MST e NEWS

Winter 2023
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INSIDE

Blas Uberuaga receives outstanding alumni award

Blas Uberuaga (Materials Science in Radiation and Dynamics Extremes, MST-8) was honored with a Silver and Gold Award by the Idaho University Alumni Association. The award recognizes alumni with a distinguished record of achievements and/or service in their respective fields.

"I grew up in a small town in rural Idaho, where I never imagined being recognized for my achievements like this," he said. "My dad was an immigrant from the Basque Country who came to the United States to be a sheep herder and my mom grew up in an even smaller town in eastern Oregon. They both instilled in me a strong work ethic and a pride in where I came from, which, along with the support of my wife and daughter, gave me the ability to achieve what success I've had. I'm extremely honored and proud to be recognized like this, to be considered one of the University of Idaho's distinguished alumni!" Uberuaga is a member of the school's undergraduate class of 1994.

Uberuaga has contributed extensively to the study of radiation damage in complex oxides and nanostructured materials using computer simulations at the atomic scale. His work has a particular focus on understanding how defect evolution impacts radiation tolerance in such systems.

He is director of FUTURE (Fundamental Understanding of Transport Under Reactor Extremes), a DOE Office of Basic Energy Sciences Energy Frontier Research Center project. FUTURE researchers study how the extreme conditions encountered by materials in nuclear reactors couple to impact the properties of the material, with the aim of understanding how these effects change how the material will evolve.

Uberuaga is an American Physical Society and Los Alamos National Laboratory fellow. He has published nearly 300 papers that have been cited more than 26,000 times. He joined the Lab as a postdoc in 2001 after receiving his PhD in physics from the University of Washington and became a staff member in 2004. In MST-8, he leads the Radiation Science (Modeling) Team.

Technical contact: Blas Uberuaga ■

"Uberuaga has contributed extensively to the study of radiation damage in complex oxides and nanostructured materials using computer simulations at the atomic scale.

Los Alamos NATIONAL LABORATORY

From Matt's desk . . .

Dear MST,

I am writing this as an introduction for you all, as I step into my new role as acting division leader. It's been a little more than a year that I have had the privilege of serving as the MST deputy division leader. Transitioning into the acting role is something that I am honored to take on, as I am deeply rooted in and committed to MST and the mission.

In this first letter from my desk, I want to take the time to focus on the year we have ahead of us. As you know, we have been strategically working toward building capability and facilities to support materials needs in the future, partnering with our support organizations to enable more agile work and growing programs in areas of strategic importance in the *Lab Agenda*. These are milestones we have already achieved or are efforts where we have great momentum going into 2023, and which I intend to continue to nurture in my tenure as acting division leader. In this letter, I want to highlight a few efforts broadly, while keeping in mind our strategic plan and the goals we outlined.

> "There is a lot to look forward to in 2023, and with this much scope in the queue, there will undoubtedly be challenges to overcome throughout the year. I am looking forward to taking on those challenges with you to make 2023 a monumental year.

Program growth in support of Lab mission

We will continue our efforts, led by Kim DeFriend in Engineered Materials (MST-7), to successfully partner with Weapons Stockpile Modernization (Q) Division on a series of workshops with designers, materials scientists, and the production agency (Kansas City plant) to enable readiness for multiple materials options to be advanced for future systems. MST-7, Nuclear Materials Science (MST-16), Fabrication Manufacturing Science (Sigma-1), Mechanical and Thermal Engineering (E-1), High Explosives Science and Technology (Q-5), and Advanced Systems Development (Q-18) are working closely together to examine development of new materials and new processing techniques for traditional materials for the future stockpile. Kim's effort so far has led to fruitful discussions accelerating the advancement of a number of materials options through the technology readiness level schedule.

In 2022, DOE funded a SciDAC (Scientific Discovery through Advanced Computing) proposal from a team of researchers led by MST-8's Laurent Capolungo. The project is a 5-year, $9.25M effort to study the behavior and properties of structural materials under molten salt conditions by using high-performance computing. Work is already underway on this exciting project and its scope pairs well with existing nuclear energy research on molten salt reactors taking place across the division and at the Laboratory. I am very much looking forward to seeing the results of this project in the coming year.

Building capability

Also, in MST-8, construction is well underway at TA-35 for the Low Enriched Fuel Fabrication Facility (LEFFF). As mentioned in our last newsletter, this facility will enable pilot-scale fuel production for demonstration and prototype reactor designs. In December, it was formally announced that

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From Matt's desk cont.

Kairos Power signed an agreement with the Laboratory to produce fuel for Hermes, Kairos Power's demonstration reactor in Tennessee. This is very exciting news, and enables us to focus on staffing the capability in addition to constructing LEFFF in 2023. Several strategic hires have been made, with more planned in the coming months. Kudos to Tim Coons for his continued dedication and leadership on this effort!

In a previous *e-News*, Ellen promised an update on several Plutonium Modernization funded investments/efforts across the division. While there are a number of these investments, I highlight three which I believe will be particularly impactful in 2023.

First, it was previously mentioned that the first plutonium materials characterization work had begun in the RLUOB (Radiological Laboratory/Utility/Office Building) last year. This work continues in 2023 and is providing powerful results to the pit production program. In parallel, MST-16 has worked hard toward Hazard Category 3 certification to expand the plutonium limit from its current ~38g to 400g. This transition is anticipated to take place this quarter and will greatly expand the quantity and throughput of plutonium science that can occur in the facility.

Second, the new transmission electron microscope purchased in 2022 by Plutonium Modernization has arrived and installation efforts are underway in the electron microscopy laboratory. We expect this instrument to be available for users late this summer, and it will significantly expand on an already robust microscopy capability.

And finally, MST-16 has been working steadily to install a Cameca microprobe in the plutonium surface science laboratory at the Target Fabrication Facility. This installation was complete in late 2022 and we expect our first plutonium work to occur early in 2023. This is a sorely needed capability for the Laboratory and the instrument will immediately provide results in support of first production unit and plutonium pit surveillance.

Partnering with our support organizations to enable more agile work

The Division Office (MST-DO) stood up a plan-of-the-week meeting for radiological control technician support for the TA-35 corridor, as many concerns were heard from all three MST groups with respect to lack of resources. We are also working with Facilities and Operations and Radiation Protection to support our priority work and best apply the constrained resources available in that area.

As we highlighted in our last all-hands meeting, our FY22 hiring progress showed that as a division we completed 87 new hires: 44 regular/term, 15 postdocs, and 28 students. This demonstrates a strong partnership with Human Resources, and to date this year, we are on a pace to surpass these numbers in FY23. Importantly, as we continue to improve our diversity hiring, we will partner with the Office of Diversity and Strategic Staffing on recruiting strategies, sourcing and cultivating candidates, diversity and inclusion training, and advertising strategies.

MST-DO continues to partner with Acquisition Services Management Division on procurements and the transition to Ariba. I encourage you to reach out to your group offices for continued process improvement in this area.

The amount of work taking place across the division is truly immense and what I have highlighted is only a small cross section of the efforts. There is a lot to look forward to in 2023, and with this much scope in the queue there will undoubtedly be challenges to overcome throughout the year. I am looking forward to taking on those challenges with you to make 2023 a monumental year.

MST Division Leader (acting) Matt Jackson ■

Give a warm welcome to ...

In their own words, some of the division's newest members introduce themselves and share their impressions so far of their Lab experience. If you see these new faces in your area, be sure to say hi and introduce yourself. *MST e-News* will continue to introduce new members, so watch this space for details on future newcomers.

Jason Benkoski

Scientist
Engineered Materials (MST-7)

I develop new materials for defense applications. My primary background is in polymers, but I have experience with everything from biomaterials to refractory ceramics. The environment here is great. The Laboratory has a lot of hard-working, talented people who impress me every day. I have always had a lot of respect for the national labs. Los Alamos stood out because of its history. I was impressed by the range of interesting projects that I saw during my interview with MST-7.

Forward momentum
I recently became a NASA Institute for Advanced Concepts Fellow through my recent award for developing a solar thermal propulsion system. In seventh grade, I won a national competition with my research proposal and won a free trip to NASA Space Camp in Huntsville, Alabama.

Nik Cordes

Scientist
Engineered Materials (MST-7)

I am happy that I've returned to the Lab after a three-year stint at Idaho National Laboratory (INL)! I enjoyed my time at INL, but I truly consider New Mexico home. I learned a great deal about x-ray imaging and spectroscopy during my postdoc here at Los Alamos so I was able to take those skills to INL and apply them to novel three-dimensional imaging of nuclear fuel. In turn, I am eager to apply the advanced image processing and analysis techniques that I learned at INL to research problems here.

I've been asked to serve as the Bio and Advanced Materials Synthesis team leader, since my graduate background is in materials synthesis. I believe I'll make a positive impact to the Lab's mission in this role.

Directing a director
I am fan of pop culture trivia, so I once gave a two-minute tutorial about x-ray tomography to (film director) Oliver Stone!

Victoria Cox

Research Technologist
Nuclear Materials Science (MST-16)

We—my husband and I—decided to join the Lab to start a new adventure. We both worked at labs back in Tennessee but were ready to leave home and start something new. Before coming here I worked in the Materials Science and Technology Division at Oak Ridge National Laboratory doing metallography for almost seven years. I really enjoy my work at Los Alamos because it supports all kinds of people doing amazing things. It makes me feel good to know what we do makes an impact on so many things.

I had never been west of Illinois until we came here, so it is amazing to see a whole different side of the country. There are so many fun outdoor things to do here: trails for hiking and curvy roads for dirt bikes and motorcycles, and best of all a whole new culture to experience!

The Wild West
I am a woman motorcyclist, both on and off road. I am the first in my family to graduate high school and the first to go to college and get a degree. Before moving here, I had traveled north, south, and east, but never west. This is also the first time I have lived somewhere other than my hometown.

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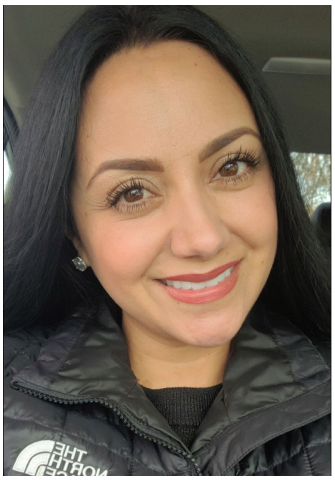
Give a warm welcome to cont.

Amanda C. Evans

Scientist
Engineered Materials (MST-7)

I'm a synthetic and physical organic chemist by training, and I use engineering and fluid dynamics principles to optimize production of small and big molecules ("flow chemistry"), which are essential to the Lab's mission. I also use new enabling technologies, such as inline analytics, to characterize production processes in real time and ensure that our quality control is maintained at a superior level. We are now able to watch as bonds between atoms form and fall apart when molecules are made, which can improve reaction engineering—and grow better crystals of key products. Finally, I use biological systems (natural and genetically modified via synthetic biology) to perform chemistry and make important Laboratory molecules. From polymers to explosives, I currently work on a variety of flow chemistry projects across the Lab.

When not performing chemistry …
I sing opera (mezzo soprano).



April Lopez

Professional Staff Assistant
Nuclear Materials Science (MST-16)

I'm the professional staff assistant for MST-16. My work supports the Laboratory's mission in that I value everyone on my team, I provide my best effort every day, and I promote service excellence. I enjoy making genuine relationships with everyone I work with, no matter how infrequently.

I was compelled to apply to Los Alamos when I heard how well cared for the employees are, and to MST in particular due to the expertise and quality of work. I decided I wanted to be part of this work and team.

Ode to oldies
I love oldies music. If I leave the music station on oldies, I will know every song that comes out and can sing along to every lyric.

Darlene A. Maestas

Operations Support Specialist
Materials Science and Technology Division (MST-DO)

I am very excited to have joined the team this summer. My position is new to MST Division, and I am quickly learning what fun, interesting, and important work you all do. My goal is to provide much needed support for the teams and hopefully lessen the load for many of you in support of our very important mission.

Dedicated spirit
I'm no stranger to hard work. I was born and raised in Northern New Mexico and have been "working" since I was eight years old, from running the cash register in my parents' convenience store (where I needed a step stool as I could barely see over the counter) and driving tractors (plowing, cutting, and bailing hay) to rounding up and branding cattle with our family. There's nothing better than hard work and dedication to instill a great work ethic and I will always give it my all.

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Give a warm welcome to cont.

James Mudd

Research Technologist
Nuclear Materials Science (MST-16)

I started working at the Lab in July with MST-16 on its Corrosion Team. What I enjoy most about my work so far are the vast amounts of people from various backgrounds with which I get to work, train, and interact. I get to hear about various experiences and stories as well as learn different perspectives on topics.

There are many times where I have been introduced to a new way of thinking about a subject that has really enlightened my own personal knowledge and experience. It really shows how diverse the culture and work environment can be at the Lab.

All in the family
I am a triplet and have three older brothers as well.

Austin Nichols

Research Technician
Materials Science in Radiation and Dynamics Extremes (MST-8)

My work will help keep our research facility running smoothly and allow our researchers to spend more time progressing the field of nuclear energy security.

I'm pretty happy to finally get to work with both my hands and brain on some hard sciences that will do good for our planet and beyond. As a returning Laboratory employee, I feel like MST has given me the opportunity to transition out of weapons and programmatic work and into research and development. I feel like I've finally ended up where I belong.

Resume range
I've lived in both Alaska and Hawaii. I'm a former United States Air Force Russian linguist. I've met the current US President. I have a BS in astronautics.

Joanne Romero

Administrative Assistant
Nuclear Materials Sciences (MST-16)

My mission at Los Alamos is to provide support for the needs of MST and Laboratory personnel and to help them succeed and focus on their tasks.

I really enjoy helping my team and making a difference in every task I do. I also enjoy building strong relationships, not just with my group, but with everyone I encounter.

I was encouraged by friends to apply to MST. They informed me the group has an excellent reputation and everyone works well as a team.

I've always enjoyed challenges and felt that working with the Lab would give me the challenge and opportunities I needed. I am very honored to be working alongside some of the greatest minds here at Los Alamos.

A hobby for every mood
I love going to every rock concert and enjoy fishing and camping!

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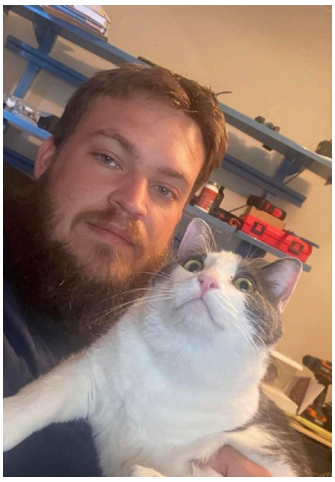
Give a warm welcome to cont.

Ben Schumer

Research Technician
Nuclear Materials Sciences (MST-16)

Once I complete my new hire training, I will be on MST-16's Microscopy Team, working with the Cameca SXFive electron probe microanalyzer to perform chemical analysis on nuclear material samples and with the ThermoFisher Helios plasma focused ion beam microscope to prepare samples for imaging and other analyses.



Sam Trout

Research Technician
Engineered Materials (MST-7)

My role in the group is to learn how to clean, maintain, and prepare our various three-dimensional printers. This is an important job as it enables the team to keep the ball rolling and consistently plan test prints and builds. I am coming from composite manufacturing at Boeing in Mesa, Arizona, so a lot of this is new to me, which is great because I love learning. Going forward, I hope to be doing more work with composites so I can apply even more of my past experience. In my one month here, I have already learned many interesting things about the work that goes on at Los Alamos and how I can be an asset to the team and help the Lab accomplish its mission via simultaneous excellence.

The rescue zoo
I can't stop myself from rescuing animals. So far, I have saved a baby rabbit, a tortoise, a mockingbird, and shortly after moving to Jemez, I found an abandoned puppy with a severely broken leg, who is now part of the family and named Butter. Pictured is my three-legged cat named Goose that unfortunately passed away a week before I found the three-legged dog.

Cheron Vigil

Professional Staff Assistant
Materials Science in Radiation and Dynamics Extremes (MST-8)

I have 16 years of experience as a management analyst and have a BA in psychology. I enjoy the diversity of MST Division. I have worked with different entities of state and local government, and sometimes we would get comfortable and settle in with an "it's okay for now" attitude. I was ready for a change for myself and my daughter's future.

Styling inside and out
I am a hairstylist. I make clients more beautiful and sometimes serve as their psychologist.

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Give a warm welcome to cont.

Janelle Vigil

Professional Staff Assistant
Engineered Materials (MST-7)

I think of the administrative field as the glue of each company. We focus on day-to-day tasks that keep our organizations running smoothly and efficiently. We are considered the go-to people that staff and external folks seek out for help with any questions and problems. I like being the key person who makes sure everything in the office runs smoothly and helps others be effective in their positions. I've been at the Lab for 17 years and what attracted me to MST is that its management team is one of the best. Communication among employees and managers is some of the best I've seen.

Vocal devotion

I sing in the praise and worship team (band) at my church. ■

Inclusivity tip

Did you know you can hold more accessible meetings in tools such as Webex and Microsoft Teams, thanks to closed captioning? Live closed captioning is enabled automatically in these tools, but you may need to manually turn it on for meeting attendees. Having closed captions automatically enabled makes meetings more accessible to your deaf and hard-of-hearing colleagues, and takes the burden off of people having to specially request these accommodations during a virtual meeting. ■

Celebrating service

Congratulations to the following MST employees who recently celebrated service anniversaries.

David Langlois, MST-7	30 years
Michael Torrez, MST-8	25 years
Joseph Anderson, MST-16	20 years
Kimberly DeFriend, MST-7	20 years
Karl Krenek, MST-16	20 years
Alison Pugmire, MST-16	15 years
Timothy Sanchez, MST-16	15 years
Thomas Day, MST-7	10 years
Joshua White, MST-8	10 years
Clarissa Yablinsky, MST-16	10 years
Gus Dozhier, MST-16	5 years
Alexander Edgar, MST-7	5 years
Gina Herrera, MST-16	5 years
Scarlett Widgeon Paisner, MST-8	5 years
Matthew Schneider, MST-8	5 years
Aditya Shivprasad, MST-8	5 years
Ethan Walker, MST-7	5 years

HeadsUP!

Help make the Lab a more sustainable workplace

Easy sustainable initiatives to start in your office are

- Purchasing recycling bins for the office
- Having power strips with on/off switches
- Posting reminders for staff to turn off the lights when leaving the room
- Having only one shared office printer and no individual ones
- Having IT set double-sided printing as default for computers
- Reporting maintenance issues such as water leaks or electrical problems when you see them

MST e-NEWS

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To submit news items or for more information, contact Karen Kippen, ALDPS Communications, at 505-606-1822 or aldps-comm@lanl.gov.

For past issues, see www.lanl.gov/org/ddste/aldps/mst-e-news.php.

Los Alamos NATIONAL LABORATORY

NNSA National Nuclear Security Administration