Welcome to the 22\textsuperscript{nd} National NSF EPSCoR Conference
Research Infrastructure Improvement

NSF EPSCoR Jurisdictions

- 1980: Arkansas, Maine, Montana, South Carolina, West Virginia
- 1985: Alabama, Kentucky, Nevada, North Dakota, Oklahoma, Puerto Rico, Vermont, Wyoming
- 1987: Idaho, Louisiana, Mississippi, South Dakota
- 1992: Kansas, Nebraska
- 2000: Alaska
- 2001: Hawaii, New Mexico
- 2002: U.S. Virgin Islands
- 2003: Delaware
- 2004: New Hampshire, Rhode Island, Tennessee
- 2009: Iowa, Utah
Research, Education and outreach in Nano and Biomaterials, Nanofabrication Biotechnology, and Optics and Sensors
Development of Nano and Biomaterials for structural, biomedical and pharmaceutical applications

Improved interface between fiber and matrix in composites using nanoclay

Nydea Wright-Bolden (PhD, 2011) characterizing iron oxide nanoparticles through X-ray diffraction

Glassy Polymeric Composite (central black materials) heart valve

TEM image of iron oxide nanoparticles for drug delivery applications
Fostering discovery, development, bioengineering and translational nanotherapeutic innovation at the interface of organismal, cellular and molecular biology and nanotechnology.

Bio-nano Connections

Developing molecular tools, multi-tiered organismal model systems and approaches to assessment of environmental impacts on living systems and the efficacy of nano-material applications \textit{in vivo}.
Optics and Sensors

- First demonstration of mid-IR lasing in Cr:ZnSe waveguide structures
- First Lasing in the Cr:ZnSe:As$_2$S$_3$: As$_2$Se$_3$: composite materials
- Development of new, faster, on-site methods for characterization of environmental toxins released at environmental disasters and Homeland security events.

Graduate Assistant Jonathan Williams at University of Alabama at Birmingham fabricated active semiconductor waveguide structures for tunable Mid-IR lasers

Sree Usha, a masters student at University of Alabama is working to identify secondary lines in the Mid-IR spectral range for organic compounds.
Science and Technology Open-house

- Inform Larger Community Research Generated
- K-12/Post-Secondary Teachers and Students
- Civic/Government Organizations
- Day Long Program
- Student Posters/Presentations
- Includes REU, RET, REH
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October 24 - 27, 2010, Coeur d’Alene, Idaho
Resilience and Vulnerability in a Rapidly Changing North: The Integration of Physical, Biological and Social Processes
Living on Earth I and II

National Conferences on Social-Ecological Systems Research
“Climigration” project

Establishing a human-rights framework for communities relocating due to climate change
Studying interactions between permafrost and ecosystems, ground ice formations, and construction methods for building on permafrost
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Arkansas EPSCoR ASSET Initiative Project

http://www.arepscor.org

Arkansas
Solar Cell Research that Exploit Plasmonics and Nanophotonics

XTEM Nanoroot

ZnO Core

nanocore nanoshell

Plasmonic structures
Transparent metal
p-GaN or p-InGaN
InGaN
n-GaN or n-InGaN
Electrode substrate
From Nanomaterials to Power Grid

Power Electronics

Grid Testing Facility
Plants make hundreds of thousands of unique phytochemicals
- to impact their environment
- to prevent disease or predation
- to promote health
ASSET Promotes STEM Education
Welcome to the 22\textsuperscript{nd} National NSF EPSCoR Conference
Improving Delaware’s Environment and Economy Through Research and Education
Expanding Research Capacity

Goal: Build a competitive and sustainable research capability in environmental sciences

Air Quality

Ecosystem Health

Environmental Monitoring

Environmental Restoration
Goal: Develop future scientists and technologists in increasing numbers and diversity to meet the challenges of the 21st century workforce and strengthen scientific literacy throughout the state.
Economic Development

Goal: Increase awareness and capability to pursue business opportunities.

Office of Economic Innovation and Partnerships enables

- Patents
- Business development
- SBIR awards
Communication and Dissemination

www.epscor.udel.edu
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Hawai’i

www.epscor.hawaii.edu
Cyberinfrastructure for Ecological Research

Tracking Native ‘Ōma‘o Movements and Seed Dispersal Using Real-time Radio Transmitters
Building Capacity for Research and Education Through a Climate-Ecosystem Observatory
Phenotypic and Genetic Responses of Native Hawaiian Plant and Animal Species to Environmental Change
Mānowai o Hanakahī
(The Channeled Streams of Hanakahī)

Engaging Underrepresented Middle School Minority Students in Culturally Sensitive Research Programs
Environmental Dynamics & Groundwater Modeling

Submarine Groundwater Discharge & Associated Nutrient Fluxes in Regions of Honokōhau Harbor and Kīholo Bay
Welcome to the 22nd National NSF EPSCoR Conference
www.uidaho.edu/epscor
McCall Outdoor Science School – MOSS

Increasing Scientific Literacy for 7th-12th graders and Idaho K-12 Teachers
Hydroclimatology Research

Mapping Evapotranspiration on Snake River Plain

Modeling complex hydrologic systems with focus on surface-groundwater connections, evapotranspiration, and plant-soil-water feedbacks
Collaborative Research on Ecological Change

CLIMATE
- Precipitation
- Temperature

FIRE
- Ecosystem Structure and Function

Geomorphic Response
- Debris Flows
- Erosion
- Sediment Supply

Ben Crosby, ISU
Colden Baxter, ISU
Jen Pierce, BSU
Elowyn Yager, UI
New Faculty Positions

One-third of Track 1 RII funding invested in 10 new tenure-track faculty positions in Idaho.
Welcome to the 22nd National NSF EPSCoR Conference
Latest News & Events...

Does crop irrigation cool surface temperatures?

Research Adventures in a Blog from Norway

Paula Smith, a KU graduate student in geography and mentor for the Haskell Environmental Studies Research (HERS) Institute, traveled to northern Norway last spring to conduct research for her

Kansas NSF EPSCoR
2021 Cenntav Ave.
University of Kansas
Lawrence, KS
66047-3729
785-864-3096

Special Announcements

September 30, 2011
CyberCommons for Ecological Informatics Symposium - Norman, OK

September 10, 2011
Girls Scouts - Explore the Konza Prairie - Manhattan, KS

Kansas http://www.nsfepscor.ku.edu/
Linkages between climate and energy science are being established to better address issues involving renewable energy and the influence of climate variability on agriculture.
EPSCoR scientists in Kansas and Oklahoma are developing a new cyber network to share ecological forecasting data much more quickly and easily.
Cyberconnectivity vastly improved in Kansas

The shared network that connects all Kansas institutions of higher education, KanREN (the Kansas Research and Education Network), has been upgraded from 2 to 10 Gbps, a 500% increase.
Several former Pathways students from Haskell Indian Nations University are pursuing graduate degrees in science and engineering.
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"Spin Doctors" Look to Revolutionize Information Storage and Electronic Devices
The Kentucky NSF EPSCoR is supporting a major initiative to create a Center for Advanced Materials (CAM). More than $5 million of state, federal (#0814194) and institutional support will be invested through 2013 to attract outstanding research faculty and students to Kentucky to create and study novel materials. (read more)

Graduate Student Spotlight: Oleksandr Korneta
(see more)

The Science of Small makes for a Big Event
Participating in the NanoDays event has become an annual trek for many of the researchers and students supported by EPSCoR, which is building research efforts in physics, chemistry, bioengineering and other scientific areas that make use of nanotechnology. (read more)

Novel Materials Workshop Treks to New Locale
The Center for Advanced Materials (CAM), an initiative of the KY NSF EPSCoR, is organizing an international workshop on novel materials to take place in Wuhan, China this summer. (read more)

Early Success for EPSCoR CAM Faculty
Dr. Ribhu Kaul, a faculty member in the University of Kentucky (UK) Physics Department, recently received a CAREER award from the National Science Foundation—the NSF’s most prestigious awards in support of junior faculty who exemplify the role of teacher-scholars through outstanding research, excellent education and the integration of education and research within the context of the mission of their organizations. (read more)

Current Success Stories

www.kynsfepscor.org

Kentucky
2nd Workshop on Novel Electronic Materials. KY NSF EPSCoR is providing support to develop a Center for Advanced Materials in the state as part of a comprehensive, multidisciplinary research program to synthesize and characterize novel materials.
Bioengineering Platforms

Faculty members from the Universities of Louisville and Kentucky are collaborating to develop a nationally recognized center focused on understanding cellular and molecular signaling processes with real-time spatial and temporal resolution.
Kentucky is developing a network of resources and tools for nanoscience researchers (kynanonet.org), including fabricating high resolution photomasks, access to commercial design and fabrication software, and statewide equipment/people databases.
A diverse group of researchers from institutions across Kentucky are developing a nationally competitive ecological genomics program to studying a number of scientific areas—from microbial communities and insects to plants, animals and people, there is an increasing need to analyze and understand genomic and ecological factors.
WHAT IS LOUISIANA EPSCoR?

As early as FY 1988-89, the Board was co-sponsoring research projects with the National Science Foundation (NSF) and supporting the development of Louisiana's scientific research and educational infrastructure under NSF's Experimental Program to Stimulate Competitive Research (EPSCoR). The Board's involvement in EPSCoR has grown over the years to include programs with NASA, the Department of Energy (DOE), the Department of Defense (DOD), the Environmental Protection Agency (EPA), and the National Institutes of Health (NIH).

EPSCoR is designed to build and expand the science and engineering research, education, and technology capabilities in states that have historically received lesser amounts of federal research and development (R&D) funding. EPSCoR's goal is to establish and strengthen collaborations among the State's R&D constituents in order to:

- Become more competitive in gaining national research and development support;
- Increase science and technology transfer activities with business and industry;
- Educate larger numbers of science and engineering undergraduate and graduate students, especially minorities.

To help accomplish these goals, Louisiana EPSCoR strives to:

- Identify research strengths within the State;
- Foster research competitiveness among faculty;
- Leverage State government R&D investments; and
- Change the State's research culture through promotion of multi-institutional collaborations.

Available EPSCoR Programs

http://web.laregents.org/la-epscor

Louisiana
LA EPSCoR has broken down boundaries between campuses.

LA EPSCoR is a proven catalyst for achieving increased statewide collaboration and national competitiveness.
To make transformative advances in materials science research and education through a sustained multidisciplinary and multi-institutional alliance of researchers.
Speaking of Science (SoS) Program

SoS is one of the many programs administered by Louisiana EPSCoR. The program provides faculty speakers to K-12 schools free of charge.

13,000+
Students reached in the last 5 years
Pilot Funding for New Research (Pfund)

Peer reviewed and competitive seed grants to:
• Explore new ideas
• Enhance research focus
• Keep pace with cutting-edge techniques
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Building capacity and competitiveness in Maine since 1980 through innovative programs in research and education.

www.umaine.edu/epscor
Maine’s Sustainability Solutions Initiative: innovation through sustainability science

- NSF EPSCoR Track1 RII project examining ecological, social, & economic issues in order to develop solutions for sustainability for Maine

- 12 Maine colleges & universities collaborating on research & education in sustainability science
Maine’s Sustainability Science approach:

- Public stakeholders help drive the research questions
- Nexus of social-ecological systems, knowledge to action, and organizational innovation
- Statewide landscape change model looks at intersection of urbanization, forest ecosystem management, and climate/energy
Maine’s sustainability research portfolio:

- Tidal power (alternative energy)
- Tribal Community Brown Ash Project
- Extreme climate events (rising sea levels/storm water)
- Lake, river & watershed issues (pollution, vernal pools, dams)
- And more…
Maine’s STEM Education & Workforce Development:

- Supporting and training over 110 faculty and 220 student research interns each year
- Special STEM programs for Native Americans, women & girls, and youth with disabilities
- Statewide engagement through the Maine STEM Collaborative
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Welcome
The Mississippi EPSCoR program identifies, develops, and uses academic science and technology resources to increase Mississippi’s competitiveness in the global economy. It provides research infrastructure growth through the state’s colleges and universities, their science and engineering faculty, and their students. The Mississippi EPSCoR program is enhancing valuable resources that can influence Mississippi’s research capacity and the state’s economic development.

Increasing Mississippi’s scientific and technological research competitiveness is critical. The EPSCoR program utilizes the science and technology resources at Mississippi State University, the University of Mississippi, and other Mississippi institutions to ensure that Mississippi’s research capacity is competitive. The mission is to enhance the quality of the state’s science and technology workforce, to ensure that Mississippi’s institutions are able to attract high-quality graduate students, and to ensure that Mississippi’s institutions are able to attract high-quality scientific and technological resources.

Mississippi EPSCoR

MSEPSCoR News
- EPSCoR Research Updates
- Updates on Mississippi’s Education Programs
- Updates on Mississippi’s Teacher Education Programs
- Updates on Mississippi’s Science and Technology Education Programs

2011 Mississippi EPSCoR Fall Forum
University of Mississippi
September 20, 2011
A draft agenda can be found [here](http://www.msepscor.org/)
Modeling and Simulation of Complex Systems

Collaborative Research in Computational Chemistry, Computational Biology, and Biological Systems Simulation
Ward Steward Middle School STEM Outreach

Engaging students in scientific investigation at an early age.
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Research Infrastructure Improvement

Since 2001 Montana NSF EPSCoR has supported:

- 87 New Faculty Hires
- 258 Graduate Students
- Over 1340 Undergraduate Students
Dedicated to increasing the number of Native students pursuing advanced degrees in the sciences.
Tribal College Partnerships

Involving tribal college faculty and Native students in research projects throughout the state.
2011-16 RII Project - A statewide infrastructure for research collaboration and cooperation
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22nd National NSF EPSCoR Conference

October 24 - 27, 2010, Coeur d’Alene, Idaho
Nebraska EPSCoR

Advancing Nebraska Through Transformative Research and Workforce Development

Welcome to Nebraska EPSCoR/IDeA

The mission of Nebraska’s Experimental Program to Stimulate Competitive Research (EPSCoR) and Institutional Development Award (IDeA) is to build the state’s research capacity and competitiveness, invest in workforce development, and foster public-private partnerships in science, technology, engineering and mathematics (the STEM fields), as well as biomedical research.

We harness talent at the state’s universities and colleges to compete for merit-based federal funding that supports research infrastructure and capacity building projects. We contribute to the state’s workforce development through educational and research opportunities for K-15 students, graduate students and junior faculty, and spur economic development through partnerships with private industry.

EPSCoR, a National Science Foundation program, was created by Congress in 1995 to strengthen STEM fields’ research and education infrastructure in states that receive a disproportionately low amount of federal research dollars. IDeA is a similar program established by the National Institutes of Health in 1991 for biomedical fields.

Since becoming an EPSCoR/IDeA state in 1991, Nebraska has received more than $251 million from federal EPSCoR/IDeA programs.

http://epscor.unl.edu
Nanohybrid Materials Research

Nebraska scientists explore and develop next-generation nanosensors.
Nebraska scientists create and explore nanomaterials to improve energy efficiency in electronics, and investigate nanocatalysts for energy applications.
Nebraska scientists conduct fundamental research on algae in support of algal biofuels.
Young Nebraska Scientists Program

We nurture the pipeline of future scientists by offering high school research internships and summer camps for middle and high school students.
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New Hampshire

http://www.epscor.unh.edu
Partnerships in Research and Education

Interactions Among Climate, Land Use, Ecosystem Services and Society

- Integrated terrestrial and aquatic sensor networks
- Integrated climate, hydrological and ecosystem models
- Aircraft remote sensing platform
How will changes in climate, climate variability, and biogeochemistry affect forest ecosystems?

How do upstream uses impact downstream ecosystems and water uses?

How do perceptions about environmental challenges vary?

Forest canopy, mid-summer
Hubbard Brook
Experimental Forest

New Hampshire
Broadening Community Participation in STEM

- What does inclusive excellence mean for campuses and communities?
- Focus on communities that are under-served and under-resourced
Tech Camp’s “Engineeristas”

- A one week camp for girls in grades 6 & 7 offered by the UNH College of Engineering and Physical Science

- Scholarships paid by NH EPSCoR

An Engineerista investigates slime
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New Mexico EPSCoR
Climate Change Impacts on New Mexico’s Mountain Sources of Water

www.nmepscor.org
Through improvement to research infrastructure, NM EPSCoR participants have filled “holes” in climate observation networks (including installation of meteorological stations), generated models for researchers and policy-makers, and collected data on groundwater upwelling and mountain runoff interactions with streams and groundwater.
Over the summer, students and faculty conducted research for annual Undergraduate Research Opportunity Program (UROP), and conducted a successful test deployment of Distributed Temperature Sensing system.
The EPSCoR-funded exhibit at the New Mexico Museum of Natural History and Science opened with an evening event on May 20, 2011, and a Climate Change Expo for the public on May 21, 2011.
Using Cyberinfrastructure for Rural Economic Development

New Mexico EPSCoR has partnered with the Global Center for Cultural Entrepreneurship (GCCE) to bring Fast Forward New Mexico’s free digital literacy training program to three New Mexico communities: Silver City, Crownpoint, and Española.
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State Board of Higher Education Strategic Plan Priorities
• Agriculture
• Health Care
• Energy
• Life Sciences
• Advanced Technology

State Dept. of Commerce Target Industries
• Advanced manufacturing
• Energy
• Value-added agriculture
• Technology-based business
MISSION

• Increase North Dakota research capabilities in sustainable energy, chemicals, and advanced materials

• Develop clean technologies to improve economic development in ND

• Produce graduates qualified to work in emerging clean technology industries
Nurturing American Tribal Undergraduate Research and Education (NATURE)

ND Universities and Tribal Colleges

- Fort Berthold Community College, New Town
- Turtle Mountain Community College, Belcourt
- Cankdeska Cikana Community College (Little Hoop), Fort Totten
- United Tribes Technical College, Bismarck
- Sitting Bull College, Fort Yates
State of ND provided cash to supplement NSF $$ each biennium since 1986; FY12–13 appropriation: $7M
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http://www.nevada.edu/epscor/nsf/cyberc2/
Climate Change Research

Nevada Monitoring System to Assess Climate Variability and Change
Providing access to real-time and archived environmental data for scientists, land managers, educators, and students.

Nevada Climate Change Portal
www.sensors.nevada.edu
Advancing science through wireless learning laboratories for 9th – 12th graders.
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October 24 - 27, 2010, Coeur d’Alene, Idaho
Promoting Innovative Research

Oklahoma 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.

SEE MORE
About EPSCoR BioFuels Research

Latest News

Online Cellulosic Bioenergy Curriculum Materials and Videos for Teachers
Tuesday, June 21 2011
Free bioenergy curriculum materials and videos for teachers are now available online via the NCCSI site at http://biofuels.nrcs.usda.gov/plant/energy/curriculum/index enhancing energy education.
Read More >

Meet the OK EPSCoR Researcher-of-the-Week:
Dr. Laura Bartley
Sunday, June 19, 2011
Dr. Laura Bartley, professor of botany and microbiology at the University of Oklahoma.
Read More >

Spring 2011 Oklahoma EPSCoR Newsletter
Tuesday, June 14, 2011
The spring 2011 Oklahoma EPSCoR newsletter is now available. Click here to access the file.
Print copies may be requested by emailing DNHill@okstate.edu.
Read More >
BUILDING OKLAHOMA’S LEADERSHIP ROLE IN CELLULOSIC BIOENERGY

Discovering molecular mechanisms & tools for biomass development and its effective conversion to liquid fuels through genomics, functional genomics & genetic transformation approaches
Developing new and improving existing microbial conversion and catalytic/thermo-chemical conversion processes to transform cellulosic biomass to liquid fuels
Women in Science Conference

Inspiring 6-12th grade girls to pursue STEM careers
This discovery-based mobile museum allows fifth-grade students in rural schools to experience science, while engaging in numerous activities throughout the 40-foot sensory- and science-filled vehicle.
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About IFN

The Institute for Functional Nanomaterials is a research center in the field of functional nanomaterials. It is managed by the Resource Center for Science and Engineering and has active participants from four campuses of the University of Puerto Rico (UPR).

Puerto Rico
The PR EPSCoR/IFN Takes Nanotechnology to the Community: NanoDays to One of the 14 Largest Shopping Mall in the Nation
POSTDOCTORAL MENTORING PROGRAM

- The plan was designed using the National Postdoctoral Association Model and introduced in the PR EPSCoR Annual Meeting
- All IFN Postdoctoral and graduate fellows will undergo a rigorous mentoring experience

Postdoctoral Fellows, graduate students and research mentors participating in the Career Pathways Workshop
PR EPSCoR Education and Outreach Program (EOP)

The EOP brings the results of IFN research into the classroom and integrate nanoscience concepts, techniques, and skills in the K-16+ continuum.
Nanoribbon studies at an IFN lab reveal clue to perfect 1D semiconductor

Semiconducting quantum heterostructures have potential applications for light emitting devices and lasers emitting at high energies. The IFN laboratory of Dr. Carlos Marin and his students have performed calculations that indicate that nanoribbons of antimony sulfide ($Sb_2S_3$) and antimony selenide ($Sb_2Se_3$) can make a perfect sub-10 nm semiconducting heterostructure.

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Metcalf Institute partners with EPSCoR to host First Annual Science Communication Workshop

Metcalf &

Rhode Island NSF EPSCoR
Experimental Program to Stimulate Competitive Research

> upcoming events

- **Monday, October 24**
  - NSF EPSCoR National Conference
  - 3:00pm Salt Marsh Ecology

- **Tuesday, October 25**
  - NSF EPSCoR National Conference
  - 7:30pm Honors Colloquium-Robotics

- **Wednesday, October 26**
  - NSF EPSCoR National Conference
  - Visiting Illustrator Lecture: Barron Storey

- **Thursday, October 27**
  - NSF EPSCoR National Conference

> our partners

- University of Rhode Island
- Brown University
- Bryant University
- Community College of Rhode Island
- Providence College
- Rhode Island College
- Rhode Island School of Design
- Salve Regina University
- Slater Technology Fund
- Roger Williams University

> connect

- facebook
- twitter
- linkedin
- mailing lists
- event calendar
- our wiki

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Research on the Effects of Climate Variability on Marine Life

Researching adaptation, food webs, pathogens and parasites, and more using core research facilities in marine life science, genomics, and proteomics with novel scientific data visualization techniques and cyberinfrastructure capacity.
Summer Undergraduate Research Fellowships (SURF)

Providing research training in the lab and field, career development activities, and poster presentation experience for undergraduates around the state.
Making Science Visible & Accessible

Creating collaborative environments for scientists, artists, and designers. Developing techniques to better visualize complex data sets and to make research more accessible to the broader public.
Hands on Science for Middle and High School Students

Getting young people excited about science. Working with underrepresented and first-generation students to expose them to research and the college experience.
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South Carolina

www.SCEPSCoRIDEA.org
RII Track-1 is focused on the development of layer-by-layer deposition of biological material with the purpose of engineering functional tissues and organs. Shown here: plastic prototype demonstrating printing resolution.
The RII Track-2 is designed to establish regional access to HPC facilities and expertise. The Palmetto cluster is a 95 TeraFlop system at Clemson University and is currently ranked 89 in the top 500 HPC resources.
The RII Track-1 offers seed grants to support exploratory research in fields related to biofabrication. Shown here: physiological hypoxia drives adipose derived stem cell differentiation - Dr. Jay Blanchette, USC
An RII Track -1 outreach effort is the development of videos for use by K-12 teachers in the classroom. Find these at: Youtube.com/OrganBiofabrication
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Dakota Seeds grants provide funding to assist with internship wages. The grants cover up to one-half of a position’s wages. Of the Dakota Seeds funded participants who have graduated, 35% have returned to the business they interned with for full-time employment.
The second annual SD EPSCoR Math Camp on the Pine Ridge reservation included discussion of mathematics in Lakota culture. Lakota elders discussed the mathematics of drum songs and the mathematics of beading to the fifty-five primarily middle-school participants.
A team of SD EPSCoR scientists have developed a suite of complimentary energy conversion processes that enable rapid and efficient transformation of sunlight into electricity or hydrogen fuel using a variety of nanostructured photocatalyst materials.
The “Preparing For Life After Graduate School” workshop is a 2-day career development workshop designed to teach graduate students and postdoctoral scholars about career options and how to prepare for them.
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TENNESSEE

www.tnepscor.com
**Vision:** To advance the capacity of science, technology, engineering and math (STEM) research at all Tennessee academic institutions furthering their contribution to state economic priorities and leading to solutions to problems of national significance

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**Strategic Research Thrusts**

- Advanced Solar Conversion
- Energy Storage Devices
- Nanomaterials for Enhancing Energy Efficiency

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**Increased Prosperity for Tennessee**

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**Idaho**
TN-SCORE Participants
TN-SCORE Research Themes

- Nanostructured Thin Si Films
- Novel Organic Semiconductors
- Novel Biohybrid Devices
- Single Nanoparticle Spectroscopy
- Redox Flow Batteries
- Fuel Cell Materials
- Electro-catalysis
- Lithium Batteries
- Nanomaterials Synthesis
- Nanocrystal Sensitized Solar Cells
- EBIC Analysis of Solar Cells
- Nano-Based Carbon Electron Emitters
- Novel Biohybrid Devices
TN-SCORE Student Participation

Over 90 students involved in research activities in 2010-2011

REU field trip to Oak Ridge National Lab

41 student posters presented at the first TN-SCORE Annual Conference
Welcome to the 22nd National NSF EPSCoR Conference
Welcome to Vermont EPSCoR

The Experimental Program to Stimulate Competitive Research (EPSCoR) is a program designed to fulfill the National Science Foundation's (NSF) mandate to promote scientific progress nationwide. The EPSCoR program is directed at those jurisdictions that have historically received lesser amounts of NSF Research and Development (R&D) funding. Twenty-seven states, the Commonwealth of Puerto Rico and the U.S. Virgin Islands are currently eligible to participate. Through this program, NSF establishes partnerships with government, higher education and industry that are designed to effect lasting improvements in a state's or region's research infrastructure, R&D capacity and hence, its national R&D competitiveness.

VT EPSCoR: Research on Adaptation to Climate Change

Vermont EPSCoR News

- 2011-10-12 - New season of Emerging Science begins Oct 26 on VPT
- 2011-10-12 - Judith Van Houten briefs U.S. Senate Commerce, Science...
- 2011-10-11 - WAMC Radio RACC Announcement / Interviews
- 2011-10-07 - UVM-VEPSCoR RACC Front Porch Report

www.uvm.edu/EPSCoR
RII Track 1: Research on Adaptation to Climate Change in the Lake Champlain Basin: New Understanding through Complex Systems Modeling

Understanding the effects of changing climate and land use on the Lake Champlain Basin through the creation of two centers, the Center for Research on Adaptation to Climate Change (RACC) and the Center for Workforce Development and Diversity (CWDD).
The CWDD works to inspire students to enter STEM careers and to increase the diversity of people, institutions, and disciplines engaged in STEM.

Integration of students into RACC Research from middle school teachers through undergraduate level; VT Technology Council Internship Program; Scholarships for first generation STEM majors, Abenaki Students, Governor’s Institutes of Vermont (GIV) rural poor and girls; Veterans, disabled students research opportunities

Fred the Fiber Horse and Claude Demarais pull fiber in East Burke VT. Connect NECC to Middle & Last Mile in Vermont

October 24-27, 2010, Coeur d’Alene, Idaho
RII - C2: Improving Connectivity between the University of Vermont & the Vermont State Colleges (VSC) for STEM Research and Education

Connecting 29 VSC locations & the Community College of VT (CCV) to UVM Internet2 connection
From 300 megabytes per second to 10 gigabytes per second – 33x faster
Welcome to the
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Integrated Caribbean Coastal Ecosystems (ICCE) - is an island ecosystem research approach, facilitating trans-disciplinary studies of terrestrial, coastal & oceanic systems as well as the related social & economic impacts on communities.
VI-EPSCoR’s Celebrity Scientists

Celebrity Scientists interact with, and inspire and challenge Virgin Islands students to pursue careers in science and technology.
From the Sea Floor to the Senate Floor

VI-EPSCoR’s support for Research, Outreach, Education and Resource Management leads to policy changes.

US Virgin Islands Lionfish Response Management Plan 2009

Bill No. 29–0103
29th Legislature of the VI:
…… to create the Virgin Islands Lionfish Management Initiative

Managers and Stakeholders

Student Interest and Skills Development
Beakthrough discoveries in the existence and distribution of mesophotic (deep) coral reefs have significant implications for coral reef resilience and recovery.
Bionanotechnology for Public Security and Environmental Safety
Increasing discovery and innovation through computational research and collaboration
Increasing STEM graduates and workforce diversity
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Wyoming EPSCoR

SUMMER RESEARCH APPRENTICE PROGRAM

Wyoming's Experimental Program to Stimulate Competitive Research (EPSCoR)

EPSCoR is a federal and state matching grant program which enables Wyoming to continue to be nationally competitive in science and technology. EPSCoR funding and state match appropriations are utilized to build science and engineering in higher education and a technology-based economy for the future. EPSCoR has helped to move the State of Wyoming along the path of research and excellence by supporting the State's research endeavors.

The goals of Wyoming EPSCoR are:
- to improve the research accomplishments of targeted faculty making them capable of competing successfully for Federal research dollars,
- to strengthen departmental and multidisciplinary research groups,
- to introduce long-term improvements to the State's science and engineering infrastructure.

Contact Information
Wyoming EPSCoR
epscoryw@uwyo.edu

Campus Location:
422 Wyoming Hall
(307) 766-2033
Fax: (307) 766-2061

Mailing Address:
Dept 3622, 1000 E University Ave
Laramie, WY 82071-2000

Monday – Friday
8:00am – 5:00pm
7:30am – 4:30pm summer

www.uwyo.edu/epscor
Advancing Student Learning by Hands-on Research: Water samples are gathered for analysis of dissolved organic carbon content in a mountain stream near Laramie, Wyoming.
Core Research Facilities in Wyoming

Training the Next Generation of Scientists in Cutting Edge Technology: Extraction of water from plant tissues for isotopic analysis at the Stable Isotope Facility (SIF).
NCAR-Wyoming Supercomputing Center (NWSC): NSF visitors at the construction site of a 1.2 petaflop supercomputer in Cheyenne, nearing completion in 2012, with allocation for EPSCoR jurisdictions.
Ecosystem Research in Wyoming

Understanding Nitrogen and Water Cycles in a Mountain Ecosystem: Sampling during a nitrogen isotope addition to Fish Creek, Wilson, Wyoming.