



OKLAHOMA NSF EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH

Conference Explores Oklahoma's Renewable Energy Role

Researchers from across the state gathered to highlight Oklahoma's bioenergy research efforts during the Oklahoma EPSCoR Annual State Conference on Tuesday, April 10, at the Wes Watkins Conference Center on the Oklahoma State University campus in Stillwater.

Leaders in the bioenergy field engaged conference participants through presentations and discussion during an opening plenary session. Special guest presenters and their topics included:

Dr. Chad Haynes, science and engineering technology advisor, U.S. Department of Energy, "The Advanced Research Projects Agency – Energy: A New Paradigm in Transformational Energy Research."

Dr. Matthew Langholtz, natural resource economist, Oak Ridge National Laboratory,

"Overview of the U.S. Billion-Ton Update."

Mr. Phil Weathers, director of operations, RenTech Inc., "From Research to Demonstration – The Rentech BioEnergy Center of Excellence."

Conference attendees participated in a networking luncheon, where Dr. Kelvin Droegemeier, University of Oklahoma Vice President for Research, and Dr. Uma D. Venkateswaran, NSF EPSCoR program director, shared information about NSF energy research directions and funding opportunities.

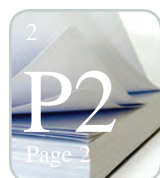
An afternoon panel session, led by the day's speakers and EPSCoR external advisory board member Dr. Larry Walker, engaged audience members in discussions addressing bioenergy sustainability in Oklahoma and the nation. The session was moderated by OK EPSCoR co-PI Dr. Raymond Huhnke.

A scientific poster session and hybrid poster/oral presentation competition spotlighted research progress in the alternative energy field. Forty four posters were on display at the conference.

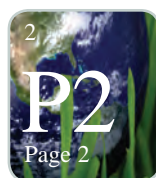
More than 120 Bioenergy investigators from Oklahoma and nearby states, EPSCoR external advisory board members and program officers from federal granting agencies participated in the event, which was hosted by Oklahoma EPSCoR, the Oklahoma State Regents for Higher Education and the National Science Foundation.

To view video presentations from the conference, visit www.okeyscoer.org/research/presentations.

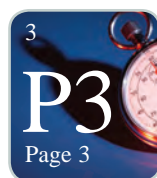
See page 2 for student hybrid poster competition details



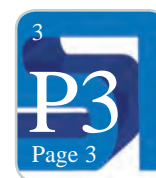
NSF GRANTS WORKSHOP
Workshop Provides Grant Writers with Funding Information and Opportunities.



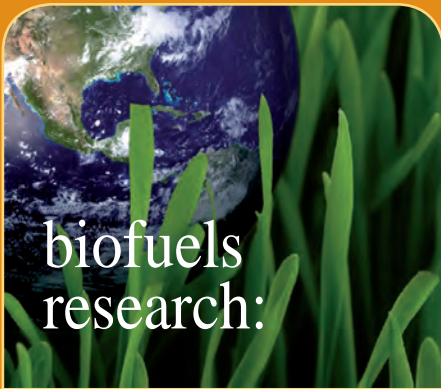
BIOFUELS RESEARCH AWARDS
Summer 2012 ROA Awards for Regional Faculty Members.



UPCOMING EVENTS
Mark Your Calendars for These Upcoming Oklahoma EPSCoR Events.



STARBASE OKLAHOMA
DoD & NSF EPSCoR Collaboration Brings Renewable Energy Awareness to Student Cadets.



2012 ROA RECIPIENTS

Research Title

The Genome Sequence of *Oscillatoria limnetica*: Clues to Diverse Third Generation Bioenergy Production

Regional Faculty Member

Dr. Ratnakar Deole, NSU

Lab Sponsor

Dr. Wouter Hoff, OU

Award Amount: \$10,000



Research Title

Spectroscopic Analysis of Liquid Mixtures for Biofuels Applications

Regional Faculty Member

Dr. James Hicks, NSU

Lab Sponsor

Dr. Friederike Jentoft, OU

Award Amount: \$10,000



Research Title

Catalysts for Biofuel Production from Cellulosic Materials

Regional Faculty Member

Dr. Dane Scott, ECU

Lab Sponsor

Dr. Nicholas Materer, OSU

Award Amount: \$10,000



Research Title

Identifying Functional Biomarkers Associated with Tillering in Switchgrass

Regional Faculty Member

Dr. Lila Peal, CU

Lab Sponsor

Dr. Mali Mahalingam, OSU

Award Amount: \$10,000

Continued from page 1

Students from the University of Oklahoma and Oklahoma State University took the top prizes in a hybrid poster competition held recently during the Oklahoma EPSCoR Annual State Conference in Stillwater.

Students performing research under the current OK EPSCoR Cellulosic Bioenergy RII Award were qualified to participate in the contest, which consisted of three-minute oral presentations and a formal scientific poster session. Each portion of the hybrid competition was competitively judged by an independent panel of judges made up of EPSCoR External Advisory Board members.

First and second place winners each received

funding to attend a bioenergy conference in the contiguous United States, so they may further their knowledge in the bioenergy field. All winners were awarded commemorative plaques.

1st Place

Taiwo Omotoso, OU

Faculty Mentor:

Dr. Steven Crossly, OU

Poster Topic:

Influence of Ruthenium Titania Catalyst Pretreatment Conditions on the Upgrading of Biomass Fast-Pyrolysis Oil Vapors

2nd Place

Xin Zeng, OSU

Faculty Mentor:

Dr. Mali Mahalingam, OSU

Poster Topic:

Gene Networks Associated with Tillering Traits in Switchgrass

3rd Place Runners-Up

David Ponder, OU

Faculty Mentor:

Dr. Laura Bartley, OU

Poster Topic:

Investigating the Cell Wall Changes During Grass Lateral Root Emergence

Prakash Bhoi, OSU

Faculty Mentors:

Dr. Raymond Huhnke, OSU

Dr. Krushna Patil, OSU

Poster Topic:

Solubility of Major Producer Gas Tar Compounds in Water

Paula Zapata, OU

Faculty Mentor:

Dr. Daniel Resasco, OSU

Poster Topic:

Hydrophobic Zeolites for Biofuel Upgrading Reactions at the Liquid-Liquid Interface in Water/Oil Emulsions

Abstracts and slides may be viewed at www.okepscor.org



OKLAHOMA EPSCoR NSF GRANTS WORKSHOP

The Oklahoma EPSCoR NSF Grants Workshop was held Thursday, May 17, at the High University Center on the University of Central Oklahoma campus in Edmond. The annual event provided more than 100 Oklahoma researchers and grant writers with information on funding opportunities available to them, including those from state and federal funding agencies, such as NSF, DOD, DOE, NIH and OCAST. The workshop is designed to encourage an increase in the quality and quantity of proposals submitted by Oklahoma researchers to the National Science Foundation and other federal agencies.

Special invited speakers included:

- Dr. Garie Fordyce, Program Manager, National Science Foundation
Presentation: NSF Proposal Preparation
- Dr. Darrin Akins, Director, Oklahoma INBRE
Presentation: NIH Grant Writing Tips: 101
- Mr. Rick Rainey, Venture Advisor, Innovation to Enterprise (i2E)
Presentation: Oklahoma SBIR Collaborative Resources—OSCR
- Mr. Steven Martinez, Project Manager, Oklahoma Center for the

Advancement of Science & Technology (OCAST)

Presentation: Oklahoma SBIR Collaborative Resources—OSCR

Faculty, researchers, postdoctoral associates, graduate students and business leaders from more than 30 Oklahoma businesses and educational institutions interacted with guest speakers throughout the day, during an interactive panel discussion and networking luncheon.

The NSF Grants Workshop is sponsored by Oklahoma EPSCoR, Oklahoma State Regents for Higher Education and the National Science Foundation.



upcoming
events:

MARK YOUR CALENDARS

1
SUPERCOMPUTING SYMPOSIUM
October 2-3, 2012
University of Oklahoma, Norman
www.oscer.ou.edu

2
WOMEN IN SCIENCE CONFERENCE
October 9, 2012
Science Museum Oklahoma, OKC
www.okepscor.org

3
WHO WANTS TO BE AN
ENTREPRENEUR WORKSHOP
October 12, 2012
The Reed Center, Midwest City
www.okepscor.org

4
OKLAHOMA EPSCoR NSF DAYS
January 8, 2013
The University of Tulsa, Tulsa
www.okepscor.org

5
RESEARCH DAY AT THE CAPITOL
February 26, 2013
State Capitol of Oklahoma, OKC
www.okepscor.org



Collaboration Brings Renewable Energy Awareness to Student Cadets

Starbase Oklahoma is a hands-on, inquiry-based youth education program developed by the U.S. Department of Defense to engage fifth-grade students in hands-on science, technology, engineering and mathematics (STEM) activities.

The program, which is implemented on eight military bases and training sites across Oklahoma, will serve more than 6,500 students and 528 teachers from 80 Oklahoma schools this year.

Students—or “cadets,” as they’re known in the Starbase program—learn about subjects such as astronomy, rocketry, hydroponics and physics during the five-week learning-by-exploration program. A recent award from Oklahoma EPSCoR allows cadets to engage in experiments that explore the depletion of fossil fuels and the benefits of renewable energy.

“In Oklahoma, oil and natural gas fuels have historically been king,” said Gina Miller, OK EPSCoR outreach coordinator. “It’s important for the next generation of Oklahomans to understand the fundamental principles of renewable versus non-renewable fuels.”

To further that goal, our Starbase partnership allows students to perform experiments that clearly and logically define the importance of renewable fuels and the essential role they will play in our future energy independence,” she said.

Starbase cadets are introduced to mathematical concepts, scientific processes, problem solving and team building skills during 25 hours of classroom instruction. The diversified STEM curriculum also uses the scientific method and experiments to educate participants about the harmful effects of drugs and alcohol, while a section on

the importance of goal-setting helps students focus on setting and attaining their goals.

A capstone field trip experience exposes students to real-world jobs held by citizen-soldiers, as they touch and handle high tech equipment, including planes, flight simulators and computers.

The program serves students who are at risk of not reaching their full potential and who have historically been underrepresented in STEM disciplines due to socio-economic, demographic or geographic constraints. Some past participants have reported that they first realized that higher education and STEM careers were tangible and exciting options for them during their Starbase cadet training.

Teachers interested in participating in the program should call 918.833.7757 for enrollment information.

REU AWARDS: SUMMER RESEARCH EXPERIENCES FOR UNDERGRADS

FACULTY MENTOR

Dr. Lilian Chooback
Dr. Andrew Doust
Dr. Friederike Jentoft
Dr. Ajay Kumar
Dr. Mali Mahalingam
Dr. Maria Monteros
Dr. Yanqi Wu
Dr. Laura Bartley
Dr. Stephen Fields
Dr. Gail Wilson

LAB SITE

UCO
OSU
OU
OSU
OSU
SRNF
OSU
OU
ECU
OSU

STUDENT RESEARCHER

Christina Bruxvoort, UCO
Jessica Stromski, OSU
Matthew Wallace, OU
Onovwe O. Rachael, SE OSU
Kathryn Parsley, CU
Guitri Obame-Ndong, SE OSU
Josh Garner, NEO & Ethan Purkins, OSU
Meagan Anderson, OCCC
Ankita Thapa, ECU
Shana Lancaster, OSU

HOW TO GET INVOLVED:

405.744.9964

WWW.OKEPSCOR.ORG



Because STEM is a part of Oklahoma's Future.

The Oklahoma Experimental Program to Stimulate Competitive Research (OK EPSCoR) was established by the National Science Foundation in 1985 to strengthen Oklahoma's exploration and growth in science, technology, engineering and mathematics. OK EPSCoR's central goal is to increase the state's research competitiveness through strategic support of research instruments and facilities, research collaborations, and integrated education and research programs.

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