



New Mexico Partnerships

NEWSLETTER

March 2023



Announcements



NEWLY RELEASED!



2021-2022 Edition

SANDIA LABS' ACADEMIC PROGRAMS COLLABORATION REPORT

Discover R&D accomplishments brought about through Sandia's strategic university partnerships.

Special Edition: Sandia-NM Partnerships Collaboration Report now available

Your university's expertise and talent facilitated critical research on projects of national importance, and the [2021-2022 Sandia & NM Partnerships Collaboration Report flipbook](#) highlights some of those great contributions. You can also read more about programs that provide opportunities for faculty and students in the Faculty Loan Program for Joint Appointments and the Postdoctoral Program Office sections. This flipbook link will be added to the Sandia webpage on each school's website.



Did you know?

Laboratory Directed Research & Development (LDRD) student poster sessions held

New Mexico (NM) Partnerships held an in-person LDRD poster session for University of New Mexico (UNM) students on September 15, 2022, to present their work on the UNM campus. A virtual poster session was held for New Mexico Tech (NMT) and New Mexico State University (NMSU) students on September 20, 2022.

UNM and Sandia National Laboratories (Sandia) are now able to place Joint Appointments

The negotiation of the Individual Faculty Loan Agreement between UNM and Sandia has been completed. This allows Sandia to place joint appointments with UNM. A joint appointment is a strategic relationship between a Sandia staff member and a university or between a university faculty member and Sandia. This allows the individual to perform funded work for the non-employing institution. Joint appointments are intended to elevate the scientific impact and productivity of researchers at both institutions.

Minority Serving Institution Partnership Program (MSIPP) networking event held in September 2022

A team of Sandians visited New Mexico Tech (NMT) on September 7, 2022, as part of the MSIPP. This included Scott Klenke (MSIPP lead), Anne Grillet, Deborah Fowler, Sarah Stair, and Kim Haulenbeek. They met with Dr. Mike Hargather (NMT MSIPP coordinator) as well as several other professors in the mechanical engineering and materials science departments to discuss opportunities for collaboration. The team provided a briefing to 58 students on Sandia internships and the Nonlinear Mechanics and Dynamics (NOMAD) program and interacted with about twelve graduate students. The team attended a tour of Dr. Andrei Zagrai's lab where they learned about current research in structural health monitoring, nondestructive evaluation, and development of an in-situ method for optimizing additive manufacturing by modifying print parameters during the printing process.

NMT professor and students visit Sandia

Dr. Mike Hargather (NMT professor, mechanical engineering) and several NMT students involved in [Research Experiences for Undergraduates \(REU\)](#) toured Tech Area III at Sandia on July 15, 2022. They toured the [Blast Tube Facility](#) and the [Rocket Sled Track](#). Both facilities are part of Sandia's Validation and Qualification Sciences Experimental Complex. This experience gave the students an opportunity to learn about energetic materials.



UNM Engineering and Science Career Fair held September 14, 2022

Sandia participated in UNM's Engineering and Science Career Fair on September 14, 2022, at the UNM campus. Eight Sandia recruiters attended the event, including Theresa Cordova and Antoinette Cummings. They were able to connect with 133 potential candidates using the Yello talent acquisition platform.



Partnership Highlights

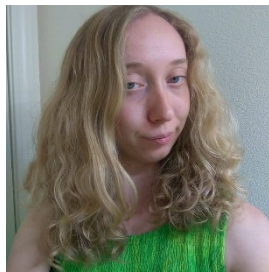
First Outbound Joint Appointment with NMSU

Megan Ivory with Photonic Microsystems Technology is Sandia's first Outbound Joint Appointee with NMSU. Megan is hosted by the Department of Electrical and Computer Engineering Department and plans to pursue projects in quantum education and workforce development, strengthening ties between NMSU and Sandia. Megan will also be working to reduce barriers to quantum education and careers by developing curriculum for high school, community college, and early undergraduate education.



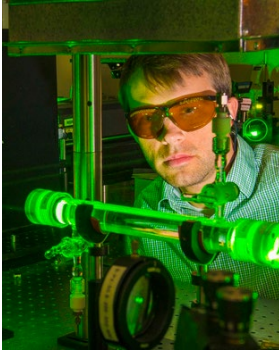
Spotlight on People

Student Spotlight



Eva Domschot, a former NMT student, worked with Michael Smith (All Source Analytics, Sandia) on the MalGen LDRD, which focused on improving the ability of machine learning-based malware detectors. One deficiency with this in this area, which the supplemental LDRD focused on, was the lack of data labeled with behaviors. Current natural language processing techniques from machine learning are unable to perform well in the malware domain due to verbiage varieties across companies and malware families. To improve these results, their research centered on domain-specific methods to isolate salient verbiage that relate to the behaviors expressed in the threat reports. Their results have significantly improved the recall of identifying behaviors and will ultimately increase the amount of malware labeled with behaviors to improve machine learning-based malware detection. Eva recently graduated from NMT and accepted a position at Sandia in the Computer System Security Analysis Research and Development department.

Sandia Staff Spotlight



Daniel Guildenbecher is a Distinguished Member of the Technical Staff at Sandia, an Associate Fellow of the American Institute of Aeronautics and Astronautics, and a Member of the Optical Society of America. Dr. Guildenbecher received his PhD in Mechanical Engineering from Purdue University in 2009. He recently worked on a two-year LDRD that investigated hypersonic aero-optics with Professor Andreas Gross. PhD candidate Pedro Castillo (from NMSU), and contributions from Georgia Tech and the University of Notre Dame (ND). This LDRD resulted in a significant advancement toward high-fidelity and computationally tractable design tools for next-generation hypersonic vehicles. From this LDRD work, researchers from NMSU and ND wrote an Office of Naval Research (ONR) proposal on the joint experimental/numerical studies of aero-optical and aero-thermal effects of supersonic and hypersonic mixing layers. Their focus is to develop useful models to predict both aero-optical and aero-thermal effects, present over the actively cooled windows on high-speed vehicles. The proposal was submitted to ONR and was awarded for the fiscal years from 2022-2025.



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