

SpotLight

THE PEOPLE
WHO DRIVE
OUR SCIENCE
& TECHNOLOGY

JUNE 2022

LAWRENCE LIVERMORE NATIONAL LABORATORY

RESPONDING TO THE CALL

ALSO INSIDE:

- ROCK ON
- BASS SOUNDS
- HORSING AROUND
- THE CREATIVE SIDE



ON THE COVER: Just after dawn, with a sunrise alpine glow gently shining onto him, John Chang and his Bay Area Mountain Rescue Unit colleagues prepare to ascend the east face of Mt. Whitney's cliffs, shown in the background.



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Whether onstage or in the lab, **Sofia Quaglioni** has tremendous range. After a high-school education that focused on the humanities and arts, Quaglioni took a leap and opted to pursue university work in physics — while simultaneously studying at the local academy of music. Her passion for music goes well past her knack for physics: in particular, she loved to sing opera. For years, she followed both paths.

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We hope you enjoy this edition of *SpotLight*. We'd also like to hear from you. Send us your thoughts and suggestions, whether it's what you like — or even what you don't — about this magazine, or if there is something you would like to see in coming editions. You can reach us via email at pao@llnl.gov.

JOHN CHANG PERSEVERES

IN SEARCH AND RESCUE

By Steve Wampler

After receiving his Ph.D. in electrical engineering from Northwestern University in 1995, LLNL's John Chang set out on a four-month, around-the-world journey.

It was an adventuresome trek that changed his life and still, some 27 years later, deeply impacts him.

As he travelled, Chang visited about a dozen different countries and sought to immerse himself with the people and cultures of some of the world's most mountainous regions, including the Himalayas in Asia and the Alps in Europe.

The medical needs and poverty he saw in some areas as he travelled led him over time to devote literally thousands of hours and much of his life to a new avocation – working on search-and-rescue missions.

“A major motivation for me to volunteer for search-and-rescue was being compelled to want to help people in need,” said Chang, 56, an electrical engineer in the Lab's Computational Engineering Division.

“This desire grew out of my travels because when I came to villages in the mountains, people needed medical help and I was not prepared to be able to help them.

“When I went on trails in remote areas, the trails weren't built for recreational hiking. The trails were only delicate links between villages. They were carved into the mountains, narrow, steep and dangerous in some places.”

After he returned from his around-the-world trip and started a postdoctoral appointment in biomedicine as a cancer researcher at Dartmouth College in New Hampshire, Chang received his introduction to search-and-rescue work.

Nestled in the Upper Valley area of the Connecticut River with the oldest engineering school in the United States, the Ivy League college and its medical

“It was a tremendous thing to find him alive.”

— John Chang

school decided to form a search-and-rescue organization to help the community, just as Chang was beginning his postdoc research.

“With the Appalachian Trail running through the heart of the Dartmouth campus, the area's rural nature and the extreme volatility of the weather of sudden ice storms and blizzards, people thought it would be a good idea to form a search-and-rescue team,” Chang recalled.

After arriving on campus, Chang came across a flyer seeking volunteers to join a search-and-rescue team. He signed up for the team and then took an emergency medical technician (EMT) course at Dartmouth.

During his four years at Dartmouth, Chang participated in 20 to 40 different missions to find or rescue missing people, with the search-and-rescue team finding the missing people alive about two-thirds of the time.

In 1997, an elderly gentleman diagnosed with dementia walked down a long pathway on his property to retrieve his mail and disappeared in a rural area of New Hampshire.

With severe winter conditions of snow on the ground and temperatures in the upper 20s, the missing man had been lost for 24 hours and was suffering from hypothermia.

“Our team found him,” Chang said. “He was less than a mile from his house, on the ground, accompanied by his small dog, Snoopy, who apparently stayed by his owner's side all through the time he was lost.”

Chang was the EMT who treated him.

“It was a tremendous thing to find him alive. His family's reaction and the reaction of other families to having their loved ones found alive is often typical: they're elated, thankful and exhausted.”

But, as Chang notes, every search-and-rescue mission is unique: “They might have similar attributes or commonalities but you can't predict the outcome.”

One of Chang's first missions as a member of the Upper Valley Wilderness Response Team was to assist in the body recovery of an Appalachian Trail hiker who had become stranded and died in New Hampshire's White Mountains during the first winter storm of 1995-96.



It was a great day when 72-year-old San Francisco resident and hunter Gene Penaflor (front row, second from left) was found in Mendocino County after being lost for 19 days in the wilderness. Chang (front row, far left) and other members of the search party, plus about 200 other multi-agency rescuers led by the Mendocino County Sheriff's Office, had searched for Penaflor.

“That was my first body recovery. We had a team of about 20 people that used a litter to carry out the hiker and the conditions were horrible,” he said. “The trail was narrow, steep and composed of ice and loose dirt. One of our great concerns was that the rescuers didn't become victims themselves.

“The recovery operation for the hiker made a deep impression on me. I recognized the importance of going into hazardous environments to recover the remains of those who are lost.

“We always hope for the best – finding the missing person alive. When we don't, the thing that brings us solace is knowing that we brought a person home to their family and have given them closure.”

As he thinks back on his time with the Dartmouth search-and-rescue team, Chang says the volunteer work gave him the privilege and opportunity to explore the richness of the New England region.

After his four years at Dartmouth and before he joined LLNL in 1999, he book-ended his postdoctoral appointment with a second four-month, around-the-world adventure.

This time, he journeyed to other mountainous geographical regions formed by what is often called the “Ring of Fire” of the Pacific Ocean, including Patagonia in the Andes Mountains between Chile and Argentina. He also visited the South Pacific, taking in Easter Island, French Polynesia and Tahiti; and included Australia and New Zealand before transitioning to California.

“Within a few months to a year of arriving at LLNL in April 1999, I decided I wanted to continue doing search-and-rescue work, with an emphasis on technical mountain rescue work,” he said.

John Chang practices ice climbing and crevasse crossing techniques on the Mendenhall Glacier near Juneau, Alaska as part of a training sponsored by the Mountain Rescue Association and Juneau Mountain Rescue.



As a result, Chang joined the then-two-dozen members of the Bay Area Mountain Rescue Unit (BAMRU), a search-and-rescue team affiliated with the San Mateo Sheriff's Office of Emergency Services. BAMRU places a heavy emphasis on developing the skills to respond to missions across California in the most challenging and extreme conditions and terrains.

Today, Chang is the only LLNL employee who works as a BAMRU member. But that wasn't always the case.

BAMRU's roots date back 56 years to the summer of 1966, when an LLNL (then known as Lawrence Radiation Laboratory) employee was reported by his family as overdue from a solo hike along the walls of Yosemite's Tenaya Canyon.

When park rangers didn't find the employee, Quin Charles Frizzell, dozens of Lab coworkers joined the hunt. Climbers and others found no trace of Frizzell after a week, so the search was abandoned. Frizzell's remains were found about six years later in 1972.

The returned searchers formed a volunteer mountain rescue unit called the Alameda County Mountain Rescue Service (the forerunner to BAMRU) that was composed almost entirely of LLNL employees, including the unit's first president, George Bloom.

Today, BAMRU can be deployed for up to 72 hours for people in harm's way in all terrain, all weather and all seasons. Operations include searches for missing or lost individuals in the high Sierra, communities affected by wildfires, along coastal cliffs and in other wilderness environments. The team is comprised of rock climbers, mountaineers, backpackers and backcountry skiers.

"Many times, when we start searching for a missing person it is easy to believe it's a lost cause," Chang said. "That's what makes it so special and rewarding when we find someone who could have perished."

One apparent "lost cause" that turned into a rousing success happened for BAMRU and other search-and-rescue organizations in 2012 when a hunter in Mendocino County became separated from his hunting companion and was lost for 19 days.

Upwards of 200 searchers hunted for nearly three weeks for 72-year-old San Francisco resident Gene Penaflor, seeking without luck to find him in a linear distance area of 15 miles by 15 miles, or 275 square miles.

As search-and-rescue organizations were phoning Penaflor's next-of-kin to inform them that they were suspending the search, the hunter was found alive and well outside the search area by another group of hunters.

"He knew what he was doing," Chang said. "He applied survival skills, sheltered himself under fallen trees, drank from nearby springs of water and ate lizards."

Chang (left) and another member of the Bay Area Mountain Rescue Unit practice self-rescue and partner rescue techniques on vertical terrain. They are shown training at Indian Rock in Placer County on the way to Lake Tahoe.



A mountain rescue team is tested in the snow during a reaccreditation event on Mammoth Mountain in the eastern Sierra Nevada mountains. Chang (far left) served as the evaluator for the exercise, examining the integrity of the rope rescue system.

Chang performed the initial medical assessment on Penaflor and called him "incredibly coherent, given the circumstances."

In October 2004, the first winter storm of the season hit California hard. Seven climbers were stranded on El Capitan in Yosemite. BAMRU and numerous other search-and-rescue groups lent support to the Yosemite search-and-rescue team of the National Park Service.

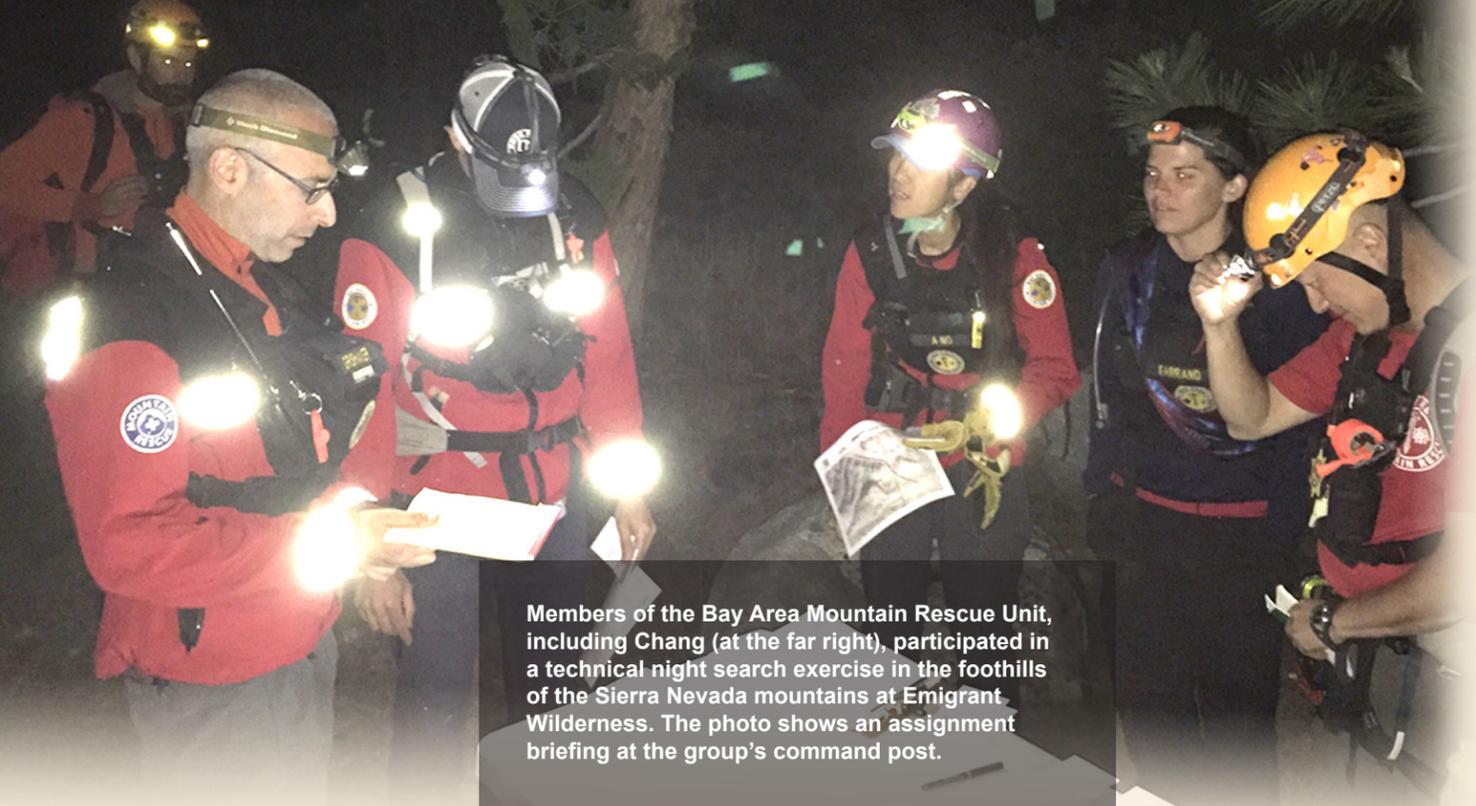
"It was very memorable because the whole state was in trouble. With the bad weather, the rescue teams couldn't fly helicopters, hike, climb or gain frontal access to El Capitan," said Chang, who was a member of the support team that ferried equipment to the rescuers.

To get to the top of the peak, the rescuers hiked 11 miles around the back of the mountain and then were lowered down to reach the stranded climbers. Two of the climbers died and five were rescued.

Since he joined BAMRU 22 years ago, Chang estimates that the unit has participated in about 35 search-and-rescue missions per year, or about 770 missions. The missing individuals have been found alive in about two-thirds of the cases.

The Lab employee himself has gone on about 250 of the BAMRU's search-and-rescue missions over more than two decades. In addition, he has served on the leadership team for 18 years, including two stints as the unit leader, from 2004-2006 and from 2011-2021, devoting about 40-60 hours per month to the team's efforts. He also has served in multiple leadership positions for the Mountain Rescue Association (MRA), including as the chairman for the California region of the MRA as a national-level officer.

Starting with the EMT course he took as a postdoc at Dartmouth, he has expanded his search-and-rescue skill set through the years, including wilderness medicine, backcountry



Members of the Bay Area Mountain Rescue Unit, including Chang (at the far right), participated in a technical night search exercise in the foothills of the Sierra Nevada mountains at Emigrant Wilderness. The photo shows an assignment briefing at the group's command post.

skiing, rock climbing, mountaineering and man-tracking, which is the ability to track footprints.

Chang and the approximately 80 other current BAMRU members engage in monthly search-and-rescue training, including sending rope climbers over cliffs in Yosemite National Park to practice rescues; and conducting mountain climbing at Mt. Shasta, Mt. Whitney and along the cliffs of the Pacific coastline in the Bay Area. As part of the MRA, Chang also has participated in training and exercises across North America from the deserts of Arizona to the Rocky Mountains, the Pacific Northwest and Alaska.

Over the past dozen years, the BAMRU team has responded to two major California disasters – the 2010 Pacific Gas & Electric Co. gas pipeline explosion in San Bruno and the approximately 153,000-acre conflagration of 2018 known as the Camp Fire in the area surrounding the city of Paradise in Butte County.

On Sept. 9, 2010, after working for the day at LLNL, Chang was driving on the San Mateo Bridge to the San Mateo Sheriff's Office headquarters in Redwood City for a BAMRU meeting when he spotted a large plume of smoke rising near San Francisco International Airport.

Upon arriving at his unit's meeting, Chang learned that the sheriff's office had activated the BAMRU unit because of a major explosion in San Bruno that turned out to be the PG&E gas pipeline explosion.

That night, Chang, about 20 other BAMRU members and the San Mateo Office of Emergency Services helped law enforcement with crowd control until about 3 a.m.

For the next two days, the BAMRU members, including Chang, searched the Crestmoor residential neighborhood for survivors and remains.

"It is hard to describe and imagine the effects on a neighborhood of such a massive burning explosion," he said. "The precision of the devastating blow torch effect left one resident's home half-charred to the foundation next to a kitchen table still with dishes and table settings seemingly only slightly disturbed."

Within about four days of the start of the 17-day Camp Fire in Butte County, which caused 85 civilian fatalities and burned more than 18,000 structures, BAMRU was activated to provide assistance.

About 10-15 different BAMRU search-and-rescue team members assisted with the Camp Fire on a daily basis. "When there's a fire, the firefighters are fully occupied with fire suppression, but search-and-rescue teams are needed afterward to find and account for missing people," he said.

After each day's mission, the emergency responders would return to the base camp to recuperate, eat their meals, debrief the day's events and even do their laundry.

"One of the most heart-warming and heart-wrenching experiences was meeting a local Paradise resident who was a teacher and who was helping run the laundry service for emergency responders even though her own home had been destroyed by fire just days earlier," Chang said.

"The landscape and level of devastation in the burned area was shocking. When I was in Paradise, the whole town was empty except for first responders and search-and-rescue team members."



A search-and-rescue team from Southern California is being evaluated on their effectiveness for accessing, stabilizing and safely extricating an injured person. At the far left, Chang serves as a Mountain Rescue Association reaccreditation evaluator.

In Chang's view, the bonds that are created among search-and-rescue team members through the experiences of shared rescues and life-and-death situations result in enriching and enduring lifelong ties.

"The camaraderie that is built into the search-and-rescue community is foundationally based on the core values of serving those in need. That, in combination, with independent-minded people, brings out the best of our human nature even as we all continue to try to moderate our individual shortcomings," he said.

Some of his work at LLNL dovetails with his avocational search-and-rescue efforts: "Part of my Lab research has been studying using ultra-wide band impulse radar for medical applications to diagnose injuries in austere environments, such as the mountains."

For the past three years, he has served as a Livermore helping to direct the Lab's response to emergencies or problems.

"It's been an awesome job. The reason I like it is because it allows us to help the emergency response community and it helps me to appreciate the breadth and depth of the resources the Lab has in protecting our community," he said.

Looking back on his time with BAMRU and the Upper Valley Wilderness Response Team, Chang says: "One of the deepest impressions that I've come to from my years doing search-and-rescue missions is the preciousness of people's lives."

Even after he retires from the Lab some time years into the future, Chang hopes he can continue to be involved in search-and-rescue work.

"Having worked on search-and-rescue missions for more than 25 years, it's something that's become a part of me and even a little bit of my identity." And it's also something that's been good for many other people, too.



A training exercise focused on whitewater rescue techniques was held on the Merced River bordering Yosemite National Park. In the photo, a technical rope rescue system was constructed to ferry a rescue team to the middle of the river to access a stranded subject. Chang served as the leader of the raft.



The book is “half history, half scientific discovery and half funny stories that go along with those.”

– Greg Brennecka

THE SCOOP ON THE MOST IMPORTANT



Greg Brennecka

By Anne M. Stark

ON EARTH

Cosmochemists Lars Borg and Brennecka examine samples of meteorites to determine their origin and makeup.

Apparently, if it weren't for meteorites, Super Mario and his nemesis Donkey Kong wouldn't be around to bring us endless joy.

It turns out that meteorites provided almost all the precious metals used in electronics that created video games and all the other high-end devices we use daily.

And according to Lawrence Livermore cosmochemist Greg Brennecka, meteorites didn't just provide metals for electronics, but these rocks from space also greatly influenced life and human culture on Earth.

In “Impact: How Rocks from Space Led to Life, Culture, and Donkey Kong,” Brennecka outlines just how this happened, and is still happening today. It is a humorous, accessible exploration of how meteorites helped not only to build our planet but also steer the evolution of life and human culture.

Brennecka was not always interested in the solar system. In fact, as a kid he was more interested in sports and outdoor activities. However, his brother was interested in space and, as brothers go: “My brother was into space so I couldn't be,” Brennecka said, chuckling.

It wasn't until graduate school where he took a cosmochemistry class and got hooked. “A summer internship early in graduate school gave me some exposure to the Lab, and I learned ways to do cool science using isotopes,” he said. From there, he did more internships while finishing his Ph.D. and came on board as a postdoc before a five-year stint in Germany, then finally back to LLNL as a staff scientist.

“I kept coming back for the people and access to the great equipment,” Brennecka said. “It's a great group of people to work with.”

He wouldn't call himself a meteorite collector, but he has gone out looking for them. He said dry lake beds and



Brennecka's book “Impact: How Rocks from Space Led to Life, Culture, and Donkey Kong” hit the stands earlier this year.

glaciers are prime places to find meteorites because there are few other rocks. “But sometimes you get lucky and you see them just fall from the sky. Those are easy ones to find,” he said.

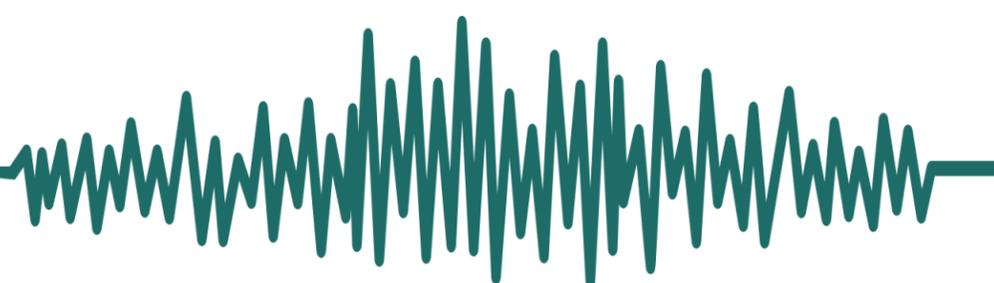
Brennecka didn't get the bug to write a book about the influence of meteorites on the world until he was working in Germany. He heard a lecture on the L'Aigle meteorite shower, which occurred in 1803. He learned that the scientist Jean-Baptiste Biot investigated the fall and wrote a report describing how these stones must be of extraterrestrial origin. This report — in combination with other contemporaneous world events — effectively gave birth to the science of meteoritics.

At the time of the L'Aigle event, the mere existence of meteorites was even debated. If they were recognized at all, their origin was highly controversial. Most commentators sided with famous minds like Aristotle and Sir Isaac Newton who felt that the falling stones were from Earth; witnessed meteorite falls were treated with great skepticism.

“I think this is really cool stuff that people would be interested in,” Brennecka said. “There were a couple of journal articles here and there about the subject,” but nothing that explained how meteorites affect life and culture. He said the book is “half history, half scientific discovery and half funny stories that go along with those.”

With humor and enthusiasm, Brennecka reveals previously untold but important stories sure to inform and delight readers about the most important rocks on Earth.

HEATHER *Bass*



LENDERS HER VOICE TO THE LABORATORY

By Carrie Martin



Prior to joining the Laboratory, LLNL Food Services administrator Heather Bass was the popular radio personality “Heather” on 101.7 KKIQ’s “Hometown Morning Show with Wayne, Heather and Don.”

Heather Bass is somewhat of a celebrity around the Laboratory. Formerly known as Heather Quarterman, you may remember her as the popular radio personality, “Heather,” on 101.7 KKIQ’s “Hometown Morning Show with Wayne, Heather and Don.”

Livermore roots

Bass, Food Services administrator at Lawrence Livermore National Laboratory, knew early on that she wanted to be a reporter of some kind, either on television or radio. She is a third-generation local, having grown up in Livermore and attended Jackson Avenue Elementary, East Avenue Middle School and graduated from Livermore High. Her dad, Fred Quarterman, was a Granada High School grad and taught in the Livermore School District for more than 30 years. Her grandfather, Edward Quarterman, once taught members of the military how to fly back when LLNL was a naval air base.

“My grandfather served in World War II and actually built a working bomb shelter on his property in Livermore,” she said. “I have many fond memories playing in it as a kid. It also was a favorite spot to store wine as the temperature never changed due to how deep the shelter was constructed. It’s long gone now, and beautiful homes reside on top of it.”

The road to radio

When Bass was a teenager, she did some print shoot modeling and met someone who offered her some good advice.

“The modeling was not like Cindy Crawford or the supermodel type of modeling,” Bass said. “Think ‘Supercuts,’ hair magazines and up-and-coming designer fashion shows. When I was at a show in Los Angeles, I met this woman who explained to me the importance of expanding my talents and not rely on just one thing. After that, I worked on public speaking and reading clearly for voiceover work: things that would help me succeed when age started to creep up on me.”

After high school, Bass attended the University of California, San Diego and received a bachelor’s degree in communication in 2002. She also spent six months studying Shakespeare and British history at Cambridge University.



From left: Bass and the Hometown Morning Show crew broadcasting live at Tommy T's Comedy and Steakhouse in Pleasanton. Bass and her dog Rocco during a live broadcast at a pet-friendly parade in Danville. Bass interviewing a radio client in Martinez. Bass hamming it up with comedian Chris Titus during a live broadcast. Bass in the studio with her then-cohost Kim Vestal.

"Studying abroad was a fantastic experience," Bass said.

While still in San Diego, Bass got an internship at the local Fox affiliate, which helped her get her first production gig with KUSI News. Television production turned into another job with 91X, an alternative rock station also in San Diego, and it was there that Bass found her love of radio. In 2006, Bass got a job working for local Bay Area radio station KKIQ, 101.7.

"After working for the station for a short time, the production staff quickly realized I had a good speaking voice and quick wit and within a year, I was asked to join the KKIQ Hometown Morning Show," Bass said. "It was truly being in the right place at the right time."

Morning DJs are well-known and often maintain a celebrity status, but for Bass, she didn't let it consume her.

"For me, it was for the love of the game. I am very customer-service savvy, and the 'fame' was never something I took for granted. I just like people. It was a pleasure talking to different listeners and taking pictures, but my role was to inform and entertain, not to be like, 'oh look at me,'" she said. "When I was on-air and speaking, it was for a purpose, whether that was highlighting various restaurants in the 'KKIQ Guide to Good Eats,' talking about local events or interviewing various celebrities during the morning show."

Bass said her cohosts, Wayne and Don, were a lot of fun to work with, but they were as different as night and day.

"Don, a decades-long radio veteran, was smiling even at 4 a.m. when we checked in for the morning. Wayne took an hour or so to get into the routine. Both were incredibly knowledgeable and fantastic people to learn from," she said. "Wayne was the one with all the celebrity connections and managed to get some really neat stars to call in or stop by. Aisha Tyler of Archer fame and Jennifer Coolidge from Legally Blonde were two of my favorite guests. The Wayans brothers were hilarious in-person too."

In her six years on-air with KKIQ, Bass had many fond moments but one stuck out above all others.

"My absolute favorite experience was when Joey McIntyre from the '90s boy band New Kids on the Block called in and sang 'Happy Birthday' to me. If I sit quietly, I can still hear my inner-teen squealing with excitement," she said. "My favorite part of being a DJ in general was being able to come up with witty entertainment on-the-fly during live breaks. Many don't know we DJs don't get to pick the music we play. It's determined by a person who is called a programming director and they really have the power over the tunes. It was up to us on-air staff to chat quickly, but effectively in between songs and that was a super fun challenge for me."

Life at the Lab

Bass' time at KKIQ came to a close in 2014 with the birth of her first daughter. After leaving the radio industry and focusing on family for a while, she joined LLNL in April of 2017 first as an administrator in Computing, then in the Weapons Complex Integration Directorate and now in Food Services within the Operations and Business Directorate. In her current role, Bass handles the overall well-being of the two Lab's cafeterias. Even though her main role is in Food Services, her talents are still called upon. She has been able to lend her voice to the Technical Information Department at LLNL, doing voiceovers.

"Thankfully, one of my LLNL colleagues mentioned to the Lab's Technical Information Department that I can voice videos and so they call me on occasion to narrate various science projects. I feel like it still taps into my true love of the art of broadcasting," she said.

While much different from working as on-air talent at a radio station, Bass is happy to be at the Laboratory.

"I love to learn about the different things we do here at the Lab," Bass said. "I find my position to be rewarding in that I know my role, but still have a web of opportunities that I enjoy doing. For example, pre-COVID I helped emcee the 'Backpacks for Vets' fundraiser, the production work with TID of course, and all sorts of, 'hey can you help me with this or that' tasks that keep me on my toes. I really enjoy the variety."

Bass said that her past experience in radio has really helped her in her role at the Lab, especially with public speaking, creative writing and public relations.

"My favorite part of being a DJ was being able to come up with witty entertainment on-the-fly during live breaks."

– Heather Bass

"When you're face-to-face with members of NNSA headquarters, you need to be on top of your game," she said.

While Bass has many happy memories and gained valuable experience in her time as a radio host, she is happy to have transitioned her career to the Lab. Through her ascent at LLNL, she met her now-husband Ned and had another daughter. "I have so much to be grateful for both personally and professionally here. While my talents do not extend beyond the gates anymore, I do have a dream of doing my own production, conducting interviews with people's loved ones and capturing interesting life memories that might not pass on through diaries or stories. Perhaps it's a pipe dream, but they say anything is possible."

KELLI HUMBIRD

'RIDES THE HORSE SHE IS ON'

By Michael Padilla

Kelli Humbird has always had a passion for animals. For as long as she can remember, she was obsessed with one animal after another, whether it was a cat or a whale. At age six, she became enamored with horses and since then has spent every free moment with them.

She started riding regularly at age eight and quickly decided she only wanted money for her birthdays and for Christmas to save to buy a horse. At age 16, she gathered all her cash and bought her first 1,200-pound pet named Jasper. During high school, she was very competitive at the state level, but stopped competition during her second year in college as studies ramped up.

It was during her time in college at Texas A&M that she knew she wanted to ensure that she could always afford to have a horse in her life. She got a double major in nuclear engineering and physics, and went on to receive a master's and Ph.D. in nuclear engineering before beginning her career as a design physicist at the Lab.



Kelli Humbird takes a leap while riding Jasper, her first horse. Humbird's passion for horses began at an early age.



Humbird spends much of her free time with her horse Lucca near the outskirts of Livermore.



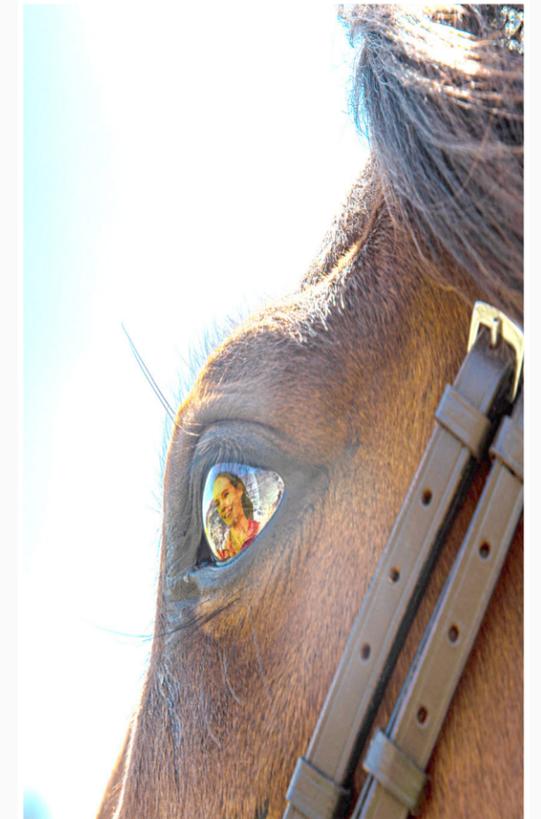


Humbird says she is grateful for being part of a supportive horse community in the San Francisco Bay Area.



“The best advice I’ve received about horses is to ‘ride the horse that you are on.’ Every day, that horse might be different. You do not know what kind of day the horse is having. The wind can be blowing, it can be cold and they can just be wild, even if they were perfect the day before. So you just learn to accept things might not go as planned, but that doesn’t mean you can’t enjoy the ride. I think that applies to all of life.”

– Kelli Humbird



Now, she spends much of her free time with her horse named Lucca near the outskirts of Livermore. She bought Lucca when she moved to Livermore in 2017, while completing her Ph.D. in the Livermore Graduate Scholars program. She continues to train her forever horse, and is able to share her love of Lucca with friends and colleagues.

Working with horses is a skill she has fine-tuned throughout the years and her affection for horses continues to grow. She has trained several ex-race horses, which she considers her specialty.

“Most race horses just sit in a stall waiting to go out and run during their race careers,” she said. “It’s a high-intensity, high-stress life. Once they end up in my hands, I teach them that nothing is a big deal, nothing is stressful and nothing is a rush. I work to put their brains at ease and teach them just to be a horse.”

Humbird said working with horses teaches patience and she is able to transfer what she learns from dealing with horses to other aspects of her life.

“If you work in any field where you trying to communicate concepts that are new to people who are used to doing things in a certain way, you learn how to be patient and find that common ground,” she said. “Communicating with horses teaches you to be direct, but also creative when the message just isn’t getting through.”

Humbird explains that you can’t hide your feelings from horses because they can sense that you are hiding something. Using nonverbal communication skills is important while communicating with horses.

“The best advice I’ve received about horses is to ‘ride the horse that you are on,’” she said. “Every day, that horse might be different. You do not know what kind of day the horse is having. The wind can be blowing, it can be cold and they can just be wild, even if they were perfect the day before. So you just learn to accept things might not go as planned, but that doesn’t mean you can’t enjoy the ride. I think that applies to all of life.”

She is very grateful for the horse community throughout the Bay Area.

When Lucca was injured a few years ago, she was able to rely on the help of others to get Lucca proper care. “Three people were ready to help to drive to Davis,” she said. “No one hesitated to help get Lucca the treatment he needed and ease my burden during a distressing time. It’s a great community.”

Humbird said she plans to ride Lucca, hang out and simply enjoy life with him.

“It is really therapeutic to go home at the end of the day and spend time with my horse,” she said.



The *Sound* of Science

By Ben Kennedy

“There is a creative side to being a scientist.”

– Sofia Quaglioni

Sofia Quaglioni enjoys biking along the canal trails connecting the neighboring cities of Concord, Walnut Creek and Pleasant Hill.

Whether onstage or in the lab, Sofia Quaglioni has tremendous range

Sofia Quaglioni is no stranger to stretching boundaries. From her hometown in Sardinia, to Trento in the Italian Alps to her home today in Concord, Quaglioni arrived at LLNL thanks to a “little bit of a crazy idea,” she said.

After a high-school education that focused on the humanities and arts, Quaglioni took a leap and opted to pursue university work in physics — while simultaneously studying at the local academy of music, called a “conservatorio di musica.”

“A lot of scientists actually have a passion for the arts, in particular for music,” she said. “Because one part is creative, but still extremely rational. The music part is creative and gives you the freedom to express the other side of yourself.”

From her youth singing in choirs, Quaglioni had held a passion for music for much longer than her growing

knack for physics research. In particular, she loved to sing opera. For years, she followed both paths.

“It was not easy,” she said. “It required not only juggling both studies, but at the same time, it required a fair amount of commuting back and forth, because the campus of the university and the academy of music were far apart.”

At the conservatorio, Quaglioni studied singing, piano, basic composition, acting and the histories of music, theatre, costumes and makeup. The latter subjects were asked of opera singers, who were expected to reflect the spirit of the opera in their clothing and appearance. Acting in particular, she said, has excellent applications in her current field of physics.

“As a physicist, I get to give a lot of talks,” she said, “and you’re often in front of an audience. I learned that whatever the expertise may be, when you’re in front of

“A lot of scientists actually have a passion for the arts.”

– Sofia Quaglioni



Quaglioni and her son Filippo, above, paint as a creative outlet.



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Trento - Teatro Sociale
giovedì 30 maggio 2002, ore 10.30
giovedì 30 maggio 2002, ore 20.30
venerdì 31 maggio 2002, ore 10.30

L'opera in cammino

Benjamin Britten
L'Arca di Noè
The Chester Miracle Play op. 59

personaggi ed interpreti
Noè Guido Trebo
Moglie di Noè Elisa Fortunati
Sem Federica Maeran
Cam Sara Webber
Jafet Filippo Farinon
Moglie di Sem Daniela Sannicolò
Moglie di Cam Paola Fumana
Moglie di Jafet Juliana Ospina

Comari Sofia Quaglioni, Claudia Giongo,
Tosca Lynch, Margherita Feller,
Veronica Ciurletti, Valentina Massetti
La colomba Maria Chiara Pavesti
Voce di Dio Emilio Galante

maestro concertatore e direttore
Julian Lombana

regia
Bepi Morassi

ripresa da
Luca Ferraris

scene e costumi
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SILVIA PICCOLLO, PAOLO DE ZEN, ALESSANDRO ALBANO
coordinatore STEFANO FOGLIARDI

PREZZI: Intero € 4 - Ridotto € 2
Le rappresentazioni delle ore 10.30 sono riservate alle scuole.
Per informazioni e prenotazioni tel. 0461986488 (orario 9-12 / 15-18)
Prevendita: da lunedì a sabato presso le Casse dell'Auditorium S. Chiara (orario 10-12 / 15-18)
Un'ora prima dall'inizio dello spettacolo presso la Biglietteria del Teatro Sociale

an audience, by definition you're acting. Some people may have a bad connotation for the word acting, they may see it as synonymous with not portraying the truth, that's not the point. Being very conscious of the fact that people are observing and listening to you means behaving and speaking in a way that will allow people to follow what you want to say and maintain their attention.”

She graduated from the academy of music only a few months before receiving her Ph.D. in theoretical nuclear physics. Quaglioni was “not enough of a prima donna,” she said, to continue with the intense time demands of big-time opera singing while doing physics research. She still remembers her performing days fondly, a 2002 Trento performance of Benjamin Britten’s Noye’s Fludde particularly.

“It’s extremely rewarding to be part of a production,” she said.

Art is still never far from her life. When she’s not leading the Nuclear Data and Theory group, bicycling the trails of the East Bay with her family, or tending to their adopted stray cat, Quaglioni has taken up painting. One of her favorite works is a beach sunset off the coast of her native Sardinia.

“There is a creative side to being a scientist,” she said. “Actually, a lot of it is being creative, because much of a scientist’s work consists in coming up with original solutions to problems.”

A poster for the last operatic production Quaglioni participated in. Her name is in the cast list.

SpotLight

THE PEOPLE
WHO DRIVE
OUR SCIENCE
& TECHNOLOGY



**Lawrence Livermore
National Laboratory**

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