

## Meet 83 distinguished Sandians

Sandia's special appointments represent employees from all areas of the Labs' operations. This year, 83 Sandians have been honored with special appointments.

pages 7, 8, 9.

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# Sandia LabNews

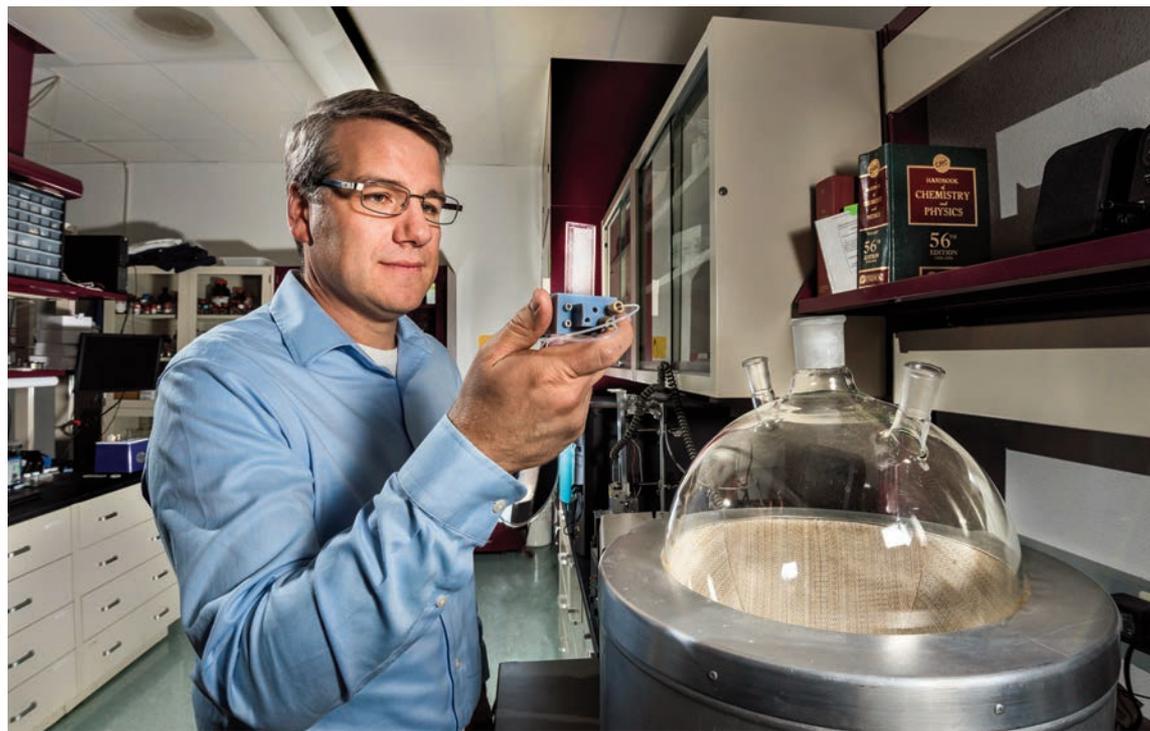


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## Magnetic nanoparticles leap from lab bench to breast cancer clinical trials

### Longstanding Sandia, industry collaboration produces precise particles



Nanoparticle master chef — Sandia materials chemist Dale Huber has worked on making nanoparticles the exact same size for 15 years. His long-term collaborators at Imagination Biosystems will use these magnetic nanoparticles for their first breast cancer clinical trial later this year. He is holding a microfluidic chip that can make tiny amounts of nanoparticles. The round bottom flask beside him can be used for making much larger quantities of nanoparticles.

(Photo by Randy Montoya)

By Mollie Rappe

Dale Huber has been working on the challenge of making iron-based nanoparticles the exact same size for 15 years.

Now, the Sandia materials chemist and his long-term collaborators at Imagination Biosystems will use these magnetic nanoparticles for their first breast cancer clinical trial later this year. The nanoparticles — so small 3 billion of them would fit on the head of a pin with room to spare — stick to breast cancer cells, allowing the detection and removal of even small metastases.

Imagination Biosystems and Dale have been working together synthesizing nanoparticles since the opening of the Center for Integrated Nanotechnologies in 2006.

“Having access to the talent pool at CINT with experts like Dale Huber has been helpful,” said Bob Proulx, CEO of Imagination Biosystems. “Additionally, the fact that CINT has a user program that allows industry to access the facilities and equipment that, otherwise, would be too expensive for a small company like ours was valuable. The initial work we did with CINT to develop a method to give precise control over the size of the nanoparticle was key for our MagSense magnetic relaxometry technology for the detection of cancer.”

CINT is a user facility jointly operated by Sandia and Los Alamos National Laboratory for the U.S. DOE's Office of Science. CINT provides free access to state-of-

(Continued on page 4)

## Exploring Arctic clues to secure future with new Sandia, university partnership

By Kristen Meub

The Arctic is undergoing rapid change, with sea ice melting and temperatures rising at a faster pace than anywhere else in the world. Its changing environment affects global security, politics, the economy and the climate.

Understanding these changes is crucial for shaping and safeguarding U.S. security in the future, say Sandia scientists.

Sandia and the University of Alaska Fairbanks recently signed an umbrella Cooperative Research and Development Agreement to study these changes and partner on basic science, energy and security research in the Arctic.

“For the last 40 to 50 years, the Arctic environment has been changing at twice the pace of what's happening globally, and during the last 20 years, it's accelerated to three times the pace,” Joe Hardesty, a Sandia Earth sciences engineer, said. “Those changes don't stop in the Arctic. Historically, when we've had more opening of ocean systems in the Atlantic and the Pacific, major change and shifts in socio-economic and political power have happened around the globe, and we wouldn't necessarily expect the Arctic to be different.”

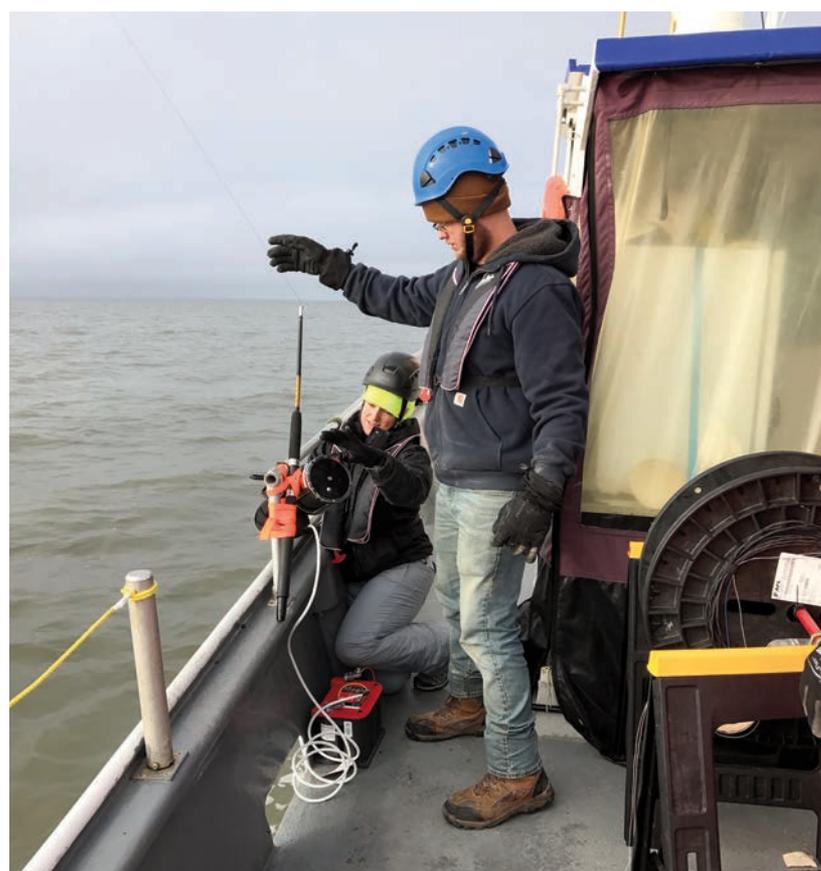
The agreement runs the gamut of pro-

jects, from working toward a comprehensive multi-agency research facility that tackles overarching Arctic issues, supporting Alaskan resilience against natural disasters and the harsh environment, studying the suitability of renewable energy and microgrids for the Arctic environment, flying tethered balloons and drones to measure atmospheric temperatures and collaborating on satellite sensing, detection and nonproliferation work.

“There are a lot of concerns in science, security and energy stability where Sandia's capabilities are complementary or distinct from UAF's, and this partnership is an opportunity for us to help the U.S. manage the risks and responsibilities that come with the changes in the Arctic,” said Lori Parrott, Sandia atmospheric sciences manager. “The opening up of sea ice is going to lead to concerns for border security. As a country, we must consider how to ensure that our fourth coast is as secure as our other coasts.”

Sandia manages two facilities at sites on the North Slope of Alaska as part of the Atmospheric Radiation Measurement program, a national scientific user facility funded through the DOE's Office of Science. Sandia also manages two areas of

(Continued on page 4)



GOING UP — Sandia researchers Dari Dexheimer and Casey Longbottom conduct offshore balloon tests in the Arctic. (Photo by Valerie Sparks)



**Hy Tran is Sandia's 2018 Asian American Engineer of the Year**

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**Wind blade from a 3D-printed mold, energy-saving nanoparticles earn Sandia national FLC awards**

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# Lab News Notes

**Editor's Note:** Lab News continues to seek guest columnists with observations on life at the Labs or on science and technology in the news and in contemporary life. If you have a column (500-750 words) or an idea you'd like to submit, please contact Jim Danneskiold, the acting editor.

**By Cathy Ann Connelly**

If you're reading this, you possess great power and opportunity — simply because you can read.

A small, relatively young local nonprofit, Reading Works ([www.reading-works.org](http://www.reading-works.org)), is effectively chipping away at tutoring the more than 100,000 adults in the Albuquerque area who are functionally illiterate – empowering them with reading skills so they, and their families, can have different, broader, more stable life opportunities. “Functionally illiterate” basically means lacking the literacy necessary for coping with most jobs and many everyday situations.

A year ago I started tutoring adult learners through Reading Works. And, while I anticipated I'd get some satisfaction through volunteering, I was not prepared for what I actually received.

I've learned about a shared excitement in each modest achievement and “ah ha” moment I see in a learner's eyes. About being thankful for whatever you have, and wherever you are in your life. My students help me check my expectations at the door, to be present and mindful in adapting how I try to help and where we go with lessons. They remind me to never give up, and to be happy in the ability to show up and celebrate improvement, not perfection.

I stepped into this Reading Works journey because in today's world, in this great nation, I cannot imagine being unable to read and not having somewhere to go and someone to help with this fundamental life skill. I also felt that our national environment recently has had too many hands up, trying to stop people's life progress – and I wished to counterbalance that trend, even if I'm just one person helping one student.

Reading Works' “12 Weeks to Reading” program is a phoneme (sound)-based approach that helps adults who, for a variety of reasons, never got the extra help they needed to read. It just won a prestigious Library of Congress literacy award, and is now finding funding to print and share its program materials with other groups, to reach more adult learners.

They rigorously screen tutors and students. And they carefully match them, and help them connect and get acquainted. Tutors don't need previous teaching experience to be effective. And there are ways to help other than tutoring reading, if that's not a fit, such as English as a Second Language, math, science and computer help, tutoring for GEDs and administrative or fundraising assistance.

Training to become a reading tutor takes half a day, and requires a six-month commitment. Reading Works offers follow-up training, and backs up tutors with great office staff, other volunteers, and an office full of helpful resource materials. Tutors and learners decide when and where they meet each week for your two-hour tutoring sessions, and Reading Works provides guidance on recommended locations.

One reason they've received Sandia and United Way Community Campaign support is their attention to collecting meaningful metrics on their work. Reading Works qualifies as one of the programs helping not only adult learners, but improving Albuquerque-area family stability. As a Sandian, I designate them to receive my annual UW contribution. Eighty-two cents from each Reading Works dollar goes directly to support their students and tutoring programs in the field. They served 199 students in fiscal year 2016-17. They do a lot with what they get.

Sandia Community Involvement is featuring Reading Works on its website in May, and it's featured in other ways around the Labs. Through May 11, Reading Works also is also part of *USA Today's* social fundraising [www.crowdrise.com](http://www.crowdrise.com) campaign, where giving as little as \$10 potentially can qualify the literacy program for as much as \$25,000 in grants.

I thank Sandia, and each of you for all you already do to positively contribute to our Albuquerque community. I hope those of you with any extra time or resources will consider assisting Reading Works and help empower adults to read.

# How has Reading Works improved my life

by Liu Sha



**Reading Works** tutor Camilla Haneberg (left) and learner Liu Sha who are participants in the adult literacy program. Liu wrote the guest article, “How has Reading Works improved my life” which appeared in the nonprofit's “New Words” newsletter and is reprinted here with the permission of Reading Works, Camilla and Liu. Liu refers to “Cindy” and “Esodie,” who are the two staff members who keep Reading Works' office running.

**Note:** Text is reprinted as it appeared in *Reading Works' monthly publication*.

Even I've been Albuquerque for 3 years, My listening and speaking are not good. My husband and my friends in here are Chinese, so I don't have many chance to speak English. You know if you want to improve your English you must talk to English speaker. I'm lucky! In the end of this year, my friend introduced Reading Works to me.

I'm very nervous when I first went to Reading Works, but it never happened again, because Cindy and Esodie are very nice and patient.

Esodie find a wonderful teacher ‘Camilla’ for me specially. Camilla not only good at teach but also has many common ground with me. We are libra and we both like art. We went to Asian market and art museum together. We had a lot of conversation. I have so many time to open my mouth. It's very helpful for my study. I can see so much improvement with my pronunciation and comfort with talk. Happily, we're good friends now.

Thanks, Reading Works.

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# ASBP blood drives for the battlefield



## April 30 is next KAFB quarterly collection event

KIRTLAND AIR FORCE BASE will host U.S. Army medical personnel from Fort Bliss who will collect much-needed blood donations at the quarterly Armed Services Blood Program (ASBP) on Monday, April 30, from 9-3 p.m. at 1421 1st St. SE, in Bldg. 20224, next to the Base Theater and post office.

ASBP provides blood products and services for the Army, Air Force and Navy, and is the sole provider of blood to those serving in Iraq and Afghanistan. Donations directly support military service members and their families worldwide, including military hospitals, ships, combat support hospitals and medics on the frontline.

All blood that is collected by ASBP will be in Iraq or Afghanistan within 72 hours of collection. Although its first priority is providing for wounded warriors in overseas operations, ASBP also provides blood to other soldiers, family members and retirees at military treatment facilities.

This is a great way for soldiers and civilians to help all currently deployed service members. One donation could save the lives of three people. Give the gift of life, and come out to support the ASBP; you may save a complete stranger.

Walk-ins are welcome at the quarterly blood drive, or individuals may schedule an appointment online. Bring a photo ID, as your Sandia badge should not be used for identification purposes. If you have questions, contact Amy Schwebke at 505-284-6442.

# First wind blade from a 3-D printed mold, energy-saving nanoparticles earn Sandia national FLC awards



The Oak Ridge National Laboratory Manufacturing Demonstration Facility Team stands next to a 3-D printed wind turbine blade mold.

(Photo by Brittany Cramer, Oak Ridge National Laboratory, U.S. Department of Energy)

By Troy Rummler

*Sandia National Laboratories has won the Federal Laboratory Consortium for Technology Transfer's (FLC) national 2018 Technology Focus Award for designing the first wind turbine blades ever fabricated from a 3-D printed mold, which could dramatically shorten the time and expense of developing new wind energy technology.*

*The labs also won an Excellence in Technology Transfer Award for advanced nanomaterial window films that could save consumers billions in energy costs each year.*

*"These two deserving collaborations align well with Sandia's mission," said Jackie Kerby Moore, manager of Technology and Economic Development and the labs' representative to the FLC. "They strengthen our nation's energy security and resilience by lowering the cost of energy technologies." The winners were honored at an award ceremony April 25 at the consortium's National Meeting in Philadelphia, Pennsylvania.*

## 3-D printing accelerates wind tech innovation

For four decades, Sandia researchers have designed wind turbines that capture energy more efficiently than prevailing technology and so drive down the cost of renewable energy. But producing prototypes is a drag. Each requires a series of labor-intensive, custom molds that can take up to 16 months to complete before the blade can be built and tested.

Sandia led a partnership that demonstrated a way to reduce this time to just three months. Teaming with Oak Ridge National Laboratory, a leader in the field of 3-D printing, and TPI Composites, the nation's largest independent manufacturer of wind turbine blades, Sandia 3-D printed the mold directly from a digital design, slashing more than a year from production time. The demonstration focused on a relatively small 13-meter blade, but if applied at larger scales in industry, designers could take more risks with experimental designs and accelerate innovation in wind technologies.

The FLC's 2018 Technology Focus Award honors Sandia's collaborative effort to address a pressing energy-related challenge. Sandia led the design of the blade, including an assessment of the feasibility of using additive manufacturing. TPI consulted on the mechanical parameters and performed the structural design and Computer aided Design geometry required to successfully mold the blade. Oak Ridge printed the mold in several sections in just two weeks, with the final assembly and manufacturing of the blade at TPI. "The wind department at Sandia has expertise in designing blades, but our group doesn't work with additive manufacturing," Sandia investigator Josh Paquette said. "This project was an opportunity to combine expertise from two laboratories and an industry adviser that could immediately bring this knowledge into the private sector."



Federal Laboratory Consortium  
for Technology Transfer

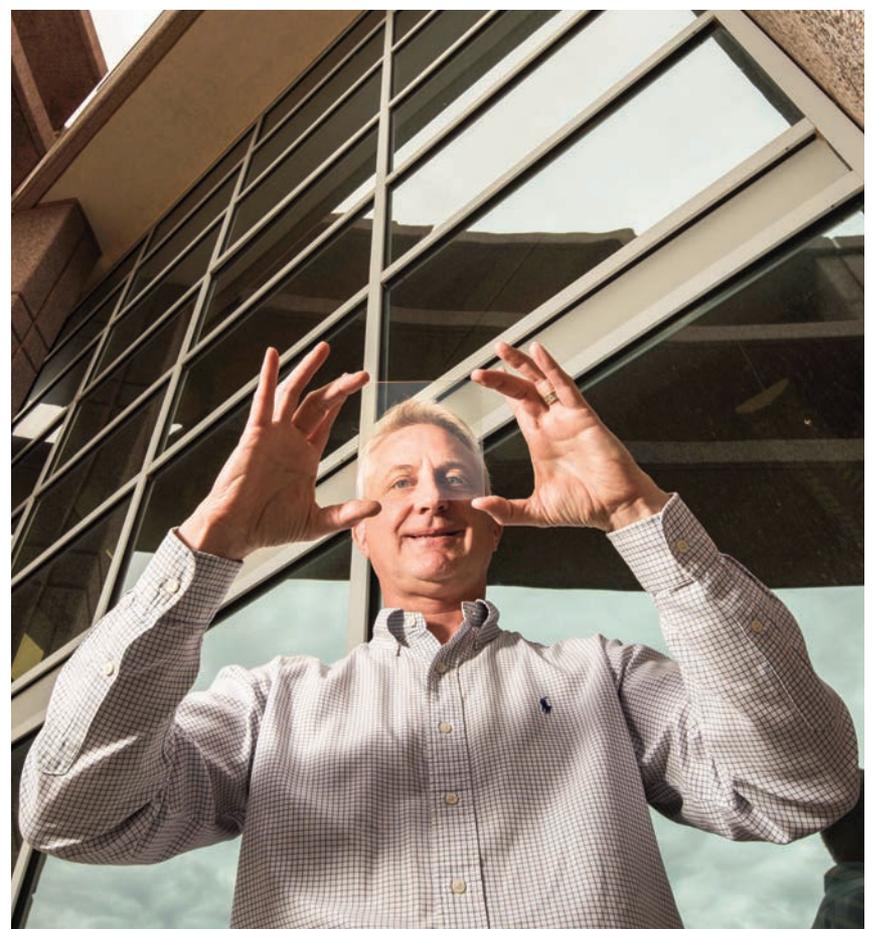
## Nanotechnology keeps windows cool in the summer, warm in the winter

In the United States, single-pane windows still make up about 40 percent of all window glass in the South, and nearly 30 percent in the Midwest and northern states, according to the Advanced Research Projects Agency-Energy. Collectively, these poor insulators lose a tremendous amount of heating and cooling energy. A partnership between Sandia and Santa Fe, New Mexico-based IR Dynamics is developing advanced nanoparticle films that boost the energy efficiency of windows, which could save American consumers as much as \$12 billion each year and significantly reduce national energy consumption.

The IR Dynamics-Sandia team creates the films with nanoparticles of the compound vanadium dioxide. While some materials, such as aluminum, reflect light and heat, and others, such as glass, transmit them, vanadium dioxide is temperature-sensitive (thermochromic) and does both. The nanoparticle films transition from heat-transparent to heat-reflective in response to the temperature.

Applying an energy-efficient film would likely be much less expensive than a full window replacement, so consumers would enjoy greater savings sooner.

"The FLC award recognizes the efforts of the Center for Integrated Nanotechnologies as an incubator to support transfer of licensed Sandia technologies to the private sector," Sandia engineer Paul Clem said. "We have received strong support both from CINT and from Sandia's tech transfer office, including Cooperative Research & Development Agreements and New Mexico Small Business Assistance, for small business nanotech collaborative development." CINT is a Department of Energy Office of Science user facility operated by Sandia and Los Alamos national labs.



Sandia National Laboratories materials physicist Paul Clem holds a sample of nanoparticle coated glass.  
(Photo by Randy Montoya)

"3-D printed casting molds and heat-sensitive nanoparticle films are great examples of how Sandia's scientific research translates into products that benefit the public, and at the same time enable our missions," said Mary Monson, senior manager of Technology Partnerships and Business Development at Sandia. "These partnerships are important to Sandia's contributions in energy security, reliability and efficiency. We look forward to engaging with additional partners to make these and other innovations more widely available."

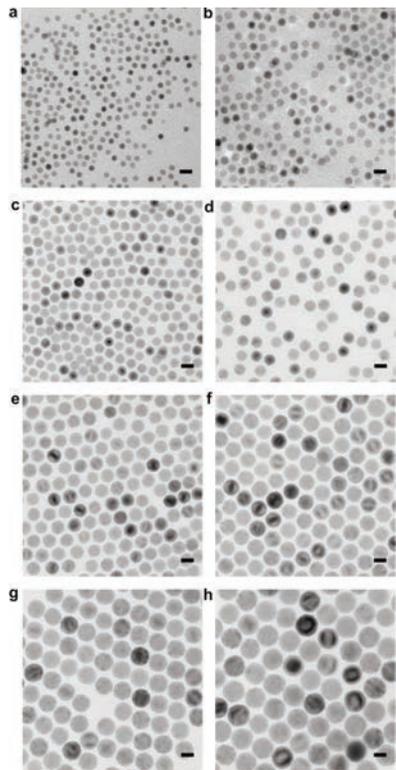
The Federal Laboratory Consortium for Technology Transfer is a nationwide network of more than 300 members that provides a forum to develop strategies and opportunities for linking laboratory mission technologies and expertise with the marketplace. The FLC Awards Program annually recognizes federal laboratories and their industry partners for outstanding technology transfer efforts. Since its establishment in 1984 the organization has presented awards to nearly 200 federal laboratories, becoming one of the most prestigious honors in technology transfer.

## Nanoparticles

(Continued from page 1)

the-art equipment and world-leading scientists for nanoscience researchers in academia and industry, provided they publish the results in scientific journals.

### Producing precise particles



By changing the “cooking” time, Dale Huber and Imagination Biosystems can make nanoparticles to order. Transmission electron microscopy images of eight different batches of nanoparticles ranging in size from 9 nm (a) to 34.5 nm (h).

(Image courtesy of Sandia National Laboratories)

The magnetic nanoparticles are coated with cancer antibodies, which stick specifically to cancerous cells. A tiny magnetic pulse — about the strength of a refrigerator magnet and hundreds of times weaker than one produced by an MRI machine — can sense the difference between nanoparticles stuck to cancer cells and those that are floating freely, allowing the detection of very small metastases.

### Precision synthesis of magnetic nanoparticles

However, for Imagination Biosystems’ cancer detection method to work, all the nanoparticles have to be almost exactly the same size.

“A 2 percent variation is the difference between perfect and just about useless,” said Dale. He added laughing, “It was eye opening for me and if had I known that in the beginning, I might not have taken on the challenge.”

Erika Vreeland, who worked with Dale during her doctoral thesis to develop reproducible synthesis and was hired by Imagination Biosystems to be their chief nanoparticle scientist after she graduated said, “We eliminated all of the witchcraft of the reaction.”

The standard method to make iron nanoparticles is to combine the ingredients and heat the mixture to about 650 degrees Fahrenheit. How quickly the heat increases determines the nanoparticle size, said Dale. However, just like your oven at home, it will overshoot the critical temperature and then cool down until it levels off. How much the temperature overshoots this critical temperature also affects the size, producing nanoparticles more than 15 percent larger or smaller.

Instead, Dale and Vreeland developed a method where they slowly add the ingredients to a molten metal bath whose temperature varies less than half a degree. This produces nanoparticles with less than 2 percent size variation. Dale said, “It’s not the easiest way to make particles, but that’s why they’re so much better.”

Not only did the team discover a highly reproducible method to make the tiny particles, they also transferred the process twice — once to Imagination and once to ChemConnection, a nanoparticle manufacturer in the Netherlands that can make the nanoparticles under the strict U.S. Food and Drug Administration and European Union regulations needed for use in patient clinical trials.

“The synthesis was transferred to the lab in the Netherlands while maintaining size control,” said Dale. “This is huge. Everything changes, even the boiling points, because the Netherlands is basically at sea level.”

### Clinical trial to detect spread of breast cancer this fall

After ChemConnection makes several batches, Imagination Biosystems will perform some preclinical trials to double-check the particles aren’t toxic. Then ChemConnection will make a small production lot of nanoparticles — comparable to a half teaspoon of sugar — for Imagination Biosystems’ breast cancer

clinical trials.

“Because the nanoparticles are uniform and have excellent magnetic properties, we don’t need a lot. We expect that a patient will be injected with at most 1 milligram of particles,” said Vreeland.

All of the patients for the first clinical trial will be selected because their oncologists’ treatment regimen includes lymph node removal and biopsy. Before each patient has several lymph nodes removed surgically, the magnetic nanoparticles, coated in the breast cancer-specific antibodies, will be injected at the site of the known tumors. After the removal but before the biopsy, Imagination Biosystems’ detection system will examine removed lymph nodes to look for the spread of cancer.

Vreeland said she hopes Imagination Biosystems’ method will be as accurate as a pathologist, with the eventual goal of using this method first to look for cancer and eliminate the need to remove cancer-free lymph nodes.

“Our No. 1 aspiration is to see the nanoparticles make it into regular clinical use with our MagSense cancer detection technology. Beyond that we believe the nanoparticles can be instrumental in a wide variety of biomedical applications including uses in treatment of cancer or other diseases,” said Proulx.

### Continuing collaboration to characterize nanoparticles and solve problems

CINT and Imagination Biosystems continued the collaboration beyond the effort to produce identically sized magnetic nanoparticles. Vreeland said, “We still run into all sorts of issues all the time so being able to talk with Dale or other scientists about some of the challenges we’re facing is really invaluable.”

Sandia bioengineer George Bachand assisted with the early toxicology and cell-targeting studies. Sandia researcher John Reno helped characterize the size and shape of the nanoparticles, using small angle X-ray scattering.

Small angle X-ray scattering is a method to determine the size and size distribution of nanoscale materials. “With CINT’s X-ray scattering instrument we can figure out exactly how big the particles are in 15 minutes. Seven or eight years ago it would take a week to figure out the same thing using electron microscopy,” said Dale.

This almost real-time size measurement enabled Vreeland to predict how the reaction would end and validate that they were on the right path, she said. The team used other CINT instruments to characterize the magnetic strength and coatings of the nanoparticles.

In addition to accessing the CINT experts and equipment through its user program, the partnership with Imagination Biosystems was supported by several New Mexico Small Business Assistance Program grants, which can support proprietary research.

The team has published several papers from the collaboration including one in *Chemistry of Materials* in 2015.

## Arctic clues

(Continued from page 1)

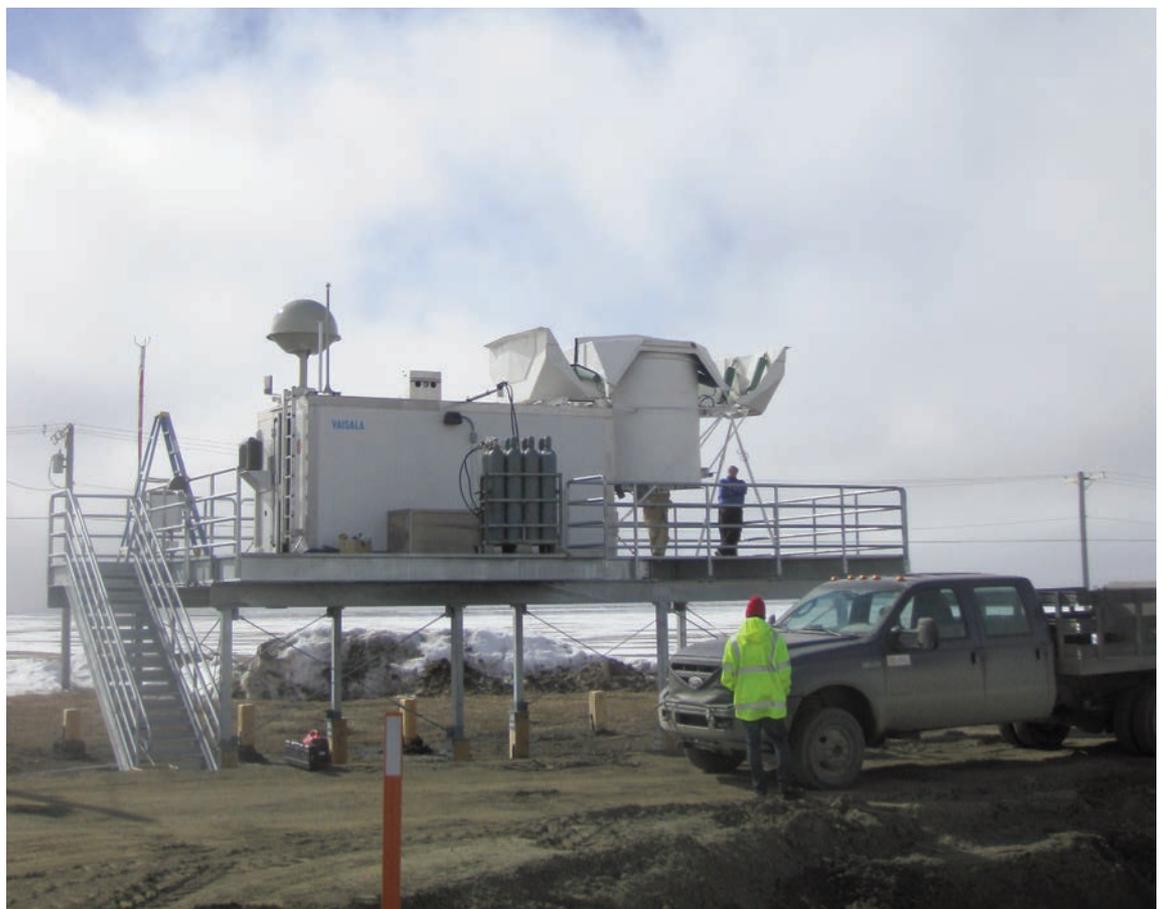
controlled airspace from the Alaska north coast toward the North Pole on behalf of the DOE, which provides opportunities for scientific testing and technology evaluation over the Arctic Ocean. The UAF, a public university, does extensive research on such Arctic issues as permafrost, coastal erosion, sea ice, search and rescue operations, glaciers, remote energy systems and more. The university’s Geophysical Institute contains the Alaska Center for Unmanned Aircraft Systems Integration, a research center that develops, tests and ultimately exploits emerging unmanned aircraft technology and its uses, with a special emphasis on the Arctic and sub-Arctic regions.

“We have a shared interest in the Arctic and Arctic science,” said Nettie LaBelle-Hamer, a University of Alaska Fairbanks researcher. “It’s part of our DNA here at UAF. Arctic-related science and infrastructure collaboration on the researcher level have been pretty successful between Sandia and UAF over the years, and this CRADA is helping us grow that. We have a lot in common, and as projects move forward, we’ll be better together.”

The partnership is in early stages, but work has already begun on a variety of projects:

- **Comprehensive Arctic research facility:** Many agencies have Arctic research facilities that focus on their specific needs and operations, but there is no collaborative research facility that addresses complex, overarching Arctic issues and brings together private and public agencies. Sandia and the UAF are working with other organizations to plan and build support for a joint facility, similar in concept to existing stations in the Antarctic.

- **Arctic resilience:** Climate change, permafrost thaw, melting sea ice, ice jams, earthquakes, tsunamis and harsh conditions all pose a threat to remote Arctic communities, industry and infrastructure. The University of Alaska Fairbanks is leading a project to develop an Arctic computer modeling, simulation and analysis program similar to the National Infrastructure Simulation and Analysis Center that includes Sandia. The center studies infrastructure and models how it responds to



ALASKA PARTNERSHIP – Sandia and the University of Alaska Fairbanks have signed an umbrella Cooperative Research and Development Agreement to partner on basic science, security and energy research in the Arctic.

(Photo by Sandia National Laboratories)

natural disasters, environmental impact and other threats to help make remote systems and communities more resilient.

- **Energy research:** Sandia and the university are researching how emerging renewable energy and grid-integration technologies perform in remote parts of Alaska that experience harsh Arctic conditions, including wide temperature cycles, grid power quality issues and geomagnetic disturbances. Abraham Ellis, a Sandia photovoltaic systems manager, said, “Access to affordable and resilient electricity is a challenge for many Alaska communities, and that harsh environment provides a

really useful proving ground for new energy technologies, such as advanced power electronics and resilient systems, that will eventually have to be applied to the rest of the grid.” UAF has also been active in this area with the Alaska Center for Energy and Power.

The new partnership between Sandia and the UAF will be discussed at Alaska National Lab Day May 30-31 in Fairbanks. The event will feature a variety of speakers from the Department of Energy’s national laboratories, plus Alaska academia and industry. The event will highlight partnerships and opportunity for collaboration on national security, science and energy research.

## Labs' video producer wins silver in international film competition



SANDIA LABS PRODUCER BRENT PETERSON

(Photo by Randy Montoya)

By Manette Newbold Fisher

For Sandia producer Brent Peterson, directing the 2017 ethics films was a project of passion that came down to complex stories and relatable characters, with a goal of curbing the eye rolls that corporate training videos sometimes generate. The result? Short films that were praised within the Labs and garnered national accolades.

Brent, who works in Creative Services, accepted a silver medal for his short films at the New York Festivals International TV and Film Awards ceremony on April 10 at the National Association of Broadcasters show in Las Vegas, Nevada. Entries from more than 40 countries were sub-

mitted to the competition, and Brent said he felt honored to receive the award.

“Story is a powerful motivator and communication tool. We experience life in terms of story – our life stories and others’ lives,” Brent said. “To really succeed in this realm of training, the stories can’t revolve around caricatures, or cardboard characters. They have to be layered, flawed, like how we are, so we can connect with them, understand them, and know their pitfalls.”

In previous years, Lockheed Martin provided ethics training videos for Sandia use, but last year, Creative Services teamed with the ethics department to create innovative short films that included scenarios that could take place at the Labs. Viewers could relate to the stories because all the characters were based on real positions at the Labs, Sandia jargon was incorporated and nearly all the scenes were filmed in Sandia locations. The videos encompassed a cinematic style, lighting and editing, and included original musical scores.

“Get Your Head in the Game” involves a new employee who decides working faster will be better for his career than working with a mentor and learning the rules. “Out of Bounds” is about a manager who uses corporate resources for personal volunteer work outside of the Labs. “The Missing” tells a story about employees who fail to check orders correctly, resulting in potential loss of a big customer and increased costs. Peterson wanted to tell stories that didn’t have concrete answers.

“Not everything is black and white,” says Brent. “It’s important to discuss the gray areas.”

Brent has more than 20 years of professional experience as a filmmaker, with 16 of those years at the Labs. He shot three documentaries during that time, “U.S. Strategic Nuclear Policy,” “Always/Never,” and most recently “On Deterrence.” He is also proud of his recruiting videos, the “I’m a Sandian” diversity series, and “Sandia Sidewalk Crack,” one of the first of his films to win an award, produced at Sandia in 2005.

All 2017 ethics short films can be viewed here: <http://bit.ly/2qJwVgs>.

## Juggling pins in the air

Partnerships, networking and collaboration help Sandia's most adept task jugglers succeed

By Michael J. Baker

*Juggle.*

*Urgent request No. 1: Schedule meeting. Urgent request No. 2: Final correspondence due by 10 a.m.*

*Juggle.*

*No. 3: Book travel.*

*What about that long-term project? The short-term project due tomorrow?*

*Juggle.*

*It's meeting time, just enough time to answer this last ... oh, there's someone at my desk with a request.*

*Juggle, juggle and juggle.*

“We are at our desk. We are by our phone. We live with our email. So, a lot of people will call the administrative assistant first,” says Sandra Jiron, an office administrative assistant who has experienced more than a few mornings and afternoons juggling schedules, rooms, meetings and other tasks since she started at Sandia in 2005.

“I’m content. I’m happy doing the work I do,” says Sandra, who is supporting her manager in mechanical systems and his team of 21 and others if needed.

The work of Sandia’s administrative professionals is easy to explain — keep Sandia running smoothly to perform its mission — but not always easily done.

“Admins are the team that schedule meetings, set up Skype, book travel, track actions, all in support of Sandia’s mission. We have an amazing team,” says Deb Marchand, the executive assistant to Labs Director Steve Younger. “I feel strongly the admins are the magic behind the scenes. We have so much knowledge about how the laboratories operate. Sandia has a broad mission to accomplish, and our community is essential.”

### Administrative Professionals’ Day

Sandia has over 450 administrative professionals who make sure things happen on time, people get to where they need to be and questions get answered.

Wednesday April 25 was Administrative Professionals’ Day, a good day to sit back and reflect how much they do for the Labs.

“Administrative Professionals’ Day is a dedicated day to celebrate all the admins who juggle so much and hold it all together,” Sandra says. “I’ve been lucky in that I’ve always had managers and staff that appreciate me every day of the year.”

The day was first observed as National Secretaries’ Day in June 1952 at a time when there was a shortage of administrative personnel due to the Depression-era birth-rate decline and a booming post-war business economy, according to a 2015 TIME magazine article. The day has since evolved to Professional Administrators’ Day to better reflect job titles and responsibilities, according to the International Association of Administrative Professionals website.

### Who supports the supporters?

When an administrative task needs doing, Sandians go to administrative professionals to get it done. The support is essential to the Labs’ mission. But, who supports those who give support?

Networking and relationship building with colleagues is a critical part of being successful at the Labs, says Amanda Espinoza, a senior management assistant in program planning and control standards. “The more people in your network, the more you can accomplish, professionally and personally. Supporting and mentoring each other is essential.”

Such networking is an important way to gain people’s trust, says Misti Cepeda, who was an OAA before becoming a badging specialist and administrative support for protocol. “Engage with different groups and volunteer to help. Show people they can count on you.”



SANDRA JIRON collaborates with teammates as part of her duties as an office administrative assistant. (Photo by Randy Montoya)

Those relationships can help with daily and bigger career tasks, says Sarah Torres, who offers administrative support for weapons systems engineering. “Building those relationships with other OAAs definitely takes time, but it’s worth it.”

The ability to share information, collaborate and promote the interests of Sandia administrative professionals is behind the Administrative Professionals Executive Council, which consists of all 12 executive assistants.

Each division is represented by its EA during APEC bimonthly meetings. The role of APEC is to allow teamwork “in support of Sandia’s executives, facilitate communication and collectively engage to help develop and sustain effective and efficient operational practices and a robust administrative professional workforce,” according to its charter.

### Teamwork makes the dream work

The relationship between management and their administrative professionals demands that everyone work as a team to fully reach their potentials.

“To be successful, a manager must see the admin as part of the team,” says Pauline Marquez, executive assistant for Human Resources and Communications.

“It’s not just someone to give tasks to,” Pauline says. “To push forward, both jobs must be cohesive.”

There are several ways to make administrative professionals integral to the Labs’ work: including them in department or project meetings; introducing them to visitors and customers; and, in general making it clear they are peers and respected members of the team.

“My manager is amazing, and we work well together as a team,” says Casey Krill, who supports about 15 people as an office management assistant in Government Relations. “I think that makes both my job and his job very effective and efficient. I like knowing that I make my team’s job easier, and that they trust me and rely on me to get things done.”

The support of team members allows her to thrive in her role, says Lori Wilson, an administrative staff assistant for quality assurance. “I love being part of this team and supporting the staff. Although I’ve been an administrative professional for my entire career, I have found that the fast pace at Sandia has stretched my skills quite a bit. I’ve learned a lot.”

### Rewarding mission

Whether it’s booking conference rooms or purchasing supplies; whether it’s answering phone calls or meeting unforeseen needs; or completing correspondence or taking minutes, it’s Sandia’s administrative professionals’ juggling that helps the Labs accomplish its mission.

“What I find most rewarding is knowing what I do helps our country and the world,” Deb says.

Says Casey: “When I tell someone that I work at Sandia, I say it with pride.” So, they keep juggling.



Hy Tran examines a kilogram sample in a mass comparator at Sandia National Laboratories' Primary Standards Laboratory in 2008. Tran led the team of scientists looking to redefine the kilogram by basing it on standards of universal constants rather than on an artifact standard. (Photo by Randy Montoya)

# Sandia measurements expert named Asian American Engineer of the Year

By Lindsey Kibler

**S**andia National Laboratories senior scientist Hy Tran has been named a 2018 Asian American Engineer of the Year. The award program is sponsored by the Chinese Institute of Engineers-USA to salute Asian-American professionals in science, technology, engineering and math who demonstrate exceptional leadership, technical achievements and public service.

"I am deeply both humbled and honored to have been nominated by Sandia and selected by CIE-USA," Hy said of his selection. "This is not so much a personal honor. This honor belongs to Sandia National Laboratories."

He also credits "the supportive environment and great leadership" within the labs, along with the hard work of colleagues and collaborators, technicians, and support staff, including computer, administrative and safety staff. "They make my day job easy," he said.



HY TRAN

## A career in measured science

Hy began working in Sandia's Primary Standards Laboratory in 2004 and, the following year, was selected as project lead for length, mass, and force metrology, which is the science of measurement. Hy promoted best measurement practices at the National Nuclear Security Administration laboratories, and established and maintained a research and development program in measurement science, supporting the calibration needs of the nuclear security enterprise.

Hy and his team won an R&D 100 award for his development of a three-dimensional micro-machined calibration reference standard that improves measurement accuracy in Mesoscale Measurement Machines used for high-volume parts manufacturing. His calibration reference standard is 10 times more accurate and less expensive than its predecessor, and can be used in the manufacture of miniaturized devices such as fuel injectors, watch components and inkjet printers.

In 2010, Hy was appointed to distinguished member of the technical staff and five years later to senior scientist, a title conferred on no more than one percent of technical staff members. In 2016, Hy was elected an American Society of Mechanical Engineers fellow.

Today, Hy works to develop and implement research and development strategies

for the Primary Standards Lab. He also is chair of a Sandia committee that identifies small or short-term research projects across the labs to help ascertain how to turn them into larger research and development efforts. This effort is funded by Laboratory Directed Research and Development.

"Professionally, I still can't believe that I was appointed to senior scientist — there are fewer than 50 senior scientists at Sandia," said Hy. "I am incredibly proud of being asked to serve on the LDRD exploratory express committee, and being asked to chair the committee in October 2017. These small projects are the seeds of Sandia's future. We intentionally mentor early career staff in the committee, so not only are we nurturing new technical ideas and directions, but we are also nurturing our future leading scientists and engineers."

The committee has funded more than 140 individual research projects since 2013, with 39 of those projects funded since he became chair.

## A growing interest in science, engineering and public service

Born in Vietnam, Hy says his family was very fortunate to emigrate to the United States during the Vietnam War. They settled in Virginia in 1970. He developed an interest in science, engineering and public service from his family; his father was a physician and his mother a midwife.

"Engineers are always seeking to improve things, so the values of education, hard work and service have all played into making me an engineer, and in the various roles that I have served as an engineer," he said.

Hy earned bachelor's degrees in science and in mechanical engineering from the Massachusetts Institute of Technology. He received his master's in mechanical engineering, and his doctorate in mechanical engineering, with a minor in electrical engineering, from Stanford University.

## Serving the community through education

Before coming to Sandia, Hy was an assistant professor of mechanical engineering at the University of New Mexico and a doctoral adviser for students both in mechanical engineering and in electrical and computer engineering.

In addition, Hy has dedicated many years to volunteering, typically in activities that involve educational outreach. He has helped demonstrate scientific research and organize chess clubs at local schools and has prepared teams for the Albuquerque Scholastic Chess League competitions.

Hy's science outreach activities led him to join the New Mexico Partnership for Math and Science Education and, in 2013, the New Mexico secretary of education appointed him to serve a four-year term as a member of the Math and Science Advisory Council to advise the New Mexico Public Education Department on the performance of K-12 students studying science, technology, engineering and mathematics.

Hy, an amateur woodturner, helps organize and teach a woodworking class for middle school students at Explora, an Albuquerque science museum, alongside fellow Sandian Aaron Hall. The class provides an opportunity to combine a few of his favorite things— science, volunteering and woodturning, he said.

"I would advise anyone looking to get into science and engineering: Be passionate about learning—you can learn something from any experience and activity, not just classroom," Hy said. "The breadth of your knowledge is one source of creativity, so broaden your formal education. Use your electives to go outside the boundaries of your discipline."

Hy was honored April 7, during the annual Asian American Engineer of the Year recognition event in Albuquerque.

Sixteen Sandia engineers have earned an Asian American Engineer of the Year award. Nominees come from a range of industrial, academic, government and scientific institutions, and other past winners include astronauts, corporate executives and Nobel laureates. The institute notes that "many of [the recipients'] achievements represent monumental breakthroughs in their respective fields and their impacts are global and everlasting."

# 83 Sandians move into Senior, Distinguished ranks

## Senior Scientist/Engineer



Igal Brener  
Optical Engineering



Dean Mitchell  
Nuclear Engineering



Harold Radloff  
Mechanical Engineering

Sandia's special appointments represent employees from all areas of the Labs' operations. According to Corporate Policy System documentation, placement in the Distinguished level signifies a promotion to the fourth level of the job. This level is populated with a select group of exceptional employees who have distinguished themselves in their careers while at Sandia. It is different from the other levels in that it is subject to a 10 percent population limit to preserve the distinction of the level. Divisions are not obligated to fill all their distinguished "slots."

Employees selected for the new levels have been recognized with a special plaque and a nonbase salary award, in addition to this special mention in the *Lab News*.

Also pictured here are individuals appointed to the very select title of senior scientist/engineer or senior administrator, a unique recognition of professional accomplishment.

**Not Pictured:**

Bart Chavez, Electro-mechanical Technologist; Ann Laney Smith, Intelligence and Counterintelligence Professional



Jonathan Rogers  
Systems Research and Analysis



Joseph Sanders  
Mechanical Engineering

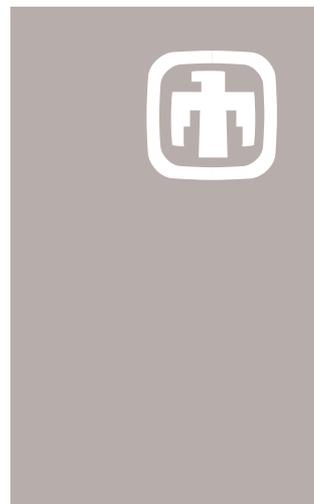


Scott Strong  
Computer Engineering

## Senior Administrator



Beth Dick  
Quality Assurance Specialist



Bertice Tise  
Computer Engineering



Robert Waters  
Systems Engineering



Douglas Weiss  
Electrical Engineering

## Division 3000

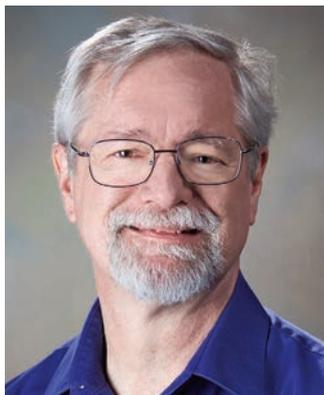


Peter Heald  
Training and Development Designer



Don Shoemaker  
Human Resources Business Partner

## Division 1000



Jerome Cap  
Mechanical Engineering



Mathias Celina  
Materials Science



Karen Devine  
Computer Science



Michael Gallis  
Mechanical Engineering



Jim Nakos  
Mechanical Engineering



Edward Parma  
Nuclear Engineering



Shawn Pautz  
Computer Science



Patrick Rambo  
Optical Engineering



Mark Taylor  
Computer Science

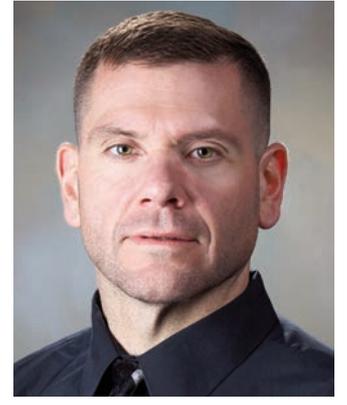
## Division 2000



Robert Burr  
Engineering Support Technologist



John Denaple  
CAD and Drafting Technologist



Chris DiAntonio  
Materials Science



Jared Dove  
Electrical Engineering



Arthur Gariety  
Electronics Engineering



Frank Love  
Electromechanical Technologist



Joseph Lyle  
Electronics Engineering



Julio Marchiondo  
Electronics Engineering



M. Barry Ritchey  
Laboratory Support Technologist



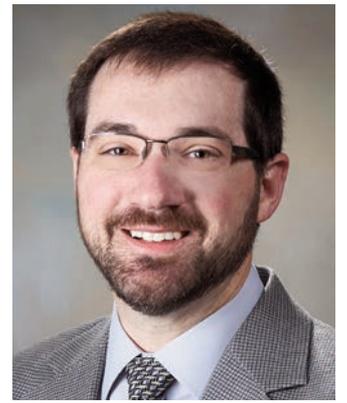
Joseph Simile  
Systems Engineering



Greg Ten Eyck  
Electronics Engineering



David Wackerbarth  
Electronics Technologist



Derek Wartman  
Mechanical Engineering

## Division 5000



Eric Burns  
Facilities Technologist



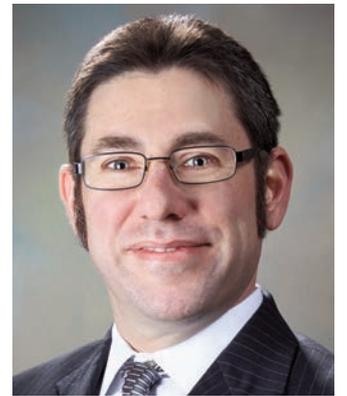
Scott Charles  
Laboratory Support Technologist



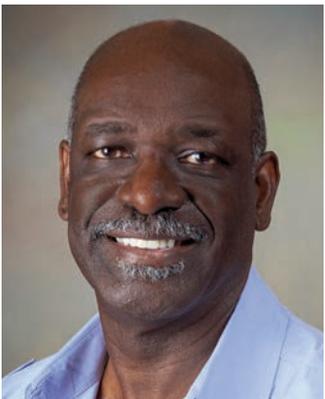
Phillip Coleman  
Microwave & Sensor Engineering



Larry Dishman  
Information Systems Engineering



Josh Etzkin  
Cybersecurity



Darrell Kirby  
General Technologist



Gene Littlefield  
General Technologist



Josh Lucas  
Engineering Support Technologist



Katherine Myers  
Semiconductor Technologist



Anthony Perlinski  
Engineering Support Technologist



Ken Plummer  
Microwave and Sensor Technology



Peter Schwindt  
Optical Engineering



Dan Sprauer  
Electrical Engineering



Michael Wiwi  
Semiconductor Technologist



David Yocky  
Electronics Engineering

## Division 6000



Mark Anderson  
General Technologist



Antonio Gonzales  
Systems Research and Analysis



Norman Kolb  
Electronics Technologist



Jim Pacheco  
Mechanical Engineering



Mark Smith  
Optical Engineering

## Division 8000



Nathan Bixler  
Nuclear Engineering



Emmeline Chen  
Program Communications Specialist



Robert Holland  
Environmental Technical Professional



Elizabeth Kivlighan  
Business Management Professional



Hoi Lau  
Mechanical Engineering



Robert Monson  
Systems Engineering



Noel Richmond  
Administrative Support



Chester Weiss  
Geosciences Engineering

## Division 4000



Pamela Maestas  
Administrative Support



Patsy Rowland  
Facilities Technologist

## Division 9000



Jeffrey Dohner  
Mechanical Engineering



Ann Gentile  
Computer Science



Stacey Hendrickson  
Systems Research & Analysis



Todd Hinnerichs  
Systems Engineering



John Jarocki  
Cybersecurity

## Division 10000



Costantine Pavlakos  
Computer Science



Vincent Urias  
Computer Science



Debbie Finrock  
Packaging Design Engineer



Jennifer Gonzales  
Rates Analyst

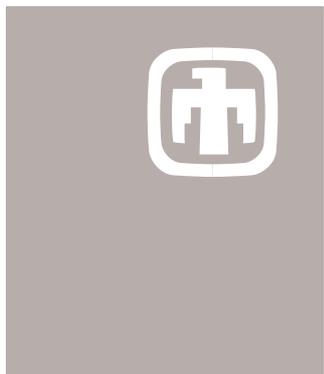


Julian Murrieta  
Business Management Professional

## Division 11000



Joyce Lesperance  
Paralegal



Marie Myszkier  
Supplier Relations



Kimberly Ridgeway  
Project Manager



Victoria Stanley  
Rates Analyst

# Mileposts



*New Mexico photos by Michelle Fleming  
California photos by Randy Wong*



Jim Krupar 35



Sheryl Martinez 35

# Recent Retirees




Adele Montoya 39



Dan Wahl 35



Randy Watkins 35



Eric Chavez 30



Beth Connors 30



Tim Vargo 34



Lisa Hooper 26



Ron Ralson 30



Rick Calvert 25



Jeff Kellogg 25



David Blackledge 20



Cindi Maxwell 20



Carol Watson 9



Brent Blankenship 20



Cynthia Cordova 20



Tim Frock 20



Diane de la Rosa Galey 20



Annette Gallegos 20



Normand Modine 20



Ron Rhea 20



Roberta Rivera 20



David Theriot 20



Angel Urbina 20



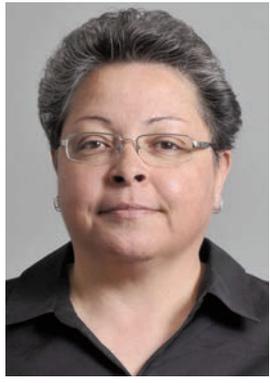
Tori VanderNoot 20



Rosie Vargas 20



Phil Aragon 15



Margie Baca 15



Natasha Bridge 15



Tanya Edmonds 15



Geoff Freeze 15



Steve Glover 15



Michael Gregson 15



Michael Hibbs 15



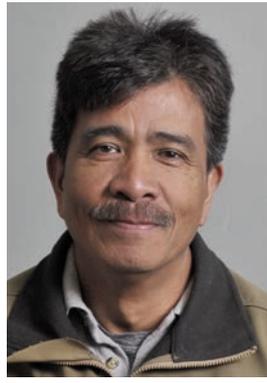
Todd Hinnerichs 15



Mike Lenz 15



Dave Sevougian 15



Andres Tabios 15

## SANDIA CLASSIFIED ADS

## MISCELLANEOUS

AMI BLACKSHEAR'S RAINBOW BABIES 'POOKIE', in original box, \$75. Gollan, 505-323-5317, leave number.

TABLE SAW, w/built in router table, radial arms saw, jointer, dust collector, planer, etc. Gallagher, 505-292-4896.

DOTERRA FAMILY ESSENTIALS & BEADLETS KIT, brand new, never used, \$150. Martinez, 505-688-7117, call or text Fran.

TIMESHARE, Pacific Grove Plaza, pacificgroveplazaresort.com, adjoins Monterey CA, 2 blocks from Lovers Point Beach, 7 nights, June 22-29, \$890. Griego, 505-265-2130.

BOW, Hoyt #70, RH, all set up to shoot, \$150; camper shell, Ford long bed, red, w/slide on stand, \$300. Schroeder, 505-917-4516.

ROTOTILLER, Troy-Bilt, 3-1/2-hp, junior model, w/hiller/furrower attachment, \$300 OBO. Walkington, 505-831-6974.

RV SPARE TIRE CARRIER, Roadmaster, hitch mount, like new in box, never used, \$350. Gehrke, 505-263-7327.

AMAZON ECHO, brand new, pkg. never opened, \$75. Stubblefield, 505-263-3468.

UTILITY TRAILER, X-Cargo, 1 axle, w/bracket for cooler or toolbox, great for motorcycle travel, \$375. Willmas, 505-281-9124.

CYCLING SHOES, men's size 8-1/2, Shimano sandals, ordered by mistake, new, unused, cost \$119, asking \$60. Drebing, 293-3335.

PORCELAIN TILE, Acacia pattern, 6" x 26", 209-sq. ft. total, 19 boxes, 11 tile/box, photos available, \$450. Davidson, 505-999-7599.

SWAMP COOLERS, 2, large, used, <6 yrs. old, you pick up, \$200/both. Rivers, 505-720-4701.

## TRANSPORTATION

'15 JEEP RENEGADE LATITUDE, FWD, Sierra blue exterior, black interior, 5-yr./100,000 warranty, all offers considered. Ramos, 972-951-0290

'99 FORD TAURUS LX, AT, V6, 110K miles, good condition, no rust, drives great, \$1,400 OBO. Lau, 505-388-5941.

'99 SUBARU OUTBACK IMPREZA SPORT, 5-spd., green, 187K miles, tires recently replaced, no leaks, powertrain solid, \$1,600 OBO. Wolfgang, 505-414-1483.

'06 AUDI A8L W-12, very rare 12-cyl., 69K miles, excellent condition, never wrecked, \$22,300. Quanz, 505-328-7100.

'13 FORD FOCUS SE, grey, tinted windows, ~28.5K miles, runs great, very fuel efficient, \$9,000 OBO. Boissiere, 505-239-1051.

'15 CHEVY MALIBU LT, black metallic, clean title, garage-kept, 22K miles, extended warranty, great condition, used to putt-putt around town, \$14,500 OBO. Gutierrez, 505-292-0209.

'03 LEXUS ES300, garnet w/beige leather, 139K miles, good condition, always garaged, \$4,750. Stuart, 505-400-3155.

## RECREATION

KAYAK, Aire Sawtooth, w/2 seats, air pump, tracking fin, new side bladders, \$450. Manko, 412-719-2766.

'12 TTLR, 26 BH, new axle, tires, rims, kitchen cushions, stereo, batteries, kitchen faucet, queen mattress, \$11,500. Barreras, 505-604-8671.

STARCRAFT TRUCK POP-UP CAMPER, heater, refrigerator, gas or electric, AC, gas cook top, fits 7-ft. truck bed, \$4,000. Hibray, 505-620-1572 or 505-821-3455.

'14 WINNEBAGO ONE 30RE TRAVEL TRAILER, sleeps 4, 2 slideouts, <9K miles, \$25,900. Burford, 505-916-0405.

'10 BMW F650GS MOTORCYCLE, 800 cc, w/ABS brakes, blue, always garaged, 19K hwy miles, immaculate, \$6,000. Amon, 505-280-2167.

## REAL ESTATE

HOMESITE, near road to ski area, gorgeous, level, all new homes in area, \$120,000, low down. Mihalik, 505-507-1306.

2-BDR. HOME, 2 baths, 2,200-sq. ft., den, dining room, living room, all hard floors, updated, large patio, parking, 1 acre, Corrales view, \$419,000. Hardin, 702-630-4468.

4-5-BDR. HOME, 5 baths, 3,633-sq. ft., 3-car garage, 7250 Whippoorwill Lane NE, FSBO, \$355,000. Sanchez, 505-400-0030.

## WANTED

MODERN DANCERS, to explore communication of science's creative process through dance, 2-yr. project. VanDevender, 505-228-9998.

## WORK WANTED

HOUSE/PET SITTING, or nanny work, CSU student, in Albuquerque area, starting May 29. Spence, 505-270-1647.

## How to submit classified ads

DEADLINE: Friday noon before week of publication unless changed by holiday.

Submit by one of these methods:

- EMAIL: Michelle Fleming (classads@sandia.gov)
- FAX: 844-0645
- MAIL: MS 1468 (Dept. 3651)
- INTERNAL WEB: From Techweb search for 'NewsCenter' page.

## Sandia scores Innovation award



INNOVATORS – Sandia's Stephanie Beasley, left, and Anup Singh, center, receive Sandia's Founders Award from Buck Koonce, Economic Development Director at Lawrence Livermore National Laboratory. Lawrence was the recipient of the 2017 Founders Award.



By Jules Bernstein

When it comes to promoting entrepreneurship and innovative technologies, Sandia stands out. That's according to the Innovation Tri-Valley Leadership Group (ITVLG), which has honored the Labs with its prestigious 2018 Founders Award.

The group acknowledged Sandia as a pioneer in bringing new technologies to market and fostering a competitive business climate in the cities of Livermore, Dublin, Pleasanton, San Ramon and Danville.

Group CEO Dale Kaye said Sandia's transferring of "lab technologies to both startups and established businesses is key to our local innovation ecosystem."

Specifically, the award recognizes Sandia's work with the Livermore Valley Open Campus, an expanding village of research centers on the border of Sandia and Lawrence Livermore National Lab that cultivates collaboration between the labs, industry and academia. Current areas of focus on the campus include transportation energy, cybersecurity, bioscience and advanced manufacturing.

## Mutual admiration society

Biological and Materials Science Center Director Anup Singh thanked the Leadership Group during its third annual #GameChangers award ceremony on April 10. In his remarks, Anup explained why Sandia, along with a handful of other community leaders, helped start ITVLG in 2011.

"Sandia saw the potential in a regional organization dedicated to amplifying innovation assets," Anup said. "We knew it could help attract the talent and collaborators that would enable us to be successful in our national security mission – and it has!"

Stephanie Beasley, Sandia's partnership officer,

agreed that Sandia's investment in the group has paid off. "Through the leadership of this organization, businesses in the Tri-Valley are connecting and thriving," she said.

Statistics punctuate Stephanie's point. According to Crunchbase data, there are an estimated 450 tech companies now based in the Tri-Valley region. They've collectively raised \$1 billion in capital since 2015, and the median value of local companies acquired since 2010 is \$75 million. And while San Francisco saw 3 percent employment growth between 2000 and 2012, the Bay Area Council Economic Institute reports the Tri-Valley area enjoyed nearly 21 percent during the same period.

## #GameChangers Galore

The Leadership Group gave its first-ever Activator Award to Tri-Valley Ventures as the region's first venture capital fund. Axis Community Health won the 2018 Social Innovator Award for its service to the region's less fortunate. Axis offers medical care, mental health and addiction counseling services to low-income populations.

Two companies from each of the five Tri-Valley cities were nominated for #GameChanger Awards. One of Pleasanton's two nominees is using Sandia-developed technology at the heart of its business model. SafeTraces makes products with liquid, DNA-based barcodes that enable all types of products to be tracked at any point in a supply chain. The company secured \$6.5 million in its first phase of venture capital funding.

## Family friendly business award

By Myles Copeland

After just nine months, life for Wendy Burghaus-Ruiz's daughter is brimming with firsts.

"We went to White Sands," says Wendy, a benefits analyst, describing a recent weekend trip with her infant, husband and seven-year-old daughter. "My older daughter got to go sledding on the dunes. My younger daughter had her first experience touching sand, burying her feet in the sand."

Wendy credits Sandia's 9-80 work schedule option, under which she works 80 hours in nine days and has off every other Friday, increasing, and enhancing, the time she spends with her family.

Options like the 9-80 schedule helped Sandia earn top-level recognition on April 19 during the Second Annual Family Friendly Business Awards Luncheon, hosted by the non profit Family Friendly New Mexico at the National Hispanic Cultural Center. The Labs received a Gold Award, the highest honor.

In selecting nominees, Family Friendly New Mexico considers four policy categories: paid leave, health support, work schedules and economic support. Sandia sported family friendly policies in each. Flexible schedules, job sharing, onsite health services, subsidized training, educational assistance and support for nursing mothers were among Sandia's highlighted amenities.

Such policies are essential to the relationship employees have with Sandia, according to Human Resources Director Rob Nelson.

"We have a commitment to doing important



SANDIA TOTAL REWARDS SENIOR MANAGER Mary Romero Hart, third from left, accepts a New Mexico Family Friendly Business Gold Award from Giovanna Rossi, third from right, Director of Family Friendly New Mexico during the New Mexico Family Friendly Business Awards, April 19 at the New Mexico Hispanic Cultural Center. Other members of the Sandia team, left to right, are Yvette Baldonado, Mia Scofield, Leah Barker, center, Lisa Escudero and Wendy Burghaus-Ruiz. (Photo by Norman Johnson)

national security work," Rob says. "It's a two-way street. People work hard in committing to the organization, and the organization needs to commit to you as well. We have a strong interest in providing work-life balance."

Having worked for employers that created little space for a home life, Rob particularly appreciates Sandia's year-end, weeklong energy-saving shutdown, a benefit rare in industry.

"For me, that week is a very special thing," says Rob. "Having work just stop at the Labs means that we don't have competing priorities and can really focus on family."

For Wendy, not every weekend means road tripping to faraway sand. Her free Fridays often include visits to the bank, shopping or oil changes, in addition to washing mounds of laundry.

"It's huge," Wendy says of her Fridays off, "because I get a jump start on all my weekly chores. That way, I have more time on my weekend with my family to do fun things."

But time away from work gives her other options than spending time with family.

"It's rejuvenating to have the down time," Wendy elaborates. "It's great, because I can go do something for myself without taking time away from my family."

# Pi Day serves up fun for local students, families

**Story and Photos by Lindsey Kibler**

There was not a more perfect date for Sandia to host a Family Math Night than March 14 at Tomasita Elementary School. Pi Day is an annual celebration of the mathematical constant Pi, represented by the Greek letter  $\pi$ , and is observed March 14 since 3, 1 and 4 are the first three significant digits.

Sandia's Community Relations team has been sponsoring Family Math Night at local schools since 2010, when computational scientist Steve Plimpton volunteered to run the program. It was developed to complement Sandia's already-established Family Science Night. The program has two primary goals: to stimulate excitement and interest in math among elementary school children and their parents and families, and: to involve parents and families in the educational process.

The program initially was offered twice a month, Steve said, but is now held each Wednesday night during the school year thanks to Sandia volunteers John Mitchell, Brenna Hautzenroeder, Karen Devine and Melissa Benavidez.

"Sandia promotes family evenings because it gives parents and kids an opportunity to discover together that math and science are everywhere, affect everything in their lives and can be fun and challenging," said Community Involvement Manager Amy Tapia.

Sandia provides all materials and instruction, which include hands-on math games and puzzles that require children and their families to work together to solve simple, inquiry-based problems. The activities and games come from the Family Math program developed by the Lawrence Hall of Science in Berkeley, California, for elementary school age children.

Sandia will sponsor 35 Family Math Night events during the 2017-2018 school year at no cost to the schools.

Steve said, "As long as we have volunteers willing to participate and schools willing to host, my hope is that this great program will continue to be offered for years to come."



**FATHER AND SON** — A father and son work through a dice game during Pi Day Family Math Night at Tomasita Elementary School. Computational scientist John Mitchell led the event that welcomed more than 30 students and families.



**MOTHER AND DAUGHTER** — Second grader Ariel Jaskolski and her mother work together on an activity, March 14. Ariel said she loves math and science and was excited her mom was able bring her to the event at Tomasita Elementary School.



**GETTING HELP** — Sandia scientist John Mitchell helps a Tomasita Elementary School student with an activity using palindromes, while her mother looks on, during a Family Math Night, March 14. Mitchell began volunteering shortly after the launch of the Sandia-sponsored community involvement event and says he is happy with the increase in families attending over the years.



**TWINS 1 AND 2** — Twins Oliver, left and Jasper Wissing challenge each other with a dice game during Family Math Night at Tomasita Elementary School, March 14. The boys, in third grade, said they "love numbers."