SANDIA LABNEWS
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'Regular dude' runs America, a state at a time **Page 7**

A faster path to the field

Reducing approval times for short-duration, low-impact field work starts with tethered balloons

By **Diana Hackenburg**

When Sandia's tethered balloon team gets the call to deploy, the question is not whether they are up to the task, but if they can get the necessary approvals in time.

The team, which uses balloons tethered to the ground to collect atmospheric data from the surface up to an altitude of

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FIELD WORK — Sandia's tethered balloon team participates in measurement campaigns across the country, from the frigid Arctic to the urban Southwest and forested Southeast. **Photo by Antigravity Films**

Sandia accelerates AI innovation for nuclear deterrence

GENIUS BAR — Sandia's Jack Toomey, left, answers Lauren Strong's questions at the AI Genius Bar during the AI4ND Summit. **Photo by Alicia Bustillos**

Groups across the Labs make connections, plan collaborations at summit

By **Kenny Vigil**

Not taking a risk is a risk. That's one message from a two-day summit at Sandia focused on artificial intelligence that emphasized its value for nuclear deterrence.

"I get excited in the AI space about the things that I might never have to do again, including writing reports. Solutions that were taking hours can take seconds," said Brad Boswell, associate Labs director for Nuclear Deterrence Modernization and Stockpile Systems. "AI can take things off your plate so you can put more thought into your engineering work."

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Sandia National Laboratories

Albuquerque, New Mexico 87185-1468
Livermore, California 94550-0969
Tonopah, Nevada | Kauai, Hawaii
Amarillo, Texas | Carlsbad, New Mexico | Washington, D.C.

Katherine Beherec, Editor kgbeher@sandia.gov
Ray Johnson, Production rbjohns@sandia.gov
Craig Fritz, Photographer cvfritz@sandia.gov
Michael Langley, California Contact mlangle@sandia.gov

CONTRIBUTORS

Michelle Fleming (milepost photos, 505-844-4902), **Kristen Meub** (505-845-7215), **Troy Rummler** (505-284-1056), **Meagan Brace** (505-844-0499), **Mollie Rappe** (505-288-6123), **Skyler Swezy** (505-850-2063), **Lea Blevins** (lsblevi@sandia.gov), **Kenneth Vigil** (505-537-1528), **Luke Frank** (505-844-2020), **Michael Baker** (505-284-1085), **Valerie Yarberry** (vnalba@sandia.gov), **Magdalena Krajewski** (mkrajew@sandia.gov)

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Combining 76 years of innovation

Edward Cole, Charles Hanley named IEEE fellows

By **Kim Vallez Quintana**

The road to becoming a medical doctor took an unexpected turn in the 1980s for North Carolina native Edward Cole. Now, nearly 39 years later, the Sandia Fellow is being recognized by the Institute of Electrical and Electronics Engineers for the significant role he has played in microelectronics.

Senior Manager Charles Hanley joins him in receiving the prestigious recognition from his peers. Charles, an engineer who has spent most of his 37 years at Sandia improving the resilience of critical energy infrastructure and renewable energy technologies in rural areas, said his curiosity and fascination with the craft began as a boy helping his dad fix things.

1995 R&D 100 WINNERS — Ed Cole, sitting, Chris Henderson, left, and Rich Anderson look at an electron microscope image produced by the charge-induced voltage alteration technique. The groundbreaking nondestructive integrated-circuit failure analysis technique earned them an R&D 100 award in 1995. **Photo by Randy Montoya**

Senior Fellow Edward Cole

Little did Edward Cole know at the time how a simple conversation more than 40 years ago would change his life.

MICROELECTRONICS MAESTRO — Edward Cole was elected to the 2026 IEEE Fellows Class for the significant role he's played in the world of microelectronics in his nearly 39-year career. **Photo by Alicia Bustillos**

"I had been in medical school for a year," Ed said. "One day, my wife of nine months asked me, 'What's wrong?' I told her, 'I'm really not liking this.' She told me, 'You've got nothing to prove to me. Go do something you want.' So, with her encouragement, I left medical school in April. By June, I was enrolled in the graduate program at the University of North Carolina."

It was there that Ed discovered his fascination with integrated circuits.

A professor approached him and said he had a grant to use a scanning electron microscope to study integrated circuits and asked whether Ed would be interested.

"It sounded fun, so I said yes," Ed said.

Ed, who was earning a doctorate in physics, joined a team that included students from different backgrounds, including biomedical engineering and computer science.

"We had a lot of leeway to try to do things that would make a difference," he said.

That work caught the attention of someone at Sandia who invited Ed for a job interview.

That was 1987, during a tough job market, but Ed also received an offer from IBM in New York. "IBM was restarting its failure analysis laboratory from scratch, and I found that intriguing," Ed said.

But ultimately, Sandia became Ed's home. "When I came out to Sandia, it was in the middle of nowhere. No family for 1,000 miles, but the work was intriguing and the people were engaging," Ed said.

With a baby on the way, and worries about his wife getting snowbound in New York, Albuquerque it was. "We made the leap to come out there, at least for a limited time," Ed said. "I guess that limited time is still running."

Ed has been at Sandia for nearly 39 years, and his impact has been significant. He started in Sandia's Failure Analysis Department and hit the ground running.

"In those days we were in full scale production," Ed said. "As you might imagine, for high-reliability, high-consequence missions at Sandia, failure was not an option. In industry, you might have a day or week to work on a problem. If you don't solve it, you move on. Here at Sandia, you keep working until you have a solution."

Ed led the teams that developed two failure analysis techniques still used today: the charge-inducted voltage alteration, or CIVA, which is a scanning electron microscopy technique that rapidly locates open-circuit floating conductors; and the light-inducted voltage alteration, known as LIVA, which is a non-destructive, scan-based failure analysis technique that uses a laser or infrared light source to localize defects.

"We were thinking outside the box, taking advantage of other physics. Suddenly, you could look at integrated circuits through the back," Ed said. "We got there three to four years before the rest of the world and industry."

Ed's work earned him the title senior scientist in 2004 and, in 2013, he was named a Sandia Lab Fellow and Fellow of ASM International. More than a decade later, he decided to apply to become an IEEE fellow.

"I was asked to write a letter of recommendation for another IEEE Fellow applicant. When he found out I wasn't one myself, he insisted on me putting in an application," Ed said.

Ed was elected to the 2026 class for his "leadership in microelectronics defect localization equipment, science and techniques."

"It's a great honor," Ed said. "It's nice to see that my early work had enough longevity. I've had people who I haven't heard from in 15 years congratulating me, so it's a notoriety that I didn't expect."

Ed, who raised three daughters in Albuquerque, now spends his days at Sandia focused on helping the next generation.

"I'm under no illusion that they're not smarter than I am," Ed said. "But I'm older, and every once in a while, I know a little more. It's been encouraging to me to see young people come in who get the mission from day one. I can't bottle that. They understand why we're here and that what we're doing is important for national security. Helping them succeed is probably the most fun thing I do now."

Ed said Sandia is the perfect place for that. "It was clear early in my career at Sandia that if you came across a problem or observed something unusual, it was expected that you would find a way to pursue it if you thought it would make an impact. Sandia facilitates that — to think outside the box and then act on that. It opens the door to capabilities that didn't exist before."

Senior Manager Charles Hanley

For Charles Hanley, the passion for engineering started when he was a boy.

"My dad was always one of those super fix-it people," Charles said. "He could put his hands on something and either fix it or build something. It was always fun to take on projects with him."

POWER PIONEER — Charles Hanley was selected as a 2026 IEEE Fellow for his contributions to energy access in rural areas, grid modernization and resiliency over his 37-year career. **Photo by Alicia Bustillos**

Charles said he was fortunate to attend a high school with a strong STEM program where teachers recognized his strengths in math. He went on to earn a bachelor's degree in engineering science and a master's degree in electrical engineering. Soon after graduation, he found himself in New Mexico and at Sandia.

"It just drew me in," Charles said. "It was such an opportunity to be able to surround myself with incredibly bright people. It was one that I just couldn't pass up."

Charles spent the first six years of his career in controls work but his passion was energy. In 1994, he moved into Sandia's renewable energy and electric grid programs where he remains today.

One of the early highlights of his career was his work in Mexico and Central America to aid recovery from natural disasters, including Hurricane Mitch.

"I was leading teams that were introducing novel applications of renewable energy," Charles said. "We built an ice maker for a fishing village, refrigeration for a remote vaccination clinic, water pumping systems for ranchers and pumping stations for communities."

Charles said it was fulfilling work. "It reduced the amount of time families had to spend going to a central tap in their community and gave them access to cleaner water," he said. "It dramatically enhanced life for these communities. There would be ribbon cuttings when the systems first started pumping, and the whole community would be out there with food and cheering. Those were great moments."

Charles was also a key contributor to DOE's SunShot Initiative which began in 2011 and helped reduce the cost of solar energy by 75%.

Most recently, Charles has helped lead Sandia's work in system security for the grid as part of the DOE Grid Modernization Lab Consortium.

"We're improving transmission and distribution systems and coming up with new conversion technologies to improve functionality," Charles said. "Energy storage is a big part of that, and from Sandia's perspective, it's all about security — ensuring the security of our electric system from cyber and physical threats, both human-caused and natural. It's something I'm very proud of."

Charles will continue that work, along with the volunteer work he does for IEEE. He said it is a tremendous honor to be named an IEEE Fellow.

"IEEE is such an amazing organization that provides a home for thousands of people around the globe and offers them so many opportunities to grow, gain new insights into the kind of work that they do and build their networks," Charles said. "I feel a strong commitment to give back to the organization so that people can benefit from it. I'll be doing that for the rest of my life, essentially."

ENGINEERING FOR AGRICULTURE — Charles Hanley, right, stands with ranchers in southern New Mexico after helping install a solar water pumping system.

Photo courtesy of Charles Hanley

Charles is clearly passionate about the work he does. "Energy technologies and the role of energy are so fundamental to every aspect of human civilization," Charles said. "That is fascinating to me. It is a very multidisciplinary field, and it impacts everything we do. You just think about the impact we're having both on enhancing people's lives and providing national security, and it's just been tremendous."

Balloons

CONTINUED FROM PAGE 1

5,000 feet, is often expected to deploy within nine months after the DOE or other sponsors approve the project. Moreover, the target location changes almost every year to meet sponsor needs and is not usually known until the proposal call announcement. Sandia, NNSA and other federal agencies require permitting and approvals related to real estate, environmental impact, aviation, procurement and safety that further delay the project and make it nearly impossible to meet timelines.

"The long approval process, or delays in approvals, puts the projects and Sandia at risk with both the sponsor and the user community we collaborate with," said Andy Glen, manager of Sandia's atmospheric sciences group. He knew these

BALLOON SETUP — The typical footprint of a tethered balloon field campaign consists of the balloon and launch vehicle, a temporary hangar and three to five containers or trailers. **Photo by Antigravity Films**

issues also affected other teams engaged in short-duration, low-impact field work not located on Sandia property.

Identifying this as an opportunity to cut red tape and improve efficiency, Sandia's former Energy and Earth Systems Center set a 2025 strategic milestone to streamline the approval process, starting with tethered balloon systems as a case study. Their effort resulted in a new umbrella Preliminary Real Estate Plan, or PREP, that will cover any tethered balloon system work occurring in any location over the next few years.

"Our goal with the umbrella PREP is to reduce the approval time between identifying a location to deploying on it from over a year to just six to nine months. It still needs to be tested, but we're planning on using it for an upcoming deployment," said Andy, who led the multidisciplinary milestone team.

Defining the issue

The team's first step was to assess the existing approval process, including roadblocks and policies that did not necessarily fit the scope of most remote field work.

Andy explained that in terms of real estate requirements, short-duration field work was being treated the same as if Sandia were building or leasing a permanent physical structure. "This work is more like a camping expedition than it is building a hotel. We go in with temporary hangars, trailers and a couple of trucks that the team operates out of for two or three weeks, and then we leave. We have very minimal impact to the existing landscape," Andy said.

According to Joyce Purley, the team's real estate strategic planner, a traditional real estate plan is fairly involved, often exceeding 100 pages and requiring services, like appraisals, provided by outside organizations. "It takes a lot of time to put all of that together, especially when you think about all the third-party products involved. And that's just one step of the process," Joyce said. Even proposals to launch balloons from non-Sandia federal sites require NNSA and other government agency input and approval, which can cause significant delays.

Another time-consuming step is making sure the work complies with the National Environmental Policy Act, or NEPA, which requires federal agencies to assess the environmental effects of any proposed actions. While most activities performed on Sandia property are covered under the Site-wide Environmental Impact Statement, any off-site work must be evaluated separately.

Most off-site work is covered under a categorical exclusion, meaning a type of action that does not have a significant impact on the environment. However, the determination that the work falls into a categorical exclusion must be made by the NNSA, and that approval can sometimes take weeks or even months.

Sandia Senior Counsel Konstantin Parkhomenko saw firsthand how little of an environmental impact the tethered balloon teams have when he visited one of their field campaigns. "I can read reports all day, but being there to see what the operation looks like was really an eye-opener," he said.

Finding a solution

The team identified pain points where changes could be made within these processes. They drew both on their experiences and two white papers prepared by Sandia's legal department on real estate and NEPA efficiency improvements.

"If you can find efficiencies where processes can be streamlined, then everybody is happier. The government is happier because the mission is getting implemented, and of course, the people who depend on getting the approvals in a timely manner are also happier," Konstantin said.

The team used these insights to create a new umbrella PREP intended to cover tethered balloon field work, no matter the location. They also developed an optimized workflow for approvals that can be adopted by staff doing any kind of short-duration, low-impact field work.

IN ACTION — The tethered balloon system being launched for a night flight at the Atmospheric Radiation Measurement Bankhead National Forest user facility in Moulton, Alabama. **Photo by Antigravity Films**

"The workflow presents a more graded approach to looking at real property risk," Joyce said. "It's a major shift in mindset for all of us, not just for Sandia, but also for the Sandia Field Office and NNSA to think about how we are accessing real property and the level of rigor that is appropriate so that we can meet our mission."

In addition to shifting people's mindsets, Konstantin said one of the team's biggest challenges lay in communicating across the many different technical areas involved. "Anytime there's a large group, people will have different perspectives and reaching consensus on how to implement something can require multiple discussions."

Andy agreed that just getting up to speed with all of the requirements and various terminology was a seemingly small, but ultimately critical, aspect of the milestone project. "Everybody's got a little piece of the pie here. Bringing all the functional areas together, making sure we were consistent in meeting the intent of the processes, and getting that buy-in from NNSA were big hurdles — and probably the biggest result.

"I really appreciate everybody coming on board to address this issue because it does make a difference to the project team, the sponsor and meeting mission goals."

LAUNCHING A TETHERED BALLOON IN THE ARCTIC

AI Innovation

CONTINUED FROM PAGE 1

The summit, designed to provide resources for employees working on nuclear deterrence to build more AI into their work, drew more than 600 participants in person and virtually March 17-18.

Brad encouraged Sandians to be curious. "Build your skillset and make some contacts," he said.

Dan Turner is leading Sandia's effort, called AI4ND. He emphasized the summit was designed to share progress, allow time for connection and brainstorm new projects and ideas for nuclear deterrence.

"This summit is designed to springboard Sandia's AI journey," Dan said. "We want to prioritize where the big wins are going to be."

ASTONISHING RESULTS — Lorenzo Gutierrez, far right, moderates a panel discussion during a summit for artificial intelligence at the Steve Schiff Auditorium. Panel participants included, from left, Tina Nenoff, Chrisma Jackson, Amanda Dodd and Carl Vanecek. **Photo by Alicia Bustillos**

Learning opportunities

The summit included an AI Genius Bar, with Sandia's AI experts available to talk and answer questions from participants. It also featured short courses, seminars and demonstrations and tutorials, including a tour to the recently opened Center for Advanced Manufacturing and Innovation, or CAMINO. Each of the 15 courses and seminars, which ran concurrently to the main sessions, had about 40 participants. NVIDIA and Palantir also provided demonstrations of their commercial AI tools.

Astonishing results

The value of AI to deliver quicker was highlighted during a panel discussion on the first day.

"As we approach two peer adversaries, our national security planning requires a very different approach," said Sandia Fellow Tina Nenoff, who is leading the AI strategy for the Labs. "We must do our jobs differently. AI will enable us to pivot to new things, including faster production."

Sandia is working on about nine AI projects for nuclear security, all funded by NNSA.

"Sandia is producing very quickly with astonishing results. I'm in awe; I sit there thinking, 'This is phenomenal,'" Tina said.

"Timelines are continuing to shorten," said Chrisma Jackson, a director in nuclear deterrence. "Not taking a risk is a risk," she said, referring to those who might be reluctant to incorporate AI into their work.

In addition to the panels, workshops and tours, the summit highlighted more than a dozen projects that use AI in nuclear deterrence work during bright spots sessions.

"I was struck by how far we've come in our AI journey and it's exciting to catch a glimpse of where we're headed," Dan said.

About 125 people contributed to the summit's success including from the following divisions: Nuclear Deterrence; National Security Programs; Advanced Science and Technology; Deterrence, Science and Technology; and Mission Services.

‘Regular dude’ runs a marathon in all 50 states

By **Magdalena Krajewski**

Sandia manager Don Gillich has completed a marathon in all 50 states. From Maine to California and every one in between, plus Alaska and Hawaii, Don has covered at least 26.2 miles per state across the nation in his trainers.

“I’m not some world-class or super-fast runner,” Don said. “I’m just a regular dude.”

A regular dude and an official member of the 50 States Marathon Club.

Don is not only consistent; he’s also driven and focused, having figured out how to make something truly challenging sound almost fun.

“One thing you quickly learn about marathon runners is that we can’t stop talking about marathoning,” Don said. “It becomes such a big part of your life and finds its way into most conversations, especially when you’re training.”

Amid all the talk about long runs, blisters and chafing, Don hopes to model something more inspirational for those around him, particularly with his team.

Future-ready

Don has spent eight of his 11 years at Sandia managing research and development teams. Currently, he leads a group in phenomenology and signatures. This work is a critical part of improving early warning systems that enable quicker responses to potential threats.

“One of our Labswide goals this year is focused on having a future-ready workforce,” Don said. “As managers, one of our performance goals is literally to develop people and healthy teams. I believe that promoting wellness within my department and modeling healthy habits for my staff has been a powerful way to achieve that.”

Zoning out

Don started running as a kid and quickly learned about the positive effects of physical activity and endorphin release.

“Running is therapy; it relieves stress and anxiety, but it also helps me zone out and reach a different mental state,” Don said. “In school, I’d get stuck on a problem, obsessing over it. I’d step away, go for a run and get into that zone where the subconscious takes over. I can’t tell you how many times I’d finish a run and think, ‘I figured it out. I got the answer.’”

THE ‘REGULAR DUDE’ — While Don Gillich, pictured with girlfriend Eva Lagat, has run 59 marathons, one in each U.S. state, he said he’s just a regular dude with a knack for sticking to his goals.

Photo by Craig Fritz

Don believes this kind of zoning out is especially important in research and development.

“I think part of the process in challenging R&D work is being able to clear your mind and let your subconscious figure things out for you,” Don said. “Sometimes, you need to step away from the problem to get closer to it.”

And then there’s the marathon.

“There are so many mental benefits to running, but when you’re running a marathon, at some point, it’s all mental. You can train as much as you want, but during those last five to six miles, it’s your mind you have to convince to keep going,” Don said.

The juice is worth the squeeze

Don ran his first marathon on a whim in college, without any training, just a nudge from his cross-country coach and youthful bravado that tells a 20-year-old they can do anything.

“The first 23 miles felt pretty good but then I hit a wall. It was awful. I staggered to the finish line, bloody and chafed,” Don said.

Determined to improve, he decided to run the same marathon the following year, this time with proper training. He finished in just under four hours, his best time to date.

Over the next several decades, Don completed a dozen marathons. A couple of years after turning 50, he set his sights on joining the 50 States Marathon Club.

“2019 was my ‘Year of the Marathon,’” Don said. “I ran 13 marathons that year, and in one race I came pretty close to that personal record I hit when I was 21.”

From 2020 to 2025, Don ran 34 marathons, and on Oct. 11, 2025, he crossed the finish line in Hartford, Connecticut, officially becoming a member of the 50 States Marathon Club.

“The marathon is a tough distance. It will never be easy,” Don said. “But the hardest part is just getting to the start line. Once you’re there, if you respect the distance and have the mental capacity to push through, it’s worth it.”

Leading by example

Running marathons has shown Don that he is capable of hard things, not only finishing the race but also getting to the starting line.

The process is twofold. The running aspect is about investing in himself, something he does for his mind and body, promoting his physical and emotional well-being. It keeps him focused, motivated and healthy. The marathons, while related to running, are about proving to himself that he can set goals, commit his time and energy and achieve those goals.

Don doesn't expect everyone on his team to sign up for a marathon or even take up running. However, he hopes that somewhere in all the marathon talk, his team feels encouraged to invest in themselves and pursue goals that may lie outside their current comfort zone.

"I always ask my team, 'What's the hard thing you can do next?'" Don said. "I hope to encourage others to pick something they're passionate about and go for it. Don't stop until they're done."

And if that happens to be running, a half-marathon specifically, Don is down to tag along.

"Now I want to run a half-marathon in every state but this time with somebody," Don said. "Who's in?"

BETTER WITH A FRIEND — Don Gillich trains with girlfriend Eva Lagat for the ToughRuck, a marathon distance race during which Don will wear a 35-pound rucksack. **Photo by Craig Fritz**

Next up

Don turns 60 this year and is already working toward his next hard thing.

On April 19, Don will lace up his trainers, strap on a 35-pound rucksack and step onto the starting line for his 60th marathon, the ToughRuck in Boston.

"I know I can run a marathon, but a marathon with 35 pounds on my back? That's a different story," Don said.

Don insists he's just a regular dude and maybe that's exactly what makes him so inspirational for the rest of us.

SWC Math & Science speakers embrace 'courageous failure' in STEM

By **Lea Blevins**

There's no single path to a successful career in STEM. And oftentimes those paths look less like a straight line and more like a jungle gym.

Mentors and speakers shared these sentiments with high school junior honorees, their families and their teachers at the 35th annual Sandia Women's Connection Math & Science Awards held Tuesday, March 24, at Las Positas College in Livermore.

"The underpinnings of what we do at the national laboratories is based in math and science," said Toby Townsend, associate Labs director for the Deterrence, Science & Energy Division. "If you pursue your curiosity in math and science, you're going to find your way into professions and adventures you never would have imagined. I encourage you to enjoy that journey, have fun doing it, get lost and don't worry about it when you get off track — you'll find your way back."

Nominated by teachers and school administrators, 45 students from 28 schools throughout the greater Bay Area earned recognition for this year's event. More than 40 Sandia Women's Connection members volunteered their time to plan the event and connect with students during the mentoring portion of the evening.

"Be willing and open to letting people mentor you," Toby said. "The world and our society will do more of that than you expect. People you don't know will put their arm around you — just like this group. They will help guide you if you're willing to listen."

Keynote speaker Sheryl L. Hingorani, laboratory chief of staff at Lawrence Livermore National Laboratory, imparted similar words of wisdom to award recipients. Hingorani, who spent 33 years at Sandia before joining Lawrence Livermore,

ENCOURAGING WORDS — Associate Labs Director Toby Townsend shares his career journey. **Photo by Spencer Toy**

discussed her professional path and the value in being open to opportunities that arise.

"My career has had peaks and valleys," she said. "I've had times where I felt very connected, very successful and impactful. And I've also had times where I struggled and doubted myself and stumbled a bit along the way. And I think that's fine — in fact, that's good. Maybe we're not trying hard enough if we don't stumble now and then. It makes us more resilient and agile for the next thing to come."

Hingorani referred to it as "courageous failure," adding that while she may have lost out on some positions along the way, it always opened the door for others.

"The labs are an amazing place," she said. "You can work at the same lab and have a bunch of different careers. In the STEM field, you will be able to contribute to this very large array of quickly expanding challenges that we have to solve. Seek the most challenging problems."

Sandia presented honorees with certificates and congratulated them with a special Sandia Women's Connection challenge coin.

"This is a meaningful recognition of your hard work, for your dedication to learning and as a person of integrity and inspiration to others," said Sandia Women's Connection Co-Chair Pam Lober. "It symbolizes that you have risen to the challenge and are on a path to achieving remarkable things in STEM and beyond."

Las Positas College representatives shared their encouragement with awardees and recognized Sandia for its partnership. In addition to the Sandia Women's Connection awards, Sandians help organize and volunteer at the annual DOE Science Bowl and annual STEM Day held at Las Positas.

"You're supporting the college and our students," said Kenneth Cooper, Las Positas College Foundation executive director. "Sandia is not only recognizing excellence, it's actively helping to build a pipeline for future scientists, engineers and innovators."

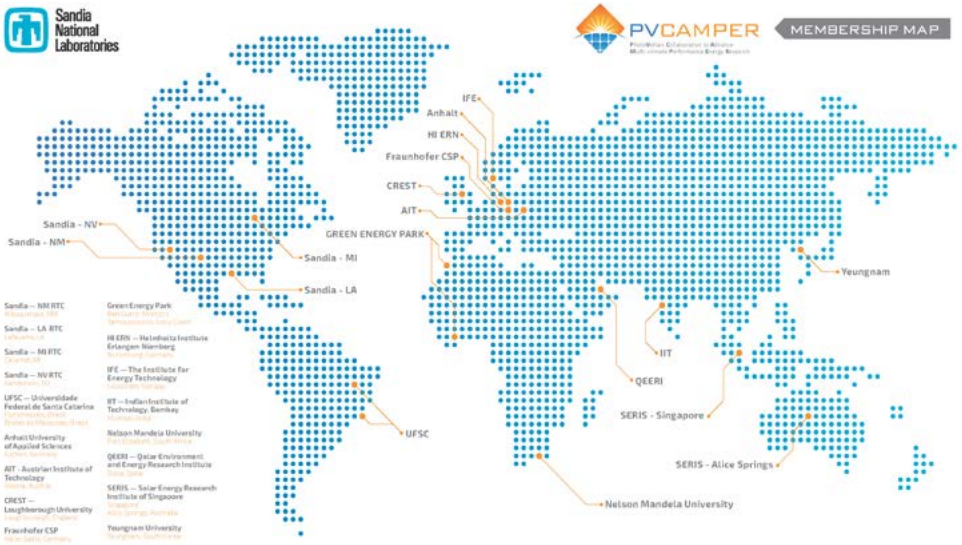
SHARING STEM — Manager Emily Hollister, left, mentors two award recipients. **Photo by Spencer Toy**

Nelson Mandela University joins Sandia-led collaborative

By **Kelly Sullivan**

The Photovoltaic Collaborative to Advance Multi-climate Performance and Energy Research, better known as PV CAMPER, recently elected Nelson Mandela University as its 14th member. The addition of the South Africa affiliate marks an important milestone for the global network of researchers and field laboratories, which now encompasses six continents and most major climate zones.

Led by Sandia, PV CAMPER conducts collaborative photovoltaic research to advance efficient technologies and ensure system reliability. Sandia researcher and PV CAMPER Chair Laurie Burnham said the group tackles emerging challenges, supports the development of advanced performance models and validates new technologies



WORLDWIDE WEB — The Photovoltaic Collaborative to Advance Multi-climate Performance and Energy Research membership map pinpoints the collaborative's 14 member organizations and network of 19 field sites across six continents. **Graphic by Laurie Burnham**

across different operating environments.

"The overall intent is to promote data- and information-sharing to increase the efficiency, reliability and availability of solar assets worldwide," Laurie said. "Nelson Mandela University has the technical capabilities and resources to support PV CAMPER's goals, and we are fortunate to have them."

The Photovoltaics Research Group at Nelson Mandela University conducts research across the photovoltaics value chain, including advanced characterization, performance analysis, reliability studies and system optimization. The group also plays a leading role in supporting the growth and sustainability of the photovoltaics sector in South Africa and beyond through postgraduate training and industry collaboration. The Photovoltaics Research Group has a strong association with university spin-off company PVinsight in the field of accredited testing and on-site evaluation of photovoltaics modules deployed in plants.

Ernest van Dyk, professor of physics and Nelson Mandela University's appointed representative to PV CAMPER, said, "Nelson Mandela University is honored to be elected as a member of PV CAMPER. This appointment recognizes our sustained commitment to PV research, innovation and human capital development, and we look forward to contributing meaningfully to collaborative initiatives that strengthen the global PV community."

GLOBAL RESEARCH — Photovoltaic modules at Nelson Mandela University's outdoor facility. **Photo courtesy of Nelson Mandela University**

Laurie attributes Sandia's leadership of this global institution to the Labs' 50-plus years of pathbreaking solar-energy research and its state-of-the-art research and development facility, the Photovoltaic Systems Evaluation Laboratory. The site occupies seven acres at Sandia and highlights U.S. ingenuity with more than 50 domestically manufactured photovoltaics systems, spanning both old and new technologies, generating data critical to the U.S. solar industry.

Scientific developments in the areas of system modeling and data analytics, as well as yield predictions, are hampered by the lack of publicly available, high-quality data. In addition, weather events, such as hurricanes and hail, call attention to the importance of cross-climate field studies to identify failure mechanisms, monitor the robustness of emerging technologies and make design and technological choices.

NEW MEMBER — Physics professor Ernest van Dyk is Nelson Mandela University's appointed representative to the Photovoltaic Collaborative to Advance Multi-climate Performance and Energy Research, or PV CAMPER. **Photo courtesy of Nelson Mandela University**

"Such demonstration data is especially vital, given the rapid technological diversification of the solar industry, such as new cell technologies, new material combinations and various module geometries combined with accelerating capacity worldwide," Photovoltaic Systems Evaluation Laboratory Director Bruce King said.

While not all PV CAMPER members can match the size and diversity of installations at the Photovoltaic Systems Evaluation Laboratory, participating institutions must meet stringent technical requirements, including high-accuracy characterization and irradiance instrumentation, rigid data-quality standards, and strict operations and management protocols. In addition, members must participate in joint research activities, conference and workshop events, and meet as a group at least once a year. PV CAMPER is governed by an executive committee, which is elected every two years. In 2026, it includes the chair from the U.S., the vice chair from Germany, the director for research from Austria and director for outreach from Morocco.

Each member institution operates one or more field laboratories and is actively engaged in photovoltaics performance and reliability research, from experimentation to simulation and validation studies. As the organization matures, PV CAMPER looks forward to expanding its impact and to tackling these and other research challenges in such critical areas as measurement uncertainty, predictive modeling and the cross-climate reliability of emerging technologies.

Discover more about the collaborative's photovoltaic work at PV CAMPER.

After 30 years, a permanent post

CLEARED FOR LANDING — A twin-engine Bell 412 helicopter is lowered into Heritage Park at the National Museum of Nuclear Science & History on March 24. The aircraft joins the museum's fleet after a 30-year career supporting the NNSA Nuclear Emergency Support Team, providing radiological surveillance at presidential inaugurations, Super Bowls and political conventions. Sandians have contributed technical expertise to NEST's mission throughout the program's history. **Photo by Lyndsee Cantly, National Museum of Nuclear Science & History**

Career futures, up close

LEVEL UP — AI researcher Mike Bernauer provides mentorship and conducts mock interviews on Junior Achievement Job Shadow Day, March 23. During the event, 25 students from Highland High School listened to Sandia panelists discuss their careers, participated in mock interviews and toured the Technology Training and Demonstration area. **Photo by Craig Firtz**

Mileposts


Phil Dreike 45


Kristin Dolan 25


Gerry Giese 25


Alex Robinson 25


Frank Whiston 25


Barbara Sandoval 20


Casiano Armenta 15


Frank Austin 15


Jill Blecke 15


Will Bonilla 15


Amanda Hawkins 15


Sean Herring 15


JC Leger 15


Rob Lundberg 15


Camelia Pearson 15


Lita Suina 15


Jose Vilalva 15


Timothy Wildey 15

Retirees


Greg Neugerbauer 47


Tony Perlinski 41


Cathy Vortolomei 41


Daniel Vortolomei 41


Dawn Skala 30


Ellen Pope 22


Trish Selcher 15