



STUDENT FOCUS

3RD QUARTER 2017

NSF EPSCoR

STUDENTS DALE KARAS AND RUSSELL PINNEGAR



Student researchers, Dale Karas, Ph.D and Russell Pinnegar, undergraduate student, University of Nevada, Las Vegas (UNLV), represented Nevada STEM, UNLV Engineering, and optical science technologies at **STEM on the Hill** in May, 2017.

They participated in a Congressional Visits program to inform Nevada legislators about the importance of current research trends and scientific technologies. Specifically, the student cohort raised awareness of Nevada's research strengths in energy-efficient technologies and nuclear science and engineering - many sensing and analysis techniques, in optics and phototronics research were highlighted, as well as the successful state-wide research collaborations such as the NSF EPSCoR Nevada Solar Energy-Water-Environment NEXUS program.

2017 SUMMER REX PROGRAM



The **Summer Research Experience (REX)** wrapped up a successful inaugural program in August 2017. Fourteen local, Las Vegas students spent six weeks working in laboratories under the mentorship of UNLV faculty in engineering, science, and social science.

This brand-new program was tailored for high school and community college students who are considering a career in STEM and who have no previous formal research experience. Gaining early research experience and balancing the need to earn money can be difficult for students, especially those at community colleges; thus, the need for REX!

"I did not intend on pursuing a PhD, but after working with the graduate students I am motivated to continue an even higher education."

Through the Solar Nexus NSF EPSCoR grant, students were supported with a \$1200 stipend and money for research supplies, which allowed them to engage with faculty mentors in their desired area of study. Students committed to 30 hours of research each week for six weeks in the summer. They were also required to attend various workshops to gain vital research skills, such as performing a literature review, developing scientific writing abilities, conducting ethical research, building public speaking abilities, and preparing research posters.

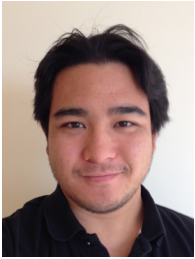
"The REX program, honestly changed my life. When I was a senior in high school, all I wanted was to be a doctor. I was going to major in biology and go to medical school. However, after my experience, I realized that I really like research. So, I changed my major to my true passion, geology. I hope I will be able to continue doing research in my major."

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SUMMER INTERNATIONAL RESEARCH EXCHANGES

The Solar Nexus NSF EPSCoR grant provided funding for three University of Nevada, Las Vegas students to participate in a summer graduate student international research exchange.

Dr. Chen's student Kaipo Kekaula and Dr. Boehm's student Danielle Nobles-Lookingbill worked on research projects at **Jiaotong University in Xi'an, China.**



Kaipo Kekaula had the opportunity to work in-person with co-authors, Dr. Quiwang Wang and Dr. Ting Ma. Along with Dr. Chen, they recently published a journal article in Applied Thermal Engineering, *Numerical Investigation of Condensation in Inclined Tube Air-cooled Condensers*. To further their ongoing collaborative research, the team worked on parameter optimization in air cooled condenser systems.

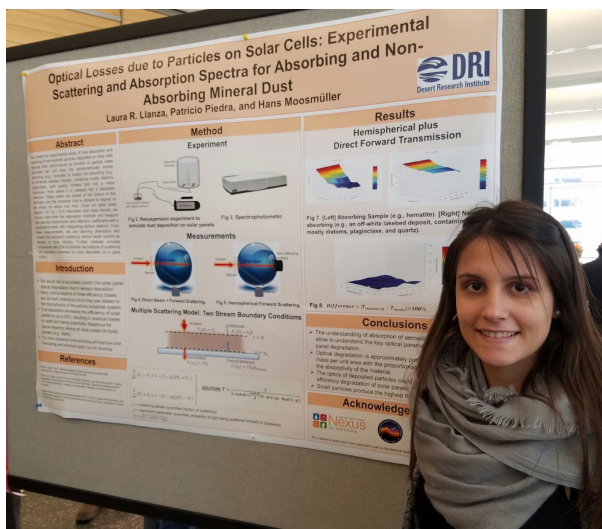


Danielle Nobles-Lookingbill worked with Xian Jiaotong on recuperator high temperature printed circuit mini channel heat exchanger research. She will continue research by designing a model to relate large and small printed circuit heat exchangers (PCHE) data and install PCHE's in parallel with a bypass loop in the supercritical brayton cycle for a solar dish concentrator. She attended the 12th International Green Energy Conference in China.

Dr. Batista's student John Gonzales worked on a research project at **Universidade de Sao Paulo, Pirassununga, Brazil.**



John Gonzales furthered his research on the application of electromagnetism for hexavalent chromium [Cr(VI)] reduction with Dr. Ernane Jose Xavier da Costa. This research would reduce treatment time and achieve higher treatment with a lower carbon source. The use of electromagnetism can pave the way to use this technology for large treat-ability sites. He is replicating experiments with contaminated groundwater from the NERT site in Henderson, Nevada.



UNDERGRADUATE ATTENDS NATIONAL CONFERENCE

Laura Llanza, Truckee Meadows Community College undergraduate, International student from Brazil, submitted her poster abstract for the 16th Electromagnetic and Light Scattering Conference ELS-XVI in Maryland. Her abstract was accepted and with a travel support award from the Solar Nexus NSF EPSCoR project she was able to attend. She is an undergraduate scholar in the Undergraduate Research Opportunity Program (UROP) mentored by graduate student, Patricio Piedra, and Dr. Hans Moosmüller, Desert Research Institute.

"My experience in this conference was amazing. I learned ways to do my experiment even better. Moreover, when I presented my poster, people understood me, they were interested in the experiment, and everybody was surprised that I was an undergraduate."



GRADUATE FELLOWS

NASA fellowship opportunities are focused on innovation through projects that will generate measurable results or advancements in STEM which will contribute to NASA’s current and future science and technology goals.

- Christine Albano, DRI & UNR - Mentor: Dr. Michael Dettinger
- Helen Beeson, UNR - Mentor: Dr. Scott McCoy
- Logan Combs, UNLV - Mentor: Dr. Arya Udry
- Michael Founds, DRI & UNR - Mentor: Dr. Ken McGwire
- Marco Giordano, DRI & UNR - Mentors: Dr. Eric Wilcox, Dr. Pat Arnott
- Zakai Olsen, UNLV - Mentor: Dr. Kwang Kim
- Rachel Rahib, UNLV - Mentor: Dr. Arya Udry
- Cody Reed, UNR - Mentor: Dr. Benjamin Sullivan
- Jeremy Smallwood, UNLV - Mentor: Dr. Rebecca Martin
- Joshua Walston, UNR - Mentor: Dr. Michael Kaplan



UNDERGRADUATE SCHOLARS

Students engaged in any STEM area team with a faculty mentor to do a NASA Space Grant project.

- Kimberly Gonzalez, UNLV - Mentor: Dr. William Culbreth
- Haydon Hill, UNR - Mentor: Dr. Sergey Varganov
- Alexi Kibbe, NSC - Mentor: Dr. Amber Howerton
- Mackenzie Kohler, UNR - Mentor: Dr. Adrian Harpold
- Jamie Poston, UNR - Mentor: Dr. David Feil-Seifer
- Shawn Roj, UNR - Mentor: Dr. Benjamin Hatchett
- Peter Sbraccia, UNLV - Mentor: Dr. Elisabeth Hausrath
- Sindi Torres, UNLV - Mentor: Dr. Michael Pravica

NSF EPSCoR AND NASA SPACE GRANT

UNDERGRADUATE ANGELA GARCIA

Angela Garcia, University of Nevada, Las Vegas, was involved in undergraduate research under the advisement of Dr. Elisabeth Hausrath and Dr. Zoë Harrold concerning topics related to geoscience, chemistry, and astromicrobiology. We wanted to better understand how microbial communities survive in and impact cold environments, and how their functions have led to changes in global fresh water availability, climate, and sea level.

“Over the past few years I have coauthored seven published conference abstracts and will be coauthor on two peer reviewed journal articles that are currently in process. I also had a 2017 summer Mars research internship with Jacobs Engineering Group hosted at NASA’s Johnson Space Center in Houston.” --Angela Garcia

