

# FOCUS



VOLUME 7, NUMBER 1

SUMMER 2006

## KANSAS NSF EPSCoR Wins \$6.75 MILLION AWARD

*Program is second largest KTEC grant award*

A \$6.75 million award from the National Science Foundation (NSF) will soon enable researchers in Kansas to address one of the Grand Challenge science problems of the 21st century — forecasting the ecological consequences of environmental changes. In addition to the federal funds, \$2.5 million is awarded by the Kansas Technology Enterprise Corporation (KTEC) — providing a total funding infusion of \$9.25 million.

The three-year award to the Kansas NSF Experimental Program to Stimulate Competitive Research (EPSCoR), headquartered at The University of Kansas, will link researchers at KU, Kansas State University, and Fort Hays State University in a study of changes occurring in the climate, land-use, biogeochemistry, hydrology and biodiversity along the Kansas River Basin.

“The award will strengthen the research infrastructure in an area targeted for growth and development in Kansas — the biosciences,” said Dr. Kristin Bowman-James, director of Kansas NSF EPSCoR.

Dr. Leonard Krishtalka, director of the KU Natural History Museum and Biodiversity Research Center, will lead the research team with Dr. Walter Dodds, Professor of Biology at Kansas State University, as the co-leader.

“The Central Plains grasslands provide Kansans with critical ecosystem services: supplying clean water, recycling essential nutrients, sequestering carbon, preserving biodiversity, and guarding against invasive species and emerging diseases,” Krishtalka explained. “Being able to forecast changes occurring in these ecosystems is vitally important to protect and strengthen the Kansas and regional economy.”

In addition to being KTEC’s second

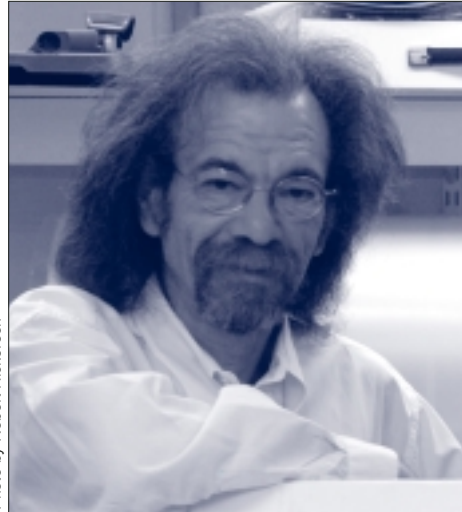
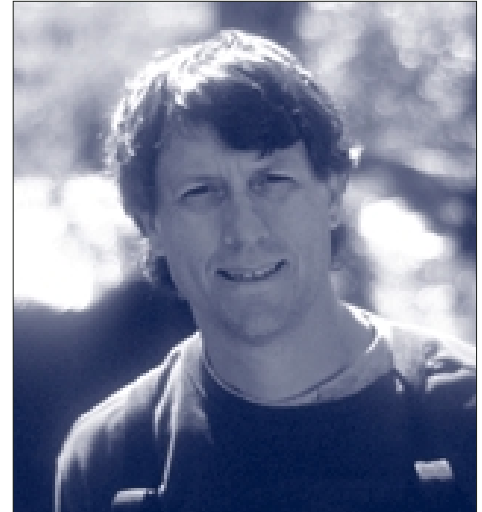


Photo by Robert Hickerson



DR. LEONARD KRISHTALKA, DIRECTOR OF THE KU NATURAL HISTORY MUSEUM AND BIODIVERSITY RESEARCH CENTER, WILL LEAD THE ECOLOGICAL FORECASTING INITIATIVE WITH DR. WALTER DODDS, PROFESSOR OF BIOLOGY AT KANSAS STATE UNIVERSITY, AS THE CO-LEADER.

largest active grant, the project marks a continuation of support for the Kansas NSF EPSCoR. KTEC is the designated provider of the state’s contribution to the federal EPSCoR programs operating in Kansas.

“KTEC understands that it is important for Kansas NSF EPSCoR to leverage state dollars to secure federal dollars. Such a federal-state partnership enables Kansas to develop its niche strength in bioinformatics and ecology,” said Tracy Taylor, President and CEO of KTEC. “In a year or two, researchers involved in this project will be better able to compete for some of the NSF’s largest bioscience

awards. Longer term, we could see some commercial software products and companies spinning off from this work.”

EPSCoR is a joint program of the NSF and qualifying U.S. states and territories. The program promotes development of science and technology through partnerships involving universities, industry, and government. EPSCoR’s goal is to maximize a state’s S&T resources and use those resources as a foundation for economic growth.

Kansas joined EPSCoR in 1991 and received its first research infrastructure improvement (RII) award in 1992. Since then, Kansas has received five RII awards.

KTEC is a private/public partnership established by the State of Kansas to promote technology-based economic development. KTEC supports strategic research and development at its Centers of Excellence, provides hands-on business assistance at its incubators, makes equity investments in early-stage companies, and serves as a partner to companies that bring economic growth to Kansas. Learn more at: <http://www.ktec.com>

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## FROM THE DIRECTOR

Dear Colleagues:

The exciting news is that early this spring our office received funding for Phase V of the Kansas NSF EPSCoR (KNE) initiative. KNE will receive a total of \$9.25 million, \$6.75 million from the NSF, and an additional \$2.5 million provided by Kansas Technology Corporation Enterprise (KETC) over the next three years. The focus in Phase V will be a single major project in the globally vital area of ecological forecasting. Dr. Leonard Krishtalka at KU, leads the project, with Dr. Walter Dodds, at KSU as co-Principal Investigator. Congratulations and thanks go out to all who worked so diligently to get this proposal funded!

In addition to the major project, several RFPs for Planning and Innovation Grants over the next two years are planned. These will provide seed funding for developing other multidisciplinary, collaborative initiatives with potential for the acquisition of significant external funding within the next five to ten years. The first deadline is in September 2006.

Another major event this year, the statewide EPSCoR conference was held on April 25, 2006, in Lawrence, KS at the Adams Alumni Center. The focus of the conference this year was "Cross-cutting Research and Training." The conference consisted of two main sessions, a morning session on funding opportunities for cross-cutting training initiatives, and an afternoon session on strategies for mounting successful multidisciplinary research initiatives. The two sessions were separated by lunch and an inspiring talk by KU's new Provost Dr. Richard W. Lariviere.

As we forge ahead into Phase V, I want to congratulate the leaders of the three major Phase IV initiatives: Ecological Genomics led by Loretta Johnson and Mike Herman, Lipidomics led by Ruth Welti, and Bioinformatics led by Jim Beach. These three Centers are now all firmly established and show every promise for continued sustainability.



KRISTIN BOWMAN-JAMES,  
PROJECT DIRECTOR

## KANSANS ATTEND CYBER INFRASTRUCTURE WORKSHOP

Three Kansans were in attendance at the NSF Cyber Infrastructure Workshop in Nashville, TN, May 10-12, 2006, including: Nathan Beemer, Communications Systems Analyst in Telecommunications Services, Kansas State University; Joseph Evans, Distinguished Professor of Electrical Engineering and Computer Science, and Director of Research Information Technology, The University of Kansas; and Kamesh Namuduri, Assistant Professor of Electrical and Computer Engineering, Wichita State University.

Conference presentations focused on the state of the cyber infrastructure, applications and communities, and cyber infrastructure planning in EPSCoR states.

"Other states have many of the same problems that we have in Kansas," said Beemer, referring to difficulties in planning and funding improvements in the state cyber infrastructure to keep pace with changes in the national cyber infrastructure.

Participants had a chance to share information during two breakout sessions. "Attendance was useful from my point of view," Namuduri reported. "I had discussions with several NSF staff members as well as other EPSCoR state faculty. I will be following up on these contacts to start partnership activities."

Additional information about the workshop is available at:  
<http://ciworkshop.utsi.edu/>

## THOMAS N. TAYLOR NOMINATED TO NATIONAL SCIENCE BOARD

President George W. Bush has chosen a former Kansas NSF EPSCoR Project Director to help guide one of the country's most prestigious science organizations and lend scientific advice to Congress and the president.

Thomas N. Taylor, Kansas NSF EPSCoR Project Director from 2000 - 2004, has been nominated to the National Science Board of the National Science Foundation. The appointment is considered one of the most influential in science policy and research in the United States.

"I'm honored to be selected to help govern science policy," Taylor said. "As we move forward, we're living in a world that is increasingly dictated by science and technology."

Taylor noted that the president's new American Competitiveness Initiative means substantial increases in federal investments in science and technology research. Therefore, he said, it is an exciting time to be on the board with so many other distinguished professionals.

Taylor is the Roy A. Roberts Distinguished



Professor of Ecology and Evolutionary Biology at the University of Kansas.

The National Science Board is made up of 24 members appointed by the president and confirmed

by the Senate. Members serve six years. Taylor's term will expire on May 10, 2012. Members are selected for their preeminence in research, education or public service.

## GRANTS TO HELP PLAN PROPOSALS

Planning and Innovation Grants to help faculty in the development of large, collaborative multi-investigator, multi-disciplinary, research proposals to the NSF are now available through Kansas NSF EPSCoR. See the Request for Proposals at the KNE website.

THE KANSAS NSF EPSCoR FOCUS NEWSLETTER IS PUBLISHED BY KANSAS NSF EPSCoR, UNIVERSITY OF KANSAS, FOLEY HALL, 2021 CONSTANT AVENUE, LAWRENCE, KS 66047. FOR ADDITIONAL COPIES OF THIS NEWSLETTER, WRITE TO US AT THE ABOVE ADDRESS, CALL US AT 785/864-3096, OR E-MAIL US AT [NSFEPSCOR@KU.EDU](mailto:NSFEPSCOR@KU.EDU).  
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NEWSLETTER EDITOR: JANIE RUTHERFORD      NEWSLETTER DESIGN: THE DESIGN ELEMENT, INC./BONNIE HALL

# NSF EPSCoR STRATEGIES BRING SUCCESS TO KANSAS



DR. JAMES A. ROBERTS, KU VICE PROVOST FOR RESEARCH, WELCOMED PARTICIPANTS AT THE STATEWIDE EPSCoR CONFERENCE ON APRIL 25, 2006.



DR. SHERRY FARWELL, HEAD OF NSF EPSCoR, SPOKE HIGHLY OF KANSAS' SUCCESSSES IN HIS PRESENTATION AT THE CONFERENCE.

The 2006 Statewide EPSCoR Conference opened with a call to celebrate the growing success story of EPSCoR in Kansas. Speaking to more than 70 faculty, students, and university administrators gathered at the Adams Alumni Center in Lawrence, Dr. Sherry Farwell, head of the NSF EPSCoR Office, recounted the NSF EPSCoR track record in the state.

"When Kansas received its first NSF EPSCoR award in 1992, the state's share of NSF funding was just above 0.30 percent," Dr. Farwell said. "By 2005, the Kansas share of NSF funding increased to 0.68 percent."

One reason for the increase in research funding is a history of NSF EPSCoR Research Infrastructure Improvement (RII) awards to Kansas. Four large RII awards have enabled Kansas to build research capacity to competitive levels in priority areas. RII funds purchased equipment, funded collaborative research, and enhanced start-up packages for new faculty.

For example, in 2003 the Center for Environmentally Beneficial Catalysis received a \$17 million, five-year grant from the NSF after a decade of support from Kansas NSF EPSCoR.

"EPSCoR states get only 11 percent of all NSF Centers," Dr. Farwell said, "and two of the 10 centers in EPSCoR states are located in Kansas."

A second reason for the increased success of Kansas researchers is EPSCoR Co-funding, the joint support of proposals submitted by

EPSCoR researchers to NSF's regular grant programs. Since 2004, NSF EPSCoR co-funded 40 proposals from Kansas, contributing \$5.66 million to the \$10.54 million awarded.

The NSF EPSCoR Outreach Program is another mechanism available to researchers in EPSCoR jurisdictions. "NSF EPSCoR will pay for permanent program officers to visit your campus and explain NSF programs, priorities, and policies," said Karen Sandberg, Program Officer for the Kansas RII award. "You can invite a program officer to meet with a group of researchers and discuss your proposal ideas," Sandberg explained. "Just be sure to send a copy of your invitation to the NSF EPSCoR Office."

A new strategy to enhance research capability may soon be available to EPSCoR jurisdictions. The proposed Strength-Based Research Collaborative program, currently under discussion at NSF, would help develop research competitiveness to address scientific challenges of regional relevance and national importance. The proposed program would catalyze the formation of high-quality research collaborations and laboratories.

As EPSCoR jurisdictions become more competitive, Dr. Farwell reminded the audience of a statement by Peter Drucker: "The art of leadership is to align the system's strengths and thereby make the system's weaknesses irrelevant."

Dr. Farwell's presentation slides appear at: [www.nsfepscor.ku.edu](http://www.nsfepscor.ku.edu)

## RESEARCHERS ENCOURAGED TO COLLABORATE

"The circles that we work in are never adequate for what we need to do," observed Richard Lariviere, Provost at The University of Kansas, at the Kansas Statewide EPSCoR Conference luncheon. "Collaboration is the name of the game. For those of you who think you know the scope, I'm here to tell you it's greater than that. None of us have the capital or political clout to get done the science that needs to be done."



DR. BRUCE UMMINGER, SENIOR SCIENTIST (RETIRED) AT THE NSF OFFICE OF INTEGRATIVE ACTIVITIES

The National Science Foundation seems to be thinking along the same lines. According to Dr. Bruce Umminger, Senior Scientist (retired) at the NSF Office of Integrative Activities, the NSF is funding centers to expand the scope, scale, and duration of science, engineering and technology research at the frontiers of knowledge and at the interface of disciplines. Dr. Umminger described the characteristics of NSF centers to introduce the afternoon panel discussion on Strategies for Cross-Cutting Research Ventures.

"Centers incorporate global thinking about the research and education enterprise; have organizational connections and linkages within and between campuses, schools and other sectors...and require a concerted management effort..." Dr. Umminger said.

"Most centers fail because they are not well managed, not because they fail to do good science and education," Dr. Umminger warned. "A strategic plan, developed with input from all partners and significant participants, is a

*(continued on page 4)*



DR. BALU SUBRAMANIAM, DIRECTOR OF THE NSF CEBC AT KU



DR. PRASAD GOGINENI, DIRECTOR OF THE NEW NSF CENTER FOR REMOTE SENSING OF ICE SHEETS AT KU

# NSF PROMOTES NEW MODELS FOR RESEARCH AND TRAINING

An attentive audience at the Kansas Statewide EPSCoR Conference listened to Dr. Steven Bernasek, Off-site NSF Program Officer in Analytical and Surface Chemistry, as he described the Integrative Graduate and Education Research Traineeship (IGERT) program. The NSF initiative educates scientists and engineers for careers in research and education by establishing new models for graduate education. Many faculty in the audience would like to receive an NSF IGERT award to improve graduate education at Regents universities.

According to Dr. Steven Bernasek, the National Science Board's 2020Vision, issued December 28, 2005, will drive new opportunities for research and training for the next several years. The NSF will focus on three Strategic Priorities to achieve the Board's vision:

- ensuring the Nation maintains a position of eminence at the frontier of fundamental and transformative research;
- sustaining a world-class science and engineering workforce and fostering scientific literacy among all citizens; and
- building the Nation's basic research capacity through critical investments in infrastructure, including advanced instrumentation, facilities, cyberinfrastructure, and cutting-edge experimental capabilities.

“Successful IGERT proposals will have an interdisciplinary theme plus disciplinary



DR. STEVEN BERNASEK,  
OFF-SITE NSF PROGRAM  
OFFICER

depth,” Dr. Bernasek said. “The proposal will link a major, interdisciplinary research effort at the cutting edge of science with an innovative model for graduate education and strategies for broadening participation.” Other suggestions include: reading the IGERT Request for Proposals to understand the program's goals; developing a sound management plan for the project; and making sure the proposal addresses NSF's review criteria, especially those related to broader impacts. To learn more about successful IGERT proposals read the abstracts of funded proposals at the NSF web site: [www.nsf.gov](http://www.nsf.gov)

Dr. Bernasek's presentation slides appear on-line: [www.nsfepscor.ku.edu](http://www.nsfepscor.ku.edu)

## ECO-GEN SERIES CONTINUES

The *Genes in Ecology, Ecology in Genes Symposium* will be held November 3 - 5, 2006. The Symposium continues a series of events developed as part of an NSF EPSCoR major initiative grant.

More information is available at: [www.K-State.edu/ecogen](http://www.K-State.edu/ecogen)

# RESEARCHERS COLLABORATE

(continued from page 3)

necessary and vital first step to good management.”

Center proposals undergo rigorous review at the NSF. “To succeed, researchers need to understand NSF's mission and what NSF means by the term center,” Dr. Umminger explained. Centers require vision and leadership, strategic planning, administrative and education staffing, and mechanisms for broadening participation in the activities of the center.

The University of Kansas is home to two NSF Centers — the Center for Environmentally Beneficial Catalysis (CEBC) directed by Dr. Bala Subramaniam and the Center for Remote Sensing of Ice Sheets (CRISIS) directed by Dr. Prasad Gogineni.

“A successful center must be founded in basic science or engineering,” Dr. Subramaniam explained. “You must have a critical mass of interdisciplinary researchers. In Kansas, NSF EPSCoR helped nucleate interdisciplinary projects between chemists and engineers in catalysis.”

But administrative details are also important. “Get everything you need to make your center successful in writing from your administration,” Dr. Gogineni advised. “But if the excitement is there, you can solve the problems that arise.”

For more information about NSF Centers and strategies for preparing center proposals, see the conference presentation slides at: [www.nsfepscor.ku.edu](http://www.nsfepscor.ku.edu)

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