

Clean Energy News



At the

USF UNIVERSITY OF
SOUTH FLORIDA

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KEY CERC RESEARCH

Photovoltaic Thin
Film

Photocatalytic
Detoxification and
Disinfection

Solar Thermal Power

Hydrogen Production
and Storage

Combined Power/
Cooling Thermo-
dynamic Cycle

Rectenna Solar
Energy Conversion

Biomass and Biofuels

Carbon Capture and
Sequestration

INSIDE THIS ISSUE:

Games 2

CEM 2

Oven 3

Students 3

Teacher 3

Visitors 3

Electrifies 4

Earth Day Tampa Bay

CERC's solar and renewable energy display at the April Earth Day Tampa Bay's festival was featured along with more than 70

ety of natural and organic products and services for the home and garden, mind, body and soul were exhibited.

sponsored by the City of Tampa.

Created in 1970, Earth Day is a global day of observance of the need to protect the earth. Responding to widespread environmental degradation, US Senator Gaylord Nelson called for an environmental teach-in or Earth Day, to be held on April 22, 1970. The history of Earth Day mirrors the growth of environmental awareness over the last three decades, and the legacy of Earth Day is the certain knowledge that the environment is a universal concern.



eco-friendly exhibitors offering products, information and demonstrations on ways to help create a healthy and sustainable lifestyle. A wide vari-

Displays on energy and water conservation included the Clean Energy Research Center, arts and crafts and exhibits by community organizations and clubs, including city and county departments, on everything from native plant gardening to biking and hiking trails.

The 2010 Earth Day marked the 40th year the annual event has been fielded. The local event was organized by the Tampa Bay Sierra Club and co-

Clean Energy Rocks!

Ever feel like clean energy is boring? Well, put on your seatbelts, because clean energy rocks! The USF CERC showcased practical solar energy applications at the 2010 Earth Day Tampa Bay, held at Lowry Park April 25.

CERC fielded an exciting game show with the audience designing their own

energy efficient house. Those who showed a savings of money through green engineering won the game. But this was just one part of the CERC's cool exhibits which featured solar powered computers and a demonstration of practical energy saving compact fluorescent lamps.



Helping CERC out, were two USF student groups: Students for Marketing and Advancement of RE Technologies (SMART), and the X-Labs. SMART organized the 2009 Tampa Bay Solar Tour as part of the National Solar Tour of the American Solar Energy Society. The X-Labs promotes awareness of engineering and the sciences.

See Pictures, page 2.

Earth Day Games

Clean Energy is Green Energy

Congress can promote

national

security

as well as

jobs and a

healthy

climate

with clean

energy

legislation.



Prof. Ralph Fehr (green shirt) helps steer a youngster's spinning the wheel of energy savings!



X-Labs electricity display sparks delighted interest at Earth Day.

Clean Energy Men

How do you excite interest in clean energy on Earth Day? CERC chose the whimsy factor, and so "Clean Energy Man" was born!

Grad students Omatoyo (Kofi) Dalrymple and Michael Celestin took turns as "Clean Energy Man" during the Tampa Bay Earth Day. The super hero costume was fabricated by Lisa Lepak of the Costume Laboratory in Ybor City.



Clean Energy Man costume on the drawing board.

Clean Energy Man Kofi Dalrymple "powers up" the CERC's green solar oven (see story "Green Oven"). Say, is this photo-shopped?



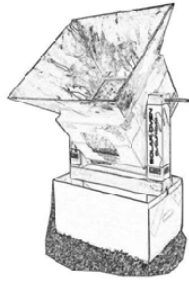
Children flocked to Clean Energy Man Kofi Dalrymple.



L-R: CERC co-director Yogi Goswami, Huijuan Chen, Lisa Lepak, Michael Celestin, Yang Yang Zhang and Jamie Trahan.

Green Oven

A solar oven is a great way to conserve resources and tap into the wealth of energy that hits the Earth every day. CERC graduate student Michael Celestin's simple green solar oven design was featured on "instructables.com" website during April. Celestin's design shows how to construct a high efficiency solar oven out of mostly waste or scrap parts you probably have lying around your house. When pointed properly at the sun on a clear day, it will pass 300°F within 10 minutes.



<http://www.instructables.com/id/CERC-Green-Solar-Oven/>



Outstanding Teacher

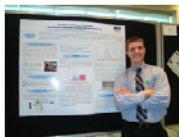
In January, CERC's Dr. Ralph Fehr, won Outstanding Engineering Educator for 2009 by the FL Council of the Institute of Electrical and Electronics Engineers (IEEE). The award recognizes those who have shared technical and professional abilities through teaching in industry, government or in an institution of higher learning and, in so doing, has made an outstanding contribution to the electrotechnology profession.

Improving the way current and future engineers are educated has long been a goal of Prof. Ralph Fehr.



Excelling Students

- William Bosshart, won first place in Engineering for his poster board presentation "Analysis of Fischer-Tropsch Synthesis Products via Gas Chromatograph" at the April USF Undergraduate Education Research Symposium, in Tampa. Bosshart's faculty advisor is John Wolan.



- CERC graduate student Omatoyo Dalrymple won a Travel Award for his poster presentation "Titanium Dioxide Kills Water Pathogens with Sunlight by Membrane Peroxidation" at the Sustainable Water Resources conference in February, at the Univ. Fla. in Gainesville. Dalrymple's faculty advisor is Yogi Goswami.

Engineering Expo

Students from high school down to kindergarten interested in engineering and science attended the annual Engineering Expo in February. CERC's booth drew many students fascinated by renewable solar energy.

L-R: CERC's Huijuan Chen, Jamie Trahan and Michael Celestin.



Visitors

- Latin American VIPs visited CERC in June, as part of the U.S. State Dept.'s Int'l Visitor Leadership Pgm., arranged by the Tampa Bay Int'l Council and Meridian Int'l Ctr. The visitors hailed from Argentina, Colombia, Ecuador, Honduras, Peru, and Venezuela. The program is geared for government officials, politicians, policy analysts, researchers

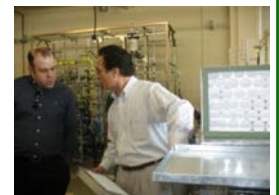


and academics involved in diversifying and expanding renewable energy sources. The visitors examined energy programs involving bio-fuels, biomass, wind, solar, geothermal, hydropower and tidal power. They sought to explore industry perspectives, research and development of new technologies and other efforts to expand and diversify world energy supplies.



- CB&I toured the CERC labs during April. CB&I provides solutions in the engineering, procurement and construction, energy and natural resource industries, and is a major process technology licensor.

CERC Director Lee Stefanakos (R) explains the innovative photocatalytic filtration system.





Clean Energy Research Center

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Big Ideas . . . Big Opportunities



The Clean Energy Research Center's mission is scientific research, technical and infrastructure development and information transfer. CERC is involved in fundamental investigations into new environmentally clean energy courses and systems — hydrogen, fuel cells, solar energy conversion and biomass utilization — that meet the needs of both the electric power and transportation sectors.



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Solar PV Charging Station Electrifies

Local TV Explores PV Station

CERC Director Lee Stefanakos and Professor Ralph Fehr explained the CERC's PV charging station to NBC affiliate Channel 8's reporter Leigh Span in May. In the 1970's the charging station was the first in the country intended for use in charging electric vehicles. At that time USF maintained a small fleet of electric pickup trucks. Through the years that fleet has become a relic, and the charging station's electricity is fed into the University's power grid supplying needed energy campus wide. Now with the resurgence of interest in hybrid and electric vehicles, the original purpose of the charging station is once again being viewed as viable. The charging station is located between Engineering II and the Beard parking garage.

For full coverage of Span's report, see: <http://video.tbo.com/m/30615365/usf-solar-charging-station.htm?q=solar>

Electric vehicle at CERC PV charging station.



Charging Station Featured

CERC's PV charging station was featured in "EV World", an e-journal reporting on electric vehicle technology, policy and people from around the globe. The station's 20,000 watt solar electric capability was of great interest to EV World founder and publisher J. William "Bill" Moore, who drove the agile electric car "Electro COATL" to the USF. A group of researchers met at the USF to discuss creating a future network of solar charging stations across Florida. Included were area businesses Clean Vehicle Research Institute, Electro Autos Eficaces de Mexico, and Odyne Corporation.



L-R: Luis Perez (EAE), Charles Whalen, Dr. Sankar das Gupta (Electrovaya), Carlos Jager (EAE), Dr. Elias Stefanakos (USF), and Dr. Yogi Goswami (USF).