The work has been an analysis of the way natural resources and movements towards urban ecological sustainability can be used to promote urban revitalization. Kim has developed a stream restoration proposal in Pittsburgh's Hill District. Her thesis will be completed by September 2005 and is funded in part by the Heinz Foundation, Carnegie Mellon University and RTKL Associates, Inc, an international architecture/urban planning firm.

Kimberly Kinder

SPOTLIGHT ON SEER FACULTY: Timothy Collins

Visiting Faculty and Research Fellow, STUDIO for Creative Inquiry; Project Director, 3 Rivers 2nd Nature

The 3 Rivers - 2nd Nature project address the meaning, form and function of the three river systems, and 53 streams of Allegheny County. The goal of the project is to conduct an analysis of the green infrastructure that provides social, aesthetic, ecological and economic benefit to the Three Rivers Region. Green infrastructure, when identified and integrated into an ongoing program of urban redevelopment can provide significant multi-benefit returns on investment. The project team are developing a contemporary baseline of water quality, river edge plant life, bank conditions and a history of public access and private use. The work results in an ecological systems conservation plan for Allegheny County. This project builds on the success of the program of strategic-creative inquiry, ecosystem analysis and community dialogue developed on the Nine Mile Run Watershed. For this project, the STUDIO for Creative Inquiry is partnered with the 3 Rivers Wet Weather Demonstration Project (3RWWDP), and other municipal and non-profit organizations as applicable.

http://3r2n.cfa.cmu.edu http://slaggarden.cfa.cmu.edu

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UPCOMING EVENTS

- Fall 2004 TBA: Carbon Management Workshop funded by the Carnegie Bosch Institute and hosted by the Green Design Initiative. Theme: How will CO_2 Regulation Affect the Service Sector? What should companies do? Hosted by Carnegie Mellon's Green Practices Committee.
- Dec. 2: Lecture by Brian Donahue, Associate Professor of American Environmental Studies, Brandeis University. "Husbandry was once a Sacred Art: Environmental History and the Future of Conservation", Adamson Wing, 136 Baker Hall, 4:30-6:30 pm
- Dec. 7: Shannon McMullen, Post-Doc in Center for Arts in Society, Re-Visions: Brownfields in Cultural Prospective, The Ruhr District and Pittsburgh, location on Carnegie Mellon's campus, TBA

Future issues of the SEER bulletin will also be distributed via email. If you wish to be included on the email distribution list, please contact Nichole Dwyer at 412-268-3864 or ndwyer@andrew.cmu.edu.