SANDIA LABNEWS
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Hydrogen materials service advanced by new multilab consortium

Sandia, PNNL lead group studying metals and polymers in hydrogen environments

TESTING, TESTING — Principal high-pressure mechanical test systems designer and operator Brendan Davis prepares a system for testing hydrogen gas at Sandia's hydrogen effects laboratory. **Photo by Dino Vournas**

By ***Melissae Fellet***

Researchers at Sandia and Pacific Northwest national laboratories are leading a collaborative effort to investigate how hydrogen affects materials such as plastics, rubber, steel and aluminum.

The Hydrogen Materials Compatibility Consortium, or H-Mat, will focus on how hydrogen affects polymers and metals used in diverse sectors, including fuel cell transportation and hydrogen infrastructure. Researchers at Oak Ridge, Savannah River and Argonne national laboratories, as well as in industry and academia, are also part of the collaboration. The effort supports DOE's H2@Scale initiative, which aims to advance hydrogen use for energy production and storage, as well as industrial processes.

"The advanced computational capabilities, unique experimental facilities and scientific expertise at the national laboratories will provide enhanced understanding of the interactions of hydrogen gas with polymers and metals," said Chris San Marchi, Sandia materials scientist and co-lead for the consortium. "The goal is to improve materials reliability in hydrogen infrastructure for large-scale use of hydrogen as an energy carrier."

Today, the United States produces about 10 million metric tons of hydrogen every year, primarily for petroleum refining and ammonia production. Hydrogen demand is growing in transportation, where thousands of fuel cells are used in forklifts and vehicles. Hydrogen applications are also emerging through innovation in additional sectors, such as iron refining and energy storage.

Valves, fuel tanks, storage vessels and other metal structures that contain hydrogen are currently manufactured from several expensive alloys of aluminum and steel. In such materials, hydrogen interacts with their atomic make-up in ways that can introduce damage.

Components are routinely inspected and taken out of service after a set number of years so that this damage does not result in unexpected failures.

Since the mechanisms of interactions between hydrogen and materials at nano and microscales are not well understood, the lifetimes of various components are challenging to estimate. Even less is known about how hydrogen affects the structure and mechanical properties of polymers such as plastic pipes and rubber seals.

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Sandia Labs manufacturing spinoff steps into national market

Entrepreneur assistance program that helped launch company turns 25

By ***Troy Rummler***

Joe Beck and Eric Branson's business grew so fast it took them a year just to find time to put up a sign.

"It's since gone way beyond our expectations," said Beck, president and CEO of Albuquerque-based Advanced Manufactured Power Solutions, or AMPS. The custom manufacturing company builds battery packs, cables and other small components of larger machines.

Sandia's Entrepreneurial Separation to Transfer Technology program helped Beck and Branson, both former employees, launch their small business. The 3-year-old company reached a significant growth milestone recently with its first out-of-state contract, a project for NASA's Jet Propulsion Laboratory in Pasadena, California.

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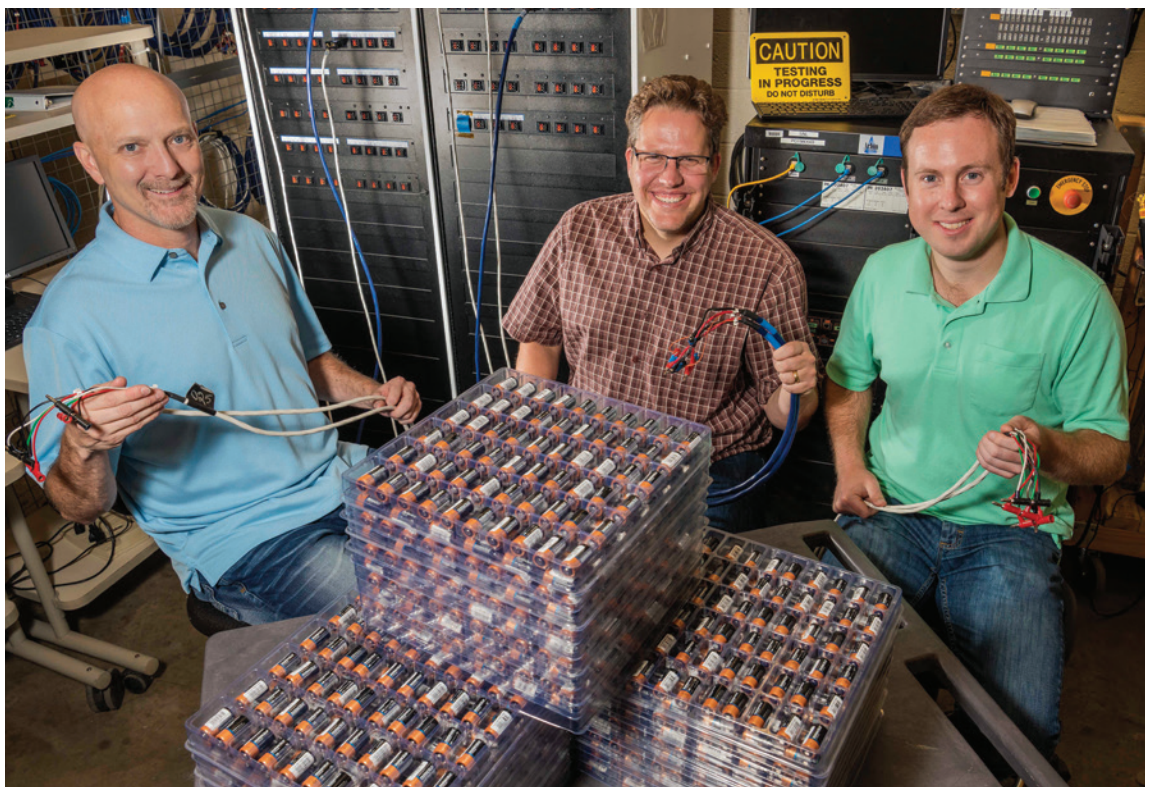

CHARGED UP — Sandia engineer Brian Perdue, center, collaborates with Advanced Manufactured Power Solutions co-founders Eric Branson, left, and Joe Beck to build custom battery packs. **Photo by Randy Montoya**

LABNEWS Notes

Iron woman

Sara Draper competes in Boulder Ironman race

By ***Lara Adams***

Crossing the Ironman Boulder finish line in June was "the most surreal moment" of Sandian Sara Draper's life. Just three years earlier, Sara couldn't run a 5K straight through, but she had just powered through 140 miles in one day — a 2.4-mile swim, 112-mile bike ride and 26.2-mile run.

A few years ago, Sara was looking for a fitness challenge. "I did all the basic exercise stuff, but for me it wasn't enough. I felt my workout routine was stagnant," she said. At a friend's suggestion, Sara signed up for a local sprint triathlon, a 16-mile combination of swimming, biking and running.

"You sign up and immediately think, 'what have I gotten myself into?' But you do one, then think you've got to do the next," Sara said. An Olympic triathlon (32.13 miles) and three half-Ironman (70.3 miles) competitions later, Sara tackled the full Ironman.

Reflecting on her journey, Sara credits in part Sandia's culture encouraging work-life balance and the support she received from her manager and coworkers, not to mention her husband, who she says kept her going on her bad days. "He was a rock star," she said.

"When you spend time training by yourself, you have a lot of time to think. It shed light on how thankful I am for the life I have — for the people at work who were so supportive as I went through this journey and allowed me the flexibility to pursue my goal," Sara said.

"There was a lot of grace given," she said, noting especially that her team allowed her to shift her work schedule to accommodate her training schedule and overlooked her occasional crankiness and fatigue. "They understood the amount of effort I was putting into this and were appreciative and respectful of my time," she said.

Sandia's flexible work options allow employees to pursue personal goals as well as professional ones, Sara said, provided employees maintain a good work ethic, continue getting their work done and use time appropriately.

"Sandia culture encourages people to find things they are passionate about and will bring joy and accomplishment outside of work," said Sandia exercise physiologist Heather Morgan, who helped Sara find her first triathlon coach and provided fitness-specific nutrition advice. Heather also pointed to Sandia's unique onsite resources, including fitness facilities and the base pool, as valuable tools for employees who want to be competitive. "Our onsite resources give employees the ability to reach out and get support in areas they're struggling with, that people outside don't have access to or would have to pay for," she said. Sandia's broad range of health professionals include fitness experts, nutritionists and an onsite medical clinic.

TRI CHAMP — Sandian Sara Draper works out at the Kirtland Air Force Base pool. She recently completed an Ironman triathlon in Boulder, Colorado. **Photo by Randy Montoya**

"When you're training upwards of 20-25 hours a week on top of working a full-time job, that takes a lot of internal commitment and downright grit. The fact that Sara did it while working full-time, taking on an interim manager position and maintaining some sense of personal life takes a lot of sacrifice and dedication," Heather said.

The support Sara received has inspired her to pay it forward. "My support system was amazing and one I wanted to emulate," she said. "It made me think about how I can support my employees and peers the same way I was supported." Whether it's an Ironman, being a new parent or wanting to pursue a degree, everyone can use support, and Sandia is great at that, she said.

Members of Sara's triathlon team, Aspire, said she's already been a source of encouragement, recently traveling to Santa Rosa, California, to cheer on three fellow Sandia teammates, RuthAnn Tibbetts, Jessica Kruichak and Grant Grossetete, in the Ironman Santa Rosa 70.3 (half Ironman).

"She's our sherpa," said RuthAnn, who was drafted into the tri tribe by Sara two years ago. "She's always encouraging. As someone who has completed several halves and a full Ironman, it's nice that she's there to support us," she said.

Sara said the last three years have taught her that anything is possible. "If I think something is daunting at home or at work, I think, 'you trained for 15 hours straight, you can do anything,'" she said. "It really puts into perspective what you can accomplish."

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LAB NEWS ONLINE: sandia.gov/LabNews

LABNEWS Notes

EDITOR'S NOTE: Lab News welcomes guest columnists who wish to tell their own "Sandia story" or offer their observations on life at the Labs or on science and technology in the news. If you have a column (500-800 words) or an idea to submit, contact Lab News editor Tim Deshler at tadeshl@sandia.gov.

Hydrogen materials

CONTINUED FROM PAGE 1

To date, much of the existing hydrogen infrastructure has been informed by research performed at the national labs to characterize metals and polymers in high-pressure hydrogen environments. The H-Mat consortium seeks to dig deeper into the underlying science of this behavior by using advanced imaging and surface characterization techniques to study hydrogen interactions with materials at sizes ranging from the atomistic to the engineering scale.

Researchers are also developing computer models to predict the mechanisms of these interactions and the evolution of hydrogen-induced damage. Those predictions can then help materials scientists tailor the compositional and microstructural makeup of materials to withstand hydrogen-induced damage.

Hydrogen affects metals through a class of interactions called hydrogen embrittlement. Hydrogen embrittlement and hydrogen-induced cracking in metals can be visible to the naked eye, but these cracks start with interactions between hydrogen and a material at lengths a thousand times less than the width of a human hair. Little is known about the effects of hydrogen at these tiny lengths.

Far less is known about how hydrogen affects polymers. For these materials, hydrogen can form pressurized gas bubbles that concentrate stress and lead to damage. There is growing evidence that hydrogen also interacts with polymers at the atomic scale, which may enhance degradation mechanisms.

Researchers at Sandia are studying the behavior of metals and polymers while exposed to high-pressure hydrogen environments using unique equipment at the Livermore campus, while the team at Pacific Northwest National Lab leads the characterization and experimental studies of cracking and degradation in polymers.

"Materials scientists at the two labs are the foundation for the experimental studies within this consortium," said Kevin Simmons, the PNNL senior research scientist who serves as H-Mat co-lead. "We're also leveraging our labs' high-performance computational capabilities to study fundamental hydrogen-materials interactions."

Researchers at collaborating labs provide expertise in advanced imaging and additional high-performance computing. Existing and new academic, industrial and institutional partnerships bring knowledge about material needs for specific infrastructure applications, and non-proprietary data will be made public to accelerate research and development.

TOP TABLE — Aaron Hall, right, demonstrates how to make an inlay for an American Federal-style table.

HANDS-ON PHYSICS — Kenyatta Harris, right, explores physics with a participant at the New Mexico Science Fiesta.

New Mexico Science Fiesta

A STEM celebration for all ages

Story and photos by ***Katrina Wagner***

Sandians brought STEM fun to the New Mexico Science Fiesta at several locations in Albuquerque in June. Sandia hosted a table at the Expo New Mexico where students could explore engineering and science with hands-on activities such as creating jewelry using ultraviolet beads that change colors in the sun and playing with circuit sets to learn about electronics.

Volunteers from Advancing the Next Generation of Leadership Excellence performed the "What Happens Next" interactive game show on the main stage, featuring live science demonstrations about air and smoke vortices, heat and cold reactions and air-ball bowling.

Sandians Hy Tran and Aaron Hall demonstrated the science of woodworking with New Mexico Woodturners. "The hands-on experiences of woodworking and woodturning introduce children not only to craftsmanship and artisanship, but also to tools, materials science, design and art," Hy said. "I love working in educational outreach: STEM is not only useful in careers or for a well-educated citizen, but STEM is also fun."

Interns from Sandia's Technical Internships to Advance National Security program volunteered at Explora during Teen Night. The event featured a teen takeover of the children's museum with an escape room, brain room and science lounge. The TITANS interns showed the teens how to use Scratch, a software platform that teaches kids how to program interactive stories, games and animations.

"It was an exciting experience, and I got to hang out with some really great kids and teach them about computer science," said Sandia intern Jonathan Grimes. "There were some sparks that were lit because of us being there."

SCIENCE BLING — Patricia Schmitt, right, shows a fiesta attendee how to make a bracelet with color-changing ultraviolet beads.

Manufacturing spinoff

CONTINUED FROM PAGE 1

For 25 years, ESTT has promoted the creation of innovative small businesses by allowing staff to leave the Labs with a guaranteed job waiting if they return within two years. Spinoff tech companies such as AMPS create high-paying jobs that help stimulate local economies.

ESTT has helped 162 employees bring business ideas into their respective communities since its inception. Of those, 74 started new companies and 88 expanded companies, primarily in New Mexico. Historically, 67% of Sandia participants chose not to return to Sandia. The average annual salary of jobs recently created is $106,000.

Sandia inspires industry-spanning ventures

Companies formed and grown by Sandia employees span the tech industry. Conductor Analysis Technologies Inc., the first company formed through ESTT (in 1994), tests printed circuit boards. WaveFront Sciences Inc. produced the first commercial product to take eye measurements that could be used to program LASIK corrective surgery. Diagnostic and digital health company Sandstone Diagnostics Inc. created the first Food and Drug Administration cleared at-home male fertility test.

"Many successful companies have their origins at Sandia, and each one exemplifies the entrepreneurial spirit found here. We're proud to see our former colleagues continuing to better society from the private sector," said Jackie Kerby Moore, Sandia's manager of technology and economic development. "And in the case of AMPS, they continue to support Sandia's national security mission."

Sandia's entrepreneurial program offers employees meetings with Sandia licensing, legal and technical experts, as well as the local business community. Because Beck and Branson anticipated they would be bidding for contracts from Sandia, these meetings helped them establish practices and policies to protect the company from potentially disqualifying conflicts of interest.

Although no policy restricts Sandia employees from leaving their jobs to start up their own businesses, doing so under the auspices of ESTT gives employees a valuable safety net, encouraging them to pursue sometimes risky ventures with the knowledge that they can return. The program also facilitates licensing when employees want to use Sandia technology outside the Labs.

Entrepreneurs who return are gladly welcomed back. They bring freshly honed business skills that strengthen Sandia.

Vendors lift national security on paper wings

AMPS is now a Sandia supplier, and like other suppliers, has found a niche in national security work by developing specialized, highly detailed documentation, much to the delight of Sandia's Brian Perdue.

Brian, a power source engineer, has an unusual appreciation for paperwork. He revels in reports, valuing the record of how a part was built as much as the part itself. To him, a good paper trail is how he determines the quality of a part and is instrumental in uncovering the source of a problem, should one arise. That information, he says, means everything when working in national security, where margins for error are incredibly slim.

Sandia's primary mission is ensuring the U.S. nuclear arsenal is safe, secure and reliable. The nation's nuclear weapons must always work when commanded by the U.S. president and never detonate otherwise.

"It's as if Sandia built a car. We would need to know we could park it for up to 30 years and that it will run perfectly when we turn the ignition," said Brian, who has collaborated with AMPS on multiple projects.

When a vendor like AMPS is hired, for example, to weld and solder together common AA batteries into a single battery pack, Sandia requires extensive paperwork to document exactly how they did it and the materials used, which might detail everything from the weights of the batteries down to the name of the mine that produced the metals in the solder.

Branson, AMPS vice president and chief technology officer, says his company has tested thousands of commercial batteries for barely perceptible variations, so they can report that their products are built precisely to Sandia design specifications.

These details might seem excessive, but the slightest variations in processes or materials — the kinds one might see from one source to another — are enough to make a part fail Sandia's rigid requirements, Brian said.

Have a business idea?
Contact Genaro Montoya (gmontoy@sandia.gov) for more information about the Entrepreneurial Separation to Transfer Technology program.

Crime in the metro

D.A. Torrez updates Sandia on crime in Albuquerque

DATA-DRIVEN — Albuquerque District Attorney Raúl Torrez spoke to a Sandia audience about crime in the metro area and his initiative to digitize decades of data to help track criminals and identify repeat offenders. **Photo by Lonnie Anderson**

By ***Stephanie Holinka***

District Attorney Raúl Torrez returned to Sandia just over a year after his eye-opening talk on crime in the Albuquerque area to update the workforce on the successes and challenges still faced by his organization in dealing with Albuquerque's ongoing crime problems.

Torrez began his talk by reiterating how bad crime was in Albuquerque when he arrived in the office in 2017. During a time when most cities were enjoying a decrease in crime, Albuquerque was on the opposite path. As compared to the 30 largest cities in America, over two years, Albuquerque was ranked first in increases in homicide (102%), and first in increases in crime, violent crime and property crime (26% each).

In the past two years, Albuquerque crime levels have decreased overall, though Torrez admits that it's sometimes hard to see that on the ground.

"This is still a very dangerous community, and it's one that is facing serious challenges," Torrez said, adding that "a lot of the work that has been going on is starting to have a measured impact on total crime."

Since 2017, Torrez said he and his team have worked with a sense of urgency in reversing those trends, which isn't easy when faced with heavy caseloads and the slow-changing nature of government organizations.

Data-driven prosecution depends on … data

One of Torrez's goals is looking for ways to mine the D.A. data and the data of other law enforcement organizations to better focus its efforts on the small number of people who commit the most crimes and also the most violent crimes.

Torrez said he inherited offices full of boxes of paper documents going back decades, cluttering up space intended for attorneys and special victims services, the result of chronic underinvestment in the information infrastructure that supports the criminal justice system. This underinvestment also means that valuable data from decades of cases has not been added to case files.

In the past, Torrez said, if information wasn't directly relevant to a trial, it didn't find its way into the database.

"Unlocking the data in those boxes unleashed things like phone numbers, addresses, known associates, references and identifiers for firearms and automobiles, which can connect different people in this community who are committing crimes," Torrez said.

In addition to data not making it into the D.A.'s database, the criminal justice system in New Mexico includes five to seven primary databases that didn't directly communicate with each other.

With the space freed up from digitizing the boxes of paperwork, the office has created the first Victim Resource Center, a place for families who are victims of crimes to gain access to resources like counseling and law enforcement support.

Adolfo Mendez and Paul Crickard from Torrez' office discussed how they've worked with Sandia volunteers as well as partners from New Mexico Tech and the MIND Institute to use data analytic techniques like network analysis to find ways to better visualize crime data and identify key people and organizations that drive crime in the metro area.

It's this data-driven prosecution that Torrez hopes will allow his office to speed up the process from arrest to prosecution and focus attention on key repeat offenders who account for much of the serious, violent crime.

Speed, certainty and severity

Torrez jokingly suggested that the key to dealing with criminals is similar to dealing with children.

"I have a 6-year-old at home who fails to meet his key performance indicators on a regular basis," Torrez said, garnering laughter from the crowd. "When my 6-year-old does this, do you think it's good to threaten them with severe punishment that is highly unlikely to happen a year and half from now, or something that happens quickly?"

One of the contributors to crime can be the time it takes to initiate a case and see it all the way through to prosecution. Torrez said that at the lowest point, it took as long as 221 days from arrest to the initiation of a criminal case. Response to criminal cases with speed and certainty needs to occur in 30, 60 or 90 days, he said, rather than focusing on the severity of the sentence down the line.

"Whenever you're talking about crime, you invariably talk about punishment. Severity has limited impact in deterring criminal activity. Sometimes we tend to overvalue them at the expense of speed and certainty," Torrez said.

Hoping to fix this, legislators cut in half the amount of time the state has before it can initiate a case, but they did not fund additional resources to support that faster cycle, Torrez said. Now, with additional resources and by prioritizing speed, that time period has been reduced to about 28 days.

Frequent fliers

In the past two years, Torrez's office has begun making inroads on its goal of mining available data for ways to pivot a system that historically treated each crime chronologically into one that can focus its resources on the "overachievers" who most greatly contribute to Albuquerque's crime problem.

Torrez said 26% of those arrested have been arrested three or more times, and they comprise 62% of arrests. Repeat offenders also grow increasingly violent the more times they are arrested.

"It's these high-impact overachievers who are driving the issue. That's the core of the problem," Torrez said. "People who strive to be high-impact overachievers deserve special attention. We're going to give them the best customer service."

Data-driven prosecution allows cases involving these repeat, violent offenders to be prioritized, lessening the opportunity cost associated with handling all cases equally and chronologically.

Following Torrez' talk, Sandia researcher Rudy Garcia discussed his passion and commitment to the volunteer work he and other Sandians do to help with Torrez' data-mining efforts.

Interested in Volunteering?
Visit the City of Albuquerque's Victims Service Alliance website for more information.

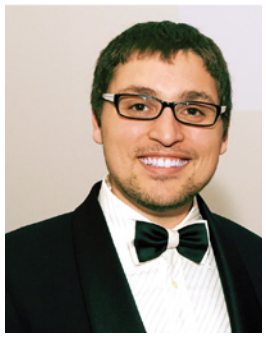
Four Sandia researchers win Presidential Early Career Award

By ***Neal Singer***

Sandia researchers Salvatore Campione, Matthew Gomez, Paul Schmit and Irina Tezaur have received the Presidential Early Career Award for Scientists and Engineers for 2019.

President Donald Trump announced the awards as the U.S. government's most prestigious for early career scientists and engineers. PECASE includes $250,000 as research support over a five-year period and is provided to scientists and engineers beginning their careers who show exceptional promise for leadership in science and technology. A ceremony honoring recipients was held July 25 in Washington, D.C.

Salvatore Campione



Salvatore Campion
Photo courtesy of the Marconi Society

Salvatore, from Catania, Italy, with a doctorate in electrical and computer engineering from the University of California, Irvine, is an electromagnetic analyst involved in national security projects that include analysis and modeling for lightning, electromagnetic pulse effects and radiation, and fundamental research and design in metamaterials and nanophotonics.

According to the announcement, he won "For pioneering work in metamaterial and nanophotonic design, capability development in accurately predicting electromagnetic-pulse consequences on the U.S. power grid, and for excellence in engaging with the external scientific community and mentoring junior staff."

Salvatore has published more than 80 peer-reviewed journal articles and more than 120 conference papers, been awarded three patents and written two book chapters. His work has received more than 2,500 citations. He is a member of several professional societies, including the Institute of Electrical and Electronics Engineers and the International Union of Radio Science, and is an associate editor for the peer-reviewed journals URSI Radio Science Letters and the Applied Computational Electromagnetics Society Journal.

Matthew Gomez

Matthew Gomez
Photo courtesy of the Krell Institute

Matthew, from Hillsborough, New Jersey, with a doctorate in nuclear engineering and radiological sciences from the University of Michigan, is an experimental high-energy density physicist who has progressed in fusion experiments that rely on a combination of electricity, lasers and magnetism.

His work was noted "For exceptional leadership and contributions to innovative research in high-energy density physics and leadership of the magnetically amplified inertial fusion effort; and for his formidable commitment and exemplary role modeling to develop a community of scientists and engineers."

Over the last eight years, Matthew has led about 100 experiments in several areas of high-energy density physics, including inertial confinement fusion, at Sandia's Z machine facility. He has authored or coauthored more than 50 publications, which have been cited nearly 800 times, and he has given 11 invited talks at conferences and workshops over the past five years.

Paul Schmit

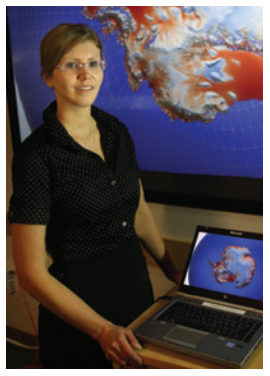
Paul Schmit
Photo by Randy Montoya

Paul, from Glendale, Arizona, with a doctorate in plasma physics from Princeton University, has used pulsed power techniques at Sandia accelerator facilities to advance inertial confinement fusion research through theory, simulation and design and analysis of experiments.

His award was for "exceptional technical contributions to the field of inertial confinement fusion, magnetized plasmas and related science applications in support of the country's national nuclear security mission, and for outstanding leadership and excellence in community outreach and mentoring of graduate students."

Paul, who entered Sandia as a Truman Fellow in 2012, has led the design effort for about 50 Z machine experiments, mostly in the field of inertial confinement fusion. He has authored or co-authored more than two dozen peer-reviewed publications, including eight in the high-impact physics journal, Physical Review Letters, and was a member of a three-person team that won Sandia's inaugural Director's Team Award in 2017, for the project "Harding – A New ICF and HED Science Platform."

Irina Tezaur



Irina Tezaur
Photo by Dino Vournas

Irina, from West Bloomfield, Michigan, with a doctorate in computational and mathematical engineering from Stanford University, has focused on modeling and simulation of complex multi-scale and multi-physics problems using high-performance computing impacting a variety of Sandia and DOE mission areas.

Her areas of expertise include model reduction and multi-scale coupling methods, both of which enable analysts to simulate more scenarios than existing technologies support. Her award was for "developing new, impactful mathematical methods and computer algorithms to enable real-time analysis, control and decision-making on computationally prohibitive problems relevant to the nuclear security mission and climate modeling."

Irina, who joined Sandia as a year-round intern in 2007, has published more than 20 peer-reviewed articles and more than 20 technical reports, white papers and conference papers, and has been lead developer of several open-source codes. In recent years, her methods have been brought to bear on a global problem relevant to DOE's climate missions. Since 2012, she has been a lead developer on the land-ice component of DOE's climate model, known as the Energy Exascale Earth System Model.

Sandia and AWE sign strategic intent document

The U.S. and U.K. have a rich history of cooperation dating back to the Manhattan Project. Since 1958, the countries have shared ideas, information, materials and equipment within the provisions of the Mutual Defense Agreement.

In a June visit to the United Kingdom's Atomic Weapons Establishment, Steve Girrens, Sandia's associate labs director for nuclear deterrence, and Dave Chambers, AWE's director for science engineering and technology, on behalf of Graeme Nicholson, AWE's head of programme, signed a Strategic Intent of Collaboration. This document describes and endorses mutually beneficial opportunities for strategically aligned collaborations between Sandia and AWE.

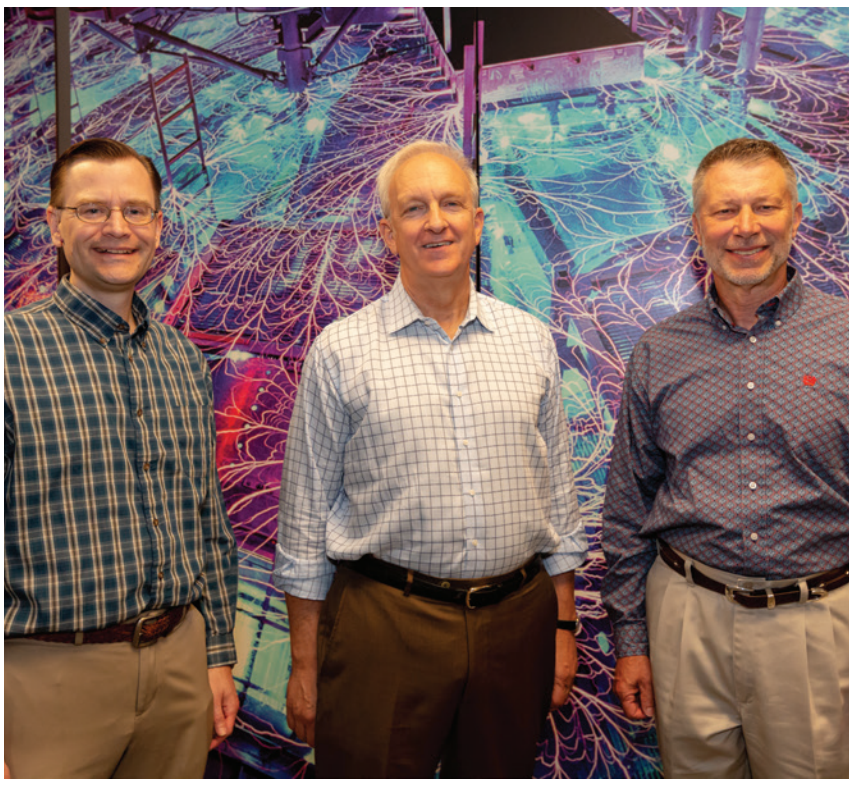
While each nation prepares for its respective future deterrence needs and maintains focus on its existing stockpiles, both AWE and Sandia recognize that through collaboration, the risk carried by each organization in delivering its mission will be reduced.

STRATEGIC INTENT — AWE Director for Science Engineering and Technology Dave Chambers, left, and Sandia Associate Labs Director for Nuclear Deterrence Steve Girrens signed a strategic intent document to verify and describe collaboration between the two organizations. **Photo courtesy of the Atomic Weapons Establishment**

NNSA associate principal deputy administrator visits Sandia

Newly-appointed NNSA Associate Principal Deputy Administrator David Huizenga visited Sandia's Albuquerque campus July 15 to learn more about the critical national security work being performed at the Labs in support of NNSA's mission. In his new role, Huizenga serves as a member of NNSA's executive leadership team, providing advice to the administrator and principal deputy administrator on programmatic and policy issues.

Huizenga is a recognized expert in nonproliferation and nuclear waste management with more than two decades of leadership, management and technical experience in a wide variety of programs across DOE.



LEADERSHIP — Sandia pulsed power sciences director Dan Sinars, left, NNSA Associate Principal Deputy Administrator David Huizenga, center, and NNSA Sandia Field Office manager Jeff Harrell toured the Z machine during Huizenga's visit to Sandia in July.

Photo by Rebecca Gustaf

SWAN hosts intern Ph.d. talk

By ***Stephanie Holinka***
Photo by ***Randy Montoya***

In July, the Sandia Women's Action Network hosted "Applying, Getting in, and Loving your Ph.D.," a panel for engineering and science interns who are considering applying for graduate school. The panel discussed strategies and challenges associated with applying and getting into graduate school. Engineer Madeline Esposito (pictured above) facilitated the discussion, and panel members included physicist Whitney Ingram, MicroElectroMechanical Systems researcher Jennie Podlevsky, mechanical engineer Katherine Knisely and metallurgist and welding researchers Dan Tung and Becca Wheeling. The recorded discussion is available on Sandia's internal digital media library.

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Questions to Michelle Fleming at 505-844-4902.

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MISCELLANEOUS

DINING SET, 7-pc., marble top, dark cherry, $1,500 new, asking $900; GE refrigerator, stainless steel, side-by-side, $750; photos available. Sanchez, 505-228-4200.

MOTORIZED WHEELCHAIR, Jazzy Select Elite, w/charger, owner's manual, great condition, $500. Jaramillo, dinarick@icloud.com.

MOTORIZED WHEELCHAIRS, 2, Jazzy J6, Jazzy Elite, photos available, $500 ea. OBO. Fickling, 505-595-4172.

YOUNG AT HEART CHICKEN & WAFFLE DINNER, Nazarene Church on Paseo, Aug. 16, 6 p.m., $12. Martin, 505-281-7227.

LIFT RECLINER, La-Z-Boy, 1PL-519, Astor Platinum Power, Bordeaux, lightly used, $1,772 (with tax) new, asking $500. Lackey, 505-948-8489.

POCKET FENDER FLARES, Rough Country, for '15-'18 Ford F150, $150. Benson, 505-220-1161.

EXTENSION/SCAFFOLDING LADDER, Werner, $50; replica Stradivarius violin, $450; Swiss cuckoo clock, purchased in 1967, $75. Ward, 505-292-1618.

BICYCLE PUMP, Topeak Mini Morph G frame, 160-psi/11 bar, Schrader, Presta, Dunlop, black/silver, brand new, $25. Wagner, 505-504-8783.

TWIN BED, w/memory foam mattress, steel frame, used 3 wks., $85. Stubblefield, 505-263-3468.

COFFEE TABLE, cherry, Amish Connection, $200; square end table, $200; oval end table, $150; all 3/$550 OBO; queen sofa sleeper, $150; La-Z-Boy furniture. Pacheco, 505-948-9407.

TRIPLE BEAM BALANCE SCALE, Ohaus model 700, 0-2100 grams w/0.1 precision, excellent condition, $30. Eckelmeyer, keckelmeyer@comcast.net, 505-771-0620.

TRANSPORTATION

'12 RAM 3500, no DEF, mega cab, 4x4, diesel, AT, white, steps, 55K miles, $40,000; '89 Jeep Wrangler, 6-cyl., 5-spd., 32-in. all terrain tires, 87K miles, $8,000 OBO. Julian, 505-249-0217.

'95 CLASSIC CADILLAC DEVILLE, sedan, blue, Continental kit, 1 owner, 141K miles, great condition, $7,500 OBO. Pritchard, 505-299-3543.

'17 SUBARU CROSSTREK LIMITED, red, 27.5K miles, excellent condition, $21,500 OBO. Miller, 505-301-7426.

'13 CADILLAC CTS, leather, heated seats, top-of-the-line stereo, 45K miles, excellent condition. Baca-Asplund, 505-304-3242.

'51 CHEVY, price reduced, $9,200 OBO; email for photos. Owens, 505-980-6796, padillaowens@q.com.

'18 BMW 430i GRAN COUPE, 4-dr. sedan, premium wheels & pkg., tint, white/charcoal, 21.9K miles, excellent condition, $35,000. Asbaugh, 505-331-3765.

RECREATION

ROAD BIKES: specialized Roubaix SL4, full carbon frame, Shimano 105 gorupset, <100 miles, $1,500; Cannondale CAAD8, <200 miles, $950. Huynk, 505-503-5150.

'08 FOREST RIVER FLAGSTAFF POP-UP, model 176LTD, new tires, never damaged, clear title, $2,900 OBO. Martin, 505-249-7175, before 9 p.m., ask for Scott.

MOUNTAIN BIKES, East Mountains, men's Mongoose GRH MGX 6.5; women's MOTIV M Smoothie, $75 ea. Willmas, djwillmas@gmail.com.

REAL ESTATE

2-BDR. HOME, 2 baths, 2 story, on forested 1/2 -acre, Cedar Crest, 20 mins. from Eubank gate, MLS#943753, $245,000. London, yeffner@gmail.com, 970-823-2031.

3-BDR. TOWNHOME, 2-1/2 baths, 2-car garage, 1,584-sq. ft., built in 2007, great location (schools, library, gym, entertainment), $210,000. Keliiaa, 505-363-5461.

3-BDR. HOME, 2-1/2 baths, 2,030-sq. ft., 2 yrs. old, Volterra, Gigabyte internet, MLS#949565, $284,900. West, 505-620-5997.

2-BDR. TOWNHOME, 2 baths, 1,451-sq. ft., newly updated, NE Heights, call for private showing. Lydick, 505-453-8194, ask for Erica.

3-BDR. HOME, +den, 2 baths, 1,830-sq. ft., split level, near Eisenhower MS, Far NE Heights, $250,000. Doyle, 505-552-5044 or barney647@gmail.com.

4-BDR. HOME, 2 baths, 2-car garage, Enchanted Hills, 7201 Skagway Drive NE, Rio Rancho, 87144. Morgan, 505-452-6137, ask for Bodie.

WANTED

MUSICIANS, join Sandia-based musical ensemble, contact for more information. Milhaupt, colinmilhaupt@gmail.com or 805-377-0323.

ROOMMATE, prefer male, late August-June, furnished, beautiful NE Heights, perfect for grad student, new hire, visiting professor, $1,200. Yourick, 505-259-8005.

HOUSEMATE, studio: private entrance, kitchenette, bath, laundry access, East Mountains, private, woods, dirt road, 1st month's deposit, $650/mo. Miller, 720-527-3549.

AD RULES

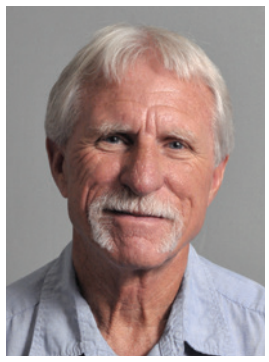
1. Limit 18 words, including last name and home phone (web or email address counts as two or three words, depending on length).
2. Include organization and full name with ad submission.
3. Submit ad in writing. No phone-ins.
4. Type or print ad legibly; use accepted abbreviations.
5. One ad per issue.
6. The same ad may not run more than twice.
7. No "for rent" ads except for employees on temporary assignment.
8. No commercial ads.
9. For active Sandia members of the workforce and retired Sandians only.
10. Housing listed for sale is available without regard to race, creed, color or national origin.
11. Work wanted ads are limited to student-aged children of employees.
12. We reserve the right not to publish any ad that may be considered offensive or in poor taste.

Mileposts

New Mexico photos by Michelle Fleming
California photos by Randy Wong


Barry Boughton 35


Aaron Hillhouse 35


Randy Rembold 35

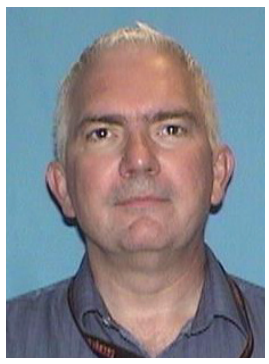

Scott Klenke 30

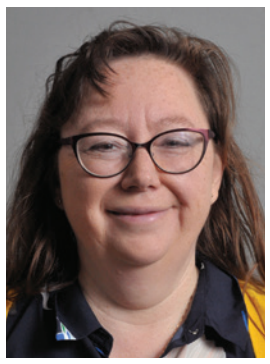

Steve Plimpton 30


Edward Sanchez 30


Gary Simmons 30


Chris Apblett 25


Steve Bova 20


Jeanette Johnston 20


Frank Love 20


Ting Luk 20


Denise Padilla 20


Allen Roach 20


Don Susan 20


Lisa Walla 20


Mary Jo Baucom 15


Igal Brener 15


Jeff Martin 15

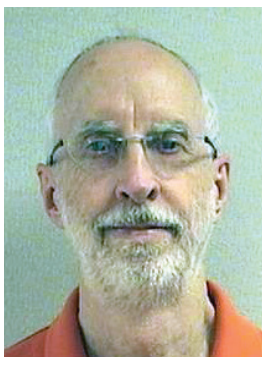

Laura Martin 15


Don Shirah 15


Leo Tafoya 15

Recent Retirees

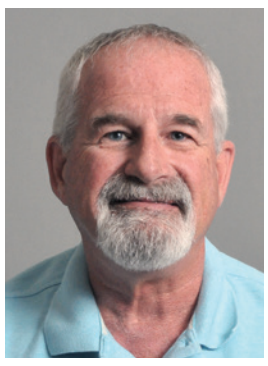
New Mexico photos by Michelle Fleming
California photos by Randy Wong


Jim Muntz 43


Dave Trujillo 40


Ed Parma 32


Sandy Sanzero 32


Bruce Behrends 15


Joan Luciano 11

HEALTH HELP — From left, Danielle Puckett and Tiffany Binderup talk with representatives of John Muir Health.

'Safety is a State of Mind(fulness)'

Sandia fairs raise safety and health awareness in workplace

By ***Paul Rhien and Lara Adams***
CA photos by ***Michael Langley***

Celebrated annually in June, National Safety Month is an important opportunity to raise awareness about safety and health in the workplace.

Throughout the month, Sandia Health Benefits and Employee Services and Safety organizations at the Livermore and Albuquerque campuses teamed up to host an array of speakers, activities and events focused on ensuring that employees have the skills and awareness to stay safe and healthy at work and at home.

This year's theme, "Safety is a State of Mind(fulness)," emphasized mindfulness as an effective strategy for beating safety complacency and staying alert. The benefits of mindfulness go beyond workplace safety and injury prevention, also reducing stress and fatigue, increasing energy and improving productivity.

The fair at the Livermore campus was held in connection with the monthly farmers market, and included a variety of educational tables from Sandia organizations and local vendors. Demonstrations provided opportunities for participants to learn more about how to reduce workplace hazards, manage household chemical risks, order safety and computer glasses and more.

"We were very pleased with the turnout. The Safety and Health Fair was a great way to educate employees about their benefits, onsite services and other health and safety resources," said Rosalind Turner, Sandia/California's Health, Benefits & Employee Services manager. "Most importantly, it was an opportunity to come together, talk, enjoy a meal at the market or just get moving."

More than 1,000 people participated in National Safety Month events at Sandia's Albuquerque campus, a 38% increase from last year's event. Event organizers offered four separate events, the first of which featured presentations on mindfulness, pressure safety, B61 drop test planning, active shooter procedures and information about the Eubank gate construction project.

This year's event included an Energy Hub Crawl designed to encourage employees to visit a nearby hub for dynamic stretches, focused breathing and other mindfulness-promoting activities.

At the Hands-on Safety Training event, participants tried out the slip and driving simulators, practiced using fire extinguishers, used the aerial lift and bridge crane and learned about safe lifting, fall protection and working in a confined space.

Concluding the series of events, the Safety and Health fair featured a wide variety of interactive booths and demonstrations, of which the emergency management rescue and K-9 demonstrations were especially popular. Attendees also learned more about CPR and AEDs, mindfulness and yoga, grill and boating safety and many other topics.

DROP TEST — A representative from Kaiser Permanente outfits two Sandians with darkened goggles and has them drop an orange into a cup to test their vision.

HELPING HANDS — Safety team members help with a mock rescue during the Hands-on Safety training event at the Albuquerque campus. **Photo by Lonnie Anderson**

UNDER PRESSURE — Aamir Shan, left, gets his blood pressure checked by Rebecca MacIsaac.