Nevada System of Higher Education Sponsored Programs

NSF EPSCoR

NEW FACULTY HIRE AND STUDENT SPOTLIGHT



Dilek Uz is a research assistant professor at the Economics Department of the University of Nevada, Reno. She is an applied microeconomist who specializes in the economics of renewable energy resources, particularly solar energy. Her area of interests include the interconnection of economics, politics, and the regulatory

landscape of distributed generation in the United States as well as how the storage technology and using state of the art machine learning methods for solar forecasting can affect the economics of solar. Dilek graduated with a PhD from UC Berkeley in the field of Environmental and Resource Economics in May 2016.

"The addition of Dr. Uz's expertise in economics has greatly increased our ability to assess economic impacts of solar energy."

--Dr. Gayle Dana, Nevada State EPSCoR Director



Brian Fogarty is a graduate student at the Department of Economics at the University of Nevada, Reno where he also serves as a research assistant. Currently, together with Prof. Thomas Harris and Prof. Dilek Uz, he has been working on research projects regarding distributed energy generation and renewable energy policies

across the United States. Brian holds an undergraduate degree in Economics with a minor in Math.

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NEXUS RESEARCH DEVELOPS SOLAR POWERED WATER TREATMENT TECHNOLOGY

Solar power plants need water, but where the sun shines the most in the U.S., water can be a scarce resource. The water required for cooling, or to wash mirrors and panels, can be hard to come by in certain regions of Nevada and thereby pose problems for the long-term sustainability of solar power in the State.



For this reason, NEXUS scientists have investigated the use of impaired waters and other sources of water that ordinarily wouldn't be used for potable purposes in solar

energy production. But processing or "cleaning" such water requires energy. Consequently, NEXUS researchers have created an ingenious technology that supports both solar energy and water treatment: This technology uses solar energy to power water treatment and the treated water for cooling and cleaning.

"This technology has the potential to make solar energy a sustainable option in arid, remote locations by utilizing on-site resources, non-potable water and free heat, to meet the clean water needs of the facility," says NEXUS researcher Dr. Sage Hiibel at the University of Nevada, Reno.

HIGHLIGHT NASA EPSCoR COOPERATIVE AGREEMENT NOTICE

Building Capacity in Interdisciplinary Snow Sciences for a Changing World

Project science lead, Dr. Daniel Obrist (Desert Research Institute)

The team has developed new techniques for in situ characterization of snowpackphysical, chemical, and biological processes, including the following: development and installation of new aerosol inlets at a snow site to measure a full aerosol meteorology; initial development and testing of two optical snow probes and a penetrating snow probe measuring light flux spectrum; a new height enclosure with a metallic surface for exposition of snowpack to dust and combustion aerosols; new laboratory techniques to examine minerals impacted by snow algae using synchrotron techniques; and development of



algae growth experiments to investigate cultures of the species C. brevispina.

New Snow Water Equivalent (SWE) sensor deployed and tested as part of this study. The sensor allows continuous measurements of overlying snowpack to determine SWE. Graduate student, Ben Trustman, performs a maintenance check on the SWE sensor he developed and installed on Mt. Washington in east, central NV.

STEM INITIATIVES

ACCOMPLISHMENTS

NASA EPSCoR Research Infrastructure Development

During the four years of this award, two significant seed projects, eleven workshops and ten travel awards were made to faculty across institutions within the Nevada System of Education.

Over 300 participants from faculty, NASA collaborators, other partners, industry and 103 students contributed to these projects from 2012-2016.

NSF EPSCoR Nexus Research Infrastructure Improvement

Over 178 participants from faculty, post docs, graduate students, undergraduate students and administrators are currently contributing to this project from 2015-present.

BUILDING THE STEM WORKFORCE IN NEVADA



The Nevada STEM Mentor Network provides access to Nevada's finest mentors and premier research projects with an extensive searchable database of faculty research mentors together with access to research opportunities and partnerships in STEM via a single interactive, user-friendly website.

"Creating successful role models in STEM fields can have a tremendous impact on students," said John V. White, chancellor of the Nevada System of Higher Education. "Matching students with faculty mentors will increase student success, confidence, and

persistence in these important fields. The STEM Mentor Network is an outstanding statewide resource for students at all NSHE institutions."

stemmentor.epscorspo.nevada.edu

STUDENT ENGAGEMENT

Undergraduate Research Opportunity Program (UROP)

Over \$448,000 awarded in scholarships to 112 undergraduates for NEXUS from 2015-current.



Cilla Jose, UNLV, 2016-2017 UROP Scholarship Recipient

NASA Space Grant

Over \$177,000 awarded in scholarships, fellowships and internships for 22 Space Grant undergraduate and graduate students from 2015-current.

"The Nevada Space Grant was responsible for the cascade of events that led me to pursue a degree in STEM."

--Samantha Mayer, Nevada Space Grant Higher Education and Internship Recipient

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NEVADA'S EPSCOR PROJECT FUNDING

From 1993 - 2017



National Science Foundation

Current Projects 2013 - 2018 Past Projects 1993 - 2013

\$22,749,700 \$51,154,083



National Aeronautics and Space Administration

Current Projects 2013 - 2018 Past Projects 1993 - 2013

\$1,875,000 \$8,700,000



Department of Energy

Past Projects 2000-2010

\$4,150,000



Department of Defense

Past Projects 2002-2011

\$4,177,659

Return on Investment From EPSCoR

\$174,912,103

Total of follow on funding includes completed projects since inception and only prior year reporting on current projects.

