

UNLV INNOVATION

The Research Magazine of the University of Nevada, Las Vegas



Research That Helps the Most Vulnerable

Ramona Denby-Brinson
Studies Ways to Help
Kids in Need and
Their Families

From Breakthrough to Business

Faculty Discoveries
with Commercial
Potential

The Fellowship Factor

How Fellowships
Support Doctoral
Research



UNLV is taking a leading role in a multi-institution research project funded by the National Science Foundation to advance understanding of the connections among solar energy, water, and the environment in Nevada.

UNLV Leads \$20 Million Project on Solar Energy-Water Nexus

Research to Explore Solar Energy, Water, and Environmental Issues Related to Large-Scale Solar Installations on Arid Desert Lands

UNLV is taking a leading role in a \$20 million research project that will enhance solar energy technology and advance understanding of the connection between solar energy, water, and the environment in Nevada.

Over the course of the five-year grant, UNLV will receive \$7.4 million to lead the solar energy and water components of the research project. The rest of the funding will go to the University of Nevada, Reno, and the Desert Research Institute.

The project was funded by the National Science Foundation's Experimental Program

to Stimulate Competitive Research (EPSCoR) program, whose mission is to assist the NSF in strengthening research and education in science, technology, engineering, and mathematics throughout the United States.

The "Solar Energy-Water Environment Nexus" project will enhance understanding of the balance among water conservation, the environment, and solar energy by addressing a variety of issues related to large-scale solar installations in arid desert lands. The project will combine research on solar energy generation with the understanding of eco-hydrological impacts of solar installations to advance

the economic and eco-friendly viability of solar electricity generation.

"UNLV is pleased to be a part of this project," says UNLV President Neal Smailes. "We believe Nevada is an ideal location for advancing solar energy, and we are delighted to help develop clean energy technology that will address a variety of environmental concerns. UNLV is at the forefront of interdisciplinary research that can contribute to the economic development of our community and state. This grant demonstrates how competitive we have become in research and how committed we are to

R. MARSH STARKS

very important infrastructure that will make us even more competitive in the acquisition of research funding," Boehm says. "The project draws on many strengths already established in Southern Nevada and at UNLV, so we will be in an even better position for future research."

UNLV civil and environmental engineering professor Jacintha Batista, Boehm's co-PI on the grant and an expert in water research, will lead the portion of the project that focuses on how to conserve water used in solar energy generation.

"With this grant, Nevada has the potential to advance our understanding of the balance among water conservation, the environment, and solar energy," Batista says. "We call this the solar energy-water-environment nexus. This grant will also generate a qualified workforce for future solar energy development in Nevada, as it includes 18 Ph.D.-level assistantships, as well as research opportunities for undergraduate students in engineering and science."

UNLV faculty from three UNLV colleges will be involved, and the researchers hope to attract several industry collaborators to the project.

UNLV to Receive \$20.3 Million NIH Grant to Support Clinical and Bench-to-Bedside Research

UNLV has received a five-year, \$20.3 million grant from the National Institutes of Health (NIH) to lead a health research network of 13 universities across the Mountain West.

The Clinical Translational Research Infrastructure Network (CTR-IN) will expand the capacity of partner institutions across seven states to put clinical research into practice to address regional health concerns such as access to care, cancer, obesity, diabetes, and cardiovascular and infectious diseases. The University of Nevada School of Medicine will partner on the grant.

"This grant will be a game-changer for Nevada and the entire region," says program director Robert Langer, a physician and epidemiologist with more than 25 years of

educating our workforce, improving the economy of the state, and enhancing the quality of life for all Nevadans."

As a part of the project, the Nevada Environment, Water, and Solar Testing and Research Facility (NEWSTAR) will be established at a site outside Boulder City surrounded by large, commercial solar energy plants in the Eldorado Valley. The new facility will develop engineering/technological solutions to repel arid dust and minimize water usage while examining the desert ecosystem responses. It will then develop mitigation tactics to preserve the environment. Additional experiments will be conducted at other sites in Southern Nevada.

"Our students and faculty will benefit tremendously from this grant," says Thomas Pichota, interim vice president for research and economic development. "A grant of this size brings attention to the quality and competitiveness of our university, but, most importantly, it enables the campus to build its infrastructure and provide resources for research. It's a wonderful opportunity."

The award will increase the ability of Nevada's higher education institutions to conduct research on solar energy generation, its environmental impacts and associated water issues, and to develop new capabilities in cyberinfrastructure that will accelerate the high-speed connectivity within institutions for scientific capabilities. A primary goal will be to initiate collaboration with stakeholders and industry leaders to facilitate more research and development capabilities, technological enhancements, and promote innovation. It will also promote workforce development.

The Nevada EPSCoR office operated through the Nevada System of Higher Education is facilitating this award.

UNLV distinguished professor of mechanical engineering Robert Boehm, a veteran of solar energy research and co-principal investigator on the grant, will lead the portion of the project on improving solar energy technology.

"This grant will enable us to build some



Program Director Robert Langer: "This grant will be a game-changer for Nevada and the entire region."

related research experiences. Langer holds faculty appointments at UNLV's School of Allied Health Sciences and the University of Nevada School of Medicine.

"We will now have the means to address the unique health needs of people in the Mountain West, which covers one third of the U.S. and faces tremendous healthcare delivery challenges," Langer says. "While we've been successful in building basic science research, until now we've had a tough time building traction for research that can help everyday people. This grant will help us change that."

Partner institutions will share resources and expertise to centralize services for researchers. This will improve research capacity at the institutional level and increase the likelihood for future independent NIH-funded research studies. Services/resources will include:

- Pilot grants of one to two years per award for clinical and translational research.
- A virtual clinical translational science center hosted at UNLV and tailored to the needs of the 13 partner institutions.
- Mini-sabbaticals and visiting scholar awards to promote greater collaboration.
- Biostatistical support, mentorship, educational opportunities, and editorial and administrative support.
- Annual meetings focused on themes drawn from the health issues of the region.

Though most CTRIN universities have successful programs in basic science, they lack capacity in clinical, or bench-to-bed-